

**An Analysis and Comparison of Three Water Supply Options
Available to the Redwood Valley County Water District: West Fork,
Mill Creek and Lake Mendocino Water Right**

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Summary

In a letter from the Redwood Valley County Water District (District) to the Mendocino County Water Agency (Agency) dated August 12, 2003, the District proposed that the two organizations form a partnership to develop the District's proposed "Mill Creek" and/or "West Fork" water supply projects. Agency staff conducted preliminary analyses of these two proposed projects (see attached reports dated June 8, 2004 and August 23, 2004) and staff has more recently evaluated the water supply possibilities associated with the District's currently under utilized right to divert water from Lake Mendocino (water right permit number 17593). Agency staff note that the anticipated

normal year yield of the West Fork project (4,000 to 8,000 acre-feet) is considerably greater than the combined normal year yield of the Lake Mendocino water right (1,500 acre-feet) and Mill Creek(400 to 600 acre-feet) projects, but that only one of the three water supply options – Lake Mendocino – currently has a valid water right. Accordingly, Agency staff rank the three water supply options, in terms of probable yield and likelihood of proceeding to construction within the next five years, as follows:

- 1) Lake Mendocino Water Right Permit
- 2) West Fork
- 3) Mill Creek

For the reasons discussed below, Agency staff believes that the District's current and future firm water supply requirements can be met most efficiently through the combined but phased development of the Lake Mendocino water right and West Fork project. Both the Lake Mendocino water right and the West Fork project require off stream storage. Accordingly, Agency staff recommends that the District direct its attention toward the development of off stream storage that would initially be used solely by the Lake Mendocino water right, and then as development of the West Fork project proceeded, by the combination of the Lake Mendocino water right and West Fork project. Agency staff also recommends that the District investigate the feasibility of increasing the maximum permissible "diversion to storage" rate of water right permit 17593, as a means of enhancing the water supply yield of that project.

In keeping with the above recommendations, Agency staff recommends that the Mendocino County Water Agency Board of Directors consider the District's proposal to form a partnership to develop the West Fork project and/or Lake Mendocino water right permit project – but not the Mill Creek project. As a first step toward the formation of the a long-term partnership, Agency staff recommend that the Agency and District jointly conduct an "off-stream reservoir feasibility study" that at a minimum, addresses the legal and environmental constraints and opportunities, and provides preliminary construction and operation cost estimates, for each potential reservoir site.

Ideally, the feasibility study would be conducted in three phases. Potential reservoir sites would be identified in the first phase and under go an initial review to screen out any sites that exhibit obvious fatal flaws (some of this work has already been completed). In the second phase, a more detailed review, which would include on site field evaluations, would be conducted. In the third and final phase a "project description" that includes preliminary engineering design and is of sufficient specificity to allow for a detailed analysis of environmental impacts (i.e., preparation of a CEQA document) would be prepared for the most feasible reservoir site(s). Completion of the reservoir feasibility study would be followed by environmental impact analyses and any supporting environmental studies needed to prepare the necessary CEQA analysis and documentation.

The following sections of this report discuss and compare the District's proposed West Fork and Mill Creek projects, as well as a third potential project – full utilization of the District's existing Lake Mendocino water right.

Lake Mendocino Water Right Permit

Background

Pursuant to water right permit 17593, the District is authorized to divert up to 4,900 acre-feet per year from Lake Mendocino through a combination of “direct diversions” and “diversions to storage” (In this instance, a “diversion to storage” is a diversion from Lake Mendocino to another storage facility – i.e., an “off stream reservoir”). A summary of the District’s water rights under permit 17593 is as follows:

<u>Direct Diversion:</u>	March 1 to April 30: 26.6 cfs for frost protection purposes
	November 1 to April 30: 1.9 cfs for domestic purposes
<u>Diversions to Storage:</u>	2,800 acre-feet per annum to be collected from November 1 of each year to April 30 of the succeeding year

Although the District has the diversion facilities in place to divert water at the maximum rate (26.6 cfs) allowed under permit 17593, to date annual diversions have been well below the maximum allowed. District staff estimate that to date no more than 68 acre-feet have been diverted in any given year (David Wallen, personal communication). Historically, water right permit 17593 has been under utilized because the District’s water demands are typically low during the permissible diversion season, coupled with the fact that the District lacks significant off stream storage capacity and the “window of opportunity” for pumping water pursuant to water right permit 17593 is relatively narrow. Under the terms of water right permit 17593, the District cannot divert water unless, during the permissible diversion season, the water supply pool in Lake Mendocino is full and there is water in the so called flood control pool that would otherwise be released downstream, and stream flows in the Russian River, at the confluence of the East Fork and West Fork, exceed 150 cfs.

Estimated Water Supply Yield

Reservoir simulation studies conducted through the collaborative efforts of the Mendocino County Water Agency and the Sonoma County Water Agency indicate that the “window of opportunity” for pumping water pursuant to water right permit 17593 occurs anywhere from zero to five days in a dry year, for as many as 55 to 70 days in a wet year, and for approximately 30 days in a so called normal year. From these simulation studies it appears unlikely that the District would ever divert the full amount allowed under permit 17593. However, the “window of opportunity” is wide enough and the existing diversion rate large enough to divert approximately 1,500 acre-feet in normal years and the full 2,800 acre-feet in wet years. In dry years annual diversions would be on the order of 300 acre-feet or less.

Environmental Considerations

Unlike the West Fork project and to a lesser extent the Mill Creek project, which exist largely on paper, a significant portion of the Lake Mendocino water right permit project is already built. All that remains to

be constructed are one or more off stream storage reservoirs and the associated water conveyance facilities needed to deliver water to the District's existing water distribution infrastructure. Conversely, both the West Fork and Mill Creek projects need off stream storage reservoirs and the associated water conveyance facilities, and one or more diversion structure(s), to be functional.

In addition to fewer potential construction-related impacts (because the diversion structure is already built), the Lake Mendocino water right permit project is also less likely to impact federally listed endangered species – Coho Salmon and Steelhead – which potentially simplifies the environmental impact analysis, both in terms of cost and time to complete. Both the Mill Creek and West Fork project areas have been designated as “critical habitat” for Coho Salmon and Steelhead – Lake Mendocino has not. In addition to the possible entrainment of juvenile Coho Salmon and Steelhead at the diversion structure (which would be considered a “taking” under the Federal Endangered Species Act), both the West Fork and Mill Creek projects will need to address and mitigate any construction-related impacts to Coho Salmon and Steelhead habitat – the Lake Mendocino water right permit project will not.

All three of the proposed projects could impact aquatic resources, downstream of their respective points of diversion, but because the Lake Mendocino water right permit project is located in Lake Mendocino, which is in turn operated in accordance with existing minimum downstream flow release requirements, it is unlikely that the Lake Mendocino water right permit project would have any significant impact on downstream flow regimes and in turn, aquatic resources. Accordingly, it appears unlikely that a detailed fisheries instream flow study would be required as a part of any environmental impact analysis for the Lake Mendocino water right permit project. As discussed elsewhere, fisheries instream flow studies will most likely be required as a part of any environmental impact analysis for the West Fork and/or Mill Creek projects.

Ranking

The estimated diversion totals for water right permit 17593 compare favorably and in most cases are actually greater than the estimated diversion totals for the proposed Mill Creek project (see table 1). Both projects need one or more off stream storage facilities. However, unlike the Mill Creek project, which is comparatively far away from Redwood Valley and for which water rights have yet to be obtained, the Lake Mendocino water right permit project is nine miles closer to Redwood Valley, has at least a portion of the needed water transmission facilities in place, an existing water diversion structure, and already has the necessary water rights. Based on the available information, it appears that the Lake Mendocino water right project could be completed sooner and ultimately provide more water than the proposed Mill Creek project. For these reasons, Agency staff rank the Lake Mendocino water right permit above the District's proposed Mill Creek project.

As discussed elsewhere, the anticipated yield of the proposed West Fork project is at least two times larger than the corresponding yield of the Lake Mendocino water right permit project. Nevertheless, the West Fork project, as presently configured, cannot by itself provide the 5,000 acre-foot firm water supply the District is ultimately seeking.

Consequently, even if the West Fork project were constructed, the District would still need to develop a second source of water to meet the 5,000 acre-foot firm water supply requirement. The Lake Mendocino water right permit project is the logical second source of water because it is already partially constructed and is geographically close to the District's water users and the West Fork project. Because the Lake Mendocino water right project is partially constructed, is ultimately needed to meet the long term water supply requirements of the District, and can be completed and fully operational before the West Fork project is completed, Agency staff rank the Lake Mendocino water right project above the District's proposed West Fork project and believe that the District should direct it's initial efforts toward full development of the Lake Mendocino water right project.

West Fork

Background

The proposed West Fork project can be characterized as a direct diversion facility with off stream storage. The West Fork project, as presently configured, consists of three geographically separate direct diversion facilities located in and to the south of Redwood Valley. Collectively, the three direct diversion facilities would divert up to 8,000 acre-feet per year (originally it was proposed that the three diversion facilities would collectively divert up to 17,000 acre-feet per year), while the five off stream storage facilities would collectively provide roughly 5,000 acre-feet of storage.

The proposed West Fork project would divert "high flows" from the West Fork between November 1 and May 15. Between November 1 and March 14 the combined maximum direct diversion rate of the three diversion facilities would be 50 cfs. From March 15 through May 15 the combined maximum direct diversion rate of the three facilities would be 100 cfs (Note: because the State Water Resources Control Board has determined that the Russian River drainage is fully appropriated between April 1 and December 14 of each year, it appears likely that if the proposed West Fork project was to receive an appropriative water right permit, the permitted "diversion season" would be limited to the time period between December 15 and March 31).

Estimated Water Supply Yield

The West Fork project, as presently configured, appears to be capable of providing a portion but probably not all of the 5,000 acre-foot firm water supply the District is seeking. For that reason, it is recommended that the proposed West Fork project be viewed as a "Redwood Valley" project, versus a project that can provide a viable firm water supply for the region as a whole. Based on historic stream flow records for the West Fork, it is estimated that in normal years the proposed project would divert (i.e., yield) 4,000 to 8,000 acre-feet. However, in dry years the proposed project's yield would be just 2,000 to 5,000 acre-feet (see table 1).

Environmental Considerations

The basic concept of the proposed West Fork project – diversion of high winter flows – is generally supported by State and Federal regulatory agencies (as opposed to projects that are designed to operate

during relatively low flow conditions). Furthermore, the total quantity of water that would be diverted by the proposed West Fork project in any given year represents less than 8 percent of the median annual flow for the West Fork drainage, as measured at the “Russian River near Ukiah” stream flow gauging station. Consequently, at least at the onset, the proposed West Fork project appears “doable” from an environmental impact assessment perspective.

Key environmental issues facing the West Fork project include the presence of federally listed endangered fish species – Coho Salmon and Steelhead; screening of diversion intakes to prevent entrainment of fish and other aquatic life; the bypassing of sufficient stream flow, downstream of the proposed diversion structure(s), for aquatic life and channel maintenance (maintain adequate sediment transport regime and channel morphology); and terrestrial impacts associated with the construction of water conveyance and off stream storage facilities.

NOAA Fisheries and the California Department of Fish and Game have developed draft guidelines for establishing instream flows to protect fisheries resources in mid-California coastal streams. Although these guidelines are directed toward “small” water diversion projects (maximum diversion rate less than 3 cfs and maximum annual diversion less than 200 acre-feet), they are useful in that they at least suggest that the proposed diversion rates and annual diversion amounts are within the range of conditions that would be acceptable to NOAA Fisheries and the California Department of Fish and Game (Table 2). Project specific fisheries studies will be needed to address the potential impacts of the proposed project on aquatic resources. However, the fact the proposed project, as presently configured, appears to be consistent with what NOAA Fisheries and the California Department of Fish and Game believe is typically necessary for the protection of aquatic life is encouraging.

Ranking

The projected yield of the proposed West Fork project exceeds the combined projected yield of the Lake Mendocino water right permit and Mill Creek projects. The West Fork project, like the Mill Creek project, currently lacks water rights, but because there is nothing to suggest that a water right permit will be more difficult to obtain for the West Fork project, versus the Mill Creek project, coupled with the fact that the West Fork project is located in Redwood Valley and can take advantage of existing water conveyance facilities and possibly at least some of the water conveyance facilities that would be required for the Lake Mendocino water right permit project, Agency staff rank the West Fork project above the District’s proposed Mill Creek project.

As previously noted, a water right permit and some water conveyance facilities already exist for the Lake Mendocino water right permit project and as a result, it appears that the Lake Mendocino water right permit project could be completed in less time than it would take to complete the West Fork or Mill Creek projects. Consequently, even though the projected yield of the West Fork project is greater than the projected yield of the Lake Mendocino water right permit, Agency staff rank the West Fork project below the Lake Mendocino water right permit project

Mill Creek

Background

The Mill Creek project can be characterized as a direct diversion facility with off stream storage. The Mill Creek project, as presently configured, consists of three geographically separate direct diversion facilities located along Mill Creek, near Talmage, and up to five new off stream storage facilities located in the Ukiah Valley or Redwood Valley itself (Also listed as potential storage sites are Lake Mendocino and two existing County-owned dams located on Mill Creek). Collectively, the three direct diversion facilities would divert up to 5,185 acre-feet per year, while the five new off stream storage facilities would collectively provide 15,000 acre-feet of storage.

The Mill Creek project, as presently proposed, would divert water from Mill Creek throughout the year. Between November 1 and April 30 the combined maximum direct diversion rate of the three diversion facilities would be 5.2 cfs. From May 1 through October 31 the combined maximum direct diversion rate of the three facilities would be 9.2 cfs. (Note: because the State Water Resources Control Board has determined that the Russian River drainage is fully appropriated between April 1 and December 14 of each year, it appears likely that if the proposed Mill Creek project was to receive an appropriative water right permit, the permitted "diversion season" would be limited to the time period between December 15 and March 31).

Estimated Water Supply Yield

Based on the available stream flow records for Mill Creek and the adjacent Scotts Creek drainage in Lake County, it is estimated that in normal years the proposed Mill Creek project, as presently configured, would divert roughly 400 to 600 acre-feet. However, in dry years the proposed project's yield would be on the order of 100 acre-feet, if not less. The proposed project's seemingly modest yield is largely attributable to the comparatively small size of the drainage basin and the project's comparatively low maximum diversion rate during the season when storm runoff is most likely to occur (5.2 cfs).

Environmental Considerations

Unlike the West Fork project, which limits water diversions to so called high flow periods and would divert less than 8 percent of the mean annual stream flow, as measured at the "Russian River near Ukiah" United States Geological Survey stream flow gauging station, the Mill Creek project, as presently proposed, would divert approximately 95 percent of the median annual stream flow, as measured at the most downstream of the three County-owned dams. (Note: based on the available stream flow records for Mill Creek and the adjacent Scotts Creek drainage in Lake County, it is estimated that in a normal year total annual runoff for the Mill Creek drainage, as measured at the most downstream of the three County-owned dams, is approximately 5,500 acre-feet. By contrast, the project proposes to divert up to 5,185 acre-feet per year.) It is hard to imagine NOAA Fisheries reaching a "No Jeopardy" conclusion for a project that would divert 95 percent of the median annual stream flow.

As previously noted, because the State Water Resources Control Board will most likely limit the proposed project's diversion

season to the 107-day-long period between December 15 and March 31, it is anticipated that the Mill Creek project will divert substantially less than 5,185 acre-feet total proposed in the water rights application to the State Water Resources Control Board. Even under ideal conditions (sufficient stream flows existed each day of the 107-day-long diversion season between December 15 and March 31) the proposed project, as presently configured, could never divert more than 1,115 acre-feet in any given year, or approximately 20 percent of the median annual stream flow.

Whether or not NOAA Fisheries will conclude that the proposed Mill Creek project could divert 1,115 acre-feet per year (much less 5,185 acre-feet per year) without adversely impacting Coho Salmon and/or Steelhead or their habitats remains to be seen. In any event, site specific fisheries studies will be needed by NOAA Fisheries to make that determination. As indicated in table 2, the proposed Mill Creek project diversion rate is well above what would be allowed under the draft default criteria outlined by NOAA Fisheries and the California Department of Fish and Game for "small" water diversion projects (maximum diversion rate less than 3 cfs and maximum annual diversion amounts less than 200 acre-feet). Similarly, the proposed annual diversion amounts are significantly greater than would otherwise be allowed under the default criteria, which at least suggests the possibility that the proposed project would not, even after extensive site specific fisheries studies, receive the necessary clearances to divert water at the rates and/or durations needed to exceed, much less consistently approach 750 to 1,000 acre-feet per year.

In addition to the presence of federally listed endangered fish species and associated minimum stream flow requirements, the environmental impact studies for the proposed Mill Creek project will need to address the usual concerns over channel maintenance stream flows (i.e., stream flow rates and durations necessary for the maintenance of sediment transport regimes and channel morphology) and terrestrial impacts associated with the construction of water conveyance and off stream storage facilities. Also, unless the project is constrained to the diversion of winter high flows, which in this case reduces the potential yield significantly, it appears likely that the environmental impact studies for the proposed Mill Creek project will need to address potential impacts to groundwater recharge and the underlying groundwater table.

The lower reaches of Mill Creek, at and downstream of East Side Road, typically go dry by late spring or early summer and remain dry until the onset of the next rainy season. During this period of time surface stream flows from upper Mill Creek are a significant source of groundwater recharge for the project area. Potentially expensive and time consuming studies may be necessary to determine what impacts, if any, the proposed Mill Creek project would have on local groundwater supplies.

Ranking

The projected yield of the proposed Mill Creek project is for the most part less than the projected yield of the Lake Mendocino water right permit project, and perhaps more importantly, the environmental issues that will need to be addressed as a part of any environmental impact

analysis for the Mill Creek project appear to be more complex and potentially expensive to address than the corresponding environmental issues associated with the Lake Mendocino water right permit project. Therefore, Agency staff rank the Mill Creek project below the Lake Mendocino water right permit project.

As previously noted, the anticipated yield of the Mill Creek project is considerably less than the anticipated yield of the West Fork project. The environmental impact issues that must be addressed as a part of any environmental impact analysis for either project appear to be at least moderately complex and potentially expensive to address. However, because the potential yield of the West Fork project is so much greater than the potential yield of the Mill Creek project, coupled with the fact that West Fork project is located in Redwood Valley, and the Mill Creek project is some nine miles away, Agency staff rank the Mill Creek project below the West Fork project.

Recommended Approach to Project Development

Agency staff believes that the District's current and future firm water supply requirements can be met most efficiently through the combined but phased development of the Lake Mendocino water right and West Fork projects. Both the Lake Mendocino water right and the West Fork project require off stream storage. Accordingly, Agency staff recommends that the District direct its attention toward the development of off stream storage that would initially be used solely by the Lake Mendocino water right, and then as development of the West Fork project proceeded, by the combination of the Lake Mendocino water right and West Fork projects. Agency staff also recommends that the District investigate the feasibility of increasing the maximum permissible "diversion to storage" rate of water right permit 17593, as a means of enhancing the water supply yield of that project. These recommendations are discussed below.

1) Construct off stream storage facilities for Lake Mendocino water right

The two highest ranked projects (Lake Mendocino water right permit project and West Fork project) are located in or near Redwood Valley and both require some form of off stream storage. Construction of one or more storage facilities would allow immediate access to additional water from Lake Mendocino, and if planned and sited properly, could also be incorporated into and eventually used to store water diverted by the West Fork project. Accordingly, Agency staff believe that the District's efforts should be directed toward the development of off stream storage for the Lake Mendocino water right permit project, with deference given to storage facilities that could be used jointly by the Lake Mendocino water right permit and the West Fork projects.

A preliminary review of water storage alternatives was prepared for the District by Brelje & Race Consulting Civil Engineers in 1990. The Brelje & Race study identified two potential reservoir sites in Redwood Valley and five potential reservoir sites in the adjacent Potter Valley. The initial construction cost estimates for these projects were

comparatively high and evidently the District concluded that there were more cost effective water supply options available - none of the proposed reservoir sites were developed.

Agency staff note that the scope of the Brelje & Race study was comparatively narrow, in that the effort was directed toward the identification of “on-stream” reservoirs – reservoirs that would be filled with runoff from their respective drainage basins - versus so called off stream reservoirs. Consequently, several potential reservoir sites in Redwood Valley, which may be suitable for an off stream storage facility, were not considered in the Brelje & Race study.

At least two potential off stream storage facilities have been identified for the West Fork project. However, to the best of staff's knowledge, no site-specific environmental, geotechnical or civil engineering evaluations have been conducted for either site. Agency staff recommend that a reservoir feasibility study of the two previously identified sites, as well as other potential sites in and near Redwood Valley, be conducted. The feasibility study should address the legal and environmental constraints and opportunities, and provide preliminary construction and operation cost estimates, for each site. Ideally, the feasibility study would be conducted in three phases. Potential reservoir sites would be identified in the first phase and subjected to an initial review to screen out any sites that exhibit obvious fatal flaws (some of this work has already been completed). In the second phase, a more detailed review, which would ideally include on site field evaluations of the remaining sites, would be conducted. In the third and final phase a “project description” that includes preliminary engineering design and is of sufficient specificity to allow for a detailed analysis of environmental impacts (i.e., preparation of a CEQA document) would be prepared for the most feasible reservoir site(s). Completion of the reservoir feasibility study would be followed by environmental impact analyses and any supporting environmental studies needed to prepare the necessary CEQA analysis and documentation.

2) Investigate feasibility of increasing pumping rate of Lake Mendocino diversion

Historically, the District's Lake Mendocino water right has been under utilized, due largely to the fact that the District lacks sufficient off stream storage capacity. However, another factor contributing to the under utilization of the Lake Mendocino water right is the limited pumping capacity of the diversion facility. As demonstrated by the reservoir simulations conducted by the Mendocino County and Sonoma County water agencies, the existing pumping capacity (26.6 cfs) is sufficient to pump the full 2,800 acre-foot entitlement in wet years, but because there are comparatively few days when pumping is allowed in so called normal years, and even fewer allowable pumping days in dry years, the existing diversion facility is generally unable to divert the entire 2,800 acre-foot entitlement. Increasing the pumping capacity of the diversion facility would increase the frequency with which the full 2,800 acre-foot entitlement could be obtained. For example, increasing the pumping capacity from 26.6 cfs to 48.5 cfs would increase annual diversions in normal years from approximately 1,500 acre-feet to 2,800 acre-feet.

Agency staff recommend that the District investigate the feasibility of increasing the maximum diversion rate of their Lake Mendocino diversion facility – by either modifying the existing facility or constructing a parallel facility – to increase the frequency with which the existing 2,800 acre-foot annual entitlement is obtained. In addition to engineering analyses, the feasibility investigation for this project will need to evaluate the likelihood of potentially significant environmental impacts and the potential cost of environmental impact mitigation. Increasing the maximum allowable diversion rate will necessitate submittal of a “Change Petition” to the State Water Resources Control Board. The feasibility investigation should consider the legal and financial ramifications of a Change Petition.

3) Proceed with development of West Fork Project

The proposed West Fork project is currently not well defined. Three potential points of diversion have been identified and preliminary yield analyses indicate that water is potentially available from the West Fork, but additional analyses are needed to determine where and how much of the diverted water could be put to storage. The next task is to identify and review potential reservoir sites and repeat the yield analysis conducted to date, taking into account any limitations associated with reservoir storage availability, to determine which if any of the potential reservoir sites appear promising from a “mathematical perspective”. Specific work activities to be completed as a part of this task are described below.

Refine Yield Analysis

The yield analyses conducted to date have focused on the availability of “divertible” stream flows and assumed that the yield of the proposed Project would not be constrained by storage capacity. There are comparatively few viable reservoir sites in and near Redwood Valley and it appears likely that the paucity of viable storage sites will limit the proposed Project’s yield. To date several potential small reservoir storage sites have been identified. The next step is to review and evaluate each of the proposed reservoir sites, eliminate those that are not considered viable (at least preliminarily), and repeat the yield analysis, this time taking into account the available storage capacity.

Because the feasibility of the potential reservoir sites may be dependent on their proximity to the diversion sites and/or existing water distribution facilities, it is recommended that subsequent yield analyses involve the simulation of mean daily stream flows at each of the three proposed diversion sites.

Consult With Resource Agencies

The proposed West Fork project involves water diversions from a stream (West Fork of the Russian River) that provides habitat for federally listed species: Coho Salmon and Steelhead. Accordingly, formal consultation with NOAA Fisheries will be required under Section 10 of the Federal Endangered Species Act. As a part of this consultation process, NOAA Fisheries will either issue a biological opinion indicating that the proposed project will not adversely impact endangered species (“No Jeopardy Opinion”) or determine that adverse impacts to endangered species cannot be avoided unless the Project is modified.

Early informal consultation with NOAA Fisheries is strongly recommended to avoid spending time and money on the development of a project that would ultimately be unacceptable to NOAA Fisheries and therefore need to be modified before it can be approved and built. Key issues to be address in the early informal consultations with NOAA Fisheries, as well as the California Department of Fish and Game, include the timing and magnitude of diversions, the determination of the high flow criterion, the

location of diversion facilities, and the type of fish screening facilities that will be needed at the point(s) of diversion. Information obtained from these informal consultations (i.e., the timing and magnitude of diversions, the determination of high flow criterion, and the location of diversion facilities should be incorporated into the yield analysis.

Yield
 noted) Table 1 Comparison of Estimated Annual Water Supply
 (all quantities in acre-feet unless otherwise noted)

Percent Min. Bypass Exceedence/ Flow Criteria	Year	Type*	<u>West Fork</u>		<u>Lake Mendocino</u> <u>Water Right Permit</u>	
			146 cfs	233 cfs		6 cfs
	95	Dry	3099	2105	53	
	69	23				
	90	Dry	3275	2485	132	
	212	145				
	85	Dry	3900	2939	607	
	306	157				

50	Normal 7997 503	6073	1425	633
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* Percent of time water supply yield of “x” acre-feet equaled or exceeded. For example, based on the data above, 90% of the time the Lake Mendocino W. R. Permit Project will provide at least 132 acre-feet per year. Conversely, 10% of the time the Lake Mendocino W. R. Permit Project will provide less than 132 acre-feet per year.

Table 2 Comparison of Proposed Project Diversion Parameters versus Draft Default NOAA/CDFG Criteria*

Creek	West Fork		Mill
	Project	Allowed Project	Allowed
Criteria	<u>Proposal</u>	<u>By Criteria</u>	<u>By</u>
Minimum Bypass Flow (cfs)	8	178	Not Defined
Maximum Diversion Rate (cfs)	5.2 – 9.2	94	50 – 100
Maximum Annual Diversion (af/yr)	340	8,040	8,000

* California Department of Fish and Game and the National Marine Fisheries Service
Draft Guidelines for Maintaining Instream Flows to Protect Fisheries Resources
Downstream of Water Diversions in Mid-California Coastal Streams (June 17, 2002)