



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCES

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April 14, 2006

Michelle Stamates, P.E.  
Technical Assistant  
Board for Financing Water Projects  
901 South Stewart Street, Suite 4001  
Carson City, NV 89701-5249

Re: Program of Grants for Water Conservation Projects (AB 237)  
Review of Comment Letter on the Metropolis Irrigation Restoration Project

Dear Ms. Stamates:

The State Engineer's Office has reviewed the Comment Letter of several downstream decreed water right holders on Bishop Creek. With regard to this letter it should be noted that water rights exist that are available for the project. The applicant has demonstrated a desire to work with the State Engineer in rehabilitating Bishop Creek Dam in order to alleviate safety concerns and allow full utilization of their water rights. The applicant's plan appears to satisfy the State Engineer with respect to safety of dams with the understanding that the final design will incorporate provisions to accommodate a full Probable Maximum Flood (PMF) on the watershed. The Comment Letter raises issues with regard to the annual yield available. To resolve these issues would require a detailed study of precipitation and runoff to provide a resolution of the annual reservoir inflow.

The Bishop Creek Dam will be required to operate in a manner as to be compliant with requirements set forth in the Humboldt River Decree. The grant applicant holds the senior right on Bishop Creek with a priority date of 1876. His remaining rights are junior to downstream right holders. As such the applicant would be allowed to store the entire inflow during the non-irrigation season. During the irrigation season he will be required to release any inflow with the exception of water allowed under his most senior right.

The project is not without difficulties. The point of diversion of Certificate 2850, issued under Permits 1000 & 1807, is in the NW¼ NE¼ of Section 24, T.39N, R.62E, M.D.B.&M; however, maps indicate the proposed dam will be in the NE¼ NW¼ of Section 24, T.39N, R.62E, M.D.B.&M. If the new dam's outlet is in a different 40-acre legal subdivision than that on the certificate, a permit changing the point of diversion will be required. The application to change a permit/certificate must be made by the owner of record of the base right as indicated by the records in the office of the State Engineer. Due to a gap in the chain of title, the current owner of record of Permits 1000 & 1807 is Stephen N. Bond.

Regarding the concerns of the downstream water right holders as outlined in the undated letter to the Board received March 28, 2006, the State Engineer's Office may best serve the Board by providing commentary on the "Reference Documents" provided in the letter.

Reference Document #1. "Order 1165 by the State Engineer."

This order directs the Humboldt River Water Commissioner to manage the waters of Bishop Creek in a way as to serve any downstream senior water right holders before any junior upstream water right holders, but only as long as transmission to the down stream holders is possible without appreciable in transit losses. Order 1165 is intended to be invoked in the irrigation season during periods of low water so that maximum beneficial use of the resource can occur without wasting the water uselessly by wetting an otherwise barren stream channel. In other words, The Commissioner does not need to deny use of the water by upstream (junior) water right holders if the likelihood of water reaching the downstream (senior) water right holders is negligible in the opinion of the Commissioner.

Reference Document #2. "Assessed Owners of Decreed Water Rights for Bishop Creek."

This letter is an informational abstract from our Elko Office of the assessment rolls for the water right holders on the Humboldt River water system. It is worth noting that the acreage indicated is the total for that priority date under the claim. The actual source of water is one of or a combination of the sources listed to the right of the entry. Inspection of a map of the area shows that the land under cultivation lies between the mapped channels of Bishop Creek and Humboldt River in a relatively flat flood plain. Interestingly, the most senior right on the document belongs to the applicant, Metropolis Irrigation District.

Reference Document #3. "Mary's River Sub-basin Report Appendix I, pp. 51."

This reference is from a cooperative study between the Nevada Department of Natural Resources and the US Department of Agriculture and was published in June 1963. The study reports that "*The precipitation in the watershed is estimated to vary between 9.7 inches at Deeth and Wells, 9.9 inches at Metropolis, and 20 inches in the mountains above 8,000 feet in elevation.*" A considerable amount of additional data has been accumulated since this report was prepared. For instance, the Metropolis data was based on 10 years of record, but data from the Western Regional Climate Center show that from 8/1/65 to 9/30/95 (i.e., 30 years of records) the average precipitation for Metropolis was 13.8 inches. Similarly the 9.7 inches reported for Deeth was based on 10 years of record, but had an average of 12.04 inches from 12/1/51 to 12/31/05 (i.e., 53 years of records).

It should be noted that on page 53, this report also recommends improvements to Bishop Creek Dam and the water distribution system.

Reference Document #4. "Mary's River Sub-basin Report Appendix II, pp. 41."

Appendix II provides detailed technical information for the Mary's River Sub-basin Report, including information on water supply data. This appendix was issued as a separate volume and only a limited number copies were made. No copies were found for review in the Division of Water Resources library.

The Gross Water Yield for a 50 percentile year (i.e., the median precipitation year) is estimated as 3,400 acre-feet (AF). The Comment Letter reduces this by losses to phreatophytes and evaporation to obtain a value of 1,100 acre-feet annually (AFA). It should be noted that the Bishop Creek yield estimate in Reference Document #4 appears to include areas of the drainage that enter below the reservoir (e.g., Trout and Burnt Creek drainages). Therefore, the reservoir inflow may represent only a portion the estimated 3,400 AF.

Reference Document #5. "Geologic Map."

The indicated fault appears to be an extension of the Ruby Mountains Fault Zone. The Ruby Mountains Fault Zone is considered to be an "active" fault system with a slip rate on the order of 0.28 mm/yr (DePaoli) from USGS site: [http://gldims.cr.usgs.gov/webapps/cfusion/Sites/c2002\\_search/display\\_fault\\_info\\_sbl.cfm?objectid=81&fault\\_name=Ruby%20Mountains%20fault%20zone](http://gldims.cr.usgs.gov/webapps/cfusion/Sites/c2002_search/display_fault_info_sbl.cfm?objectid=81&fault_name=Ruby%20Mountains%20fault%20zone)  
All seismic and geologic considerations would be properly examined in the design and review of the proposed structure.

Reference Document #6, #7 & #8. "Metropolis Irrigation Restoration Project" various sections.

These documents are from the Metropolis Irrigation Restoration Project Preliminary Design Report that was previously submitted to the Board. Reference Document #7 provides an estimate of the average inflow of 6,780 AFA. The Comment Letter refers to this value as excessively high. It should be noted that this value includes seepage and evaporation losses. The Comment Letter subtracts evaporation and phreatophyte losses from the Reference Document #4 results making comparisons inconsistent. It should also be noted that Reference Document #7 indicates that extended droughts occurred in the 1930s and 1960s, with the watershed supply averaging 3,000 AFA during the 1930's drought and 3,400 AFA during the 1960's drought.

Reference Document #9, #12 & #17 "Phase I Feasibility Study Report, Bishop Creek Reservoir, August 1992."

This report offers some previous estimates of the stream yield. Note the 2,100 AFA on p. 2-10 comes from the Reference Document #2 & #4 source, and represents their 80% frequency yield estimate (i.e., 8 out of 10 years should exceed this amount). This report estimates a water budget by correlating reservoir level data and the precipitation in Wells, NV. Table II-2 projects an average annual yield of 2,993 AF and Table II-3 projects 4,165 AF for the years 1962 through 1971. This study was done during a period when the reservoir was unable to be regulated; therefore diversions to irrigation actually correlate to whatever head managed to accumulate over the stuck partially open gate. The summer precipitation yield was estimated as 848 to 1,231 AF in these tables. This is the water the Comment Letter claims cannot be touched even though Metropolis Irrigation District has the senior claim to approximately 525 AF (Reference Document #2). Also, the winter yields are much larger than the summer yields. Without the proposed Metropolis project, most of the winter yield cannot be placed to beneficial use.

Under Section 6, Evaporation, the Comment Letter highlights "*Preliminary analysis indicates, assuming a new trial minimum and maximum pool, that evaporation maybe expected to range between 675 and 1440 AF per year.*" The Metropolis Preliminary Design Report (Reference Document #7) estimates evaporation and seepage losses at 1,100 AFA.

Reference Documents #10 & #11. Photos of a natural stream channel.

No comments.

Reference Document #13. "South Fork Dam Project" summary report of grouting activity, June 1989.

It is not certain why this is included except, perhaps, to remind us that things exist beneath the surface that we cannot determine with certainty. The grouting program at South Fork was a major budget buster but there is no reason to assume the same will occur at this site.

Reference Documents #14, #15 & #16. Copies of two applications for a storage water right at Bishop Creek Dam and the certificate issued upon perfection of the permits.

No comments.

If you have any questions, please contact this office at (775) 684 - 2800.

Sincerely,

  
for

Michael J. Anderson, P.E.  
Staff Engineer III



Kurt Suchsland, P.E.  
Staff Engineer III  
Water Planning Section