Colville River Watershed Fecal Coliform Bacteria Total Maximum Daily Load (Water Cleanup Plan)

Detailed Implementation Plan

July 2005
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by
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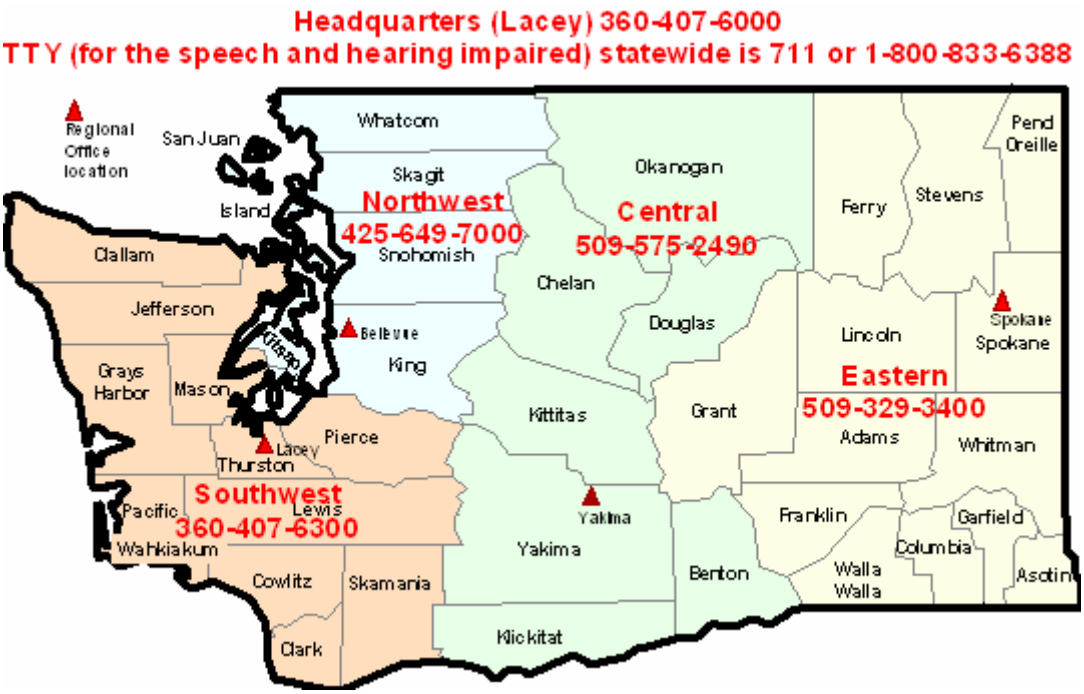

Map of Regions

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Acknowledgements

More than twenty dedicated watershed residents and local agency representatives volunteered their time to help generate this plan. Advisory group members gave an average of over 46 volunteer hours in meetings developing and reviewing this implementation plan. As is true of most group processes, not everyone agreed with everything included. However, this plan is the result of the best efforts of the group. We are grateful to the group's commitment to the process and to each other. Special thanks to the advisory group chairs, Tom Wilson and Lorren Hagen, who each contributed an estimated 28 additional hours helping schedule and prepare for meetings. Thank you also to Helen Jones from Jones Consulting who assisted with facilitation of the process.

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1. Introduction

The federal Clean Water Act requires the United States Environmental Protection Agency (EPA) or delegated states to develop water quality improvement plans (also called total maximum daily loads or TMDLs) for rivers, lakes, and streams that fail to meet water quality standards. In addition, the settlement agreement to a lawsuit filed on behalf of Northwest Environmental Advocates and the Northwest Environmental Defense Center requires the Washington Department of Ecology (Ecology) to complete over 1500 TMDLs by 2013 for all the impaired water bodies identified as of 1996 (U.S. EPA 1997). The list of impaired water bodies is named the 303(d) list after the section in the Clean Water Act that mandated its creation.

TMDLs establish goals, objectives, and strategies for achieving water quality standards. The TMDL also determines the loading capacity, which is the amount of the pollutant that can be discharged to the water body and still meet standards. The load is then allocated among the various sources.

The Colville River and its tributaries are designated as Class A (excellent) waters. Tributary headwaters located within the Colville National Forest are designated as Class AA (extraordinary) waters. Per the Washington Administrative Code §173-201A-030, fecal coliform water quality standards for Class A waters shall not exceed a geometric mean of 100 colonies/100 milliliters (mL) and no more than ten percent of the samples taken shall exceed 200 colonies/100 mL. Fecal coliform water quality standards for Class AA waters shall not exceed a geometric mean of 50 colonies/100 mL and no more than ten percent of the samples taken shall exceed 100 colonies/100 mL. (100 mL is approximately a half cup.)

Monitoring data have documented periodic violations of the fecal coliform water quality standard in portions of the Colville River and its tributaries since 1988. Five areas along the Colville River and three different tributaries were placed on the 1996 303(d) list. In 1998, four more additional segments of the Colville River and nine more tributaries were placed on the 303(d) list.

In 2000, the Washington Department of Ecology began a total maximum daily load (TMDL) study of fecal coliform bacteria in the Colville River and its tributaries. During this study, three more segments of the Colville River and two more tributaries were found to be non-compliant. The results of the study, along with input from watershed residents and local governments, created the foundation for the Colville River Watershed Bacteria Total Maximum Daily Load Submittal Report. EPA approved the amended version of the submittal report dated May 2003 on July 3, 2003.

A detailed implementation plan (DIP) is a required element of TMDLs in accordance with an agreement between Ecology and EPA (U.S. EPA, 1997). Implementation plans include information on the activities that will be used to improve water quality, when those activities will occur, who will do them, and how to measure progress. This document is the DIP for the Colville River watershed. This plan is based upon the *Colville River Fecal Coliform TMDL Study* (Coots, 2002; referred to in this document as the "TMDL study") and the *Colville River Watershed Bacteria Total Maximum Daily Load Submittal Report* Amended May 2003 written

by Murray & Coots 2003.[1] The timeframe to meet the fecal coliform water quality standard is ten years or 2015.

1.1 Purpose

High fecal coliform bacteria levels in the Colville River and tributaries are not supportive of primary contact recreational uses such as swimming, and secondary contact recreational uses such as fishing. Ecology's Ambient Monitoring Section has collected data at long-term stations on the Colville River near the communities of Kettle Falls and Blue Creek for a number of years, and the bacteria levels have also exceeded water quality standards often during the dry, low flow season.

The purpose of this plan is to maintain economic stability of the region while protecting the multiple uses of the Colville River Watershed such as recreation, agriculture, aesthetics, fish, and wildlife. Implementation activities will utilize best management practices (BMPs) to reduce fecal coliform pollution by controlling some of its non-point sources. BMPs are defined as conservation practices pertaining to water quality as listed in the Natural Resources Conservation Service's (NRCS) Field Office Technical Guide (FOTG) for private lands. The Washington State Department of Natural Resources and federal agencies may have lists of BMPs that will be applied to their lands and other funded projects. All known and reasonable technology (AKART) will be used by the point sources to reduce fecal coliform from their effluent. Point sources are regulated by National Pollutant Discharge Elimination System and State Waste permits issued by Ecology. BMPs and AKART will benefit the river and its tributaries in an attempt to meet water quality standards.

1.2 Background/Overview

Located in northeastern Washington State, the Colville River Watershed shown in Figure 1, lies within the Selkirk Mountains between the Pend Oreille River and the Columbia River. The Colville watershed is about 50 miles long and 25 miles wide, with a south to north orientation. Basin elevations range from 1,290 feet around the river mouth to 6,884 feet near Calispell Peak. Headwater streams start in the area 19 miles north of Spokane, while discharge is about 30 miles from the Canadian border.

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1. Two versions of the submittal report were written: March 2003 and Amended May 2003. However, only the Amended May 2003 version was approved by EPA. Since the May version was approved, it replaced the March version, which is no longer being published. Since the March version is no longer published, only the Amended May version can be cited in the references. However, text from the submittal report cited in this plan is the same in both versions. Please note that implementation activities and approaches mentioned in the final Detailed Implementation Plan supersede the corresponding sections in both submittal report versions.

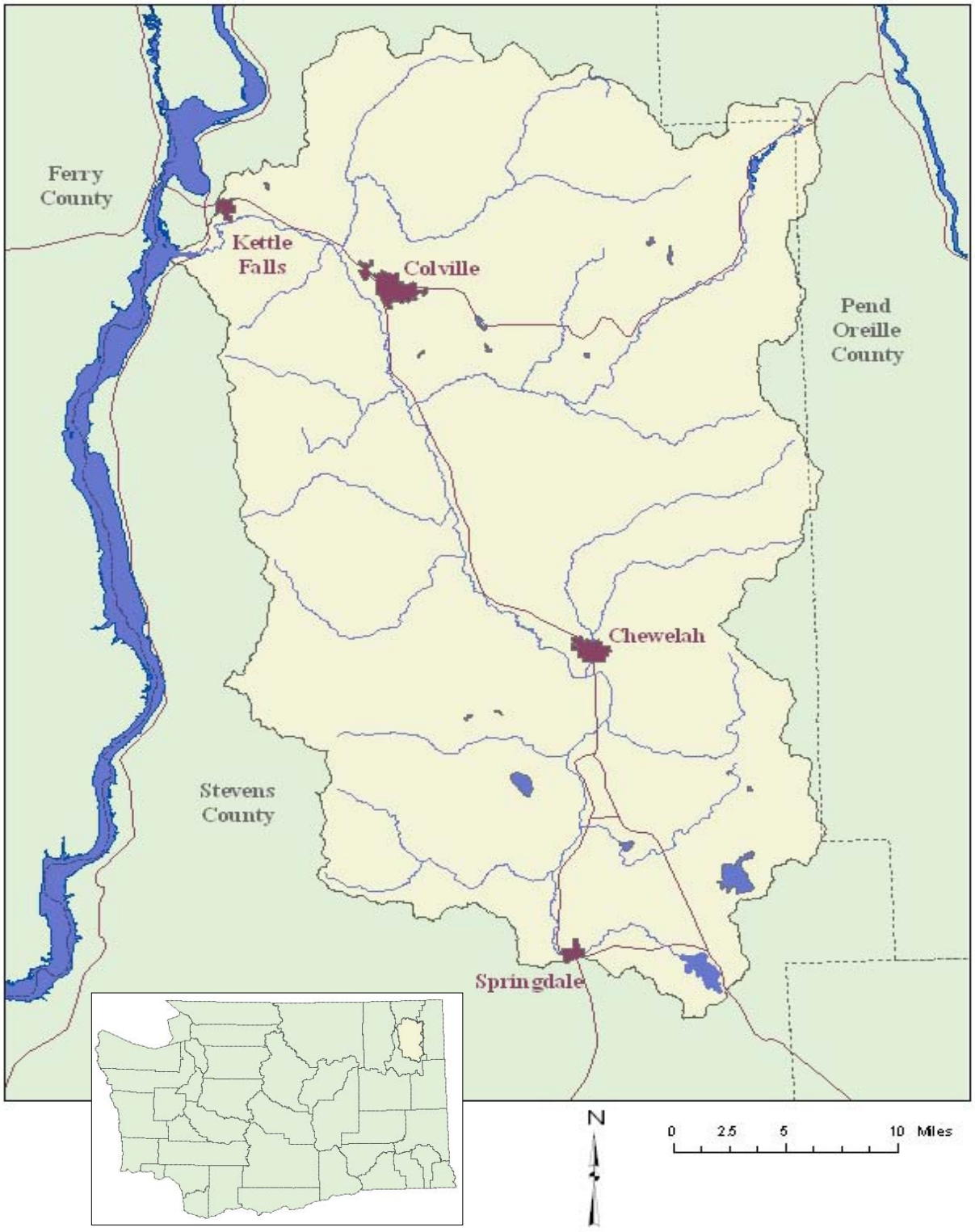

Figure 1. WRIA 59 - The Colville River Watershed

The Colville River begins at the confluence of Sheep Creek and Deer Creek in southern Stevens County, and meanders northerly for about 53 river miles. Along its course, the river passes near the cities of Chewelah and Colville, eventually discharging near the city of Kettle Falls to Franklin D. Roosevelt Lake, an impoundment of the Columbia River behind Grand Coulee Dam. The Colville River Watershed accounts for an entire Water Resource Inventory Area (WRIA 59).

The Colville River drains a 1,016 square mile area, with 99 percent of the basin contained within Stevens County. The small portion outside Stevens County is the headwaters of the Little Pend Oreille River; which is the largest tributary to the river. The Colville River drains 41 percent of the land area in Stevens County.

The Colville River basin generally has a warm and dry continental climate due to the Cascade Mountains to the west acting as a barrier for eastward moving marine air. To the north and east of the basin, the Selkirk Mountains shield the area from extreme cold moving south from Canada, but occasionally spilling into the basin for short periods during the winter months. Monthly average temperatures at Colville range from 24.3° F in January to 68.4° F in July.

Precipitation averages 17.2 inches per year at Colville. The range for the period 1917 to 2000 was 8.22 inches to 29.02 inches (Western Regional Climate Center, 2002). About two-thirds of the total annual precipitation in the basin falls between October and March. Precipitation is affected by topography due to the relationship between precipitation and altitude. Significant differences in precipitation occur between the valley and uplands, from the windward side of the valley (east) to the leeward (west). The average seasonal snow fall is about 48 inches.

Colville River discharge is driven by a snow-melt regime. The high-flow period is in the spring due to the combination of melting winter snow pack and spring rainfall. April is the highest month for discharge, while August is usually the lowest. The majority of the tributaries to the Colville River are small, generally averaging less than 20 cubic feet per second. The three largest tributaries, the Little Pend Oreille River, Mill Creek, and Chewelah Creek account for just over half of the Colville River discharge. The only other tributary accounting for more than 5 percent of the river volume is Sheep Creek, a headwater stream at about 5.9 percent.

The generalized land cover distributions for the Colville River watershed are shown in Table 1, while the breakdown of individual categories and their definitions are contained in Appendix B. Eighty-two percent of the land cover for the Colville River basin is within forest, shrub land, woody wetlands, and upland grasses. Nearly all of the remainder is divided between agriculture and transitional grounds. Less than two percent of the basin is covered by urban, residential, commercial/industrial, transportation areas, and recreational grasses. The urban/residential areas of the watershed are near the population centers of Chewelah, Colville, Kettle Falls, Springdale, and along portions of the highway corridors. The vast majority of the housing is single family residences. The sub-basins are rural/residential areas, with agriculture being the predominant land use along the valley bottoms and on some terraces above the valley bottoms. The uplands are dominated by evergreen forest, accounting for about 75 percent of the basin.

Table 1. Generalized land cover and percentages for the Colville River Watershed

(%)Land Cover	Watershed Percent
Forests/Woody Wetlands/Shrub Land/Upland Grasses	82
Agriculture	10
Transitional Ground	6
Urban/Residential/Commercial/Industrial/Transportation	1
Open Water/Herbaceous Wetlands	1

Many of Stevens County's first settlers were former employees and relatives of the Hudson Bay Company fur trading post. Prior to these first settlers, the area was a major trade center for numerous Inland Northwest Indian Tribes. Kettle Falls was the second largest salmon fishery along the Columbia River (Bamonte & Bamonte, 1999).

The discovery of gold in the early 1850's in Canada and the northern parts of Washington Territory initiated the first major influx of white settlers. In the 1880's, major mineral discoveries, rich agricultural land, and timber led to the establishment of the Spokane Falls and Northern Railroad Company (Bamonte & Bamonte, 1999).

At the turn of the twentieth century, the principal industries in the Colville Valley were grain, fruit, hay, livestock, mines, and marble quarries. A valley to the west along the Columbia River was known to produce the finest orchard products in the west. The area was also known for its abundance of bear, deer, and lesser game (Western Historical Pub. Co., 1904).

As early as 1910, efforts were made by local residents to reduce the amount of flooding in the Colville River valley. In 1910, a drainage district dredged and removed vegetation, log jams, and gravel bars in the Colville River from Valley to Blue Creek. By 1936 another drainage district completed similar work near Colville, which reportedly reduced the length of the river in the district by sixteen miles (Dunn, 1941). The Great Northern Railway also altered the river prior to 1940, while the Kettle-Stevens Soil Conservation District helped landowners and flood control associations dredge portions of the river until approximately 1958 (Bafus et al., 1958). As recently as 1999, occasional dredging has occurred in the vicinity of Mill Creek.

Efforts to control the flood waters of the Colville River were made primarily to increase the value of agricultural crops. Prior to the channelization, areas in the valley were swampy and the soils were often saturated for long periods of time, which reduced the already short growing season. In addition, flood waters would sometimes spread noxious weed seed over valley fields (Dunn, 1941). According to Dunn (1941), dredging the Colville River allowed farmers to convert marshy ground used to grow hay to wheat crops that were worth more money per acre.

Government records estimated that there were less than 1000 residents (not including Native Americans) in Stevens County in 1871. At that time, the county was much larger than it is today; it included much of Northeast Washington. The 1900 census revealed that the population had grown to 10,543 (Western Historical Pub. Co., 1904). The 1970 census estimated the population at 17,436 residents (Bureau of Economic Analysis). Based on the 2000 Federal Census (Washington State Office of Financial Management, 2002), rural Stevens County has a

population of 40,066 residents, ranking 23rd in population of the 39 Washington counties. The major production industries include timber, agriculture, and mining, whereas some service industries are recreation and tourism. This forested county provides many opportunities for outdoor recreation including fishing, hunting, camping, swimming, and hiking.

The early history shaped much of Stevens County today, but some significant changes in the major industries have occurred. Between the 1990 and 2000 census, the slowest growing industry was durable goods manufacturing, which increased at an average annual rate of 2.7 percent (Murray & Coots 2003). During this same period, according to Murray and Coots (2003), the fastest growing industry was services, with an average annual rate increase of 10.1 percent. Between 1994 and 2003, total wages in the timber industry increased by 4 percent, whereas between 1993 and 2003, the mining industry wages declined by an estimated 43 percent (Workforce Explorer 2005). According to the National Agricultural Statistics Service (2005), both the number of farms and amount of land in farm production decreased in the county between 1997 and 2002, yet in 2002, the market value of production for the agricultural industry was valued at 28.2 million dollars. In 2000, Stevens County ranked 38 of the 39 Washington State counties for per capita personal income, with an average of 18,281 dollars (Bureau of Economic Analysis).

2. Approach

Waste Load Allocations

Waste load allocations are the portion of a stream's loading capacity that is assigned to point source. The waste load allocations are listed in Table 2. The percent reductions required by this TMDL are calculated from the difference in the existing and allocated loads. For an explanation of how to calculate the load, see Appendix C. The wastewater treatment plants (WWTP) for the cities of Chewelah and Colville are the two point sources located in the Colville River watershed.

For the Chewelah WWTP, separate waste load allocations are used depending upon the Colville River flow. Table 2 describes the allocated fecal coliform load for a given flow. The city of Chewelah constructed a new wastewater treatment plant in 2001, which allows them to meet the waste load allocations. Therefore, a reduction in fecal coliform is not required from the Chewelah WWTP effluent. Waste load allocations for the Chewelah WWTP have been incorporated into their National Pollutant Discharge Elimination System (NPDES) permit as effluent limits for fecal coliform.

The city of Colville was assigned a waste load allocation since a new wastewater treatment plant is still in the process of being constructed. The new plant will use ultraviolet disinfection rather than chlorine to treat the effluent for fecal coliform. The waste load allocation will be incorporated into Colville's WWTP NPDES permit when it is reissued in 2006. The new WWTP is expected to be operational when the permit is reissued.

Table 2. Waste load allocations for the Chewelah and Colville wastewater treatment plants

Facility Name	Existing Flow (cfs)	Existing Load (cfu/day)	Allocated Flow (cfs)	Allocated Load (cfu/day)	Percent Reduction
Chewelah WWTP	1.64	4.03E+9	1.64	4.03E+9	0
	1.00	2.46E+9	1.00	2.46E+9	0
	0.73	1.79E+9	0.73	1.79E+9	0
	0.43	1.06E+9	0.43	1.06E+9	0
Colville WWTP	1.86	9.15E+9	1.86	4.58E+9	50

cfs = cubic feet per second
cfu = colony forming units = colonies
E: represents a decimal expansion number such as 1.25E+8 is equal to 125,000,000

Load Allocations

Load allocations are the portion of a stream's loading capacity that is assigned non-point sources. Since calculating separate load allocations for each non-point source is exceedingly difficult, this TMDL sets load allocations at the sample sites used in the technical study (Coots, 2002). Figure 2 is a map of the sample sites.

Load allocations have been expressed as the percent reduction required and are shown in Table 3. As mentioned above, the percent reductions required by this TMDL are calculated from the difference in the existing and allocated loads. However, the geometric mean will also proportionately decrease. The 90th percentile fecal coliform criterion (no more than 10 percent of the samples can exceed 200 cfu/100 mL) was the water quality criterion found to be surpassed most often and therefore was used to determine the load allocations.

Target load reductions were calculated from data generated during the critical period. A critical period is the time of year when water quality is most impaired. The technical study discovered the critical period for most monitoring sites was during low flow, or from June through September. Blue Creek was the only site to have a different critical period, which was November through January. The load allocations therefore primarily apply to the timeframes above. However, the actions in this plan should make it possible to meet the fecal coliform water quality standard throughout the year.

In addition to the river and creek segments listed on the 1996 and 1998 303(d) list, four sites sampled during the technical study (Coots, 2002) were found to exceed the fecal coliform water quality standards. These four sites were assigned load allocations in this TMDL and are indicated by asterisks in Table 3. By including these sites in the TMDL, they will not be included on the next 303(d) list.

Per Coots (2002) recommendation, another study should be conducted if the state bacteria standard changes in the future. Concurrent sampling should take place during the study so that a correlation between fecal coliform and the new standard are developed. Only after that correlation has been determined can new TMDL targets be calculated for the new standard. TMDLs that have been approved will continue to be based upon the water quality criteria under which the process was initiated (Washington State Department of Ecology, 2003).

Table 3. Existing and target geometric means and load allocations for the Colville River watershed fecal coliform TMDL

Water Body	Sample Site	Existing Geometric Mean (cfu/100 mL)	90th Percentile	Existing Load (cfu/day)	Average Flow (cfs)**	Target Geometric Mean (cfu/100 mL)	Target Load Allocation (cfu/day)	Percent Reduction Required
Colville River	CR4	736	1681	2.73E+11	11.6	81	3.00E+10	89%
Colville River	CR6	487	1220	2.50E+11	15.7	78	4.00E+10	84%
Colville River	CR23	154	652	6.39E+11	97.4	46	1.91E+11	70%
Colville River	CR21	140	473	5.23E+11	81.2	59	2.20E+11	58%
Colville River	CR12	199	461	3.96E+11	42.5	86	1.70E+11	57%
Colville River*	CR18	146	453	4.80E+11	75.8	64	2.11E+11	56%
Colville River	CR11	217	381	2.40E+11	38.5	98	1.08E+11	55%
Colville River	CR16	174	427	3.34E+11	51.7	80	1.54E+11	54%
Colville River	CR20	214	362	2.96E+11	80.0	98	1.36E+11	54%
Colville River*	CR24	93	205	3.34E+11	98.4	90	3.24E+11	3%
Haller Creek	HAL19	379	3387	2.29E+11	3.4	19	1.14E+10	95%
Sherwood Creek	SHER9	122	3403	1.02E+10	1.2	6	5.10E+08	95%
Blue Creek	BLU13	411	3261	7.18E+10	1.4	25	4.30E+09	94%
Stranger Creek	STRN15	1249	2385	7.13E+10	2.6	100	5.70E+09	92%
Sheep Creek	SHC2	380	1272	1.05E+11	5.9	57	1.57E+10	85%
Waitts Lake Creek*	WLC6A	289	1168	1.56E+10	1.2	49	2.65E+09	83%
Stensgar Creek	STEN14	350	1010	2.85E+10	3.7	70	5.70E+09	80%
Deer Creek*	DEC3	132	773	3.01E+10	3.9	33	7.35E+09	75%
Huckleberry Creek	HUC7	207	497	2.26E+10	3.8	83	9.04E+09	60%
Jumpoff Joe Creek	JOJ5	220	396	1.09E+10	1.7	99	4.90E+09	55%
Cottonwood Creek	COT8	147	358	2.36E+10	4.1	81	1.29E+10	45%
Chewelah Creek	CHEW10	154	338	1.18E+11	11.5	91	6.96E+10	41%
Mill Creek	MILL22	132	239	1.35E+11	20.1	99	1.01E+11	25%
Little Pend Oreille River	LPOR17	107	264	9.23E+10	22.3	80	6.94E+10	25%
Sheep Creek	SHC1	84	209	1.86E+10	5.3	81	1.78E+10	4%

*River or creek segments found to exceed the fecal coliform standard during the technical study but were not listed on the 1996 or 1998 303(d) lists.
** average flow taken during the technical study in cfs = cubic feet per second (Coots, 2002)
cfu = colony forming units = colonies
mL = milliliters
E: represents a decimal expansion number such as 1.25E+8 is equal to 125,000,000

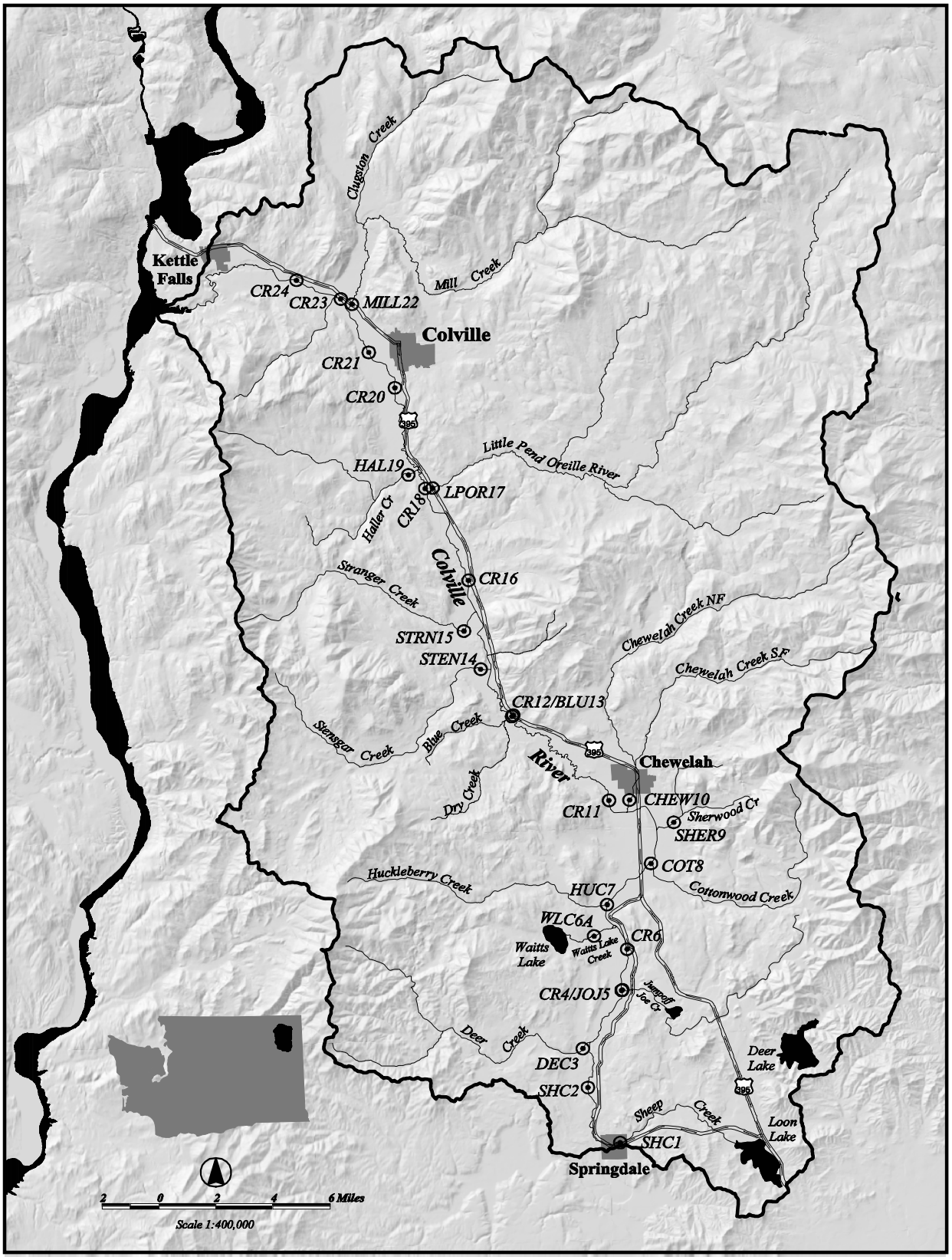

Figure 2. Sample sites used during the technical study

Timeframes for meeting targets

As stated in the submittal report (Murray and Coots, 2003), "the ultimate objective is to attain the entire TMDL target bacteria load reductions and meet water quality standards in no more than ten years or by 2012." However since the submittal report was not approved until 2003 and this detailed implementation plan was not completed until May 2005, the ten-year timeframe given as a target will be used. The final determinant of the success of this TMDL is the attainment of water quality standards by 2015.

The ten-year timeframe to meet standards has been divided into three phases of varying length. Each phase has an associated fecal coliform percent reduction target and general approaches to achieve that target. Table 4 details what the phases are and the actions that will be emphasized. The percent reduction target is intended to apply throughout the entire watershed, not to each river or creek segment requiring a reduction. The reasoning behind this distinction is that initial work will be concentrated in hot spots, so some river or creek segments may not experience the same percent reductions as others.

Table 4. Detailed implementation plan phases and their associated targets and actions

Phase	Years	Interim Targets	Approaches
1	2005 - 2009	35% reduction	• Identify hot spots • Narrowing of locations in noncompliance • Identification of sources through monitoring, bacteria source tracking (BST) and/or other acceptable methods • Education of the public • Assessment of our course of action and our ability to reduce fecal counts • Implementation of projects and reduction of fecal counts wherever possible
2	2010 – 2013	total 75% reduction	• Emphasize reductions • Acceptable resolution of fecal coliform at hot spots • Identify and evaluate additional problem sites • Identify desirable practices or actions and implement them as resources become available • Adjust this detailed implementation plan by the advisory group or implementation oversight group as necessary • Determine additional goals and reductions
3	2014 - 2015	total 95% reduction	• Conduct additional effectiveness monitoring • Adjust plan as necessary • Coordinate additional activities as necessary with agencies

*The total 95% reduction is based on the highest percent reduction required in Table 3.

Phase one has a lower percent reduction target than the other phases because the approach focuses on incremental monitoring to identify sources as well as addressing hot spots or areas with high fecal coliform levels. Phase two has a higher percent reduction target due to the

concentration on voluntary implementation in areas identified by monitoring research in phase one. The objective of the third phase is to conduct monitoring to identify any remaining sources and apply any remaining voluntary actions not addressed in the previous phases.

This plan is meant to be a reasonable approach to achieving water quality standards within a realistic timeframe under difficult physical, political, and economic circumstances. It is based on the belief that encouraging voluntary actions is the best way to achieve sustainable improvement in water quality in the watershed.

In general, this plan incorporates additional water monitoring to identify where fecal coliform is entering waters in the watershed, determine natural conditions, and conduct bacteria source tracking (BST) studies. (Although a scientifically defensible BST method has yet to be identified and accepted by the EPA or Ecology, the participation in research of a BST method will occur. Extensive use of BST will occur once an acceptable BST method has been identified.) Additional educational efforts are incorporated into the plan to inform watershed residents about fecal coliform and how practices on their land can help reduce bacteria levels. The plan also encourages voluntary implementation of BMPs and lists sources of technical and financial assistance. All possible sources of fecal coliform will be addressed by this plan.

Coordination with other planning groups in the watershed is the preferred approach to ensure any potential conflicts with requirements or resources are avoided. Per guidance from EPA, should a conflict between this implementation plan and another plan arise, the plan with the higher legal authority or the plan with available implementation funding may take precedence. The Department of Ecology Eastern Regional Office's Water Quality Program should be notified as soon as possible should such a conflict surface.

Water monitoring and additional studies

Additional monitoring is necessary to determine where fecal coliform is entering surface water. This knowledge must be obtained in order to identify the activities, BMPs, or management changes that will produce the desired reductions in fecal coliform. This approach will also allow the limited monetary resources to be used efficiently. Therefore, more monitoring is a priority during phase one of this plan, and will likely be required throughout much of the plan's duration.

The advisory group's preferred monitoring approach is to sample the Colville River and its tributaries in small upstream increments. This approach will reveal locations with the highest bacteria levels. An investigation can then take place within the identified area to determine the source or sources of fecal coliform, as well as identify possible implementation activities. Where previously unidentified fecal coliform sources are discovered, the first step in implementing control actions will be a referral to local entities for voluntary technical and/or financial assistance.

Large populations of deer and waterfowl live within the watershed, so the advisory group believes that much of the fecal coliform levels are the result of natural conditions. Therefore, the advisory group recommends that studies be conducted to set natural conditions.

Studies that attempt to identify sources of fecal coliform through DNA analysis (bacteria source tracking or BST) are also supported by the advisory group. One such study is being conducted by Dr. Douglas Call with Washington State University's Department of Veterinary Microbiology and Pathology. Dr. Call is currently researching a method to identify *Enterococci* DNA markers. Preliminary results show promise for Dr. Call's microarray method for identifying human, cattle, elk, and deer sources. Dr. Call has committed to conduct some field trials of his source tracking method within the Colville River watershed. The field trials are being conducted to test the validity of the DNA markers identified by the microarray analysis. However, the field trials are contingent upon the receipt of a grant from the United Stated Department of Agriculture. Ecology wrote a letter on behalf of the advisory group in support of Dr. Call's grant proposal.

Dr. Call's study is a first step in identifying the sources of fecal coliform in the watershed. However, the study will likely not be able to answer all the source related questions in the watershed. Therefore, in the future as BST science becomes more refined and accepted by EPA and Ecology, additional studies will likely be initiated within the watershed.

During the summer of 2010, effectiveness monitoring will be conducted in order to evaluate whether interim targets established by the TMDL have been met. If the targets are not met, the advisory group or implementation oversight group will convene to discuss an adaptive management strategy or new and additional actions that could be used to reduce fecal coliform. Additional actions may include more incremental monitoring, education, additional analysis of septic systems, and application of refined or new BMPs. The adaptive management strategy is further outlined in section three.

Application of BMPs

The advisory group's position is that voluntary implementation actions are the preferred method to reduce fecal coliform bacteria in the watershed. Ecology also supports voluntary implementation and believes that pollution reducing practices will need to be implemented in areas contributing fecal coliform in order to meet water quality standards. Since BMP implementation is voluntary, it may occur anytime throughout the duration of the plan. The Stevens County Conservation District and Natural Resources Conservation Service are the agencies that currently offer expertise and financial assistance to landowners applying BMPs. However, many more agencies are able to provide technical assistance. Section four of this plan lists the organizations and the assistance they can provide.

Educational efforts

Increasing awareness of fecal coliform levels within the watershed is a goal shared by many organizations in the watershed. Several organizations have plans to make information available to watershed residents about the existing financial and technical assistance to reduce the bacteria levels from various sources in the watershed. The educational efforts are further detailed in section four.

3. Adaptive Management

Adaptive management is required when results from water monitoring for effectiveness purposes (effectiveness monitoring) show that the interim targets in this TMDL are not being met. Effectiveness monitoring will be conducted approximately five years after this plan is finalized. At that time, if the data indicates the 35 percent reduction target identified in Table 4 is not being met, a new strategy (discussed below) will be used so that the targets can be reached. However, this plan can be changed at any time with mutual consent from the advisory group or an implementation oversight group and Ecology.

At minimum, re-evaluation of this TMDL by the advisory group or an implementation oversight group and Ecology is anticipated to occur at the interim and final target dates (2010, 2013, and 2015). Re-evaluation will include assessing the water monitoring data and reviewing all the implementation activities applied. If progress in reducing fecal coliform bacteria is slower than anticipated, then the following will be considered and may result in this detailed implementation plan being modified.

- Additional monitoring will be targeted in those areas found to have the highest fecal coliform concentrations. Stream sampling frequency and/or monitoring locations may need adjusting in order to further delineate fecal coliform sources. Additional BST studies may be initiated to support Dr. Call's study results.
- Additional funding will be directed toward implementation where sources of fecal coliform have been identified. Other avenues for accelerating implementation will also be explored. Moreover, alternative strategies to reduce bacteria, such as dredging, may be discussed and researched.

Finally, the advisory group's recommendation to re-evaluate the fecal coliform water quality standard, if not addressed earlier, may require follow-up. Natural condition designations, a use attainability analysis, or a site-specific criteria designation may be possible avenues to adjust the fecal coliform water quality standard. The water quality standards portion of the Washington Administrative Code (WAC) provides details about these options, which are provided below. Applicability to specific local circumstances will need to be assessed before determining whether to pursue any of these avenues.

The state water quality standards (WAC 173-201A-020) identify natural conditions as the quality of surface water that is present before any human-caused pollution. WAC 173-201A-260 explains further that natural conditions occur "when a water body does not meet its assigned criteria due to natural climatic or landscape attributes." To designate natural conditions in a water body that does not meet water quality standards one of the following must occur: 1) an analysis of data from the water body prior to human disturbance, 2) develop a correlation with data from a nearby undisturbed water body, or 3) conduct further data collection and modeling to simulate water quality that would occur under natural conditions. If studies could defensibly demonstrate that concentrations of fecal coliform are the result of wildlife rather than humans or human industries, that natural condition could be adopted as a special criteria condition for the water body. This approach, however, would not allow any additional human degradation above

the wildlife concentrations if those concentrations exceed the numeric standards in the state water quality standards. A natural conditions designation would apply only as far downstream as human effects are demonstrated to not occur.

WAC 173-201A-440 defines a Use Attainability Analysis (UAA) as a structured scientific assessment that is conducted to remove a beneficial use that has been assigned to a water body. Examples of beneficial uses are primary contact recreation or domestic water supply. UAAs must demonstrate both that the designated use does not exist and that it is not attainable. If accepted by Ecology, a formal public rule revision processes is initiated. The rule is then submitted to EPA for approval.

The water quality standards also make provisions for site specific criteria. WAC 173-201A-430 states that site specific criteria may be adopted "where the attainable condition of existing and designated uses for the water body would be fully protected using an alternative criterion." In other words, if the indicator for bacteria in water is shown to be contributed by non-animal sources, another more appropriate indicator is chosen to represent bacterial protection in a specific water body. For example, if an alternative bacterial indicator is believed to be more appropriate for protecting public health in the Colville River watershed, sufficient technical analysis would need to be conducted and/or documented to convince Ecology and EPA that the alternative indicator provides the same level of protection as the state existing fecal coliform criteria. Such site specific criteria would need to be adopted into the water quality standards through a formal public process.

Requirements of this TMDL are satisfied when sample results confirm that Washington State water quality standards are being met. Furthermore, if the water quality standards are met but the load allocations are not met, the TMDL will be considered satisfied. If water quality standards are met at the target stations, but the stream still does not meet water quality standards in other stream segments, then adaptive management methods mentioned above may be further employed to meet the objectives of this TMDL.

4. Pollution Sources and Organizational Actions, Goals & Timeframes to Reduce Bacteria

Several organizations have been, and are planning to continue, making efforts to reduce fecal coliform. The following is a list of organizations' past, current, and future commitments to reduce fecal coliform. Table 5 further details the actions undertaken by the organizations. However, some organizations have actions that can not be measured, do not have specific timeframes, or may be considered in the future. Therefore, information about these actions is provided in a narrative format. The narrative may also provide clarification of the information in the table. Information in both Table 5 and the narrative was provided by the respective agencies and/or groups and not by the advisory group.

4.1 Onsite Septic Systems

4.1.1 *Northeast Tri-County Health District (NETCHD)*

NETCHD permits and approves onsite septic systems handling up to 3,500 gallons per day. The health district is committed to providing technical assistance. At the site, technical assistance is a part of the permit process for new systems and repairs of old systems and will be reported on an annual basis. Technical assistance on septic system maintenance is also provided over the phone, but due to the large volume of calls they do not track them.

District staff may carry out future activities to reduce fecal coliform from onsite septic systems. One action would be to develop a GIS tracking system to map out locations of the permits. This GIS system would assist in identifying older septic systems located next to surface waters. The district is also interested in further researching opportunities and developing a strategy to coordinate with other agencies to provide financial assistance to landowners who need to replace malfunctioning systems near the Colville River or its tributaries.

4.1.2 *Washington State Department of Health (WSDOH)*

The WSDOH permits and approves large onsite septic systems. These septic systems have flows between 3,500 and 14,500 gallons per day, which is approximately ten to forty, three-bedroom homes on one system. WSDOH also develops standards for new onsite septic system technology.

4.1.3 *Stevens County Public Utility District (PUD)*

Most septage pumped from septic tanks is currently trucked to the city of Spokane Waste Water Treatment Facility. Not only is this costly, because of the long distance involved from most parts of the county, there are concerns that in the near future the city of Spokane will no longer accept the septage. Therefore, work has been initiated by the PUD to design and construct a facility that would reuse septage from Stevens County. The septage would be trucked to the proposed facility, screened, and placed into an aerated lagoon. During the growing season, the effluent would then be injected into the soil without damage to the growing alfalfa crop. The facility's proposed site is adjacent to the existing Valley/Waitts Lake municipal lagoons located in the Colville River valley. USDA Rural Development funding has been obtained to build this project at a rate of 8.5 cents per gallon, which is 2 cents more than the city of Spokane charges. The PUD is pursuing additional grant funding to reduce the rate to match the city of Spokane's rate of 6.5 cents. Construction is scheduled for completion in the fall of 2006.

Table 5. Schedule of implementation activities, interim targets & performance measures for possible bacteria sources

Source	Organization	Phase	Possible Implementation Actions	Targets	Performance Measure	
					What	When
Onsite Septic Systems	Northeast Tri-County Health District	All	Permit & approve all new and repairs of septic systems less than 3,500 gallons per day. The permit process includes providing technical assistance on septic system location, design, and decommissioning malfunctioning systems.	Permit new systems and repairs within the watershed	Report the number of permits, repairs and corrections of illegal systems	annually
		All	Provide educational materials on maintaining septic systems to homeowners with newly installed or repaired septic systems	Target educational materials to homes within the watershed	Report number of videos and pamphlets handed out	annually
		All	Respond to complaints and calls	Respond to all complaints and calls within the watershed	Report number of illegal systems identified in the watershed	annually
		All	Host meetings with groups and coordinate educational efforts with other agencies	Provide education to individuals within the watershed	Report number of workshops/presentations given and the number of people in attendance	annually
	Department of Health	All	Permit & approve all new and repairs of large onsite septic systems with flows between 3,500 and 14,500 gallons per day (approx. 10 to 40 three bedroom homes)	Permit new systems and repairs within the watershed-and assure designs meet standards	Report the number of permits, repairs and corrections of illegal systems	annually
		All	Review annual maintenance reports and issue annual operating permits	Track permits for systems within watershed and verify compliance with permit requirements	Report the number of operating permits issued and compliance status of permit requirements	annually
		All	Provide technical assistance	Respond to requests for technical assistance in timely fashion, provide accurate information / sound advice	Conduct site visits to verify suitable site/soil conditions and system performance	daily or as needed
					Track/report assistance requests and response time	annually
	Stevens County Public Utility District	1 & 2	Construct a facility to treat septage from septic tank pumpers	The facility is completed and operational.	All applicable permits are obtained & construction inspection reports completed.	dependant upon funding
	Stevens County Conservation District	All	Provide educational materials to homeowners	Provide education to homeowners with old systems, failing systems, or systems located next to streams	Report results of tests to landowners and Northeast Tri-County Health District	semi-annually

Table 5. Schedule of implementation activities, interim targets & performance measures for possible bacteria sources - continued

Source	Organization	Phase	Possible Implementation Actions	Targets	Performance Measure	
					What	When
Onsite Septic Systems (continued)	Stevens County Conservation District	All	Conduct voluntary dye-testing of septic systems	Test systems that are old, suspected of failing, or are located next to watershed streams	Report results of tests to landowners and Northeast Tri-County Health District	semi-annually
			Provide technical assistance to homeowners and direct them to potential sources of financial assistance	Provide assistance to homeowners with old systems, failing systems, or are located next to streams	Report results of tests to landowners and Northeast Tri-County Health District	semi-annually
Wastewater Treatment Plants	City of Chewelah	All	Test effluent & report results to Ecology monthly	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
		All	Purchasing TV equipment for sewer line inspection	Real time indications of sewer line problems	Systematic schedule of inspection & maintenance	as funding allows
		All	Studying new methods/plans to deal with storm water	A plan to deal with storm water is developed	Collection of plans or designs for stormwater collection	as funding allows
		1	Review Growth Management Plan for the city	Revise or add to the plan as needed	Completed plan	June 2005
	City of Colville	All	Monitor inflow, outflow & water quality	Permit limits are met	Discharge Monitoring Reports (DMR) submitted	monthly
		1	Construction of new wastewater treatment plant with UV disinfection	New treatment plant is completed and operational	All applicable permits are obtained & construction inspection reports completed.	7/31/2006
		1	Existing treatment facility treats fecal coliform with chlorine in the final process of the system	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly

Table 5. Schedule of implementation activities, interim targets & performance measures for possible bacteria sources - continued

Source	Organization		Phase	Possible Implementation Actions	Interim Targets	Performance Measures	
						What	When
Wastewater Treatment Plants (continued)	Stevens County Public Utility District	Addy/ Blue Creek & Valley/ Waitts Lake,	All	Monitor influent and monitoring wells & report results to Ecology monthly in DMR	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
			All	Monitor effluent (Irrigation water) monthly during growing (irrigation) season & monitor drainage ditch; report results to Ecology in DMR	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
			All	Monitor crops at time of harvest & monitor soils beginning and end of growing season; report results to Ecology in DMR	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
		Echo Estates	All	Conduct semi-annual maintenance	Low rate of system failure &/or little to no reported problems during the year	Submit maintenance report	annually
	City of Kettle Falls		1	Groundwater monitoring & shallow aquifer study	Determine if bacteria is entering groundwater from the lagoons	Completed study report	late 2005
			All	Effluent monitoring 3 times per year during irrigating season & submit results monthly to Ecology	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
			All	Soil and crop analysis in spray irrigation field	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
			1	Publish Kettle Falls Wastewater Facilities Plan	Completed plan	Draft for council review	late 2005
	Loon Lake Sewer District #4		All	Monitor influent and groundwater wells monthly & report results to Ecology in DMR	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
			All	Monitor effluent (Irrigation water) during growing (irrigation) season & report results to Ecology in DMR	Permit requirements for effluent met	Discharge Monitoring Reports (DMR) submitted	monthly
	Department of Ecology		All	Management of NPDES permits	Monitor all facilities within the watershed for compliance with permit limits	Inspection of submitted Discharge Monitoring Reports	monthly
			All	Conduct inspections	Inspect all facilities within the watershed for compliance with permit	Completed inspection reports	annually

Table 5. Schedule of implementation activities, interim targets & performance measures for possible bacteria sources - continued

Source	Organization	Phase	Possible Implementation Actions		Interim Targets	Performance Measures	
						What	When
Agriculture:	Stevens County Conservation District	All	Conduct water monitoring of tributaries and the Colville River at multiple sites, including some incremental sampling		Narrow down locations where fecal coliform is introduced into surface waters in the watershed	Review monitoring data with interested groups	annually
		All	Provide technical assistance and cost-share for implementation projects		Provide assistance and help with the installation of BMPs in the watershed	Report number of projects installed	annually
		All	Provide educational material and opportunities to landowners		Increase landowner awareness about fecal coliform	Hold 2 meetings and distribute 2 educational products	annually
		All	Provide dairies, etc. with technical assistance to implement nutrient management plans		Visit dairies in the watershed with the Dept. of Agriculture inspector	Prepare a summary of visits/results of contacts	annually
					Maintain contact with each dairy to track plan progress	Report number of dairies visited and/or contacted	annually
	Natural Resources Conservation Service	All	Provide technical and financial assistance to implement BMPs or conservation practices		Increase awareness of available programs and number of program contracts in the watershed	Report total number of awarded contracts for all available programs	annually
	Stevens County Farm Bureau	All	Provide annual article in SCFB newsletter		Increase member awareness	Forward copy of article	annually
	Colville National Forest	All	Maintain/upgrade BMP structures and implement BMPs in livestock grazing allotments		Maintain/upgrade/install BMPs in grazing areas adjacent to surface water with high fecal coliform counts	Record number of maintained/upgraded/ installed BMPs in grazing allotments	annually
		All	Monitor BMP structures to ensure they are functioning properly		Monitor BMP structures in grazing areas adjacent to surface water with high fecal coliform counts	Submit record of BMP structure and implementation monitoring	annually
		All	Water monitoring	ambient	Determine the levels of fecal coliform & narrow down geographic area where fecal coliform is entering the waters of listed streams on the forest	Compiled data &/or completed monitoring reports	annually
				BMP effectiveness	Show data obtained from monitoring above and below sites with BMPs	Compiled data &/or completed monitoring reports	annually

Table 5. Schedule of implementation activities, interim targets & performance measures for possible bacteria sources - continued

Source	Organization	Phase	Possible Implementation Actions	Targets	Performance Measures	
					What	When
Recreation (campgrounds, etc.)	Little Pend Oreille National Wildlife Refuge	All	Water monitoring	Determine levels of fecal coliform & narrow down geographic area where fecal coliform is entering surface water on the refuge	Compiled data &/or completed monitoring reports	as funding allows
		All	Replace outhouses with sealed vaults	Replace all outhouses next to surface water	Replace 9 outhouses	annually as funding becomes available
	Department of Natural Resources	All	Maintenance of campground vault-style out houses & continue monitoring drinking water systems in campgrounds	Prevent outhouses from contributing to fecal coliform in surface water in the watershed	Contact DNR by phone each year to get a report of activities completed & future activities planned	annually
		Future	Replacement of fiberglass outhouses in campgrounds	Replace all fiberglass outhouses in the watershed located close to surface water	Contact DNR by phone each year to get a report of activities completed & future activities planned	all projects will be done as funding becomes available
		1	Reclamation and relocation of several user developed riparian campsites near Sherry Creek	Follow Inter Agency Committee Plan guidelines regarding riparian campsites near Sherry Creek	New campground completed and (# of) campsites reclaimed	all projects will be done as funding becomes available
	Colville National Forest	All	Promote protection of water quality on maps, forest "bill boards", and at Ranger Districts	Post educational signs near popular campsites	Report number of signs made and posted	annually
				Hand out products (educational displays, brochures) with water quality educational messages	Report number of products made with water quality educational message	annually

4.1.4 *Stevens County Conservation District*

The Washington State Legislature established conservation districts in 1939 to direct programs protecting local renewable resources. Conservation districts take available technical, financial, and educational resources and use them to meet the needs of local landowners as they work to conserve soil, water, and other related resources. Conservation District Law (RCW 89.08) describes the powers and authorities of conservation districts. These include the following:

- Conduct investigations and research relating to conservation of natural resources,
- Conduct educational and demonstration projects, and
- Carry out improvements to conserve natural resources.

The district has cooperated with special interest groups, state, local and federal agencies, and individual landowners to develop watershed management plans, seek funding to implement plan recommendations, and install conservation practices on the ground throughout WRIA 59. The district will continue to work with agencies such as Northeast Tri-County Health District to seek financial support for landowners to replace failing and malfunctioning onsite septic systems near surface waters within the Colville River Watershed.

4.2 Wastewater Treatment Plants

Wastewater treatment plants servicing the communities in the watershed are permitted either through National Pollutant Discharge Elimination System (NPDES) or Washington State Wastewater Discharge processes. NPDES permits are required for those facilities that discharge effluent to surface water, which are also known as point sources. Washington State Wastewater Discharge permits are required for those facilities that discharge effluent on the ground, typically through irrigation on hay crops.

NPDES permits

The cities of Colville and Chewelah both have NPDES permits and have received waste load allocations for this TMDL.

4.2.1 *City of Chewelah*

In December of 2001, the city's new wastewater treatment plant began operating. Since that time, waste load allocations determined by the TMDL have been incorporated into the treatment plant's NPDES permit. The plant is operating within the permit limits, which includes testing the effluent three times per week. The wastewater treatment plant is currently operating at about 60 percent of design capacity and has the ability to handle the growth of the community.

During low flows in the Colville River, the treatment plant diverts effluent to the lagoons which then evaporates or is sent back through the wastewater treatment plant. Any seepage from the lagoons would be filtered by the soil before reaching the groundwater.

Prior to the treatment plant upgrade, the city performed inflow/infiltration studies of the sewer system pipes to find any problems. At that time, the city fixed those areas that needed it the most. Usually problems with the system will result in an increase of flow

into the treatment plant, because groundwater will seep into the pipes. As funding allows, the city is buying TV equipment that will enable them to inspect the lines. Limited funding also prohibits the city from routinely replacing sewer pipes, rather the problems are fixed as they are identified.

Chewelah is working on their growth management plan that includes looking at plans for storm water and their zoning guidelines. The Chewelah Wastewater treatment plant does not have a combined system that treats both waste and storm water, although as mentioned earlier, some storm water does get into the sewer system. The city is currently studying ways to deal with storm water. The majority of storm water does run into Chewelah Creek. Since Chewelah Creek runs through the city and the park, there is a no-pet ordinance (CMC 12.28.020) in the city park with the exception of seeing-eye dogs. When the county adopts their shoreline master plan, the town anticipates that their zoning guidelines may be affected. The city hopes to have their growth management plan completed by the June 2005.

4.2.2 City of Colville

The treatment plant was built in 1968 and serves only those buildings within the city limits. Only a few onsite septic systems exist in the city. In 1995 the city was given an enforcement order for violations of their permit. Since that time, the city has been working on planning and constructing a new waste water treatment plant in a series of steps. Construction of the plant is anticipated to occur in April 2005.

The city has adhered to guidelines established in a storm water management plan for monitoring and managing storm water. However, the city council has not yet adopted the plan. Currently, storm water is diverted to a 21- acre wetland that filters out pollutants before entering the Colville River. Expansion of the stormwater detention facilities to adjacent farmed wetlands is available if the need arises in the future.

The capacity needed for growth over the next 20 years was included in the study and new plant design. As a result, a new treatment plant similar to Chewelah's will be constructed. The city has started construction by working to compress the soils where the plant will be located. During low flows, treated wastewater will be stored in one of the lagoons. Engineering models indicate the stored wastewater will likely evaporate in this lagoon.

The city has also designed the new plant so that water reuse components can be added into the design of the facility. In the future, this will allow the city to irrigate the golf course, park and high school grounds with water treated at the facility.

Washington State Wastewater Discharge Permits

Discharge permit requirements include monitoring the influent, effluent, groundwater, soil, and crops. The influent is monitored by meters that are read daily and the treatment plants also have ports from which samples can be obtained. Effluent is discharged through irrigation systems on growing crops and is monitored at the irrigation system. The crops are not used for human consumption. Enough effluent is discharged so that there is enough storage in the lagoons during the winter and spring. Irrigation systems have automatic shut-off valves for high winds and

freezing temperatures. Groundwater samples are obtained from monitoring wells located at various locations around the lagoons to monitor nutrient levels are in the ground water. Soil monitoring is conducted to ensure that agronomic rates of nutrients are being applied. Crops are tested for nutrient uptake at the time of harvest.

Each facility is required to submit discharge monitoring reports (DMRs) every month. The DMRs provide the results of the facility's monthly monitoring. Ecology's facility permit manager then checks the DMRs to ensure that permit limits are being met. Discharge permits are effective for five years. Upon renewal new permit limits may be added. The city of Kettle Falls and the communities of Addy/Blue Creek, Loon Lake (including Deer Lake), and Valley/Waitts Lake each have Washington State Wastewater Discharge permits.

4.2.3 *Addy/Blue Creek*

Public Sewer Systems were installed in 2001 for the communities of Addy and Blue Creek. Construction was completed in 2002. Water monitoring found high levels of fecal coliform in Blue Creek, which was believed to be the result of leaking individual septic systems. Septic system tanks within the community were decommissioned by being pumped and filled with soil. Bacteria levels have decreased since the new public sewer system was completed. A shared treatment facility located between the two communities consists of one aerated facultative lagoon and one storage lagoon, and a circle irrigator for land application of the treated effluent. The permit for the facility will be renewed on June 30, 2007.

4.2.4 *Valley/Waitts Lake*

Fecal coliform was present in the Colville River from antiquated individual septic systems in the town of Valley, including a pipe that fed sewage directly into the Colville River. Sewage was surfacing around the east side of Waitts Lake because of failing individual septic systems, outhouses, and high groundwater in the spring. The water quality of the lake had been decreasing for a number of years. The Stevens PUD installed public sewer systems beginning in 1997 for the communities of Valley and Waitts Lake and were completed in 1999. A shared treatment facility located between the two communities consists of two aerated facultative lagoons and one aerated storage lagoon, and a circle irrigator for land application of the treated effluent. The permit for this facility will be renewed on May 11, 2008.

4.2.5 Echo Estates

See Table 5

4.2.6 *City of Kettle Falls*

Just installed six more groundwater monitoring wells (only had one previously). The city will now conduct a study to determine which direction ground water is flowing; if the ground water is flowing south to the Colville River or north to Lake Roosevelt. The monitoring data from the existing well has not shown any elevated coliform or nitrate levels. The effluent is monitored three times per year during the irrigation season.

Throughout most areas in the city, the stormwater runoff is absorbed by the ground and the vegetation along the shoulders of the public streets. The flat configuration of the town and the well drained soils make this an easy and efficient method. In some specific areas drywells are used. The only extensive stormwater collection system serves the business district, Highway 395 and the BNSF Railroad. It discharges into a large gully south of the highway and the railroad which at times becomes flooded and eventually soaks into the ground. There is virtually no surface runoff from the city of Kettle Falls that enters the Colville River directly.

The city is still looking at options and assessing plans for a treatment plant upgrade. Future plans could include re-lining the lagoon bottom, expansion of lagoon or irrigation area.

4.2.7 *Loon Lake Sewer District #4 (includes Deer Lake)*
The municipal treatment facility takes waste from Deer Lake and combines it with that from the landowners around Loon Lake which is then treated in a series of lagoons, one of which is aerated. (The PUD manages the sewer system at Deer Lake.) The sewer district also has a crop management plan for the fields irrigated with effluent from the lagoons. Their permit is due to be reissued in November of 2005.

4.2.8 *Department of Ecology*
See Table 5

4.2.9 *Springdale*
While the town is located on the edge of the watershed, the lagoons and irrigation area are located outside of the watershed near Swamp Creek. However, the town is still required to adhere to permit requirements associated with State Waste Discharge Permits.

4.3 Agriculture

4.3.1 *Stevens County Conservation District (SCCD)*
The Stevens County Conservation District has been active in water quality since the late 1980's. The district began water quality monitoring in WRIA 59 in 1992 and has an extensive water quality monitoring network throughout the watershed. The district will be working within WRIA 59 during the next five years on a TMDL implementation project and on the Little Pend Oreille River Watershed planning and implementation project. Both projects include water quality monitoring to identify possible sources of fecal coliform bacteria and cost-share funds to help landowners who are interested in implementing BMPs to address water quality concerns. Each project also has an information and education component that will be used to inform the public of current issues and how they can help to enhance or protect the quality of surface water in their part of the watershed. Moreover, every year the district sells native trees and shrubs that can be used to help establish riparian buffers.

4.3.2 *Stevens County Cattlemen's Association*

The Stevens County Cattlemen's Association does not agree with the state fecal coliform water quality standard of 100 colonies/100 mL. The Stevens County Cattlemen's Association believes the standard was arbitrarily set by the Department of Ecology without regard or consideration of the conditions or uses of specific watersheds, is not adequately supported by scientific data or facts, and does not take into account the effect large populations of wildlife and other "natural causes" present in this watershed will have on our ability to meet this standard and also maintain reasonable community and agricultural uses which form the economic basis of this area.

The Stevens County Cattlemen's Association believes it is important to properly identify varying sources of fecal coliform in the watershed with equal responsibilities placed on all general areas such as private, state and federal lands as well as equal emphasis on the effect of "natural causes" (*i.e.*, wildlife) and human contributions.

For these reasons, the Stevens County Cattlemen's Association believes the following actions must be required by the detailed implementation plan (DIP):

1) Collaboration with other agencies, universities and organizations must occur to identify specific areas or sites that appear to be major contributors to high fecal coliform counts.
2) Science based methods currently available and emerging science and technologies of the future must be utilized as an important part of determining the types of fecal coliform present, the significance of the fecal coliform effects on the environment, and the appropriateness or scope of actions considered for the watershed.
3) Funding for continuing studies, assessing data and implementing voluntary solutions is an important necessity in this DIP. The Department of Ecology should have the primary responsibility to coordinate a consistent effort to identify possible financial alliances, grant opportunities, new and existing cost-share programs, etc.

The Stevens County Cattlemen's Association defines "support" as encouraging participation where possible and as individual members may choose. Therefore, the Stevens County Cattlemen's Association supports the following actions.

1) Alliances with other organizations.
2) Working with universities such as WSU and Dr. Call to use BST as a potential method of identifying fecal coliform sources.
3) Education of members and the public concerning TMDL issues and concerns.
4) Education of members concerning available funding for voluntary projects.

The Stevens County Cattlemen's Association desires:

1) Start all applicable water quality standards at zero after wildlife's influence.
2) Support a species-specific test including Dr. Call's method, but not to set policy until proven.
3) Test streams for the hot spots then address the hot spots (high fecal coliform areas).

4) To have page A-40 of the March 2004 and May of 2003 Submittal Reports forwarded to the DIP. (See Appendix D)

4.3.3 *Natural Resources Conservation Service (NRCS)*

NRCS offers technical and financial assistance to landowners who have participated in United States Department of Agriculture (USDA) programs. A local work group has been formed to help NRCS establish priority conservation practices for the Environmental Quality Improvement Program (EQIP). For more information on the funding available through EQIP, the Conservation Security Program (CSP) and other USDA programs, please see the Funding section in this plan.

4.3.4 *WSU Cooperative Extension*

WSU Cooperative Extension offers education about a wide range of topics about water quality. Many of the educational materials offered by WSU Cooperative Extension are located on the internet at http://ext.wsu.edu/. Satellite conferences are also held periodically. Anyone interested in attending a satellite conference should contact the local WSU Cooperative Extension office to make arrangements. Currently, WSU Cooperative Extension is in the process of developing an educational pamphlet for horse owners. Notices about funding opportunities are also posted on the above website.

WSU Cooperative Extension staff members are willing to help inform watershed residents about this TMDL implementation plan and BMPs that may be voluntarily applied to reduce fecal coliform levels.

4.3.5 *Stevens County Farm Bureau*

The Farm Bureau is a voluntary, grassroots advocacy organization representing the social and economic interest of farm and ranch families at the local, state, and national levels. By providing leadership and organizational skills, the Farm Bureau seeks to gain public support on the issues affecting farm and ranch families.

The Farm Bureau recommends that TMDL responsibility begin with the Washington Department of Ecology based upon the water quality minimum guidelines developed by the U.S. Environmental Protection Agency. TMDLs must be based on credible data and implementation actions are economically and environmentally sound. To meet this responsibility, implementation should recognize property rights as the foundation for resource production; recognize human material needs; be driven by peer reviewed science; include the necessary financial resources to meet the objectives; recognize the contribution of private landowners and resource producers in sustaining environmental quality; apply industry recognized management practices; include public responsibility for fair burden of the cost; be equally applied and enforced in all areas of the watershed both private and publicly owned. We support education, water monitoring, and the providing of technical assistance, provided it be done in a voluntary manner with cost sharing for any improvements made.

The primary concern is that currently, if the fecal coliform numbers exceed the standard, no human activities (meaning direct human contamination or human activities such as agriculture and livestock production) can contribute to these fecal coliform numbers. This is unrealistic, unreasonable, and totally unacceptable. Further, we believe this is illegal, and unconstitutional. We firmly believe in clean water, but this process MUST be done in a balanced and fair manner. Under the current NPDES permit system, point source pollution is allowed to contribute a certain amount of contaminants (fecal coliform) regardless of the fecal coliform count in the system. The NPDES permit does vary the amount of contaminants allowed to enter the stream based on the time of the year and flow, but never the less total fecal coliform counts in the river system can exceed the standards below the point of discharge. This is in contrast to non-point source pollution. Non-point source contributions are unacceptable and totally prohibited from occurring at any level if background exceeds the standard. This has set up the scenario where non-point source pollution is regulated to a higher standard than point source pollution. This is totally unacceptable and needs to change. Some provision should be allowed to recognize the background fecal coliform counts and allow for small and reasonable contributions by non-point sources. This is especially true when fecal coliform counts exceed the standards and all contributions have been made by wildlife.

Stevens County Farm Bureau (SCFB) supports the usage of voluntary, cost-shared BMP implementation, if done in a cooperative approach. We further feel that usage of the local Farm Bureau, or county conservation district as a buffer between the agencies and the landowner is necessary and beneficial to building trust and the success of any effort to clean up the water ways.

SCFB is already keeping their members informed about this planning process and are committed to continue. SCFB members receive a local newsletter periodically and are able to stay informed in the TMDL process. SCFB has been committed to forming coalitions to solve problems in our area and are willing to look into partnering with the SCCD and other groups, in joint grants to lower the fecal coliform numbers. This includes education, cost sharing on projects or implementations of BMPs as long as all participants and activities are voluntary.

4.3.6 *Department of Natural Resources*

All DNR grazing leases and the one permit range within the Colville River Watershed are required to have resource management plans. Resource management plans were created in response to the passage of "HB 1309 Ecosystem Standards for State-Owned Agricultural and Grazing Lands" by the 1993 Washington State Legislature. Resource management plans incorporate BMPs. Each plan's objective is a functioning ecosystem that supports healthy populations of fish and wildlife while maintaining site features and productivity that meet the objectives of the land manager for sustainable land management.

Leases and permits are written for a term not to exceed ten years. Prior to lease expiration and renegotiation, a DNR land manager will make an onsite inspection and review the resource management plan for each lease or permit. Most leases have a five-year rental adjustment clause, and as budgets allow, an onsite visit will be made by the

land manager which affords another opportunity to review the resource management plan. On a case by case basis, leases are also visited for improvement verification or for resource issues.

DNR is not opposed to water monitoring being conducted on state land managed by DNR. DNR supports the usage of voluntary, cost-shared BMP implementation, if done in a cooperative approach. Based on future studies, any needed restoration would be implemented as funding becomes available.

4.3.7 *Colville National Forest*

In 2003, the Department of Ecology began working with the Colville National Forest to develop a TMDL for the bacteria and temperature listings on the forest. Water monitoring for the TMDL will be complete in October of 2004. The TMDL Submittal Report is anticipated to be sent to EPA in the spring of 2005. Activities to reduce fecal coliform as well as temperature will be included in that TMDL.

Two creek segments listed on the 1998 303(d) list for fecal coliform that are addressed in the Colville National Forest TMDL are located within the Colville River watershed. These creeks are the South Fork Chewelah Creek and the headwaters of Mill Creek. The Forest Service is planning on additional livestock related BMPs in the South Fork Chewelah Creek, and will continue to monitor their effectiveness. Other areas of the forest will be examined to determine what BMPs could be installed.

4.3.8 *Spokane Tribe*

The Spokane Tribe is working to ensure that waters from reservation lands meet water quality standards. One activity conducted by the Tribe is water monitoring. Frenzwa Creek has been sampled since 2003 and will continue to be monitored since there is a wastewater lagoon/wetland near the stream. Fecal Coliform data from 2003 did not exceed the standard, and the 2004 data has not yet been evaluated. Another activity the Tribe is planning is to plant a riparian buffer. Shrubs and trees planted along the stream will help filter out bacteria and nutrients as well as allow for additional cooling of the creek in future years.

4.3.9 *Little Pend Oreille National Wildlife Refuge*

As decided in May of 2000, livestock grazing permits will no longer be issued after October 2004 for the Little Pend Oreille National Wildlife Refuge. Although at the time this decision was made, fecal coliform and water quality was not a factor, this action will eliminate livestock as a source of fecal coliform on the refuge.

4.3.10 *Washington State Department of Agriculture*

The Nutrient Management Program of the Washington State Department of Agriculture (Dept. of Agriculture) conducts regular inspections of permitted and non-permitted dairies and permitted Concentrated Animal Feeding Operations (CAFOs). They will also offer technical assistance inspections to un-permitted Animal Feeding Operations (AFOs). Ecology will retain responsibility for permit issuance and renewal until the Department of Agriculture has delegation authority of these tasks from the Environmental Protection Agency.

The Department of Agriculture will continue to respond to complaints from permitted and non-permitted dairies, permitted CAFOs, and AFOs with discharges from their production area. Ecology will respond to AFOs with no previous violations, AFOs with potential violations unrelated to AFO status (not from the production area), and pasture based operations.

The implementation deadline for CAFOs is December 2006. As CAFOs are permitted and they develop nutrient management plans, the certification process will include Department of Agriculture approval. The Department of Agriculture is working with conservation districts, commercial nutrient management personnel, and Washington State University to simplify the Nutrient Management Plan and to make the requirements of the plan more straight forward

4.4 Wildlife

4.4.1 *Washington State Department of Wildlife (WDFW)*

Studies would be supported to find out what sources are there and what species are involved. If wildlife is found to be a source, then perhaps a combination of good harvest rates and habitat change could be researched.

The U.S. Fish and Wildlife Service (USFWS) have considerable authority over the state in managing waterfowl hunting. The USDA Wildlife Services manage nuisance waterfowl because they are migratory (federal) species. As a result, the USDA Wildlife Services is the only agency that can use closed season control of waterfowl. The WDFW takes the maximum amount of time to hunt geese. The maximum number of days is set by the U.S. Fish and Wildlife Service (USFWS).

The WDFW website (http://wdfw.wa.gov/habitat.htm#grants) and news releases inform people about funding opportunities. However, most funded activities enhance habitat.

4.5 Recreation

4.5.1 *Little Pend Oreille National Wildlife Refuge*

Recreational opportunities on the refuge include hunting (no trapping), fishing, camping in designated campgrounds and dispersed campsites, as well as bicycling on maintained roads and trails. For more information please contact the Refuge.

Fifteen old user developed riparian campsites were relocated and reclaimed in 2001. Two septic systems have been replaced on the refuge. Winslow Cabin's system was replaced in 1998, and the headquarters building was replaced in 1999.

4.5.2 *Department of Natural Resources*
See Table 5

4.5.3 *Colville National Forest*
The Forest Service is working to reduce to fecal coliform bacteria from various sources, including those related to recreation. Approximately one and a half million dollars was recently spent replacing outhouses in developed campgrounds and among dispersed campsites with sealed vaults. In some cases, the sealed vaults were relocated further away from surface waters. All outhouses have been replaced. The Colville National Forest will continue educational programs to promote the protection of water quality by forest visitors.

4.6 Advisory Group

The advisory group is interested in reducing all disease-causing organisms that may or may not be indicated by the presence of fecal coliform. As such, the advisory group supports the following actions:

- Conduct bacteria source tracking (BST) studies to identify the sources of fecal coliform.
- Conduct studies to set natural conditions.
- Perform additional water monitoring for fecal coliform in small upstream increments to narrow down "hot spots."
- Use voluntary implementation actions to reduce fecal coliform bacteria.
- Local entities working together to apply for funding to implement this plan.
- Strong support is given to the Stevens County Public Utility District (PUD) to attain funding for the construction of the planned septage treatment facility. The advisory group considers the construction and potential future expansion of the facility key to the success of this plan and improvement of water quality in the watershed.

4.6.1 *Recommendations*
The advisory group cannot obligate agencies with actions or activities, and as such have not contributed actions to the organizations listed above. However, the advisory group has formulated a list of recommendations they would like the implementing agencies or groups to consider. The advisory group believes the following recommendations are necessary steps to reduce fecal coliform:

1. Northeast Tri-County Health District:
    - Increase efforts to identify systems adversely affecting water quality.
    - Aggressively pursue establishment of a cost-sharing program for remediation of septic systems adversely affecting water quality as intended in this plan (e.g. advocating for legislative actions, allocations or rule changes).
    - Work with Stevens County Information Services to develop a Geographic Information System (GIS) layer of septic systems.

2. Little Pend Oreille National Wildlife Refuge:
    - Conduct water monitoring and BST on the Refuge to identify sources or hot spots.
    - Manage wildlife habitat to improve water quality.
    - Use NRCS conservation practices in their Field Office Technical Guide (FOTG) as opposed to prescribed burning to manage healthy habitat.
3. United States Fish and Wildlife Service
    - Manage migratory birds, waterfowl and wildlife populations so that their contribution to fecal coliform levels in the Colville River Watershed is minimized.
    - Balance multiple uses (agriculture, recreation, aesthetics, water quality and wildlife) when developing or establishing agency management practices.
4. Washington State Department of Fish and Wildlife:
    - Research and implement new techniques/actions to manage wildlife populations that support improvement of water quality as intended in this plan.
    - Manage migratory birds, waterfowl and wildlife populations so that their contribution to fecal coliform levels in the Colville River Watershed is minimized.
    - Balance multiple uses (agriculture, recreation, aesthetics, and wildlife) when developing or establishing agency management practices to improve water quality.
5. Colville National Forest
    - Manage wildlife habitat to improve water quality.
6. Washington State Department of Natural Resources
    - Manage wildlife habitat to improve water quality.
7. Natural Resources Conservation Service
    - The conservation programs including the Wetland Reserve Program should be managed so as not to increase fecal coliform bacteria.
    - Manage wetlands and wildlife habitat to improve water quality.
8. Department of Ecology
    - Fund new research and technology which could help identify sources of fecal coliform.
9. Use livestock grazing methods that help protect water quality and meet the needs of the landowner/producer.

5. Funding Opportunities

The Department of Ecology (Ecology) may provide funding for the activities in this implementation plan through their Centennial Clean Water Fund, State Revolving Loan Fund Program, and the Federal Section 319 Grant program. All three of these programs have the same annual application cycle so pubic entities and non-profit (501C3) organizations can apply for assistance to monitor water and implement activities to reduce water pollution. Public entities and non-profit organizations may also apply for Terry Husseman grants for projects that benefit

water quality. Ecology grants can be applied for throughout the duration of this plan to conduct monitoring, install BMPs, and/or provide education.

Ecology may also seek funding sources available to them to assist with the implementation of this plan. This type of funding may allow Ecology's Environmental Assessment Program (EAP) to collaborate on water monitoring activities, or other types of studies that have been identified within this plan.

The Natural Resources Conservation Service administers several USDA programs that offer financial assistance for installing conservation practices that will help reduce fecal coliform. The Environmental Quality Incentives Program (EQIP), Continuous Conservation Reserve Program (CCRP), Wildlife Habitat Incentive Program (WHIP), Grassland Reserve Program (GRP), Farm and Ranch Lands Protection Program (FRPP), Wetlands Reserve Program (WRP), and Conservation Security Program (CSP) are the programs available to landowners at the time of this plan's development. Requirements for these programs vary, as do the benefits provided. Please contact the USDA Service Center in Colville for the most up-to-date information. Other programs may also become available in the future.

The Stevens County Conservation District is a public entity that is eligible to receive grants from Ecology. One such grant was awarded to the district in 2004 in order to conduct additional monitoring, provide education about both septic system maintenance and the function of BMPs, as well as provide funding for BMP implementation. Another grant proposal to educate, monitor and apply BMPs within the Little Pend Oreille River watershed was submitted in 2005 for funding consideration. Washington State through the Washington Conservation Commission provides additional grant opportunities to the district to provide education and financial assistance to watershed residents. The district will likely continue applying for funding to assist with the activities mentioned in this plan.

Federal and state agencies also have some funding to implement strategies listed in this document on their property. For example, the Colville National Forest has a variety of funding sources to implement water cleanup actions.

In addition, other sources of funding and partnerships to obtain funding will be investigated and encouraged. For example, the Stevens County Conservation District and Northeast Tri-County Health District may partner to research opportunities and apply for grants or loans to assist homeowners who need to replace or update their septic system.

6. Measuring Progress toward Goals

6.1 *Performance Measures and Targets*

The purpose for monitoring performance measures is to determine whether this detailed implementation plan, after a portion of the actions or recommendations have been applied, was adequate in meeting the goals and objectives in this plan.

Table 2 lists the waste load allocations given to the cities of Chewelah and Colville, whereas Table 3 lists the load allocations. As mentioned previously, the goal of the TMDL and this plan

is to meet fecal coliform water quality standards by 2015. Interim targets identified for each phase of this ten-year plan (Table 4 on page 10) will be used to help track the progress in meeting this goal.

Organizations assisting with the implementation of this plan have identified performance measures in Table 5 (pages 16-20). Each performance measure associated with a particular action has the ability to be tracked. Those performance measures will be reviewed by the advisory group or an implementation oversight group at least annually. Appendix A contains tables for each assisting organization so that progress on their performance measures can be tracked. The Ecology TMDL coordinator for the Colville River watershed will collect the performance measure reports from each organization and assist with tracking the targets where ever needed.

6.2 *Effectiveness Monitoring Plan*

The purpose of effectiveness monitoring is to provide assurance that BMPs voluntarily put in place and other actions mentioned in this plan achieve the expected load reductions. Monitoring strategies tie improvements in water quality to known implementation measures. This type of monitoring is designed to assess both the specific effects of individual management actions and the overall cumulative effect of this plan's implementation.

Monitoring identified earlier in this plan will be used primarily for the identification of fecal coliform sources and not necessarily for effectiveness. However, the Stevens County Conservation District may conduct some specific BMP effectiveness monitoring concurrent with the monitoring. The advisory group or implementation oversight group will continue to meet on at least an annual basis to review what new data exists, as well as new or additional actions that could be used to reduce fecal coliform.

During the summer of 2010, effectiveness monitoring will be conducted by Ecology in order to evaluate whether interim targets established by the TMDL have been met. Ecology staff conducting the effectiveness monitoring will review the TMDL technical report, and contact the TMDL coordinator to obtain the results of implementation monitoring and the status of the implementation plan. In addition, Ecology monitoring staff and the TMDL coordinator will make an effort to identify a local partnership to assist with data collection. On completion of the effectiveness monitoring, the resulting data will be analyzed. An advisory memorandum and technical report written by Ecology on the water quality status will then be released. Another season (June through September) of effectiveness monitoring will occur in 2014.

If the targets in this plan are not met when the advisory group or implementation oversight group convenes, they will discuss the adaptive management strategies that could be used to meet the targets. Additional actions may include more incremental monitoring, education, and application of refined or new BMPs. The adaptive management strategies are further outlined in Section three.

7. Reasonable Assurances

Improved water quality will be achieved through the combined efforts of all interested parties in the watershed. In support of this TMDL, Ecology will work cooperatively with all interested parties in the watershed to determine the bacteria source(s), promote the implementation activities needed to reduce the bacteria levels, and meet the TMDL targets.

In regards to the waste water treatment plants, Ecology's permit manager will monitor the effluent through the required monthly submittal of the discharge monitoring reports (DMRs). Since the city of Chewelah wastewater treatment plant was completed, the fecal coliform levels have dropped significantly. The city of Colville is in the process of constructing a treatment plant similar to Chewelah's, so it is expected that the same drop in fecal coliform levels will also occur in Colville. The city of Colville is expected to complete their treatment plant in 2006.

Ecology and the Forest Service will be working together to continue fecal coliform monitoring in the tributary headwaters on Forest Service land. This will be the first step in identifying where the fecal coliform bacteria exceeds the water quality criteria and the possible sources. This will be essential in determining what initial BMPs will be implemented. The Colville National Forest will also be completing a TMDL that will address fecal coliform and guide their efforts to reduce fecal coliform levels.

All dairy nutrient management plans (DNMPs) in the watershed have been approved, thus indicating that dairies should not be contributing fecal coliform to surface waters in the watershed. Prior to December 31, 2003, all of the implemented DNMPs should be certified. Dairy inspections will continue to occur every year and a half to ensure proper nutrient management.

The Stevens County Conservation District and the Natural Resources Conservation Service have been offering technical and financial assistance to landowners to install BMPs. Typically more applications for financial assistance are received than can be funded. Therefore, as long as funding is available it is likely that BMP implementation will continue. Both organizations also have plans to inform watershed residents about the assistance available to them.

Public Utility District #1 of Stevens County (PUD) has constructed six wastewater collection and treatment systems in the watershed. These systems have replaced approximately 1,200 on-site septic systems, many of which were failing, thus considerably decreasing the human fecal coliform contributions to the surface waters. In 2002, PUD's Addy/Blue Creek wastewater collection and treatment system became operational, and it is believed bacteria loading to the Colville River from the Blue Creek tributary, the highest bacteria density water body in the watershed, will be significantly decreased. The PUD has completed a plan to construct a facility designed to accept septage from septic tank pumpers. As soon as funding is secured, construction related activities can begin.

Stevens County has adopted a critical areas ordinance. The critical areas ordinance designates and protects areas such as wetlands, aquifer recharge areas, and frequently flooded areas. The ordinance includes information on development in and near critical areas. The county's planning department has enforcement authority for the provisions within the critical areas ordinance.

As previously mentioned, the Stevens County Planning Department is responsible for enforcing the county's critical areas ordinance. As such, the county may seek assistance from local, state and federal agencies to complete an investigation. Efforts will be made to achieve voluntary compliance prior to referring the violation to the Stevens County Prosecuting Attorney (Board of County Commissioners, 2004).

Ecology, through delegation from EPA, ultimately has enforcement responsibility for elements in this plan. Education, outreach, technical and financial assistance, and enforcement will be used to ensure compliance with the Colville River Watershed Fecal Coliform TMDL. Generally, the first step in implementing control actions will be a referral to agencies with technical and/or financial assistance missions. When those tools are not effective in achieving implementation of control measures, enforcement will be used as dictated by RCWs.

8. Public Involvement

Numerous methods were used to inform the public about the development of this plan. Public meetings held in October and November 2003 to discuss the implementation plan were advertised in local newspapers. Advisory group meetings began in December 2003 and continued monthly through March 2005. Notification of the public meetings and monthly advisory group meetings was sent to a mailing list consisting of 116 people. Members of the public were present at most of the advisory group meetings. A website about the Colville River Watershed Fecal Coliform TMDL can be visited at: http://www.ecy.wa.gov/programs/wq/tmdl/watershed/colville/index.html. The website was periodically updated with information about advisory group membership and scheduled meetings.

Prior to submitting this implementation plan to EPA, it went through a 30-day public comment period. A notice about the public comment period was sent to area newspapers and the Colville and Chewelah radio stations. The public comment period was advertised in the Chewelah Independent and Colville Statesman-Examiner. Notification was also sent to individuals on the mailing list. Copies of the draft plan were made available at the Stevens County Conservation District, the Stevens County Commissioners' office, and the Colville, Chewelah, and Kettle Falls public libraries. The draft plan was also available via the above website. A final advisory group meeting was held in May to review changes made to the document as a result of the public comments received.

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Definitions

Adaptive management: a process for reviewing the status of implementation activities and adjusting the detailed implementation plan based upon the amount of progress being made toward achieving water quality standards.

AKART: acronym for all known and reasonable technology that is used to prevent, control and treat pollution. AKART represents the most current methodology that can be reasonable acquired for preventing, controlling, or abating the pollutants associated with a discharge. In this document AKART will be used by point (discrete) sources of pollution to reduce fecal coliform.

BMP: acronym for best management practice which means any physical, structural or management practice, used singularly or in combination, prevents or reduces pollution. In this document BMPs are conservation practices pertaining to water quality that will be applied to non-point (diffuse) sources of pollution.

CFU: acronym for colony forming units which is equivalent to colonies. CFU or colonies is a measure of the amount of fecal coliform present in a volume of water.

FOTG: acronym for field office technical guide that is used by the Natural Resources Conservation Service (NRCS). The FOTG contains resource management guidance documents consisting of conservation practices that may be applied to meet NRCS quality criteria.

Load allocation: portion of the loading capacity that is attributed to non-point (diffuse) sources of pollution.

Loading capacity: amount of a pollutant that can be discharged to a water body while continuing to meet water quality standards. The loading capacity is divided among the various sources of the pollutant.

TMDL: acronym for total maximum daily load, which is a process that determines the loading capacity as well as identifies actions to reduce pollutant levels.

Waste load allocations: portion of the loading capacity that is attributed to point (discrete) sources of pollution.

Appendix A
Tables to Measure Progress

Appendix A. Tables to measure progress

Northeast Tri-County Health District	Performance Measures		
	Report number of permits, repairs and corrections of illegal systems.	Report number of illegal systems identified in the watershed.	Report educational activities: # presentations, people reached, and materials handed out.
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

Washington State Department of Health	Performance Measures			
	Report number of permits, repairs and corrections of illegal systems.	Track & report assistance requests and response time.	Report number of issued operating permits and permit compliance.	Conduct site visits to verify suitable site/soil conditions and system performance.
2005				
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				
2015				

City of Chewelah	Performance Measures		
	Submit all discharge monitoring reports (DMR) monthly.	Implement a systematic schedule of inspection & maintenance of sewer pipes and treatment plant.	Completed plan for stormwater collection.
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

City of Colville	Performance Measures	
	Submit all discharge monitoring reports (DMR) monthly.	New wastewater treatment plant is constructed and operational.
2005		
2006		
2007		
2008		
2009		
2010		
2011		
2012		
2013		
2014		
2015		

City of Kettle Falls	Performance Measures		
	Completed report of the groundwater monitoring & shallow aquifer study.	Submit all discharge monitoring reports (DMR) monthly.	Review draft wastewater facility plan with City Council.
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

Stevens County Public Utility District	Performance Measures		
	Septage facility construction is complete and operational.	Submit all discharge monitoring reports (DMR) monthly.	Submittal of maintenance report for Echo Estates to Dept. of Health annually.
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

Loon Lake Sewer District	Performance Measures
	Submit all discharge monitoring reports (DMR) monthly.
2005	
2006	
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	

Washington State Dept. of Ecology	Performance Measures		
	Report number of grants/loans awarded for implementation.	Inspect all discharge monitoring reports (DMR) submitted and inspect facilities annually.	Report number of technical assistance visits and/or educational activities, including number of people in attendance
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

Stevens County Conservation District	Performance Measures				
	Conduct septic system dye tests and assist with solving any identified problems.	Hold 2 educational meetings and distribute educational materials about septic systems and BMPs.	Conduct water monitoring and review data with the advisory group and others.	Report number of implementation projects installed.	Report number and results of dairies/cafos visited or contacted.
2005					
2006					
2007					
2008					
2009					
2010					
2011					
2012					
2013					
2014					
2015					

Natural Resources Conservation Service	Performance Measures
	Report total number of contracts awarded or projects completed annually for all available programs.
2005	
2006	
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	

Stevens County Farm Bureau	Performance Measures
	Provide a copy of the annual SCFB newsletter article about fecal coliform/TMDL implementation.
2005	
2006	
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	

Washington State Dept. of Natural Resources	Performance Measures	
	Obtain audio report of maintenance/ replacement of campground outhouses and other activities.	New Sherry Creek campground completed and report number of campsites reclaimed.
2005		
2006		
2007		
2008		
2009		
2010		
2011		
2012		
2013		
2014		
2015		

Colville National Forest	Performance Measures		
	Record number of maintained/upgraded/ installed BMPs in grazing allotments.	Conduct water monitoring and compile data annually.	Report number of educational materials produced (pamphlets, signs, etc.) with water quality message.
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			

Little Pend Oreille National Wildlife Refuge	Performance Measures	
	If any water monitoring is conducted, submit monitoring reports annually.	Replace outhouses next to surface water annually as funding becomes available.
2005		
2006		
2007		
2008		
2009		
2010		
2011		
2012		
2013		
2014		
2015		

Appendix B
Land Cover Breakdown

Appendix B. Land cover breakdown of the Colville River Basin by category

Information was derived from GIS analysis of a national land cover data set developed by the Multi-resolution Land Characterization (MRLC) Consortium. The MRLC Consortium is a federal partnership of USGS, USEPA, US Forest Service and NOAA. The land cover codes defined within are those described by MRLC. The base data set was Landsat TM data, nominal-1992 acquisitions using a 30-meter resolution.

Table C1. Colville River Basin Land Cover

Land Cover Code	Land Cover Description	Land Cover Area (in miles^2)	Land Cover (percent of basin)
11	Open Water	8.36	0.82
21	Low Intensity Residential	7.04	0.69
22	High Intensity Residential	0.001	0.0001
23	Commercial/Industrial/Transportation	3.32	0.33
31	Bare Rocks/Sand/Clay	0.62	0.061
32	Quarries/Strip Mines/Gravel Pits	0.54	0.053
33	Transitional	61.2	6.02
41	Deciduous Forest	4.07	0.40
42	Evergreen Forest	756	74.4
43	Mixed Forest	20.7	2.04
51	Shrubland	19.1	1.88
61	Orchards/Vineyards/Other	0.031	0.0031
71	Grasslands/Herbaceous	33.8	3.33
81	Pasture/Hay	60.4	5.94
82	Row crops	13.3	1.31
83	Small Grains	13.7	1.35
84	Fallow	11.4	1.12
85	Urban/Recreational Grasses	0.18	0.018
91	Woody Wetlands	2.29	0.23
92	Emergent Herbaceous Wetlands	0.25	0.025
	Total Area (miles^2)	1016	

Percent of Land Cover by Category for the Colville River Basin	
Category (codes)	**Land Cover (percent of basin)**
Agricultural (61,81,82,83,84)	9.72
Transitional Ground (31,32,33)	6.13
Development (21,22,23,85)	1.04
Forests (41,42,43,51,71,91)	82.3
Open Water (11,92)	0.85
NOTE: Descriptions of individual land cover codes follow in text.	

MRLC Land Cover Code Definitions – as described by MRLC

Water – All areas of open water.

11. Open water - All areas of open water; typically 25 percent or greater cover of water (per cell).

Developed – Areas characterized by a high percentage (30 or greater) of constructed materials (*e.g.*, asphalt, concrete, buildings, etc.).

21. Low Intensity Residential – Includes areas with a mixture of constructed materials and vegetation. Constructed materials account for 30-80 percent of the cover. Vegetation may account for 20-70 percent of the cover. These areas most commonly include single-family housing units. Population densities will be lower than in high intensity residential areas.

22. High Intensity Residential – Includes highly developed areas where people reside in high numbers. Examples include apartment complexes and row houses. Vegetation accounts for less than 20 percent of the cover. Constructed materials account for 80 – 100 percent of the cover.

23. Commercial/Industrial/Transportation – Includes infrastructure (*e.g.*, roads, railroads, etc.) and all highly developed areas not classified as High Intensity Residential.

Barren – Areas characterized by bare rock, gravel, sand, silt, clay, or other earthen material, with little or no "green" vegetation present regardless of its inherent ability to support life. Vegetation, if present, is more widely spaced and scrubby than that in the "green" vegetated categories; lichen cover may be extensive.

31. Barren Rock/Sand/Clay – Perennially barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, beaches, and other accumulations of earthen materials.

32. Quarries/Strip Mines/Gravel Pits – Areas of extraction mining activities with significant surface expression.

33. Transitional – Areas of sparse vegetation cover (less than 25 percent of cover) that are dynamically changing from one land cover to another, often because of land use activities. Examples include forest clearcuts, a transition phase between forest and agricultural land, the temporary clearing of vegetation, and changes due to natural causes (*e.g.*, fire, flood, etc.).

Forested Upland – Areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 6 meters tall); tree canopy accounts for 25-100 percent of the cover.

41. Deciduous Forest – Areas dominated by trees where 75 percent or more of the tree species shed foliage simultaneously in response to seasonal change.

42. Evergreen Forest – Areas dominated by trees where 75 percent or more of the species maintain their leaves all year. Canopy is never without green foliage

43. Mixed Forest – Areas dominated by trees where neither deciduous nor evergreen species represent more than 75 percent of the cover present.

Shrubland – Areas characterized by natural or semi-natural woody vegetation with aerial stems, generally less than 6 meters tall, with individuals or clumps not touching or interlocking. Both evergreen and deciduous species of true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions are included.

51. Shrubland – Areas dominated by shrubs; shrub canopy accounts for 25-100 percent of the cover. Shrub cover is generally greater than 25 percent when tree cover is less than 25 percent. Shrub cover may be less than 25 percent in cases when the cover of other life forms (*e.g.*, herbaceous or tree) is less than 25 percent and shrubs cover exceeds the cover of other life forms.

Non-natural Woody – Areas dominated by non-natural woody vegetation; non-natural woody vegetative canopy accounts for 25-100 percent of the cover. The non-natural woody classification is subject to the availability of sufficient ancillary data to differentiate non-natural woody vegetation from natural woody vegetation.

61. Orchards/Vineyards/Other – Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Herbaceous Uplands – Upland areas characterized by natural or semi-natural herbaceous vegetation; herbaceous vegetation accounts for 75-100 percent of the cover.

71. Grasslands/Herbaceous – Areas dominated by upland grasses and forbs. In rare cases, herbaceous cover is less than 25 percent, but exceeds the combined cover of the woody species present. These areas are not subject to intensive management, but they are often utilized for grazing.

Planted/Cultivated – Areas characterized by herbaceous vegetation that has been planted or is intensively managed for the production of food, feed, or fiber; or is maintained in developed settings for specific purposes. Herbaceous vegetation accounts for 75-100 percent of the cover.

81. Pasture/Hay – Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops.

82. Row Crops – Areas used for the production of crops, such as corn, soybeans, vegetables, tobacco, and cotton.

83. Small Grains – Areas used for the production of graminoid crops such as wheat, barley, oats, and rice.

84. Fallow – Areas used for the production of crops that are temporarily barren or with sparse vegetative cover as a result of being tilled in a management practice that incorporates prescribed alteration between cropping and tillage.

85. Urban/Recreational Grasses – Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposed. Examples include parks, lawns, golf courses, airport grasses, and industrial site grasses.

Wetlands – Areas where the soil or substrate is periodically saturated with or covered with water as defined by Cowardin *et al.*

91. Woody Wetlands – Areas where forest or shrubland vegetation accounts for 25-100 percent of the cover and the soil or substrate is periodically saturated with or covered with water.

92. Emergent Herbaceous Wetlands – Areas where perennial herbaceous vegetation accounts for 75-100 percent of the cover and the soil or substrate is periodically saturated with or covered with water.

Appendix C
Method Used to Calculate Loads

Appendix C. Method used to calculate fecal coliform loads

Measuring the bacteria colony forming units (cfu) in one hundred milliliters of water (i.e. 100 cfu/100 mL) is a density measurement. Load is the amount of bacteria that is estimated to occur over a period of time. Load is obtained by multiplying the density (100 cfu/100 mL) by the flow (i.e. 100 cubic feet per second or cfs). Since load is measured per day and flow is measured per second, some mathematical conversions are necessary. The method to determine load with a density of 230 cfu/100 mL and a flow of 30 cfs is as follows:

$$\frac{230 \text{ colony forming units}}{100 \text{ ~~milliliters~~}} \times \frac{1{,}000 \text{ ~~milliliters~~}}{1 \text{ liter}} = \frac{2{,}300 \text{ colony forming units}}{\text{liter}}$$

$$\frac{2{,}300 \text{ colony forming units}}{\text{~~liter~~}} \times \frac{28.31605 \text{ ~~liter~~}}{\text{cubic foot}} = \frac{65{,}126.92 \text{ colony forming units}}{\text{cubic foot}}$$

$$\frac{65{,}126.92 \text{ colony forming units}}{\text{~~cubic foot~~}} \times \frac{30 \text{ ~~cubic feet~~}}{\text{~~second~~}} \times \frac{86{,}400 \text{ ~~seconds~~}}{\text{day}} = \frac{1.69\text{E+}11 \text{ colony forming units}}{\text{day}}$$

Appendix D
Advisory Group Position Statement

Appendix D. Colville River Bacteria Water Cleanup Plan Advisory Group

"POSITION STATEMENT"

WHEREAS,
The Colville River Water Cleanup Plan Advisory Group is composed of agency personnel and private citizens wishing to incorporate both logic and science to achieve improved water quality, from a bacteria standpoint, in the Colville River.

AND WHEREAS,
Additional bacterial testing is indicating that the bacteria load is *not* a nonpoint source issue, but *very possibly* the vast amount of contamination comes from point source (septic) problems.

AND WHEREAS,
The Year 2002 laboratory testing shows a *300% decrease* in fecal coliform contamination as the Colville River flows through 3 ½ miles of grazed pasture land.

AND WHEREAS,
The Year 2000 laboratory testing showed this *same* trend of improved water quality as the Colville River flowed through grazed pasture land.

AND WHEREAS,
It has been proven that this low-density grazing does not raise fecal coliform bacteria count, *but to the contrary*, it is indicated that with proper grazing, the bacteria load is dramatically reduced.

NOW THEREFORE,
Be it resolved that the Colville River Bacteria Water Cleanup Plan Advisory Group's official position is that *proper grazing along the Colville River with a density of 10 head or less per acre of grazed area is not a contamination factor and will no longer be considered as such in this ongoing water quality study or in any literature published by this group, unless proven otherwise.*

As Revised

The undersigned attest to the approval and passage of this statement this 17 day of Sept 2002.

Len McIrvin
Tony Delgado
Ron Rose
Russ Lowen
D.D. (Ted) Nicholl IV
Merrill J. Catt
Keith D. Ringer
John Dawson
Gary Fuller
Lloyd Henry
Thomas A. Wilson
Bruce E. Cullen Sr.
Jim Kemp
[redacted] 1
Jeff D. Dawson

1. Signature authority was not delegated to this individual so the signature has been redacted.

Appendix E
Response to Comments

Appendix E. Response to Comments

Comment:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Little Pend Oreille National Wildlife Refuge
1310 Bear Creek Road
Colville, WA 99114
509/684-8384

May 2, 2005

Karin Baldwin
Washington State Department of Ecology
Eastern Regional Office
4601 N. Monroe Street
Spokane, WA 99205

Dear Karin:

Thanks to you and the Colville River Watershed Fecal Coliform Bacteria Total Maximum Daily Load Detail Implementation Plan Advisory Group for the opportunity to review the draft Detailed Implementation Plan. The following are a few comments concerning the April, 2005 version of the draft plan, discussing only those topics directly associated with the Little Pend Oreille National Wildlife Refuge (Refuge).

In Table 5, page 20, "Wildlife" is listed as a source of bacteria, and the Refuge is recognized as the only organization associated with wildlife. Wildlife inhabit the entire basin on both public land such as the Colville National Forest and Washington Department of Natural Resources holdings as well as thousands of privately owned acres. The Refuge constitutes about 6% of the Colville River basin. The contribution of wildlife inhabiting the Refuge to the total fecal coliform loading in the Colville River is unknown but believed to be small.

The inclusion of "(U.S. Fish & Wildlife Service)" in the column with the Refuge name is unnecessary and inconsistent since "U.S.D.A. Forest Service" is not included with the entry for the Colville National Forest. This also causes further confusion when in paragraph 4.4.2 the U.S. Fish and Wildlife Service is described as having "considerable authority over the State in managing waterfowl hunting". While it's true that harvest guidelines for waterfowl and other migratory birds including snipe and mourning doves are set annually by the Migratory Bird Section of the U.S. Fish and Wildlife Service, that is a separate branch not associated with refuge management.

Several comments pertain to the Advisory Group recommendations on page 31, section 4.6.1, part 2, Little Pend Oreille National Wildlife Refuge:

"Conduct water monitoring and BST on the Refuge to identify sources or hotspots."

The Refuge currently monitors water quality as part of the Little Pend Oreille River's listing as a 303d listed stream for fecal coliform. Our effort is concentrated on determining the fecal coliform levels in the water as it enters the Refuge compared to its quality leaving the Refuge, and to ascertain the levels of bacteria that may be entering the Little Pend Oreille River via tributaries. As stated in this plan on page 11, BST is not currently an accepted technique. If and when it does become a scientifically defensible technique, we will evaluate its potential usefulness to the Refuge's water quality monitoring program.

"Manage wildlife habitat to improve water quality."

We agree with this recommendation and are currently implementing it by making management changes that increase existing woody and herbaceous vegetation, by planting new shrubs, and by encouraging beaver activity and thereby wetland creation along the riparian corridors we manage.

"Use NRCS conservation practices in their Field Office Technical Guide (FOTG) as opposed to prescribed burning to manage healthy habitat."

This recommendation should be deleted. The use of prescribe fire as a wildlife habitat management technique has no bearing on fecal coliform levels in surface waters. Including such a recommendation is not relevant and appropriate to the issues being addressed in this plan.

We suggest adding the following recommendation to the same section:

"Manage any present or future prescribed domestic livestock grazing activities to minimize or eliminate the introduction of fecal coliform into surface waters."

We would also suggest including the above recommendation in parts 5 and 6 to other publicly owned lands with domestic livestock grazing programs.

The plan lacks any acknowledgement that domestic livestock may be contributing to the fecal coliform problem in the Colville River watershed. While our current state of knowledge precludes tracing fecal coliform bacteria back to its source with any certainty, this oversight undermines the integrity of the plan.

Thank you again for the opportunity to participate in this important effort to protect the health of Stevens County residents and recreational values the Colville River provides.

Sincerely,

Lisa Langelier
Project Leader

Response:

Initially, several organizations were listed under the wildlife source in Table 5; however, the organizations were not able to provide a measurable performance measure and requested they be removed. You raise several valid concerns about being the only entity listed under the wildlife source, so the Little Pend Oreille National Wildlife Refuge's

information in that row has been included with the information your organization provided under the Recreation source. The wildlife source has been deleted from Table 5 and Section 4.4. In addition, the reference to the U.S. Fish & Wildlife Service in the same column as the Refuge has also been deleted.

Since the advisory group and other organizations are not able to obligate agencies or organizations other than their own, the advisory group recommendation section in the plan only allows the advisory group to make suggestions for consideration. Your recommendations are noted here and may be considered by other entities.

The plan does state that all sources of fecal coliform will be addressed by the TMDL. Specific references to livestock can be found in Section 4 under the Washington State Department of Agriculture, Department of Natural Resources, Colville National Forest, and WSU Cooperative Extension. Many references are also made throughout the plan to voluntary implementation of BMPs and the financial and technical assistance landowners may use to apply them. Sources of fecal coliform that are addressed by BMPs include livestock and septic systems.

Comment:

STEVENS COUNTY FARM BUREAU

PO BOX 618, Colville, Washington 99114 *(509)258-4041*

MAY 13 2005

May 10, 2005

Attn: Karin Baldwin
Department of Ecology
4601 N. Monroe Street
Spokane, WA 99205

Re: Colville River Watershed Fecal Coliform Bacteria TMDL
Draft Detailed Implementation Plan – dated April 2005

On Behalf of the Stevens County Farm Bureau Board of Directors and our members, Stevens County Farm Bureau appreciates the willingness of the Department of Ecology (on behalf of the State of Washington) to include us in the advisory group. We also appreciate the agency's willingness to listen to our concerns and address many of them through changes to the April 2005 Draft TMDL (Water Cleanup Plan) for Fecal Coliform.

We do, however, remain opposed to the basic premise that has driven this TMDL process. Namely, the settlement agreement entered into on behalf of the State by the Environmental Protection Agency with several environmental organizations. We believe it is bad policy for the State to base decisions on the threat of legal action. Sound policy should be based on credible data and an assessment of the actual needs of each watershed.

Additionally, we were disappointed that a use attainability analysis was not conducted for this watershed prior to drafting a cleanup plan to ensure that water quality standards set for the Colville River Watershed will be able to be met. Considerable evidence exists that leads to the conclusion that water quality has been an issue on the river prior to human settlement of the area.

Further, it remains unclear to what degree human activity will have to be changed or curtailed to achieve the present water quality standards, and what effect this may have on the economic stability of the region. Without accurate and credible data showing background, or natural, contributions of fecal coliform bacteria this plan has the potential to create undue hardships on the citizens of the Colville Watershed and the residents of Stevens County. Also, we remain opposed to any attempt to place the heaviest burden of cleanup on non-point source contributors without credible data.

STEVENS COUNTY FARM BUREAU

PO BOX 618, Colville, Washington 99114 *(509)258-4041*

Stevens County Farm Bureau also remains opposed to load allocation reductions on stream segments that meet water quality standards. We feel that if a stream segment meets the standards, as in the case of Table 3 both Sheep Creek and stream segment CR24 of the Colville River, that clean up and load reductions are not needed or required.

We would like to suggest that stream samples be taken and data collected in the tributaries before human contact or contributions and at State or National Forest boundaries, and site specific standards be set in a realistic and obtainable manner to allow for human activity prior to the finalization of any load allocations or clean up plan.

Please make a technical mathematics correction to Table 3 on page 8. You state that "E: represents an exponential number such as 12 power 8." This should show as in Table 2 on page 7 "E: represents an exponential number such as 1.25E+8 is equal to 125,000,000." Also, this is a decimal expansion representation used by calculators, and not a true exponential as stated in both examples.

Sincerely,

Wesley L. McCart
President
Stevens County Farm Bureau
(509) 258-4041
e-mail: wpmccart@juno.com

Response:

Development of TMDLs is required by section 303(d) of the 1972 federal Clean Water Act. The lawsuit that led to the 1998 Washington settlement agreement was filed in part because TMDLs were not being completed for 303(d) listed waters. For example, as of 1992 the Environmental Protection Agency (EPA) had approved only 10 TMDLs in Washington. The main component of the 1998 settlement agreement is a schedule that requires Ecology to complete 1566 TMDLs by 2013. Ecology is mandated by the Clean Water Act to conduct TMDLs.

TMDLs must be prepared for waters that do not meet water quality standards and are placed on the state's list of impaired waters [the 303(d) list]. The water quality data submitted to Ecology is scrutinized before a decision is made to place a water body on the 303(d) list. For example, a quality assurance plan must have been used to collect and analyze the water samples and the data quality must also be assessed. As a result, only credible data is used to list a water body on the 303(d) list and in the development of TMDLs.

A TMDL can provide information required by a Use Attainability Analysis (UAA). The monitoring identified in the implementation plan may be used to help answer the following components of a UAA: where the bacteria levels are likely due to natural conditions, what the highest attainable uses are, and what are the causes of impairment.

Numerous research projects have demonstrated the effectiveness of various best management practices (BMPs) in reducing fecal coliform levels. Once the facilities to

treat wastewater and septic tank sludge are constructed and BMPs for septic tanks and domestic animals are in place, the fecal coliform standard will likely be met or noticeably reduced.

Water quality data will continue to be collected throughout the plan's ten year timeframe to help identify natural and human contributions. Organizations conducting the monitoring are tasked with using quality assurance procedures to ensure their data is credible.

The availability of financial assistance should help alleviate the costs associated with applying BMPs. Names of organizations that may be able to provide some financial assistance are included in the plan. The plan's ten year timeframe and phased targets enable BMPs to be installed gradually rather than all at once.

On page 7, the plan states that the load allocations were based upon the 90^{th} percentile fecal coliform criteria (no more than ten percent of the samples can exceed 200 colonies per 100 milliliters) because that is the part of the standard that was violated most often. A column has been added to Table 3 which shows the 90^{th} percentile, thereby explaining the required load reductions to Sheep Creek and CR24.

Incremental monitoring of the tributaries is included in the implementation plan, as well as the possibility of conducting natural condition, UAA or site specific studies. The load allocations in Tables 2 and 3 were taken from the *Colville River Watershed Bacteria TMDL Submittal Report – Amended May 2003*, which was approved by EPA on July 3, 2003. Therefore, the load allocations have already been finalized. However, this plan does state that if water quality standards are met, but the load allocations are not met, the TMDL will be considered satisfied.

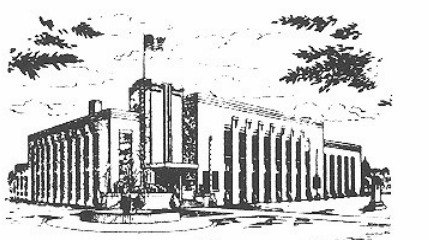
The mathematical corrections you requested have been made.

Comment:

Tony Delgado
District No. 1

Merrill J. Ott
District No. 2

Malcolm Friedman
District No. 3



Polly Coleman
Clerk of the Board

Nettie Winders
Assistant Clerk

Stevens County Commissioners

215 South Oak St, Room #214, Colville, WA 99114-2861
Phone: 509-684-3751 Fax: 509-684-8310
Email: Commissioners@co.stevens.wa.us

May 20, 2005

Ms. Karin Baldwin
Department of Ecology
4601 N. Monroe
Spokane, WA 99205

Subject: Colville River Watershed Fecal Coliform Water Cleanup Plan (TMDL)
Detailed Implementation Plan

Dear Ms. Baldwin

Thank you for this opportunity to comment on the Colville River Watershed TMDL Detailed Implementation Plan. In the spirit of cooperation that exists between Stevens County and Department of Ecology, we appreciate your willingness to plan together.

The TMDL Plan is important to the citizens of Stevens County with possible consequences affecting public health, the overall environment, and our resource-based economy, particularly, agriculture and ranching. The goals of reducing loads to the Colville River are laudable and are to be encouraged. However, due to the inherent complexity of this issue, we respectfully reserve the right to comment at a later date following our full review.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
OF STEVENS COUNTY, WASHINGTON

/s/ Commissioner Malcolm Friedman

BOCC:lmw

Response:

Although this comment was received after the comment period ended, it was included because there may have been some confusion with the comment period for the Colville National Forest TMDL and because the County Commissioners are the public's voice.

The County Commissioners, local entities and citizens will be included on a TMDL implementation oversight group which will monitor efforts to reduce fecal coliform and progress of the plan. This document is a working plan and states that it may be changed with the mutual consent of the implementation oversight group and the Department of Ecology.