State Water Resources Control Board

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Linda S. Adams
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JUN 1 2009

In Reply Refer to
363:DL:262.0 (18-09-02)

Dayne Barron, Field Office Manager
Eagle Lake Field Office
Bureau of Land Management
2950 Riverside Drive
Susanville, CA 96130

Dear Mr. Barron:

In your letter dated May 12, 2009, you asked whether there are any water users downstream of the Bly Tunnel that have a valid basis of right to demand that water be allowed to continue to flow through and past the existing plug in the tunnel. During our investigation of the water right complaints against the U.S. Bureau of Land Management (BLM) alleging that the water discharging from the pipe in the Bly Tunnel constitutes an unauthorized diversion, the Division of Water Rights (Division), Complaint Unit reviewed the available information regarding the Bly Tunnel, including accounts of the tunnel construction and modification, determinations of rights to the waters of Eagle Lake and Willow Creek, and studies that were conducted regarding methods for controlling the surface elevation of Eagle Lake and the flow of water from the lake. That information is summarized below. Based on the available information, we do not believe that there are any water users downstream of the Bly Tunnel that have a valid basis of right to demand that water be allowed to continue to flow through and past the tunnel plug.

Background. The Bly Tunnel was constructed to divert water from Eagle Lake pursuant to Water Right Permits 782 and 783, and from 1923 through 1935 water flowed directly from Eagle Lake through the Bly Tunnel. Water appropriated from the lake discharged from the tunnel into Willow Creek and flowed to the Susan River and distribution facilities for use in the Honey Lake Basin. After 1935, the tunnel entrance was blocked and water was no longer diverted from Eagle Lake under the appropriative water rights, but water continued to seep into the tunnel and flow to Willow Creek. Water Right Permits 782 and 783 were revoked and the right of way for the tunnel was cancelled. BLM subsequently took over ownership and control of the tunnel and, in the 1970s and 1980s, additional measures were taken to reduce and control the flow of water through the tunnel, including construction of a permanent, concrete plug placed near the middle of the tunnel. However, an outlet pipe was built into the concrete plug and, while the pipe has a valve that can be turned off, water has been allowed to discharge from the pipe since the plug was installed, ostensibly to provide flow to downstream water users.

Appropriations from Eagle Lake. There are no appropriative rights in effect at this time for diversion from Eagle Lake. Water Right Permits 782 and 783 were issued to Leon Bly on November 3, 1920, pursuant to Applications 1209 and 203, respectively. Each permit authorized year-round diversion to storage in Eagle Lake of 30,000 acre-feet per annum (afa), for a total of 60,000 afa. Such waters were to be diverted from Eagle Lake through the Bly Tunnel and deposited into Willow Creek, ultimately to be used for irrigation and domestic purposes on lands within the Tule Irrigation District and the Baxter Irrigation District, in the Honey Lake Basin. Construction of the tunnel began in 1921 and was completed in 1923. Diversion from Eagle Lake commenced at the time the tunnel was completed and continued through 1935. Permits 782 and 783 were assigned to the Tule and Baxter Irrigation Districts, in

joint ownership, in 1926 and the permits were maintained in force by extensions of time granted by the State Water Board's predecessor. The entrance to the tunnel became blocked during the winter of 1935-36 and due to financial difficulties the irrigation districts were unable to continue to operate the Eagle Lake project. No water was diverted from Eagle Lake through the tunnel by the Tule and Baxter Irrigation Districts after 1935 and, according to Decision No. 448, permits 782 and 783 were revoked on November 13, 1939 for nonuse of water under the permits.

In 1948, trustees for the bankrupt Tule Irrigation District petitioned the Superior Court in and for the County of Sacramento to require the State Engineer to reinstate the permits. The Court found that insufficient notice had been given to the District for the order to show cause and the Court voided the revocation proceedings. On January 14, 1953, the State Engineer issued orders reinstating the permits and transferring all interest therein to the sole ownership of the Tule Irrigation District. Extensions of time were granted by the State Water Rights Board to the Tule Irrigation District in 1953 and 1955 for additional time in which to complete construction of the project and to place water to beneficial use. However, when another request for extension of time was filed in 1957, the State Water Rights Board called a hearing on the matter and ultimately concluded that the District had failed to exercise due diligence in furtherance of its permits as required by the Water Code. Pursuant to the hearing, the State Water Rights Board adopted Decision RD-29 on March 18, 1959 and, in so doing, revoked Water Right Permits 782 and 783.

Subsequent Applications to Appropriate Water from Eagle Lake. Several water right applications to appropriate unappropriated water from Eagle Lake were filed with the State Water Rights Board in 1959 (including one filed by the Tule Irrigation District[1]) following the revocation of Water Right Permits 782 and 783. The applicants proposed to divert water from the lake through the Bly Tunnel and release the water into Willow Creek. The proposed places of use were 25 miles or more downstream from the tunnel and were all located within the Willow Creek or Susan River adjudicated areas. The applications were protested by a number of public agencies, local organizations and individuals. A public hearing was held in August 1961 to address the issues raised by the protestants, the most critical of which related to the availability of unappropriated water and whether export of Eagle Lake water would best conserve the public interest, as required by sections 1375 and 1255 of the Water Code, respectively. Evidence presented at the hearing showed that with certain restrictions imposed as operating criteria (i.e. no diversion below water surface elevation 5095 feet above sea level) the full amount of water requested by the applicants would be available in only 9 out of 41 years, with lesser amounts available in an additional 2 years. Testimony on behalf of the Department of Fish and Game indicated that any lowering of the lake's surface elevation below USGS 5099 feet above sea level is detrimental to the fisheries of the lake. Other evidence indicated that recreational use and fish and wildlife propagation require Eagle Lake water levels to be higher than existed at the time of the hearing (USGS 5097.5) for optimum use. In its discussion of the matter[2], the Board stated that "*any export of lake water and the resulting lowering of lake levels would be detrimental, not only to fish and wildlife, but to recreation in its many aspects*" and that "*uses of water in this closed basin for said purposes are found to be important and beneficial.*" After considering the evidence presented at the hearing, the Board found that, "*except in infrequent years, all Eagle Lake water is required to remain in Eagle Lake*

[1] The District later cancelled its application (A018665) due to the District's continuing bankruptcy status and its inability to finance its project.

[2] Water Right Decision 1073, p. 14.

for recreational, stockwatering, and related uses, which beneficial uses are both pursuant to existing right and in the public interest; that insufficient unappropriated water is available to justify approval of the subject applications; and that it would best conserve the public interest to reject and deny all of the subject applications." The Board adopted Water Right Decision 1073 on March 15, 1962 and ordered that the subject applications be denied.

Willow Creek Water Rights Determination. The rights to water flowing in Willow Creek were adjudicated by the State in the matter of Fleming v. Bennett, et al. The above case was referred to the California Department of Public Works, Division of Water Resources by an order of the Superior Court in and for the County of Lassen dated August 21, 1934. The Division of Water Resources was directed by the Court to investigate and determine the rights to the diversion and use of water from the Susan River Stream System, of which Willow Creek is a part. The Division of Water Resources conducted its investigation between August 1934 and October 1935 and issued its hydrographic report in February 1936.[3] Judgment and Decree No. 4573 was entered by the Court on April 18, 1940.

The rights involved for those parties that derived their water supply from Willow Creek and Susan River below its confluence with Willow Creek were set forth in Paragraph 45 and in Schedule 3 of the decree. Paragraph 45 states that the parties enumerated in Schedule 3 are entitled to rights in and to the use of the "natural flow" of the above named sources. Paragraph 8 defined the term "natural flow" as "*such flow as will naturally occur at any given point in a stream from the run-off of the watershed which it drains, from springs which naturally contribute to the stream, from seepage, and from waste and return flow from dams, conduits, and irrigated lands; as distinguished from released stored water and from 'foreign water' directly conveyed to a stream from another watershed.*"

In reviewing the water right determination that is the subject of Decree No. 4573 and the water supply report that was issued pursuant to the hydrographic investigation of the Susan River and its tributaries, it is evident that the determination recognized the fact that foreign water had previously been diverted from Eagle Lake, through the Bly Tunnel, and deposited into Willow Creek under appropriative right. Priorities were set among the various diversions on Willow Creek with respect to the water diverted from Eagle Lake and provisions were included to insure that the appropriators of water from Eagle Lake did not divert water from Willow Creek to the detriment of downstream users. The provisions in Paragraph 45 were the product of an agreement regarding the distribution of the waters of Willow Creek as augmented by the waters diverted from Eagle Lake and the provisions specifically restricted the amount of water to be taken by the appropriators at Diversion Points 121 and 149.[4] At times, those provisions may have resulted in some Eagle Lake water being supplied to the decreed right holders. However, the provisions were only in effect to the extent that foreign water from Eagle Lake was being imported to Willow Creek under appropriative right. As this no longer occurs, the provisions are no longer effective and they have no bearing on the rights of the decreed right holders to the water currently emanating from the Bly Tunnel.

It is also evident that the water supply report recognized that seepage into the tunnel, either from the lake or from percolating groundwater, continued to contribute to the flow of Willow Creek, even in the absence of a direct diversion from Eagle Lake. In practice, the seepage

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[3] Report on Water Supply and Use of Water on Susan River and Tributaries, Lassen County, California. Division of Water Resources. February 1936.

[4] Ibid. Appendix 2.

flowing from the tunnel has been included when allocating the available water supply of Willow Creek among the decreed right holders. However, the decree is actually silent as to the disposition of such water. The decree did not confer upon any user the right to take physical control of the water within the tunnel and the tunnel itself is not designated as an authorized point of diversion under the decree.

According to the definition of "natural flow" in Paragraph 8, any water currently flowing from the Bly Tunnel that, absent the construction of the tunnel, would otherwise have discharged into the Willow Creek watershed could be considered "natural flow" and would be subject to the rights defined by Decree No. 4573. However, there is no evidence to suggest that the tunnel is intercepting water that would naturally occur in Willow Creek. Based upon the available information, it is difficult to imagine that any of the flow emanating from the Bly Tunnel would naturally occur in Willow Creek in the absence of the tunnel and it seems clear that any water that enters the tunnel from Eagle Lake or that seeps into the tunnel from percolating groundwater should properly be considered foreign water from another watershed. Therefore, it does not appear that any party has a right under the decree to demand that water be allowed to continue to flow from the tunnel.

Given that the water that enters the Willow Creek watershed through the Bly Tunnel is considered "foreign" water, that water cannot be diverted pursuant to a riparian claim of right and should only be available for use by appropriators, on a "first come – first serve" basis, if and when the water is abandoned into the Willow Creek channel. In other words, the most senior downstream appropriator should be entitled to all the flow coming from the tunnel, up to the maximum amount of the diverter's appropriative right. Once this right has been satisfied, any remaining water coming from the tunnel would be available to the next highest priority appropriator. The process of allocating the available supply would continue until all of the foreign water coming from the tunnel is utilized. The Watermaster for the Susan River Stream System is responsible for distributing water pursuant to Decree No. 4573. Presumably, the allocation of foreign water would be handled by the Watermaster, as well. If not, competing right holders may need to seek resolution in the Superior Court should any disputes arise over the allocation of such water.

Hydrogeology and Construction of the Tunnel Works. The original plan for the Bly Project was to excavate the tunnel with a rather shallow gradient, starting at the Upper Murrer Meadow and digging toward Eagle Lake under the north flank of Black Mountain. The plan was to have the tunnel tap the lake approximately 45 feet below the existing surface of the lake at about elevation 54 on what is known as the Bly Datum, or 5071 feet above sea level.[5] During construction, the builders of the tunnel encountered a zone of excessive seepage as they neared the lake and the design of the tunnel had to be modified to avoid the problem.[6] At a distance of about 7,000 feet from the outlet, a short section of the tunnel was inclined to an angle of about 20 degrees and lined with a 60-inch corrugated metal pipe, raising the last two hundred feet of tunnel to about elevation 5115 and bringing the tunnel inlet out of the ground near the lake surface at that time.

[5] Zero on the Bly Datum equals 5017.05 feet above sea level.

[6] Apparently, the builders of the tunnel tried forcing grout into the cracks and fissures in the tunnel walls to stem the flow of water, but the grout reportedly emerged some 600 feet off shore and the seepage could not be controlled.

Between 1923 and 1935, the surface level of Eagle Lake dropped approximately 27 feet. During that time, approximately 310,000 acre-feet of water was diverted through the tunnel but most of the decline in surface elevation is attributed to the low runoff during an extended period of drought (1924 to 1938) and to evaporation. To continue to provide flow from the lake, the inlet tunnel was excavated several times (to an inlet elevation of about 5090) and a channel was cut and subsequently deepened to reach the receding water line of the lake (eventually extending some 1,800 feet from the tunnel entrance). After 1935, rock slides blocked the inlet channel with debris and water was no longer diverted from Eagle Lake through the tunnel by the Tule and Baxter Irrigation Districts. In the early 1950s, the water level of Eagle Lake had risen to the point that water began to flow through the tunnel again; but in 1955, fill material was placed across the channel a few hundred feet from the tunnel entrance to prevent further lowering of the lake. In 1976, BLM backfilled the tunnel entrance and much of the inlet channel and strengthened the existing sand dike in front of the tunnel entrance. However, water has continued to seep into and flow from the tunnel.

In 1983, BLM staff conducted a geological investigation of the Bly Tunnel. In his report,[7] the examining geologist reported that the first 6,700 feet of the tunnel (measured from the outlet) consists of basalt material that exhibited low permeability and porosity, with "tight" joints. There was minimal water seepage through the unlined portions of the first 6,700 feet of the tunnel. Beyond 6,700 feet, the lithology of the tunnel changes to low-angle beds of uniform but poorly consolidated silty-ash flow sediments and lake-bottom sediments. It was the opinion of the examining geologist that, if a future decision were made to seal the tunnel, no further attempt should be made to seal the tunnel from the 6,700-foot to 7,400-plus point due to the unstable rock type and the poorly consolidated, faulted, poorly indurated, and highly weathered sediments which comprise the tunnel walls.

Percolating Groundwater. During a recent inspection, Complaint Unit staff did not observe any water entering the mouth of the tunnel by direct surface flow from Eagle Lake. Consequently, all water that is currently entering the tunnel does so either through the substantial amount of fill material blocking the entrance to the tunnel or through the porous material of the tunnel walls. Complaint Unit staff observed no appreciable seepage from the tunnel walls downstream of the concrete plug and flow measurements taken at the time indicate that there is no net gain to the tunnel in the last 3,000 feet of its run.[8] Therefore, all water that flows from the tunnel enters the tunnel upstream of the permanent plug and passes through the outlet pipe. Flow measurements made by the Department of Water Resources prior to construction of the permanent plug indicate that virtually all of the flow in the tunnel originates more than a mile upstream from the outlet portal.[9] Based on the interpretations made by the BLM geologist referred to above, and given the current water surface elevation of Eagle Lake, it appears that all water entering the tunnel at the this time originates between the inclined section of tunnel (60-inch corrugated metal pipe) and the fault zone located at about 6,700 feet upgradient of the tunnel outlet.

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[7] *Geology of the Eagle Lake Tunnel near Susanville*, California. Ron Smith, District Geologist. 1983.

[8] In fact, measured flow below the tunnel outlet was slightly less than the measured flow below the outlet pipe within the tunnel.

[9] *Eagle Lake – Alternative Plans for Controlling Lake Levels*. Department of Water Resources, Northern District. November 1972

In its 1972 report, the Department of Water Resources concluded that essentially all of the water being discharged from the Bly Tunnel is derived from Eagle Lake. A comparison of water quality samples taken from Eagle Lake, the tunnel, and the springs feeding Willow Creek seems to bear this out. While the water seeping into the tunnel most likely comes from Eagle Lake and, therefore, may have a direct impact on the water level of the lake, the water passes through several hundred feet of highly permeable sediment layers before entering the tunnel. As such, this water would be classified pursuant to California water law as percolating groundwater entering a horizontal well (i.e., the Bly Tunnel) and is not subject to the State Water Board's permitting authority. Because the fault and intervening basalt material would most likely have prevented this water from reaching the Willow Creek watershed in the absence of the tunnel, Complaint Unit staff consider this water to be "foreign" water with regard to Willow Creek.

Conclusion. The Complaint Unit staff understands that BLM is the only party or entity with an ownership interest in the tunnel at this time. Therefore, the right to divert all percolating groundwater coming from the tunnel and the responsibility for controlling such diversion belongs to BLM. Downstream parties have no discernable rights to demand the release of such waters and we believe that BLM can shut off the discharge of this water at any time. If BLM decides to supply water from the tunnel to a particular party or to abandon such water for use by downstream appropriators, on a "first come – first serve" basis, the diversion and use of such water would be subject to the reasonableness and public trust provisions of California water law. If BLM chooses to leave the valve in the tunnel plug open, the Complaint Unit will continue to investigate the diversion and use of water pursuant to the outstanding water right complaints. If the available evidence indicates that the diversion and use of tunnel water in the Willow Creek or Susan River watersheds results in a waste of water or causes unreasonable adverse impacts to public trust resources, Complaint Unit staff would recommend that the Division take appropriate enforcement action to control the diversion accordingly. If BLM chooses to close the valve in the tunnel plug, Complaint Unit staff will probably take no further action with respect to the pending complaints unless closing the valve does not result in a substantial reduction of flow out of the tunnel.

I hope this information helps to shed light on the water rights involved in the current situation. If there are any questions, please feel free to contact either myself or Dave LaBrie of my staff. Mr. LaBrie can be reached via telephone at (916) 341-5343 or via e-mail at: DLABRIE@waterboards.ca.gov. I can be reached at (916) 341-5377 or via e-mail at: CRICH@waterboards.ca.gov. Either one of us can be reached at the letterhead address. Please let us know if BLM decides to close the valve at the tunnel plug.

Sincerely,

Charles A. Rich

Charles A. Rich, Chief
Complaint Unit