APPENDIX C.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 West Yakima Avenue, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

May 14, 2004

Entiat WRIA Planning Unit
c/o Phil Jones and Sarah Walker, Planning Unit Co-Coordinators
Chelan County Conservation District
301 Yakima Street, Room 307
Wenatchee, WA 98801

RE: Letter of Support for the Entiat WRIA Management Plan

Dear Mr. Jones and Mrs. Walker:

It is my honor to write you today on behalf of all the state natural resource management agencies expressing support for the Entiat WRIA Management Plan. This letter is your record of the State "speaking with one voice" as committed to you via letter of Governor Locke, dated June 24, 1999 (attached), consistent with the interagency Memorandum of Understanding (MOU), dated September 21, 1998, and the procedures of the Upper Columbia Caucus of State Agencies.

On May 5th the Upper Columbia Caucus of State Agencies (caucus, see cc list) voted to support implementation of the Entiat WRIA Management Plan, and to support clarification of certain plan attributes. In addition to voting favorably on the overall watershed plan, the caucus voted to:

(1) Support the establishment of a 5 cubic foot per second (cfs) reserve, senior to recommended instream flows;
(2) Specify that the agricultural and industrial reserve water be made available in the lower Entiat River (river mile 0 to 16.2, monitored at the USGS "Entiat Near Entiat" gauge) thereby protecting the biologically sensitive and important "stillwater" reach; and
(3) Support the recommendation that instream flows be established with a priority date of the rule adoption date.

During the caucus vote, one of my caucus colleagues made a remark that I believe speaks well of the Entiat WRIA Planning Unit, and reflects the sentiment of the caucus as a

whole. He stated: "It is imperative that we (the State) support this planning unit. Nowhere else is there such a dedicated and cohesive unit working toward sustainable watershed management." We encourage you to remain the dedicated and cohesive unit you are as you move from organization, assessment, and plan development into implementation. We look forward to working with you and agree to provide support as you proceed.

Most Sincerely,

John T. Monahan

John T. Monahan
Watershed Lead, Department of Ecology and
Representative, Upper Columbia Caucus of State Agencies

JTM:de
040508

cc: Carmen Andonaegui, WA Conservation Commission (former representative)
Dennis Beich, WA Dept of Fish and Wildlife
Clayton Belmont, WA Dept of Transportation
Bob Bugert, Governor's Salmon Recovery Office
Linda Crerar, WA Dept of Agriculture
Jim Fox, Interagency Committee for Outdoor Recreation
Megan Harding, WA Dept of Health
Hal Hart, Office of Community Development (formerly CTED)
Bill Jolly, WA Parks and Recreation Dept
Dick Wedin, WA Dept of Natural Resources

GARY LOCKE
Governor

STATE OF WASHINGTON

OFFICE OF THE GOVERNOR

P.O. Box 40002 • Olympia, Washington 98504-0002 • (360) 753-6780 • TTY/TDD (360) 753-6466

June 24, 1999

Mr. Philip J. Jones, Coordinator
Entiat Watershed Study
Chelan County Conservation District
301 Yakima Street, Rm 307
Wenatchee, WA 98801

Dear Mr. Jones:

Thank you for your letter requesting state agency participation on the Entiat Watershed Planning Unit as provided for in the Watershed Planning Act. I commend you on the progress you have already made in your watershed planning effort, as illustrated by the Draft Cooperative Resource Management Plan (CRMP), and the associated watershed process. I hope this process will build upon the solid foundation laid by the CRMP.

I appreciate the care that the Entiat Initiating Governments have taken in ensuring that this watershed process is as inclusive as possible. I am pleased that you have invited the Colville Confederated Tribes and the Confederated Tribes and Bands of the Yakama Indian Nation to participate. As you move further along in the process, I encourage you to consider adding members, as needed. I assure you that the state is making every effort to support the Entiat in providing continuity in its efforts in a cooperative and collaborative manner.

Twelve state natural resource agencies have agreed upon principles and procedures they will follow in working with local planning units. These agencies will cooperate to improve the state's contributions to watershed planning. John Monahan of the Department of Ecology will oversee the activities of the Entiat area caucus of state agency representatives as they work in a central role to identify situations in which coordinated state action is needed.

Although other agencies were unable to commit to direct involvement, each will provide information to support the planning process, and will coordinate their efforts through the state caucus. John Monahan, as watershed lead, will assist formal communications with these agencies and is authorized to speak on their behalf.

Again, thank you for contacting me. I wish you success in this extremely important undertaking.

Sincerely,

Gary Locke

Gary Locke
Governor

cc: 12th Legislative District
John Monahan, Department of Ecology

Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

May 14, 2004

To the Chair and members of the Entiat WRIA Planning Unit

The Yakama Nation supports approval of the Entiat Watershed Plan and this letter serves to clarify our meaning in casting a vote in support of the plan.

It has been a pleasure working with the members of the Planning Unit on this project. The Entiat Planning Unit should serve as an example of cooperation for other planning groups in the region. We hope that the spirit of cooperation and openness will continue through the implementation phase.

In supporting the Plan, we intend to help secure funding to implement habitat improvements, improvements in instream flow and other beneficial components of the Plan and ensure they are implemented for the benefit of the resource we all share. The plan is a complex document with many parts moving according to different schedules. We view the Plan as a package that addresses needs of both instream and out of stream resources. It is our intention that the benefits to all resources be realized through the implementation phase. We support the proposal for DOE to adopt the recommended Administrative Instream Flows. We are not entirely supportive of the potential use of exotic biological agents to control noxious weeds. We support the recommendation that Chelan County adopt and implement the Plan.

The Yakama Nation reserves all rights and remedies at its disposal. Neither the Entiat Watershed Plan nor the Yakama Nation's support for the plan may be construed to waive, abrogate, diminish, define or interpret the Treaty rights of the Yakama Nation. By casting this supporting vote for the Entiat Watershed Plan, the Yakama Nation does not waive its sovereign immunity.

We appreciate all your efforts and look forward to continuing to work to improve the resources of the Entiat Watershed.

Sincerely,

Jerry Meninick, Chair
Yakama Nation Tribal Council

Post Office Box 151, Fort Road, Toppenish, WA 98948 (509) 865-5121

United States Department of Agriculture	Forest Service	R-6	OR/WA	Bureau of Land Management	United States Department of Interior

Reply Refer To: (FS)/ (BLM) (OR-) Wenatchee/Okanogan N.F. Wenatchee BLM Field Office

Dear Entiat Planning Unit: May 17, 2004

The 2004 Entiat Water Resource Inventory Area (WRIA 46) Final Draft Management Plan (WRIA 46 Plan) presents the results of more than ten years of collaborative work by the Entiat Watershed Planning Unit (formerly Entiat Coordinated Resource Management Planning [CRMP] Group). The WRIA 46 Plan addresses all analysis components in the Washington State Watershed Planning Act – the required element of water quantity (water budget), as well as the optional elements of instream flow, habitat, and water quality. The WRIA 46 Plan presents recommendations for managing, maintaining, restoring, and monitoring the resources of the Entiat subbasin and has benefitted from considerable technical input from Forest Service and Bureau of Land Management staff and specialists. For these reasons, The WRIA 46 Plan has been envisioned as a third iteration of Federal watershed assessment for the Entiat Analysis Area. The first iteration (Version 1.0) was completed in February, 1995 with a primary focus on Tyee Fire recovery. The second iteration of Federal assessment (Version 2.0, April 1996) updated Version 1.0 and addressed new issues related to recreation, commercial grazing and the Columbia River Tributaries adjacent to the Entiat subbasin.

The second iteration of watershed assessment for Federal lands in the Entiat subbasin (Entiat WA V2.0) was completed in concert with the CRMP phase of cooperative planning effort for the Entiat led by the Chelan County Conservation District (CCCD). The WRIA 46 Plan is the culmination of that parallel watershed analysis effort focusing on watershed management issues associated with the private lands in WRIA 46. However, successful development of the WRIA 46 Plan has involved a total watershed view, with cooperating agencies providing support and information from their respective analyses (Entiat WA V2.0, page 4).

WRIA 46 Plan development did not rigidly follow the original eight-step Federal Agency Guide to Watershed Analysis process as was utilized by Versions 1.0 and 2.0. Other more relevant analysis processes were employed by the Planning Unit, including:

- **Coordinated Resource Management Planning** process (USDA Forest Service, USDA Soil Conservation Service, USDI Bureau of Indian Affairs, USDI Bureau of Land Management, Washington State Departments of Natural Resources and Wildlife, Washington State Conservation Commission, Washington State Cooperative Extension, and Washington Rangelands Committee, 1993)
- **Instream Flow Incremental Methodology** (Stalnaker, Lamb, Henriksen, Bovee, and Bartholow, 1995)

- **Washington State Watershed Planning Act** (ESHB 2514, 1998) and **Salmon Recovery Management Act** (ESHB 2496, 1998)

The above processes are excellent surrogates for the eight-step Federal process. The steps of the Instream Flow Incremental Methodology (problem identification, study planning, study implementation, alternatives development, and problem resolution) are particularly well suited to address social issues as well as technical issues. An acknowledged shortcoming of Entiat WA V2.0 (page 3) was that it did not extensively address social issues, instead deferring major consideration of social issues to the Cooperative Watershed Management Planning effort that produced this WRIA 46 Plan. Accordingly, this WRIA 46 Plan meets the intent (if not the procedures) of the eight-step Federal process.

Watershed analysis is ecosystem analysis at the watershed scale, and is one of the principle means by which ecosystem management goals will be met. Information contained in the WRIA 46 Plan will be used to identify management strategies, design monitoring programs and develop restoration projects for the mutual benefit of private and public landowners and managers. A particularly relevant and recent example of a favorable outcome of this process is WDOE's recommendation to the USEPA that WRIA 46 ***not*** be placed on the 2002/2004 303(d) list for temperature, but rather receive a "4b" categorization – impaired but has a pollution control plan – as a result of the Planning Unit's past and current efforts to address exceedances of water temperature standards. This Plan is not a decision-making document; however, it does provide a sound basis for developing specific projects and conducting site-specific (SEPA/NEPA) analysis. In addition, the WRIA 46 Plan provides a broad foundation for future iterations of Entiat watershed assessment and Forest Plan revisions.

I am pleased to recommend approval of the WRIA 46 Plan and its adoption as Version 2.5 of the Watershed Assessment of the Entiat Analysis Area, Okanogan and Wenatchee National Forests. I look forward to the continued participation of the Forest Service and Bureau of Land Management in achieving the mission and goals envisioned by this significant collaborative effort.

Sincerely,

James L. Boynton
Forest Supervisor
Wenatchee/Okanogan National Forest
US Forest Service

James F. Fisher
Field Manager
Wenatchee Resource Area
Bureau of Land Management

United States Department of the Interior
Fish and Wildlife Service
Mid-Columbia River Fishery Resource Office
7501 Icicle Road
Leavenworth, WA 98826
Phone: (509) 548-7573
Fax: (509) 548-5743

TAKE PRIDE IN AMERICA

May 17, 2004

Entiat Watershed Planning Unit
c/o Sarah M. Walker
Entiat Watershed Project Co-Coordinator
301 Yakima Street, Room 307
Wenatchee, WA 98801

Dear Ms. Walker:

The U.S. Fish and Wildlife Service (Service) commends the Entiat Watershed Planning Unit (EWPU) on the culmination of 10 years of work. The EWPU in coordination with the Federal, State, Tribal, County and local participation has completed the Final Draft 2004 Entiat Watershed Resource Inventory (WRIA 46) Management Plan (Plan). The Plan addresses all of the components of the Washington State Watershed Planning Act including a water budget, water quality, instream flow and habitats associated with fish and wildlife species. Additionally, the Plan presents management recommendations for protection, enhancement, restoration and monitoring of natural resources within the Entiat Subbain.

The Service recommends the adoption and approval of the Plan by the EWPU and we look forward to continued participation in achieving the mission and goals envisioned by this significant collaborative effort. If you have any questions or comments concerning the Service's participation in this effort, please contact Kate Terrell of my staff.

Sincerely,

Brian Cates
Project Leader

PUBLIC UTILITY DISTRICT NO. 1 *of* CHELAN COUNTY
P.O. Box 1231, Wenatchee, WA 98807-1231 • 327 N. Wenatchee Ave., Wenatchee, WA 98801
(509) 663-8121 • Toll free 1-888-663-8121 • www.chelanpud.org

May 6, 2004

Entiat WRIA Planning Unit
c/o Sarah M. Walker
Entiat Watershed Project Co-Coordinator
Chelan County Conservation District
301 Yakima Street, Room 307
Wenatchee, WA 98801

Dear Ms. Walker:

The Chelan County PUD Board of Commissioners would like to congratulate the Entiat WRIA Planning Unit on its achievement of a watershed management plan that protects and restores fish habitat while considering future community and economic growth. As Commissioners of a utility with environmental stewardship responsibility, we understand the significant work involved in development of a plan that successfully balances resource needs with other interests in an approach that enjoys broad support.

One of the most impressive aspects of the EWPU's plan is the level of involvement from the Entiat community. We view stakeholder participation as a critical component of developing workable long-term solutions, and we believe that citizens volunteers deserve recognition for their invested time and energy. The EWPU plan is an excellent testament to successful coordination among citizens and representatives of federal, state and local governments.

The plan has been reviewed by Chelan PUD fish and wildlife staff, who found the proposed measures biologically sound and capable of protecting and enhancing habitat for a variety of species, particularly spawning and juvenile salmon. Moreover, the types of projects proposed in the plan are likely to complement the efforts of the District's own Habitat Conservation Plan.

We understand that the EPWU will be voting on final approval of the plan on May 17 before submitting it to Chelan County. We support this plan and will direct the District's representative to vote in favor of the final plan content at the May meeting.

Again, we extend our congratulations to those who crafted this document. We hope it will serve as an example for other watersheds undertaking this significant task.

Sincerely,

David Pflugrath

David Pflugrath, President

COMMISSIONERS: *Bob Boyd, Gary L. Montague, David Pflugrath, Noon Gutzwiler, James R. Wall* GENERAL MANAGER: *Charles J. Hosken*

FINAL REVIEW DRAFT WRIA 46 MANAGEMENT PLAN PUBLIC COMMENTS SUMMARY

Landowner Steering Committee, Technical Advisory Subcommittee, and other Entiat Watershed Planning Unit (EWPU) members commented on an internal draft of the WRIA 46 plan between November 2003 and January 8, 2004. Edits were made to address initial Planning Unit comments; additional edits were proposed during the January 8th EWPU meeting. At the January meeting the Planning Unit agreed to release a "Final Review Draft" of the WRIA 46 Management Plan to the public after all proposed changes had been made.

The *Final Review Draft WRIA 46 Management Plan* was made available to the public at the end of the day on Friday, January 23, 2004. Agencies, tribes, officials, non-governmental organizations, and the public were notified of the comment period via email, mailings, radio, and newspaper. The comment period closed at the end of the day on Friday, April 2, 2004. An evening public meeting about the plan was held in Entiat, Washington on March 18, 2004.

During the 70-day comment period, 13 letters were received via email. The majority (8) came from Washington State agency representatives. Comments were also received from the US Forest Service, US Fish and Wildlife Service, Chelan County, Chelan County Conservation District Board of Supervisors, and one private individual.

Members of the EWPU numbered the substantive comments in each letter, and characterized them as general support/editorial, policy/legal, and technical. Related comments were also grouped to avoid duplication. Responses were generated to address the substantive concerns/suggestions expressed in the comments. A summary of the substantive comments received and responses is provided below. Updates to the Final Review Draft were made to address particular written comments and topics raised at the April 13th Planning Unit meeting. Please note that section, table and page numbers referred to in comments may have changed for production of this version of the WRIA plan.

GENERAL SUPPORT/EDITORIAL

- The plan represents years of hard work by many people. It is a model for other efforts, and an example of how to integrate Watershed Planning, Subbasin Planning, Salmon Recovery Planning (1) (30) (32).
- Well written, easy to read, good recommendations, excellent draft plan, provocative and relevant technical work (5) (19) (23) (24).
- General editorial comments, suggestions for additions, and corrections to information, grammar, etc. (14) (20) (25) (29) (31) (34) (38) (41) (42).

POLICY/LEGAL

- **Comment:** The WRIA 46 Plan appears to comply with requirements of the Watershed Planning Act (28) (30).

Response: Thank you for taking the time to examine this aspect of our plan. We made a concerted effort to assure that the requirements associated with all four elements were addressed and integrated throughout the assessment and plan development phases.

- **Comment:** There are challenges associated with implementing such a thorough plan that integrates with several other efforts. The State recommends that the Planning Unit agree to work through the alternative analysis and development of detail through processes like the Detailed Implementation Plan (P4) and rule making (2) (3) (4).

  Response: The EWPU recognizes that there is still additional work that needs to be done with respect to rule making and Phase 4 activities. We are committed to continuing our work with Federal, State and local government partners to assure that the actions recommended in the WRIA 46 plan be fully implemented, defensible, and not in conflict with related statutes.

- **Comment:** More work needs to be done to define multifaceted reserve, its management, biological impacts, and mitigation measures (27).

  Response: The Planning Unit recognizes that there is still work to be done to define how the reserve that is being proposed for use in the Entiat subbasin will be managed, and its interrelationship with biological objectives and proposed mitigation measures. The group is committed to continue its work to address this and other water resources management issues during rule development and Phase 4.

- **Comment:** The Entiat may be a candidate for utilizing the Comprehensive Irrigation District Management Plan (CIDMP) process, which integrates CWA and ESA compliance (6).

  Response: Only formal irrigation ditches are allowed to access the CIDMP process. In order to utilize such programs, the Knapp-Wham and Hanan-Detwiler partnership ditches are exploring options for ditch consolidation and formation of an Irrigation District. Additionally, options for integration with the existing Entiat Irrigation District (EID) may be available. Language was added to Chapter 9 stating the Planning Unit should explore use of the voluntary Comprehensive Irrigation District Management Process (CIDMP) and other resources available to Districts, either through the existing Entiat Irrigation District and/or potential new district;

- **Comment:** I do not believe the plan can be used to gain CWA assurances because there are no requirements/obligations to protect either water quality or beneficial uses, and BMP elements are voluntary and subject to obtaining grant money (7) (18).

  Response: The Planning Unit understands that many recommendations in the Plan presently do not have funding certainty. The EWPU is interested in working with agencies, foundations, tribes, local, state, and federal governments during the detailed implementation phase to bring funding certainty to plan implementation. However, the Planning Unit believes that it has identified all the priority factors limiting beneficial uses and water quality in the watershed. We expect that plan

approval represents commitment to implementing the Plan, and an obligation to implement recommended actions to address priority issues. Further, the Planning Unit expects Plan approval to constitute a commitment to continue to work to identify and address secondary and tertiary issues.

- **Comment:** There should be a discussion about whether or not zoning and building codes are sufficient to protect water quality, and whether water recharge areas can be protected by Critical Areas Ordinances (16) (22).

  Response: The Planning Unit has committed to working with the County during future updates of its Critical Areas Ordinances and Shoreline Master Program to assure that the best available science is used in making determinations within the Entiat valley. Three additional recommendations bullets related to future County land use and critical area ordinance planning efforts and coordination with the EWPU were added to Chapter 9.

- **Comment:** It is stated [on p. 9-12] that property acquisition is off the table. This seems too final and limiting. This should say that as a priority the plan will exhaust efforts to obtain protection using alternative means prior to pursuing acquisition (8).

  Response: The Planning Unit intended to reflect fee-simple acquisition as a measure of last or lesser resort, rather than being "off the table" as perceived by the author of the comment. The words "first" and "rather" were added to the recommendation in Chapter 9 in an effort to clarify that all options are on the table, but that the EWPU recommends priority be given to methods that do not erode an already limited tax-base. The Planning Unit is committed to working with partners implementing habitat protection and restoration efforts as recommended in the section receiving this comment. However, we will do so in a manner that avoids erosion of the community and tax base funding local education, public service, roads, infrastructure, etc. We hope all our partners will agree to work with us to do the same.

- **Comment:** Forest, state and county roads should focus on creating maintenance and drainage improvement programs to reduce sediment delivery, as well as providing access for fire fighting. A prioritized WRIA plan for road maintenance, improvements and abandonment should be developed (9) (11) (17).

  Response: Access for fire protection and road maintenance practices are both issues of concern within the Entiat subbasin. Forest road management practices and programs are outlined in the Management Strategy tables contained in Chapter 2. Appendices A&B detail proposed and completed projects (including road rehabilitation) on all ownerships within WRIA 46. As the Planning Unit has no authority over road maintenance and/or management practices in the WRIA, it has recommended that responsible entities coordinate their road management actions. The two recommendations related to road management in Chapter 9 were rewritten to further clarify the issue of maintaining road access for fire protection vs. general road maintenance practices.

- **Comment:** Municipal Water Law requires addressing future use of inchoate rights and consistency of water system plans with watershed plans (21).

  Response: The Planning Unit understands it will need to inventory the number of, and build-out of, large water systems in the WRIA during Phase 4, as required by the Municipal Water Law.

- **Comment:** An HCP may be the only practical way to get ESA assurance, although more elements will likely need to be added to the plan. Strategically, the EWPU should probably be at the helm of any HCP effort (10).

  Response: The Planning Unit will continue exploring avenues to gain certainty under the ESA and CWA, recognizing that the requirements that must be met for an HCP or salmon recovery plan are greater in scope that what has been detailed in this latest version of the WRIA 46 Management Plan. The EWPU envisions that the WRIA plan will form much of the technical foundation necessary for other related planning processes. The Planning Unit and community are committed to continuing their involvement with and guidance of other efforts to the maximum extent possible, so that local social/economic interests continue to be represented and considered along with the best available science.

TECHNICAL

Water Quantity

- **Comment:** What is the impact of 5-7cfs on habitat (% reduction)? (35).

  Response: Much consideration was given to what impact additional withdrawals may have on available habitat. Concern was also raised that a 5-7 cfs withdrawal could result in passage issues or loss of off channel habitat.

  Subsequent analysis was performed by WDOE to determine what effect withdrawal of an additional 5 cfs would have on fish habitat. Weighted Usable Area (WUA) results were obtained over an expanded selection of low flows in the lower and upper Entiat River. The amount of WUA available at 90% exceedence flows during September and October was chosen to represent availability at low flow conditions. In the lower Entiat River, priority species and life stages in September and October are steelhead and chinook juveniles; there is very little chinook spawning occurring in this reach. The 90% exceedence values in the lower river for Sept/Oct = 121/110 cfs.

  In the upper Entiat, the priority species and lifestages in September are chinook spawning, and steelhead and chinook juveniles. The priority species and lifestages in October are steelhead and chinook juveniles. The 90% exceedence values in the upper river for Sept/Oct = 71/60 cfs.

  From the habitat available in these 4 base conditions, the percent of habitat that would be lost if an additional 5 cfs were withdrawn from the Entiat River was calculated (see tables on the following page).

Lower Entiat River at RM 1.0						Upper Entiat River at RM 16.2					
Flow (cfs)	% Exceedence		Percent Loss of Habitat from 90% Exceedence flow			Flow (cfs)	% Exceedence		Percent Loss of Habitat from 90% Exceedence flow		
	Sept	Oct	Chinook Spawning % loss	Chinook Juvenile % loss	Steelhead Juvenile % loss		Sept	Oct	Chinook Spawning % loss	Chinook Juvenile % loss	Steelhead Juvenile % loss
103			7.4%	0.6%	4.8%	53			15.6%	4.9%	7.5%
105			5.2%	0.4%	3.4%	55			10.9%	3.4%	5.3%
110		**90%**	0.0%	0.0%	0.0%	**60**		**90%**	0.0%	0.0%	0.0%
114			6.2%	0.1%	4.4%	64			12.6%	3.6%	6.7%
116			4.4%	0.0%	3.2%	66			8.8%	2.4%	4.9%
121	**90%**		0.0%	0.0%	0.0%	**71**	**90%**		0.0%	0.0%	0.0%

It is important to note a number of things when considering these predicted losses:

1. Existing PHABSIM transects from the 1995 study were used in the WUA analysis of habitat loss. Data from additional transects established as part of the Entiat IFIM study in 2002/2003 were not modeled.
2. The new pool habitat and changes to channel geometry resulting from the 2001 installation of rock cross-vanes in the lower river was not factored into the PHABSIM model run/generation of WUA loss results.
3. It was determined that overall passage in the lower river would not be affected in a significant way as a result of a 5-7 cfs withdrawal.

A Reserve of 5 cfs was negotiated between the State Caucus and the EWPU. The Plan was edited to reflect this volume, rather than a range of 5-7 cfs. Language was also added to Chapter 4 stating that new water appropriated from the Reserve for future agricultural, commercial/light industrial uses should be limited to the lower Entiat River (below RM 16.2) in order to help protect the important "Stillwater" area. However, new residential development and associated water use will continue to be allowed in and above the Stillwater reach. The Planning Unit is also exploring how water right banking/leasing, transfers, etc. can be used in lieu of Reserve water to satisfy new uses, so that future appropriation of Reserve water only happens after all other options have been exhausted.

- **Comment:** New technology is available to help ensure efficient landscape water use; outreach materials re: effective landscape irrigation are available (28).

  Response: The Planning Unit will continue its efforts to provide the best information to EWPU members and the community through public outreach, coordinated trainings, and other avenues. Recommendation 9.2.4 on p. 9-7 shows the EWPU's intent to promote water efficient landscaping host meetings to share new technologies with local water users.

- **Comment:** I did not find a schedule of planned USFS activities that affect water runoff and stream flows, or explanation of why there is little or no potential for immediate expansion of timber harvest on state/private lands (33).

Response: The primary focus of the WRIA 46 plan is resource management on private lands, although it does strive to provide an integrated perspective of activities across all lands/ownerships within the WRIA. For additional information specifically related to Forest Service activities, refer to the Wenatchee National Forest Plan (USFS WNF 1990) and the Watershed Assessment, Entiat Analysis Area, Version 2.0 (USFS WNF 1996). Appendix B of the WRIA 46 document also provides a summary of proposed actions.

The comment about little or no potential for immediate expansion of timber harvest on state/private lands stemmed from personal correspondence with landowners, Longview Fibre Co. and State representatives, and is related to the fact that many of the State/private lands have been burned and/or have already been harvested.

- **Comment:** In section 4.1.4 it is stated that observations of water levels in monitoring wells support the direct connection of the Entiat and Mad River surface flows with ground water in the main stem unconfined aquifer. However, there is nowhere in this document where there are any detailed scientific data to support this statement. While it states that data for the groundwater monitoring program are available from CCCD by request, this represents an extraordinary burden to the reader of this plan. The volume of reports available to the reader concerning elements less critical to quantifying water resources in WRIA 46 leave the reader wondering why the essential groundwater data are not being reported to the public (43).

  Response: The raw monthly monitoring data collected show that increases and decreases in stream flows are readily reflected in well water levels. The Planning Unit felt that evidence of a direct correlation of well water elevations and river elevations was more important to the discussion of water resources management than a presentation of raw well water level data. We are more than happy to satisfy requests from the public for this data, and have provided a variety of ways to submit requests so as to not cause extraordinary burden to readers.

- **Comment:** On page 4-13 it is stated that well water temperatures are similar to mean annual air temperatures. Because it is very difficult to accurately measure in-situ groundwater temperature from measurements taken in a well, it would be useful to provide a detailed discussion of how the well water temperatures were acquired so as to determine the actual groundwater temperature (44).

  Response: The key is that well water temperatures, not in-situ groundwater temperatures, were measured. No effort was made to capture in-situ temperatures. The simplest and least expensive way to capture temperatures in the shallow ground water wells was to lower a thermometer into the well. This data collection was ancillary to collection of the well water level data.

- **Comment:** Section 4.1.4 doesn't indicate whether the monitoring well elevations were surveyed to allow for exact determination of water levels in relation to river levels (45).

  Response: GPS locations (x, y, z) were recorded for all monitored wells; however, z-values (elevation) recorded by GPS units are not as accurate as actual height

measurements. Thus, the height of the well cap above ground was measured at all monitored wells and then subtracted from the overall depth to water in the wells in order to determine well water level elevation below ground surface.

- **Comment:** There appears to be a large discrepancy between the variances in aquifer storage volumes as shown on Figure 4-6 and monthly mean baseflow components as shown on Figure 4-3, suggesting that either the aquifer storage model is flawed, or that the baseflow analysis done with HYSEP is incorrect, or both (46).

  Response: The aquifer analysis focused on the unconsolidated alluvial aquifer in direct continuity with the river. It covers a surface area of about 17 square miles. The valley bottom area was the focus of the analysis because it is the primary area in which future development will occur, and groundwater stored in this area is immediately accessible to well development. The HYSEP work on the other hand looked at runoff from the entire Entiat subbasin system-- an area of about 419 square miles.

- **Comment:** There is no discussion of what values of specific yield were used to determine the groundwater storage volumes for the aquifer storage model (47).

  Response: A specific yield value of either 0.2 or 0.25 was assigned to aquifer polygons, based on well log interpretation and/or surficial geology data.

- **Comment:** In section 4.1.5, page 4-16, first paragraph, it is stated "polygons enclosed areas of equal aquifer depth". Is the reader to assume that specific yield of the aquifer material was also constant within each polygon? If so, please provide a detailed discussion of the geologic rationale for why specific yield would correlate with aquifer depth (48).

  Response: The section referred to makes no implications with regard to specific yield. Specific yield was assigned to the polygons based on well log stratigraphy and surficial geology (see the first paragraph under Methods). Due to the scope of the project specific yield values were held constant within each polygon again based on the well log stratigraphy and surficial geology. Cost and time prohibited the development of a full blown Modflow groundwater model.

- **Comment:** The results of the aquifer storage model given in section 4.1.5 and in the draft Aquifer Storage Report state that recharge to the unconfined aquifer is derived primarily from precipitation and irrigation return flows. It would be beneficial to determine what the estimated recharge to the unconfined aquifer was given the distribution of precipitation within the watershed for the year 2002. This would provide an independent check of the calculated aquifer recharge volume derived from the GIS procedure (49).

  Response: Yes, it would be beneficial to determine recharge to the aquifer by other methods. Please note on p. 9-1 that “the Planning Unit deems that all of the data, methodologies and assessments contained in this document are the best science available given the time and funding expended to date.” Future studies and methodologies will continue to be determined on a collaborative basis, with the goal

of filling critical data gaps while dealing with time and cost constraints. It is not clear that the analysis the author of the comment describes addresses a critical data gap.

- **Comment:** The last paragraph on p. 3 of the Aquifer Storage Report notes a correlation between the groundwater volumes of Figure 1 and the historical mean monthly flows for the Entiat River of Figure 2 on p. 4. It is not apparent how a meaningful comparison can be made between a smoothed statistical measure such as the mean stream flow and a one year estimate of monthly groundwater storage volumes. A more reasonable comparison could be made with the actual observed monthly flows for 2002 so as to allow for a direct comparison of the aquifer storage volumes calculated for 2002 (50).

  Response: The temporal correlation of a rise in stream flows to a rise in groundwater volumes would be essentially the same whether you looked at daily measurements or mean monthly data. The flows still increase and decrease seasonally and this is reflected in the rise and fall of water levels in the wells due to a close connection between the surface water and the groundwater. The point is that the water levels in the wells mimic closely what happens in the surface system on a seasonal basis.

- **Comment:** The Aquifer Storage Report, p. 2, 4th paragraph, states that water levels from well logs were not used to estimate the depth to water level. While it is true these data are difficult to correlate due to the separation in time, they still provide reliable water levels that could be used to corroborate water levels synthesized for polygons that had no monitoring wells. Given the sparse network of monitoring wells used in this report, it is difficult to understand why the water level data from the well logs were ignored (51).

  Response: The water levels from well logs are historic in nature and separated by years and in some cases decades. There is no way to know what controls were in place or even how the measurements were taken. A correlation would also need to be made between climatic changes and the reported water levels. The WRIA 46 Plan recognizes the fact that more measurement points and a longer term analysis would improve the model. The Planning Unit has recommended continuing this analysis, but will have to await the response of funding institutions as to whether or not this recommended action is a funding priority.

- **Comment:** The Aquifer Storage Report, p. 3, 3rd paragraph, presents a procedure for assigning monthly saturated thickness for polygons without monitoring wells based on a "ratio of measured water depth to the total aquifer depth". But, the report doesn't explain what hydrogeologic principles would allow for correlation of depth of water table to the depth of the base of the aquifer (52).

  Response: Given the sparse distribution of data, logic was applied and it was assumed that the water level (saturated thickness) in one polygon was similar to that of an adjacent polygon which may or may not have a measured value. In unconfined alluvial systems the water table generally mimics topography, and topography is commonly a reflection of the underlying bedrock. The correlation could just as well have been tied to a change in polygon elevation which of course would still be a single value representing the elevation for the entire polygon.

- **Comment:** The Aquifer Storage Report shows a graph in Figure 3 of monthly net change in storage volumes that appears to be in conflict with the data for monthly storage volumes as represented in Figure 1 of the same report. For instance, why would the net change from May to June decrease as shown on Figure 3, while for the same period on Figure 1 it shows an increase? (53).

  Response: Figure 3 shows the change in storage from one month to the next, whereas Figure 1 shows the total storage by month. In other words, the change in storage for May (June 1st measurements minus May 1st measurements) yields a positive value of 921.4 acres-feet, whereas the change in June (July 1st measurements minus June 1st measurements) yields a negative value of -1632 acre-feet. This may well be a reflection of the end of the freshet as well as the beginning of the irrigation season – the aquifer is being pumped.

- **Comment:** In the second paragraph of page 4-21, it is stated "it would appear that the alluvial aquifer could support additional withdrawals without creating an overall losing condition". Yet, in the conclusions of the Entiat Subbasin Gain-Loss Analysis Report on page 11, it is stated "relatively small additional withdrawals from the mainstem or from the surrounding alluvial aquifer could potentially result in a transition to a losing condition". These statements seem to contradict each other, so the reader is uncertain what volume of withdrawals would be considered acceptable (54).

  Response: Please consider the full sentence on p. 4-21 from which you extracted your quote, and the subsequent sentence in the paragraph on that page. "Assuming results from the September gain-loss study represent typical groundwater recharge patterns for the Entiat at this time of year, it would appear that the alluvial aquifer could support additional withdrawals without creating an overall losing condition in Entiat River on an annual basis; however, due to the complexity of the aquifer/stream interactions along the channel, it would be difficult to predict exactly what temporal and reach-scale effects additional withdrawals might have, and how much water could be withdrawn before it began to negatively affect local streamflow. Additional gain-loss and aquifer studies in other months would help to refine our understanding of aquifer/stream interactions on the Entiat and Mad Rivers."

- **Comment:** In chapter 6, it is unclear what purpose the water budget "spreadsheets" serve. If the proposed administrative minimum instream flows are the only recognized measure of legitimate water availability, then why were estimated water uses included in the "spreadsheet". The water use estimates are not used to calculate the "water potentially available for future appropriation", so it is unclear why they are even put in the "spreadsheet". It appears that the only consideration in the budget for water availability is based solely on instream flows, without any thought given to beneficial uses (55).

  Response: Development of a water budget is a required element of the Watershed Planning Act. Proposed minimum instream flows are not the only recognized measure of legitimate water availability (see discussion on p. 4-47 and determination of water availability on p. 4-48). Estimated water uses were included in the water budget as a means to estimate what the "naturalized" hydrograph might look like if

no withdrawals were occurring, as well as to depict the timing of the water use (refer to discussion on p. 6-3). Data on timing of use as well as volume are both essential for making water management decisions. The water potentially available for future appropriation was derived by subtracting proposed administrative flows, as well as actual water use, from the "naturalized" hydrograph. Under State law, instream flows are defined to protect and preserve all instream resources and values (beneficial uses), including water requirements for irrigation, fish, wildlife, recreation, aesthetics, navigation, stockwatering, and water quality.

- **Comment:** Tables 6-1 through 6-6 in chapter 6 show instances of the proposed administrative MIF being larger than the historical mean stream flow for the same period. How can it be statistically reasonable to set MIF at levels that are above actual measured flows? On p. 4-4 of the IFIM report there is a discussion of the value of mean versus median statistics of flow volumes, which cautions against using mean stream flow values for use in allocating water resources. Therefore, how can the plan justify setting unreasonably high MIF values that exceed the mean historical flows as well as the more conservative median flows? (56)

  Response: Please refer to the discussion about the use of exceedence values on p. 5-9 in the plan, where it is stated that for the purpose of recommending [planning unit and administrative] instream flows, "exceedence flow values were used to describe water availability (stream flow magnitude) on a monthly basis because these statistics provide a more reliable indication of the amount of water that typically exists in the system during a particular time period." Minimum instream flows across the state are typically set in excess of mean and median flows to protect and preserve all existing beneficial uses; they can be thought of as anti-degradation flows.

- **Comment:** Section 6.5, Lower Entiat River Budget, states that the average monthly irrigation use for July is approximately "25cfs". Yet in Table 6-3, the water use for orchard irrigation alone is shown to be over 33 cfs for the month of July (57).

  Response: Table 4-17 on p. 4-35 shows that in the month of July, total average irrigation water use from the upper and lower Entiat and Mad River combined is 1511.47 acre-feet. Using the standard conversion of 1cfs for 1 day = 1.9835 acre-feet, it can be calculated that average daily instantaneous use is equivalent to approximately 25 cfs, as stated in Section 6.5 on p. 6-6. The acre-feet refers to the total volume of water used in the month, while 25cfs represents the average daily instantaneous rate of flow that would result in a cumulative total of 1511.47 acre-feet of water over a period of 31 days.

  [1511.47 ac-ft/1.9835 ac-ft per cfs/31 days = avg. daily instantaneous rate (25cfs)].

  Monthly water use in acre-feet was split into semi-monthly use, as shown in tables 6-1 through 6-5, by examining average weekly water use values, and then calculating what percentage of water was used during the first 15 days of the month vs. the last 15 or 16 days of the month. For example, in July, 0.49% of total monthly average water use occurs between July 1-15, while 0.51% occurs between July 16-31. If you examine average monthly irrigated orchard water use in the lower river in the month

of July (1022.33 acre-feet), average semi-monthly use for July 1-15 = 496.83 ac-ft; for July 16-31 = 525.50 ac-ft. An average instantaneous rate was then calculated for each semi-monthly period. For July 1-15, the average instantaneous rate associated with orchard irrigation in the lower river = 496.83 ac-ft/1.9835 ac-ft per cfs/15 days, or approximately 16.7 cfs. The cumulative total of all instantaneous rates for the period July 1-15 again results in an average instantaneous rate of about 25 cfs, as was noted on p. 6-6.

- **Comment**: On page 9-7, section 4, sixth bullet there is a recommendation to convert surface water diversions to ground water withdrawals that is difficult to understand given the interpretation of surface water continuity with ground water in this plan. If there actually were a high degree of continuity between surface and ground water in WRIA 46, then why would groundwater withdrawal be considered any better than surface water diversion? It seems unreasonable to ask residents of WRIA 46 to expend their financial resources to convert to wells when there is no scientific evidence presented in the plan to suggest there would be any benefit (58).

  Response: Although surface and ground water exhibit a high degree of connectivity, there are still benefits to converting to ground water wells for irrigation. Water within wells has shown to be cooler during the summer and warmer during the winter/spring than ambient air temperatures. Applying slightly warmer ground water for frost protection and early irrigation water use would create less of an initial 'shock' to trees, and the application of ground water for irrigation during the summer would provide cooler water inputs to the system via infiltration. Additionally, the complex screening, headworks structures, and problems with sediment delivery to pumps often associated with surface water diversions would be eliminated if they are converted to wells.

<u>Instream Flows</u>

- **Comment:** The reason for recommending two instream flow regimes is unclear; Planning Unit instream flows appear that were are recommending the minimum (36).

  Response: Please read Chapter 5, particularly section 5.4. Two sets of instream flow recommendations were made because two fundamental questions were being addressed by the Planning Unit.

  "Administrative" instream flows were recommended to answer the question: "What flows are necessary for management of future water right decision-making?" The Planning Unit recommends that these "Administrative" instream flows be codified in rule, and managed in association with other water resource management recommendations like the Reserve and determination of water availability, which are also recommended for adoption via rule. These recommendations are associated with protecting the watershed from further degradation of aquatic resources by new water uses.

  The second set of flows, termed "Planning Unit Flows" sought to address a more generalized question regarding "What flows are necessary for protection and restoration of aquatic habitat for critical salmonid species life-history stages?" These instream flows seek to understand the relationship between current water use,

streamflow, channel geomorphology, and fish habitat. These flows can be used by a number of interests for a number of reasons. Habitat project proponents are encouraged to examine these flows during project engineering design work. Monitoring efforts should focus on these "Planning Unit" flow recommendations as a baseline against which to measure the effect of flow and/or physical habitat restoration efforts. We offer the following excerpt from Chapter 5.4 of the Plan to provide additional clarification (p.5-10):

1) Approved Planning Unit Instream Flows will serve as non-regulatory management tool for:

- monitoring the effectiveness of future water conservation efforts;
- monitoring the effectiveness of channel restoration efforts;
- guiding the Upper Columbia Salmon Recovery Board's efforts to develop a salmon recovery plan;
- supporting Wenatchee National Forest Plan revisions; and
- measuring progress towards compliance with the Clean Water Act.

2) Approved Administrative Instream Flow recommendations will be codified in Chapter 173-546 WAC as legal minimum instream flows, and used by WDOE to help manage future water right appropriations within the Entiat and Mad River watersheds."

- **Comment:** Can we link Instream Flow recommendations to SNTEMP results? (39).

  Response: SNTEMP model runs and action/scenario outcomes were based on temperatures recorded during dry and average, and wet water years. Instream Flow recommendations also took into consideration the range of hydrologic variability in the subbasin. SNTEMP results and other data showed that increasing stream flows was neither the most practical nor effective means to achieve reductions in high water temperatures and increases to habitat in the watershed, given existing water use and the fact that flow is naturally limiting to salmonid production within the Entiat subbasin. It is recognized, however, that any additions of stream flow to the system during critical periods will be beneficial. The set of "Planning Unit" instream flows were generated as a means to monitor effects of water conservation and progress towards achieving habitat/water quality objectives.

- Administrative and Planning Unit instream flows appear to be what we negotiated in meetings (27).

<u>Habitat</u>

- **Comment:** Additional macroinvertebrate sampling, use of additional/alternate metrics, and collection of periphyton samples should be considered (26).

  Response: The Planning Unit has recommended additional macroinvertebrate sampling using a probabilistic design consistent with the Upper Columbia Salmon Recovery Board monitoring protocol (see recommendation 9.4.14 on p. 9-16).

- **Comment:** Did EDT model low water temperature effects? (37).

Response: Level 2 ecological attributes considered by the EDT model included daily maximum and minimum temperature by month, and spatial variation. Historic and current condition ratings considered min/max temperature conditions, by reach. Treatments (actions) were evaluated with respect to how they would affect min/max temperature conditions. Additional information about EDT attributes and modeling is available in the full Entiat EDT Watershed Analysis report.

- **Comment:** Explain why even the most intensive EDT alternative (#5) does not restore Chinook to historic conditions (40).

  Response: In section 7.4.3, on pp. 7-54 and 7-55, it is noted that EDT modeling results for Chinook are affected by ocean and Columbia River harvest, and an assumed loss of genetic fitness due to hatchery interactions. "It should be carefully noted that the degradation of…performance measures, especially biologic productivity and average modeled abundance, also reflects environmental conditions outside of the subbasin. Additionally, the EWPU habitat subcommittee recognizes that it is unrealistic to believe that the historic conditions modeled here provide for realistic future expectations."

Water Quality

- **Comment:** [On p. 9-17] the reader is left wondering why attaining 80% canopy closure is not the goal; statement should be prefaced with a statement that the goal is to achieve site potential shade, and then use percentage targets for achieving that goal (12).

  Response: Thank you. Language was added to clarify that the goal is to achieve site potential shade, given the natural limits of climax vegetation.

- **Comment:** There should be some program to try and identify and eliminate ongoing or potential future sources of PCB contamination in the watershed (13).

  Response: Thank you for pointing out that the Plan neglected to mention the intent of identifying and addressing PCB as well as DDT potential contamination in the watershed. In Chapter 9 on p.9-17, PCBs were added to the recommendation for supplemental studies.

- **Comment:** Livestock and domestic animals are not mentioned with respect to potential fecal coliform threat. As agricultural properties chance to residential and hobby farms, the potential problem may grow (15).

  Response: Livestock and potential impacts to streams were addressed in section 9.6, Additional Issues, although we inadvertently omitted language that both human and agricultural/grazing are potential sources of fecal coliform/nutrient issues. Mention of livestock was added to the discussion of potential fecal coliform inputs on p. 9-19.