United States Department of the Interior
BUREAU OF LAND MANAGEMENT

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In Reply Refer To:
CO-932 (7250)

Mr. Rob Viehl
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Viehl:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its recommendation for an increase to the existing instream flow water right on Derby Creek, located in Water Division 5.

**Location and Land Status**. Derby Creek originates on the east side of the Flattops Wilderness Area, approximately 16.0 miles northwest of the community of Burns. Derby Creek flows into the Colorado River at the unincorporated community of Derby Junction. This recommendation addresses the portion of Derby Creek that starts at the confluence with South Fork Derby Creek and ends at the confluence of Derby Creek with the Colorado River, a distance of approximately 8.2 miles. The BLM manages 0.81 miles of this reach, the U.S. Forest Service manages 2.68 miles of this reach, while approximately 4.71 miles are in private ownership.

**Existing Instream Flow Water Right**. In 1985, the Colorado Water Conservation Board (CWCB) appropriated an instream flow water right on the reach of Derby Creek described above. The protected flow rate is 7.5 cfs, year-round.

**Biological Summary.** Derby Creek is a cold water, moderate to high gradient stream. The reach that is the subject of this recommendation flows through a canyon that ranges from 1/8 to ½ mile in width. The upper part of the reach flows through heavily forested lands, while the lower part of the reach flows through more open vegetation. Substrate is generally from medium to very large size, ranging from 2-inch cobbles to three-foot diameter boulders. Riffles are limited, and a high percentage of the stream is comprised of step-pool habitat. Water quality is good for supporting salmonid fish species, but the presence of didymo algae indicates that the stream may be low in certain nutrients, such as phosphorus.

Fish surveys indicate self-sustaining populations of brown trout and mottled sculpin. The creek appears to be a preferred tributary spawning location for brown trout that reside in the Colorado River because surveys have documented abundant young-of-the-year specimens. The brown trout and mottled sculpin populations appear robust, with good densities and a diversity of age classes present. Fish surveys also documented a limited number of rainbow trout.

Macroinvertebrate surveys have indicated relatively abundant populations of mayfly, golden stonefly and caddisfly. Derby Creek significantly exceeds aquatic life use thresholds as measured by the Benthic Macroinvertebrate Multimetric Index (MMI), achieving a score of 56.5 versus the attainment threshold score of 45.

The creek supports a vigorous riparian community comprised of alder, dogwood, willow, hawthorn, narrowleaf cottonwood and spruce. When the creek flows through confined canyons, the riparian community provides good cover and shading for the creek and contributes substantially to bank stability.

**R2Cross Analysis.** The BLM collected the following R2Cross data from Derby Creek:

| Cross Section Date | Discharge Rate | Bankfull Top Width | Summer Flow Recommendation (meets 3 of 3 hydraulic criteria) |
|---|---|---|---|
| 07/15/2021 #1 | 10.56 cfs | 30.30 feet | 8.74 cfs |
| 07/15/2021 #2 | 9.87 cfs | 30.57 feet | 12.49 cfs |
| 09/23/2021 #1 | 7.47 cfs | 31.50 feet | 10.68 cfs |
| | | Average: | 10.63 cfs |

BLM's analysis of this data indicates that the following flows are needed to protect the natural environment to a reasonable degree.

> 10.6 cubic feet per second is recommended during the snowmelt runoff period, from April 1 to June 30. This recommendation is driven by the average velocity criteria. In many locations, the Derby Creek channel is wide and high gradient with large substrate, so meeting the velocity criteria is important for maintaining the limited amount of riffle habitat. Implementing this recommendation would require an increase of 3.10 cfs over the current instream flow water right.

**Rationale for Instream Flow Increase.** BLM believes an instream flow increase for Derby Creek is warranted because of physical habitat characteristics. The R2Cross data summarized above clearly indicates that the current instream flow water right does not provide sufficient physical habitat during the warm weather portions of the year when the fish populations are feeding and growing. When the existing instream flow right is applied to the cross sections that were collected, the stream would exhibit 60 percent to 71 percent wetted perimeter. During the warm weather season, the fish populations need to have access to as much of the stream channel as possible for feeding and resting if they are to survive the pronounced cold winters in this canyon. In addition, there appears to be significant competition for limited habitat in Derby Creek, because brown trout from the Colorado River also make use the creek.

**Water Availability.** The BLM recommends using a variety of data sources to confirm water availability, because BLM is not aware of any historical gage data on this creek. Use of CSUFlows can provide an estimate of natural hydrology, but this estimate should be further

refined with on-site flow measurements.

The BLM is aware of the following water right within the proposed instream flow reach:

Rogers Ditch – 21.4 cfs

The BLM is aware of the following water rights upstream from the recommended reach:

Pipeline Ditch – 15.0 cfs
Derby Ditch – 28.0 cfs
Grand River Land and Cattle Company Ditch – 18.4 cfs
Middle Derby Ditch – 40.0 cfs
Trail Creek Ditch – 5.2 cfs
South Derby Ditch – 32.0 cfs
Lion Basin Ditch – 31.76 cfs

**Relationship to Land Management Plans.** The BLM's land management plan calls for protection and improvement of historic fisheries as a means of increasing native fish and sport fish populations. In addition, BLM has committed to managing the Upper Colorado River corridor for high quality recreational fishing, and it appears that Derby Creek plays an important role in helping to maintain the fishery in the Colorado River. The BLM plan also calls for making instream flow recommendations to the Colorado Water Conservation Board to meet minimum instream flow requirements to maintain native fisheries and sport fisheries. Finally, the land use plan calls for maintaining and improving the function of riparian areas to achieve advanced ecological stage for the riparian community and protecting those riparian and wetland systems from sources of potential degradation. Increasing the existing instream flow water right would assist in meeting these objectives.

Data sheets, R2Cross output, fishery survey information, and photographs of the cross sections were included with BLM's draft recommendation in February 2022. BLM thanks both Colorado Parks and Wildlife and the Colorado Water Conservation Board for their cooperation in this effort.

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

Sincerely,

ALAN BITTNER

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Alan Bittner
Deputy State Director
Resources and Fire

Cc:

James Roberts, Colorado River Valley Field Office
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