

# STATE OF COLORADO

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## Colorado Water Conservation Board Department of Natural Resources

1313 Sherman Street, Room 721  
Denver, Colorado 80203  
Phone: (303) 866-3441  
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www.cwcb.state.co.us



October 2, 2012

Mr. Wayne Whittaker  
Pisgah Reservoir and Ditch Company, Secretary  
P.O. Box 352  
Rocky Ford, CO 81067

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John W. Hickenlooper  
Governor

Mike King  
DNR Executive Director

Jennifer L. Gimbel  
CWCB Director

Re: Mt. Pisgah Dam/Wrights Reservoir Outlet Works Rehab Project  
Contract Number C150341

Mr. Whittaker:

I am pleased to inform you that on September 28, 2012 the Colorado Water Conservation Board approved your loan request for the Mt. Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation Project as described in the application and approved Loan Feasibility Study titled "*Mount Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation.*" The Board approved a loan not to exceed \$162,958 (\$161,345 for project costs and \$1,613 for the 1% Loan Service Fee). The loan terms shall be 30 years at an interest rate of 1.75% per annum.

I have attached a copy of the updated Board memo dated October 2, 2012, that includes the Board's approval.

After the Board approves a loan there are a few steps that remain in the loan process including:

- A) Contracting: An approved contract must be in place before funds can be disbursed. Peg Mason will contact you to initiate the loan contracting process for this project. When all of the contract conditions are met and the contract is executed the Company may request loan funds to cover eligible project expenses. You can contact Peg at (303) 866-3441 x3227.
- B) Design/Construction: You must adhere to the CWCB Design and Construction Administration Procedures. Ryan Edwards will be the project manager for this phase of the process. Ryan will make construction site visits, which will be the basis of pay estimates for disbursement of your loan funds. You can contact Ryan at (303) 866-3441 x3234.

**NOTE: No expenses incurred on any work performed prior to execution of the WSRA Grant Contract will be eligible for reimbursement through the loan or grant.**

Pisgah Reservoir and Ditch Company  
Mt. Pisgah Dam/Wrights Reservoir Outlet Works Rehab Project  
October 2, 2012  
Page 2 of 2

On behalf of the Board, I would like to thank you for your interest in a loan from the Colorado Water Conservation Board.

Sincerely,

Kirk Russell, P.E., Chief  
Finance Section  
Colorado Water Conservation Board

Ryan Edwards, P.E., Project Manager  
Finance Section  
Colorado Water Conservation Board

Attachment: Updated Board Memo

E-mail Copy (Including Attachments)

Alan Hamel, CWCB Board Member – Arkansas River Basin  
CWCB Finance Section Staff

**STATE OF COLORADO**  
**Colorado Water Conservation Board**  
**Grant Agreement**  
**with**  
**Pisgah Reservoir and Ditch Company**  
**Contract Number C150505**

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**1. PARTIES**

This Grant Agreement (hereinafter called "Grant") is entered into by and between Pisgah Reservoir and Ditch Company (hereinafter called "Grantee"), and the STATE OF COLORADO acting by and through the Department of Natural Resources, Colorado Water Conservation Board (hereinafter called the "State or CWCB").

**2. EFFECTIVE DATE AND NOTICE OF NONLIABILITY.**

This Grant shall not be effective or enforceable until it is approved and signed by the Colorado State Controller or designee (hereinafter called the "Effective Date"). The State shall not be liable to pay or reimburse Grantee for any performance hereunder, including, but not limited to costs or expenses incurred, or be bound by any provision hereof prior to the Effective Date.

**3. RECITALS**

**A. Authority, Appropriation, And Approval**

Authority for the agency entering into this Contract arises from Colorado Revised Statutes (CRS) 39-29-109(2)(c), 37-75-104(2)(c) and 37-75-102 et al., and Senate Bill 06-179 adopted by the 2006 General Assembly, and a sufficient unencumbered balance thereof remains available for payment. Required approvals, clearance and coordination have been accomplished from and with appropriate agencies.

**B. Consideration**

The Parties acknowledge that the mutual promises and covenants contained herein and other good and valuable consideration are sufficient and adequate to support this Grant.

**C. Purpose**

The Water Supply Reserve Account provides money for grants and loans to complete water activities, which are broadly defined and include water supply and environmental projects and/or studies. This Grant, for \$161,345, is for the Pisgah Reservoir and Ditch Company Mount Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation Project in the Arkansas Basin. The total project cost is estimated to be \$362,690 and the Grantee was also approved for a CWCB loan (C150341), not to exceed \$162,958, to assist with Project costs.

**D. References**

All references in this Grant to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

**4. DEFINITIONS**

The following terms as used herein shall be construed and interpreted as follows:

**A. Budget**

"Budget" means the budget for the Work described in Exhibit A.

**B. Evaluation**

"Evaluation" means the process of examining Grantee's Work and rating it based on criteria established in §6 and Exhibit A.

**C. Exhibits and other Attachments**

The following are attached hereto and incorporated by reference herein: Exhibit A (Statement of Work and Budget) and Exhibit B (Performance Monitoring).

**D. Goods**

"Goods" means tangible material acquired, produced, or delivered by Grantee either separately or in conjunction with the Services Grantee renders hereunder.

**E. Grant**

"Grant" means this Grant, its terms and conditions, attached exhibits, documents incorporated by reference under the terms of this Grant, and any future modifying agreements, exhibits, attachments or references incorporated herein pursuant to Colorado State law, Fiscal Rules, and State Controller Policies.

**F. Grant Funds**

"Grant Funds" means available funds payable by the State to Grantee pursuant to this Grant.

**G. Party or Parties**

"Party" means the State or Grantee and "Parties" means both the State and Grantee.

**H. Program**

"Program" means the Water Supply Reserve Account grant program that provides the funding for this Grant.

**I. Review**

"Review" means examining Grantee's Work to ensure that it is adequate, accurate, correct and in accordance with the criteria established in §6 and Exhibit A and Exhibit B.

**J. Services**

"Services" means the required services to be performed by Grantee pursuant to this Grant.

**K. Sub-grantee**

"Sub-grantee" means third-parties, if any, engaged by Grantee to aid in performance of its obligations.

**L. Work**

"Work" means the tasks and activities Grantee is required to perform to fulfill its obligations under this Grant and Exhibit A and Exhibit B, including the performance of the Services and delivery of the Goods.

**M. Work Product**

"Work Product" means the tangible or intangible results of Grantee's Work, including, but not limited to, software, research, reports, studies, data, photographs, negatives or other finished or unfinished documents, drawings, models, surveys, maps, materials, or work product of any type, including drafts.

## **5. TERM and EARLY TERMINATION.**

### **Initial Term-Work Commencement**

The Parties respective performances under this Grant shall commence on the later of either the Effective Date or December 30, 2012. This Grant shall terminate on September 30, 2014 unless sooner terminated or further extended as specified elsewhere herein.

## **6. STATEMENT OF WORK**

### **A. Completion**

Grantee shall complete the Work and its other obligations as described herein and in Exhibit A on or before September 30, 2014. The State shall not be liable to compensate Grantee for any Work performed prior to the Effective Date or after the termination of this Grant.

### **B. Goods and Services**

Grantee shall procure Goods and Services necessary to complete the Work. Such procurement shall be accomplished using the Grant Funds and shall not increase the maximum amount payable hereunder by the State.

### **C. Employees**

All persons employed by Grantee or Sub-grantees shall be considered Grantee's or Sub-grantees' employee(s) for all purposes hereunder and shall not be employees of the State for any purpose as a result of this Grant.

## **7. PAYMENTS TO GRANTEE**

The State shall, in accordance with the provisions of this §7, pay Grantee in the following amounts and using the methods set forth below:

### **A. Maximum Amount**

The maximum amount payable under this Grant to Grantee by the State is \$161,345, as determined by the State from available funds. Grantee agrees to provide any additional funds required for the successful completion of the Work. Payments to Grantee are limited to the unpaid obligated balance of the Grant as set forth in Exhibit A. The maximum amount payable by the State to Grantee during each State fiscal year of this Grant shall be:

<b>\$161,345 in FY2012</b>
<b>\$161,345 in FY2013, minus any funds expended in FY2012</b>
<b>\$161,345 in FY2014, minus any funds expended in FY2013</b>
<b>\$161,345 in FY2015, minus any funds expended in FY2014</b>

### **i. Advance, Interim and Final Payments**

Any payment allowed under this Grant or in Exhibit A shall comply with State Fiscal Rules and be made in accordance with the provisions of this Grant or such Exhibit. Grantee shall initiate any payment requests by submitting invoices to the State in the form and manner set forth and approved by the State.

### **ii. Interest**

The State shall fully pay each invoice within 45 days of receipt thereof if the amount invoiced represents performance by Grantee previously accepted by the State. Uncontested amounts not paid by the State within 45 days may, if Grantee so requests, bear interest on the unpaid balance beginning on the 46th day at a rate not to exceed one percent per month until paid in full; provided, however, that interest shall not accrue on unpaid amounts that are subject to a good faith dispute. Grantee shall invoice the State separately for accrued interest on delinquent amounts. The billing shall reference the delinquent payment, the number of day's interest to be paid and the interest rate.

### **iii. Available Funds-Contingency-Termination**

The State is prohibited by law from making fiscal commitments beyond the term of the State's current fiscal year. Therefore, Grantee's compensation is contingent upon the continuing availability of State appropriations as provided in the Colorado Special Provisions, set forth below. If federal funds are used with this Grant in whole or in part, the State's performance hereunder is contingent upon the continuing availability of such funds. Payments pursuant to this Grant shall be made only from available funds encumbered for this Grant and the State's liability for such payments shall be limited to the amount remaining of such encumbered funds. If State or federal funds are not appropriated, or otherwise become unavailable to fund this Grant, the State may immediately terminate this Grant in whole or in part without further liability in accordance with the provisions herein.

**iv. Erroneous Payments**

At the State's sole discretion, payments made to Grantee in error for any reason, including, but not limited to overpayments or improper payments, and unexpended or excess funds received by Grantee, may be recovered from Grantee by deduction from subsequent payments under this Grant or other Grants, grants or agreements between the State and Grantee or by other appropriate methods and collected as a debt due to the State. Such funds shall not be paid to any party other than the State.

**B. Use of Funds**

Grant Funds shall be used only for eligible costs identified herein and/or in the Budget. The State's total consideration shall not exceed the maximum amount shown herein.

**8. REPORTING - NOTIFICATION**

Reports, Evaluations, and Reviews required under this §8 shall be in accordance with the procedures of and in such form as prescribed by the State and in accordance with §19, if applicable.

**A. Performance, Progress, Personnel, and Funds**

Grantee shall submit a report to the State upon expiration or sooner termination of this Grant, containing an Evaluation and Review of Grantee's performance and the final status of Grantee's obligations hereunder. In addition, Grantee shall comply with all reporting requirements, if any, set forth in Exhibit A and Exhibit B.

**B. Litigation Reporting**

Within 10 days after being served with any pleading in a legal action filed with a court or administrative agency, related to this Grant or which may affect Grantee's ability to perform its obligations hereunder, Grantee shall notify the State of such action and deliver copies of such pleadings to the State's principal representative as identified herein. If the State's principal representative is not then serving, such notice and copies shall be delivered to the Executive Director of the Colorado Department of Natural Resources.

**C. Noncompliance**

Grantee's failure to provide reports and notify the State in a timely manner in accordance with this §8 may result in the delay of payment of funds and/or termination as provided under this Grant.

**D. SubGrants**

Copies of any and all subGrants entered into by Grantee to perform its obligations hereunder shall be submitted to the State or its principal representative upon request by the State. Any and all subGrants entered into by Grantee related to its performance hereunder shall comply with all applicable federal and state laws and shall provide that such subGrants be governed by the laws of the State of Colorado.

**9. GRANTEE RECORDS**

Grantee shall make, keep, maintain and allow inspection and monitoring of the following records:

**A. Maintenance**

Grantee shall make, keep, maintain, and allow inspection and monitoring by the State of a complete file of all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to the Work or the delivery of Services (including, but not limited to the operation of programs) or Goods hereunder. Grantee shall maintain such records (the Record Retention Period) until the last to occur of the following: (i) a period of three years after the date this Grant is completed or terminated, or (ii) final payment is made hereunder, whichever is later, or (iii) for such further period as may be necessary to resolve any pending matters, or (iv) if an audit is occurring, or

Grantee has received notice that an audit is pending, then until such audit has been completed and its findings have been resolved (the "Record Retention Period").

**B. Inspection**

Grantee shall permit the State, the federal government and any other duly authorized agent of a governmental agency to audit, inspect, examine, excerpt, copy and/or transcribe Grantee's records related to this Grant during the Record Retention Period for a period of three years following termination of this Grant or final payment hereunder, whichever is later, to assure compliance with the terms hereof or to evaluate Grantee's performance hereunder. The State reserves the right to inspect the Work at all reasonable times and places during the term of this Grant, including any extension. If the Work fails to conform to the requirements of this Grant, the State may require Grantee promptly to bring the Work into conformity with Grant requirements, at Grantee's sole expense. If the Work cannot be brought into conformance by re-performance or other corrective measures, the State may require Grantee to take necessary action to ensure that future performance conforms to Grant requirements and exercise the remedies available under this Grant, at law or inequity in lieu of or in conjunction with such corrective measures.

**C. Monitoring**

Grantee shall permit the State, the federal government, and other governmental agencies having jurisdiction, in their sole discretion, to monitor all activities conducted by Grantee pursuant to the terms of this Grant using any reasonable procedure, including, but not limited to: internal evaluation procedures, examination of program data, special analyses, on-site checking, formal audit examinations, or any other procedures. All monitoring controlled by the State shall be performed in a manner that shall not unduly interfere with Grantee's performance hereunder.

**D. Final Audit Report**

If an audit is performed on Grantee's records for any fiscal year covering a portion of the term of this Grant, Grantee shall submit a copy of the final audit report to the State or its principal representative at the address specified herein.

**10. CONFIDENTIAL INFORMATION-STATE RECORDS**

Grantee shall comply with the provisions on this §10 if it becomes privy to confidential information in connection with its performance hereunder. Confidential information, includes, but is not necessarily limited to, state records, personnel records, and information concerning individuals. The State shall notify the Grantee in writing and notate any State records and information that are classified by the State as being "Confidential" and given to the Grantee in connection with its performance hereunder. The provisions of this Section 10 shall only apply to such notated records and information.

**A. Confidentiality**

Grantee shall keep all State records and information confidential at all times and to comply with all laws and regulations concerning confidentiality of information. Any request or demand by a third party for State records and information in the possession of Grantee shall be immediately forwarded to the State's principal representative.

**B. Notification**

Grantee shall notify its agent, employees, Sub-grantees, and assigns who may come into contact with State records and confidential information that each is subject to the confidentiality requirements set forth herein, and shall provide each with a written explanation of such requirements before they are permitted to access such records and information.

**C. Use, Security, and Retention**

Confidential information of any kind shall not be distributed or sold to any third party or used by Grantee or its agents in any way, except as authorized by this Grant or approved in writing by the State. Grantee shall provide and maintain a secure environment that ensures confidentiality of all State records and other confidential information wherever located. Confidential information shall not be retained in any files or otherwise by Grantee or its agents, except as permitted in this Grant or approved in writing by the State.

**D. Disclosure-Liability**

Disclosure of State records or other confidential information by Grantee for any reason may be cause for legal action by third parties against Grantee, the State or their respective agents. Grantee shall indemnify,

save, and hold harmless the State, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees and related costs, incurred as a result of any act or omission by Grantee, or its employees, agents, Sub-grantees, or assignees pursuant to this §10.

#### **11. CONFLICTS OF INTEREST**

Grantee shall not engage in any business or personal activities or practices or maintain any relationships which conflict in any way with the full performance of Grantee's obligations hereunder. Grantee acknowledges that with respect to this Grant, even the appearance of a conflict of interest is harmful to the State's interests. Absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations to the State hereunder. If a conflict or appearance exists, or if Grantee is uncertain whether a conflict or the appearance of a conflict of interest exists, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Failure to promptly submit a disclosure statement or to follow the State's direction in regard to the apparent conflict constitutes a breach of this Grant.

#### **12. REPRESENTATIONS AND WARRANTIES**

Grantee makes the following specific representations and warranties, each of which was relied on by the State in entering into this Grant.

##### **A. Standard and Manner of Performance**

Grantee shall perform its obligations hereunder in accordance with the highest standards of care, skill and diligence in the industry, trades or profession and in the sequence and manner set forth in this Grant.

##### **B. Legal Authority – Grantee and Grantees Signatory**

Grantee warrants that it possesses the legal authority to enter into this Grant and that it has taken all actions required by its procedures, by-laws, and/or applicable laws to exercise that authority, and to lawfully authorize its undersigned signatory to execute this Grant, or any part thereof, and to bind Grantee to its terms. If requested by the State, Grantee shall provide the State with proof of Grantee's authority to enter into this Grant within 15 days of receiving such request.

##### **C. Licenses, Permits, Etc.**

Grantee represents and warrants that as of the Effective Date it has, and that at all times during the term hereof it shall have, at its sole expense, all licenses, certifications, approvals, insurance, permits, and other authorization required by law to perform its obligations hereunder. Grantee warrants that it shall maintain all necessary licenses, certifications, approvals, insurance, permits, and other authorizations required to properly perform this Grant, without reimbursement by the State or other adjustment in Grant Funds. Additionally, all employees and agents of Grantee performing Services under this Grant shall hold all required licenses or certifications, if any, to perform their responsibilities. Grantee, if a foreign corporation or other foreign entity transacting business in the State of Colorado, further warrants that it currently has obtained and shall maintain any applicable certificate of authority to transact business in the State of Colorado and has designated a registered agent in Colorado to accept service of process. Any revocation, withdrawal or non-renewal of licenses, certifications, approvals, insurance, permits or any such similar requirements necessary for Grantee to properly perform the terms of this Grant shall be deemed to be a material breach by Grantee and constitute grounds for termination of this Grant.

#### **13. INSURANCE**

Grantee and its Sub-grantees shall obtain and maintain insurance as specified in this section at all times during the term of this Grant: All policies evidencing the insurance coverage required hereunder shall be issued by insurance companies satisfactory to Grantee and the State.

##### **A. Grantee**

###### **i. Public Entities**

If Grantee is a "public entity" within the meaning of the Colorado Governmental Immunity Act, CRS §24-10-101, et seq., as amended (the "GIA"), then Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the GIA. Grantee shall show proof of such insurance satisfactory to the State, if requested by the State. Grantee shall require each Grant with Sub-grantees that are public entities,

providing Goods or Services hereunder, to include the insurance requirements necessary to meet Sub-grantee's liabilities under the GIA.

**ii. Non-Public Entities**

If Grantee is not a "public entity" within the meaning of the GIA, Grantee shall obtain and maintain during the term of this Grant insurance coverage and policies meeting the same requirements set forth in §13(B) with respect to sub-Grantees that are not "public entities".

**B. Sub-Grantees**

Grantee shall require each Grant with Sub-grantees, other than those that are public entities, providing Goods or Services in connection with this Grant, to include insurance requirements substantially similar to the following:

**i. Worker's Compensation**

Worker's Compensation Insurance as required by State statute, and Employer's Liability Insurance covering all of Grantee and Sub-grantee employees acting within the course and scope of their employment.

**ii. General Liability**

Commercial General Liability Insurance written on ISO occurrence form CG 00 01 10/93 or equivalent, covering premises operations, fire damage, independent contractors, products and completed operations, blanket Grantual liability, personal injury, and advertising liability with minimum limits as follows: (a) \$1,000,000 each occurrence; (b) \$1,000,000 general aggregate; (c) \$1,000,000 products and completed operations aggregate; and (d) \$50,000 any one fire. If any aggregate limit is reduced below \$1,000,000 because of claims made or paid, Sub-grantee shall immediately obtain additional insurance to restore the full aggregate limit and furnish to Grantee a certificate or other document satisfactory to Grantee showing compliance with this provision.

**iii. Automobile Liability**

Automobile Liability Insurance covering any auto (including owned, hired and non-owned autos) with a minimum limit of \$1,000,000 each accident combined single limit.

**iv. Additional Insured**

Grantee and the State shall be named as additional insured on the Commercial General Liability and Automobile Liability Insurance policies (leases and construction Grants require additional insured coverage for completed operations on endorsements CG 2010 11/85, CG 2037, or equivalent).

**v. Primacy of Coverage**

Coverage required of Grantee and Sub-grantees shall be primary over any insurance or self-insurance program carried by Grantee or the State.

**vi. Cancellation**

The above insurance policies shall include provisions preventing cancellation or non-renewal without at least 45 days prior notice to the Grantee and Grantee shall forward such notice to the State in accordance with §16 (Notices and Representatives) within seven days of Grantee's receipt of such notice.

**vii. Subrogation Waiver**

All insurance policies in any way related to this Grant and secured and maintained by Grantee or its Sub-grantees as required herein shall include clauses stating that each carrier shall waive all rights of recovery, under subrogation or otherwise, against Grantee or the State, its agencies, institutions, organizations, officers, agents, employees, and volunteers.

**C. Certificates**

Grantee and all Sub-grantees shall provide certificates showing insurance coverage required hereunder to the State within seven business days of the Effective Date of this Grant. No later than 15 days prior to the expiration date of any such coverage, Grantee and each Sub-grantee shall deliver to the State or Grantee certificates of insurance evidencing renewals thereof. In addition, upon request by the State at any other time during the term of this Grant or any sub-grant, Grantee and each Sub-grantee shall, within 10 days of such request, supply to the State evidence satisfactory to the State of compliance with the provisions of this §13.

**14. BREACH**

**A. Defined**

In addition to any breaches specified in other sections of this Grant, the failure of either Party to perform any of its material obligations hereunder in whole or in part or in a timely or satisfactory manner, constitutes a breach. The institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Grantee, or the appointment of a receiver or similar officer for Grantee or any of its property, which is not vacated or fully stayed within 20 days after the institution or occurrence thereof, shall also constitute a breach.

**B. Notice and Cure Period**

In the event of a breach, notice of such shall be given in writing by the aggrieved Party to the other Party in the manner provided in §16. If such breach is not cured within 30 days of receipt of written notice, or if a cure cannot be completed within 30 days, or if cure of the breach has not begun within 30 days and pursued with due diligence, the State may exercise any of the remedies set forth in §15. Notwithstanding anything to the contrary herein, the State, in its sole discretion, need not provide advance notice or a cure period and may immediately terminate this Grant in whole or in part if reasonably necessary to preserve public safety or to prevent immediate public crisis.

**15. REMEDIES**

If Grantee is in breach under any provision of this Grant, the State shall have all of the remedies listed in this §15 in addition to all other remedies set forth in other sections of this Grant following the notice and cure period set forth in §14(B). The State may exercise any or all of the remedies available to it, in its sole discretion, concurrently or consecutively.

**A. Termination for Cause and/or Breach**

If Grantee fails to perform any of its obligations hereunder with such diligence as is required to ensure its completion in accordance with the provisions of this Grant and in a timely manner, the State may notify Grantee of such non-performance in accordance with the provisions herein. If Grantee thereafter fails to promptly cure such non-performance within the cure period, the State, at its option, may terminate this entire Grant or such part of this Grant as to which there has been delay or a failure to properly perform. Exercise by the State of this right shall not be deemed a breach of its obligations hereunder. Grantee shall continue performance of this Grant to the extent not terminated, if any.

**i. Obligations and Rights**

To the extent specified in any termination notice, Grantee shall not incur further obligations or render further performance hereunder past the effective date of such notice, and shall terminate outstanding orders and sub-Grants with third parties. However, Grantee shall complete and deliver to the State all Work, Services and Goods not cancelled by the termination notice and may incur obligations as are necessary to do so within this Grant's terms. At the sole discretion of the State, Grantee shall assign to the State all of Grantee's right, title, and interest under such terminated orders or sub-Grants. Upon termination, Grantee shall take timely, reasonable and necessary action to protect and preserve property in the possession of Grantee in which the State has an interest. All materials owned by the State in the possession of Grantee shall be immediately returned to the State. All Work Product, at the option of the State, shall be delivered by Grantee to the State and shall become the State's property.

**ii. Payments**

The State shall reimburse Grantee only for accepted performance up to the date of termination. If, after termination by the State, it is determined that Grantee was not in breach or that Grantee's action or inaction was excusable, such termination shall be treated as a termination in the public interest and the rights and obligations of the Parties shall be the same as if this Grant had been terminated in the public interest, as described herein.

**iii. Damages and Withholding**

Notwithstanding any other remedial action by the State, Grantee also shall remain liable to the State for any damages sustained by the State by virtue of any breach under this Grant by Grantee and the State may withhold any payment to Grantee for the purpose of mitigating the State's damages, until such time as the exact amount of damages due to the State from Grantee is determined. The State may withhold any amount that may be due to Grantee as the State deems necessary to protect the State, including loss as a result of outstanding liens or claims of former lien holders, or to reimburse the

State for the excess costs incurred in procuring similar goods or services. Grantee shall be liable for excess costs incurred by the State in procuring from third parties replacement Work, Services or substitute Goods as cover.

**B. Early Termination in the Public Interest**

The State is entering into this Grant for the purpose of carrying out the public policy of the State of Colorado, as determined by its Governor, General Assembly, and/or Courts. If this Grant ceases to further the public policy of the State, the State, in its sole discretion, may terminate this Grant in whole or in part. Exercise by the State of this right shall not constitute a breach of the State's obligations hereunder. This subsection shall not apply to a termination of this Grant by the State for cause or breach by Grantee, which shall be governed by §15(A) or as otherwise specifically provided for herein.

**i. Method and Content**

The State shall notify Grantee of such termination in accordance with §16. The notice shall specify the effective date of the termination and whether it affects all or a portion of this Grant.

**ii. Obligations and Rights**

Upon receipt of a termination notice, Grantee shall be subject to and comply with the same obligations and rights set forth in §15(A)(i).

**iii. Payments**

If this Grant is terminated by the State pursuant to this §15(B), Grantee shall be paid an amount which bears the same ratio to the total reimbursement under this Grant as the Services satisfactorily performed bear to the total Services covered by this Grant, less payments previously made. Additionally, if this Grant is less than 60% completed, the State may reimburse Grantee for a portion of actual out-of-pocket expenses (not otherwise reimbursed under this Grant) incurred by Grantee which are directly attributable to the uncompleted portion of Grantee's obligations hereunder; provided that the sum of any and all reimbursement shall not exceed the maximum amount payable to Grantee hereunder.

**C. Remedies Not Involving Termination**

The State, in its sole discretion, may exercise one or more of the following remedies in addition to other remedies available to it:

**i. Suspend Performance**

Suspend Grantee's performance with respect to all or any portion of this Grant pending necessary corrective action as specified by the State without entitling Grantee to an adjustment in price/cost or performance schedule. Grantee shall promptly cease performance and incurring costs in accordance with the State's directive and the State shall not be liable for costs incurred by Grantee after the suspension of performance under this provision.

**ii. Withhold Payment**

Withhold payment to Grantee until corrections in Grantee's performance are satisfactorily made and completed.

**iii. Deny Payment**

Deny payment for those obligations not performed, that due to Grantee's actions or inactions, cannot be performed or, if performed, would be of no value to the State; provided, that any denial of payment shall be reasonably related to the value to the State of the obligations not performed.

**iv. Removal**

Demand removal of any of Grantee's employees, agents, or Sub-grantees whom the State deems incompetent, careless, insubordinate, unsuitable, or otherwise unacceptable, or whose continued relation to this Grant is deemed to be contrary to the public interest or not in the State's best interest.

**v. Intellectual Property**

If Grantee infringes on a patent, copyright, trademark, trade secret or other intellectual property right while performing its obligations under this Grant, Grantee shall, at the State's option (a) obtain for the State or Grantee the right to use such products and services; (b) replace any Goods, Services, or other product involved with non-infringing products or modify them so that they become non-infringing; or, (c) if neither of the foregoing alternatives are reasonably available, remove any infringing Goods, Services, or products and refund the price paid therefore to the State.

#### 16. NOTICES and REPRESENTATIVES

Each individual identified below is the principal representative of the designating Party. All notices required to be given hereunder shall be hand delivered with receipt required or sent by certified or registered mail to such Party's principal representative at the address set forth below. In addition to, but not in lieu of a hard-copy notice, notice also may be sent by e-mail to the e-mail addresses, if any, set forth below. Either Party may from time to time designate by written notice substitute addresses or persons to whom such notices shall be sent. Unless otherwise provided herein, all notices shall be effective upon receipt.

##### A. State:

Ryan Edwards, Program Manager, Water Project Loan Program
Colorado Water Conservation Board
1580 Logan Street, Suite 600
Denver, CO 80203
<a href="mailto:Ryan.Edwards@state.co.us">Ryan.Edwards@state.co.us</a>

##### B. Grantee:

Wayne Whittaker	Elise Bergsten
Pisgah Reservoir and Ditch Company	Balanced Management Services Co.
PO Box 352	PO Box 1834
Rocky Ford, CO 81067	Colorado Springs, CO 80901
<a href="mailto:waynewhittaker32@yahoo.com">waynewhittaker32@yahoo.com</a>	<a href="mailto:elise@dmisc.us">elise@dmisc.us</a>

#### 17. RIGHTS IN DATA, DOCUMENTS, AND COMPUTER SOFTWARE

Any software, research, reports, studies, data, photographs, negatives or other documents, drawings, models, materials, or Work Product of any type, including drafts, prepared by Grantee in the performance of its obligations under this Grant shall be the nonexclusive property of the State and, all Work Product shall be delivered to the State by Grantee upon completion or termination hereof. The State's nonexclusive rights in such Work Product shall include, but not be limited to, the right to copy, publish, display, transfer, and prepare derivative works.

#### 18. GOVERNMENTAL IMMUNITY

Notwithstanding any other provision to the contrary, nothing herein shall constitute a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions of the Colorado Governmental Immunity Act, CRS §24-10-101, et seq., as amended. Liability for claims for injuries to persons or property arising from the negligence of the State of Colorado, its departments, institutions, agencies, boards, officials, and employees is controlled and limited by the provisions of the Governmental Immunity Act and the risk management statutes, CRS §24-30-1501, et seq., as amended.

#### 19. STATEWIDE GRANT MANAGEMENT SYSTEM

If the maximum amount payable to Grantee under this Grant is \$100,000 or greater, either on the Effective Date or at anytime thereafter, this §19 applies.

Grantee agrees to be governed, and to abide, by the provisions of CRS §24-102-205, §24-102-206, §24-103-601, §24-103.5-101 and §24-105-102 concerning the monitoring of vendor performance on state Grants and inclusion of Grant performance information in a statewide Grant management system.

Grantee's performance shall be subject to Evaluation and Review in accordance with the terms and conditions of this Grant, State law, including CRS §24-103.5-101, and State Fiscal Rules, Policies and Guidance. Evaluation and Review of Grantee's performance shall be part of the normal Grant administration process and Grantee's performance will be systematically recorded in the statewide Grant Management System. Areas of Evaluation and Review shall include, but shall not be limited to quality, cost and timeliness. Collection of information relevant to the performance of Grantee's obligations under this Grant shall be determined by the specific

requirements of such obligations and shall include factors tailored to match the requirements of Grantee's obligations. Such performance information shall be entered into the statewide Grant Management System at intervals established herein and a final Evaluation, Review and Rating shall be rendered within 30 days of the end of the Grant term. Grantee shall be notified following each performance Evaluation and Review, and shall address or correct any identified problem in a timely manner and maintain work progress.

Should the final performance Evaluation and Review determine that Grantee demonstrated a gross failure to meet the performance measures established hereunder, the Executive Director of the Colorado Department of Personnel and Administration (Executive Director), upon request by the CWCB, and showing of good cause, may debar Grantee and prohibit Grantee from bidding on future Grants. Grantee may contest the final Evaluation, Review and Rating by: (a) filing rebuttal statements, which may result in either removal or correction of the evaluation (CRS §24-105-102(6)), or (b) under CRS §24-105-102(6), exercising the debarment protest and appeal rights provided in CRS §§24-109-106, 107, 201 or 202, which may result in the reversal of the debarment and reinstatement of Grantee, by the Executive Director, upon showing of good cause.

## **20. GENERAL PROVISIONS**

### **A. Assignment and SubGrants**

Unless otherwise specified in Exhibit A, Statement of Work, Grantee's rights and obligations hereunder are personal and may not be transferred, assigned or subGranted without the prior, written consent of the State. Any attempt at assignment, transfer, subGranting without such consent shall be void. All assignments, subGrants, or Sub-grantees approved by Grantee or the State are subject to all of the provisions hereof. Grantee shall be solely responsible for all aspects of subGranting arrangements and performance.

### **B. Binding Effect**

Except as otherwise provided in §20(A), all provisions herein contained, including the benefits and burdens, shall extend to and be binding upon the Parties' respective heirs, legal representatives, successors, and assigns.

### **C. Captions**

The captions and headings in this Grant are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions.

### **D. Counterparts**

This Grant may be executed in multiple identical original counterparts, all of which shall constitute one agreement.

### **E. Entire Understanding**

This Grant represents the complete integration of all understandings between the Parties and all prior representations and understandings, oral or written, are merged herein. Prior or contemporaneous additions, deletions, or other changes hereto shall not have any force or affect whatsoever, unless embodied herein.

### **F. Indemnification-General**

Grantee shall indemnify, save, and hold harmless the State, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees and related costs, incurred as a result of any act or omission by Grantee, or its employees, agents, Sub-grantees, or assignees pursuant to the terms of this Grant; however, the provisions hereof shall not be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions, of the Colorado Governmental Immunity Act, CRS §24-10-101 et seq., or the Federal Tort Claims Act, 28 U.S.C. 2671 et seq., as applicable, as now or hereafter amended.

### **G. Jurisdiction and Venue**

All suits, actions, or proceedings related to this Grant shall be held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

### **H. Modification**

#### **i. By the Parties**

Except as specifically provided in this Grant, modifications of this Grant shall not be effective unless agreed to in writing by both parties in an amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law, State Fiscal Rules, and Office of the State Controller

Policies, including, but not limited to, the policy entitled MODIFICATIONS OF GRANTS - TOOLS AND FORMS.

**i. By Operation of Law**

This Grant is subject to such modifications as may be required by changes in Federal or Colorado State law, or their implementing regulations. Any such required modification automatically shall be incorporated into and be part of this Grant on the effective date of such change, as if fully set forth herein.

**I. Order of Precedence**

The provisions of this Grant shall govern the relationship of the State and Grantee. In the event of conflicts or inconsistencies between this Grant and its exhibits and attachments including, but not limited to, those provided by Grantee, such conflicts or inconsistencies shall be resolved by reference to the documents in the following order of priority:

- i. Colorado Special Provisions,
- ii. The provisions of the main body of this Grant,
- i. Exhibit A and Exhibit B.

**J. Severability**

Provided this Grant can be executed and performance of the obligations of the Parties accomplished within its intent, the provisions hereof are severable and any provision that is declared invalid or becomes inoperable for any reason shall not affect the validity of any other provision hereof.

**K. Survival of Certain Grant Terms**

Notwithstanding anything herein to the contrary, provisions of this Grant requiring continued performance, compliance, or effect after termination hereof, shall survive such termination and shall be enforceable by the State if Grantee fails to perform or comply as required.

**L. Taxes**

The State is exempt from all federal excise taxes under IRC Chapter 32 (No. 84-730123K) and from all State and local government sales and use taxes under CRS §§39-26-101 and 201 et seq. Such exemptions apply when materials are purchased or services rendered to benefit the State; provided however, that certain political subdivisions (e.g., City of Denver) may require payment of sales or use taxes even though the product or service is provided to the State. Grantee shall be solely liable for paying such taxes as the State is prohibited from paying for or reimbursing Grantee for them.

**M. Third Party Beneficiaries**

Enforcement of this Grant and all rights and obligations hereunder are reserved solely to the Parties, and not to any third party. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

**N. Waiver**

Waiver of any breach of a term, provision, or requirement of this Grant, or any right or remedy hereunder, whether explicitly or by lack of enforcement, shall not be construed or deemed as a waiver of any subsequent breach of such term, provision or requirement, or of any other term, provision, or requirement.

**O. CORA Disclosure**

To the extent not prohibited by federal law, this Grant and the performance measures and standards under CRS §24-103.5-101, if any, are subject to public release through the Colorado Open Records Act, CRS §24-72-101, et seq.

**P. Two Month Extension**

The State, at its sole discretion upon written notice to Contractor as provided in §16, may unilaterally extend the term of this Contract for a period not to exceed two months if the Parties are negotiating a replacement Contract at or near the end of any initial term or renewal term. The provisions of this Contract in effect when such notice is given, including, but not limited to prices, rates, and delivery requirements, shall remain in effect during the two-month extension. The two month extension shall immediately terminate when and if a replacement Contract is approved and signed by the Colorado State Controller.

## **21. COLORADO SPECIAL PROVISIONS**

The Special Provisions apply to all Grants except where noted in italics.

### **A. 1. CONTROLLER'S APPROVAL. CRS §24-30-202 (1).**

This Grant shall not be deemed valid until it has been approved by the Colorado State Controller or designee.

### **B. 2. FUND AVAILABILITY. CRS §24-30-202(5.5).**

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

### **C. 3. GOVERNMENTAL IMMUNITY.**

No term or condition of this Grant shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, of the Colorado Governmental Immunity Act, CRS §24-10-101 et seq., or the Federal Tort Claims Act, 28 U.S.C. §§1346(b) and 2671 et seq., as applicable now or hereafter amended.

### **D. 4. INDEPENDENT CONTRACTOR**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Unemployment insurance benefits shall be available to Grantee and its employees and agents only if such coverage is made available by Grantee or a third party. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Grant. Grantee shall not have authorization, express or implied, to bind the State to any Grant, liability or understanding, except as expressly set forth herein. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.

### **E. 5. COMPLIANCE WITH LAW.**

Grantee shall strictly comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

### **F. 6. CHOICE OF LAW.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this grant. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. Any provision incorporated herein by reference which purports to negate this or any other Special Provision in whole or in part shall not be valid or enforceable or available in any action at law, whether by way of complaint, defense, or otherwise. Any provision rendered null and void by the operation of this provision shall not invalidate the remainder of this Grant, to the extent capable of execution.

### **G. 7. BINDING ARBITRATION PROHIBITED.**

The State of Colorado does not agree to binding arbitration by any extra-judicial body or person. Any provision to the contrary in this contract or incorporated herein by reference shall be null and void.

### **H. 8. SOFTWARE PIRACY PROHIBITION. Governor's Executive Order D 002 00.**

State or other public funds payable under this Grant shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Grant and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Grant, including, without limitation, immediate termination of this Grant and any remedy consistent with federal copyright laws or applicable licensing restrictions.

### **I. 9. EMPLOYEE FINANCIAL INTEREST. CRS §§24-18-201 and 24-50-507.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Grant. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

**J. 10. VENDOR OFFSET. CRS §§24-30-202 (1) and 24-30-202.4.**

*[Not Applicable to intergovernmental agreements]* Subject to CRS §24-30-202.4 (3.5), the State Controller may withhold payment under the State's vendor offset intercept system for debts owed to State agencies for: (a) unpaid child support debts or child support arrearages; (b) unpaid balances of tax, accrued interest, or other charges specified in CRS §39-21-101, et seq.; (c) unpaid loans due to the Student Loan Division of the Department of Higher Education; (d) amounts required to be paid to the Unemployment Compensation Fund; and (e) other unpaid debts owing to the State as a result of final agency determination or judicial action.

**K. 11. PUBLIC GRANTS FOR SERVICES. CRS §8-17.5-101.**

*[Not Applicable to Agreements relating to the offer, issuance, or sale of securities, investment advisory services or fund management services, sponsored projects, intergovernmental Agreements, or information technology services or products and services]* Grantee certifies, warrants, and agrees that it does not knowingly employ or Grant with an illegal alien who shall perform work under this Grant and shall confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this Grant, through participation in the E-Verify Program or the State program established pursuant to CRS §8-17.5-102(5)(c). Grantee shall not knowingly employ or Grant with an illegal alien to perform work under this Grant or enter into a Grant with a Sub-grantee that fails to certify to Grantee that the Sub-grantee shall not knowingly employ or Grant with an illegal alien to perform work under this Grant. Grantee (a) shall not use E-Verify Program or State program procedures to undertake pre-employment screening of job applicants while this Grant is being performed, (b) shall notify the Sub-grantee and the Granting State agency within three days if Grantee has actual knowledge that a Sub-grantee is employing or Granting with an illegal alien for work under this Grant, (c) shall terminate the subGrant if a Sub-grantee does not stop employing or Granting with the illegal alien within three days of receiving the notice, and (d) shall comply with reasonable requests made in the course of an investigation, undertaken pursuant to CRS §8-17.5-102(5), by the Colorado Department of Labor and Employment. If Grantee participates in the State program, Grantee shall deliver to the Granting State agency, Institution of Higher Education or political subdivision, a written, notarized affirmation, affirming that Grantee has examined the legal work status of such employee, and shall comply with all of the other requirements of the State program. If Grantee fails to comply with any requirement of this provision or CRS §8-17.5-101 et seq., the Granting State agency, institution of higher education or political subdivision may terminate this Grant for breach and, if so terminated, Grantee shall be liable for damages.

**L. 12. PUBLIC GRANTS WITH NATURAL PERSONS. CRS §24-76.5-101.**

Grantee, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that he or she (a) is a citizen or otherwise lawfully present in the United States pursuant to federal law, (b) shall comply with the provisions of CRS §24-76.5-101 et seq., and (c) has produced one form of identification required by CRS §24-76.5-103 prior to the effective date of this Grant.

SPs Effective 1/1/09

**THE REST OF THIS PAGE INTENTIONALLY LEFT BLANK**

22. SIGNATURE PAGE

CMS# 51848  
0150505

**THE PARTIES HERETO HAVE EXECUTED THIS GRANT**

\* Persons signing for Grantee hereby swear and affirm that they are authorized to act on Grantee's behalf and acknowledge that the State is relying on their representations to that effect.

<p align="center"><b>GRANTEE</b> <b>Pisgah Reservoir and Ditch Company</b></p> <p>By: <u>John Schweizer, Jr.</u> Print</p> <p>Title: <u>President</u></p> <p><i>John Schweizer, Jr.</i> *Signature</p> <p>Date: <u>November 12, 2012</u></p>	<p align="center"><b>STATE OF COLORADO</b> <b>John W. Hickenlooper GOVERNOR</b> Department of Natural Resources Mike King, Executive Director</p> <p>By: <u><i>[Signature]</i></u> For Jennifer L. Gimbel, Director Colorado Water Conservation Board</p> <p>Name: <u>Kirk Russell, P.E., Chief</u> Finance &amp; Administration Section Colorado Water Conservation Board</p> <p>Signatory avers to the State Controller or delegate that Grantee has not begun performance or that a Statutory Violation waiver has been requested under Fiscal Rules</p> <p>Date: <u>12/19/12</u></p>
<p align="center">2nd Grantee Signature if Needed</p> <p>By: <u>Wayne W. Whittaker</u></p> <p>Title: <u>Secretary</u></p> <p><i>Wayne W. Whittaker</i> *Signature</p> <p>Date: <u>November 12, 2012</u></p>	<p align="center"><b>LEGAL REVIEW</b> John W. Suthers, Attorney General</p> <p>By: <u><i>N/A</i></u> Signature - Assistant Attorney General</p> <p>Date: _____</p>

**ALL GRANTS REQUIRE APPROVAL BY THE STATE CONTROLLER**

CRS §24-30-202 requires the State Controller to approve all State Grants. This Grant is not valid until signed and dated below by the State Controller or delegate. Grantee is not authorized to begin performance until such time. If Grantee begins performing prior thereto, the State of Colorado is not obligated to pay Grantee for such performance or for any goods and/or services provided hereunder.

<p><b>STATE CONTROLLER</b> David J. McDermott, CPA</p> <p>By: <u><i>Susan Borup</i></u> Susan Borup, Controller, Department of Natural Resources</p> <p>Date: <u>12/28/12</u></p>
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**Exhibit A**  
**Statement of Work**

**WATER ACTIVITY NAME** – Mt. Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation Project

**GRANT RECIPIENT** – Pisgah Reservoir and Ditch Company

**FUNDING SOURCE** – Arkansas Roundtable, Water Supply Reserve Account (WSRA)

**INTRODUCTION AND BACKGROUND**

The Pisgah Reservoir and Ditch Company owns and operates Pisgah Dam and Wrights Reservoir for the benefit of its 573 shareholders. The primary purpose of the Company is to supply water, via the Catlin Canal, for irrigation of 20,000 acres of agricultural land across an 18-mile stretch between La Junta and Manzanola. On average the Company delivers 84,000 AF annually.

An SEO inspection of Pisgah Dam was performed in June 2011. The Engineer's Inspection Report issued by the SEO identified multiple deficiencies and safety concerns and placed conditional requirements on the full storage capacity of the reservoir. The Company is required to modify the outlet works and replace the existing control valves or the reservoir is in danger of a storage level restriction being issued by the SEO; thereby reducing the allowable storage capacity of the reservoir.

**OBJECTIVE**

The Project includes the design and construction of repairs to the inlet structure, control valves, and dual 30-inch intake conduits, required per SEO order, to restore control and extend the useful life of Pisgah.

**SCOPE OF WORK**

**Task 1 – Outlet Works Rehabilitation**

This task encompasses all labor, materials, and equipment required for the design and construction of the outlet works improvements, including slide gate, hydraulic control lines, air venting, and removal of the internal valve components.

**Method/Procedure**

Construction methods and procedures shall be in accordance with the final engineering construction drawings and specifications to be prepared by a professional civil engineer. All operations shall be performed following OSHA and all other local, State and Federal laws and regulations for work in an underground environment.

**Deliverable**

Signed and dated paper and electronic copies of As-Built drawings prepared by engineer of record on 11" x 17" sheet size.

**REPORTING AND FINAL DELIVERABLE**

**Reporting:** The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

**Final Deliverable:** At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

**BUDGET**

The total project cost is estimated to be \$362,690 and will be funded by a \$161,345 WSRA grant, \$161,345 CWCB loan and \$40,000 applicant contribution. The CWCB disbursement of loan and WSRA grant funds will be issued at a ratio of 1:1, up to the approved limit, for design and construction activities related to the Project.

**Table 1: Project Budget**

Task		Project Costs
<b>Task 1 – Outlet Works Rehabilitation</b>		<b>\$362,690</b>
1.1 Engineering Design	\$68,715	
1.2 Bidding and Procurement	\$10,000	
1.3 Mobilization/Demobilization	\$50,000	
1.4 Construction	\$163,975	
1.5 Construction Management	\$60,000	
1.6 Record Drawings and Completion Report	\$10,000	
<b>Total Project Costs:</b>		<b>\$362,690</b>
<b>Less CWCB Loan Funding:</b>		<b>-\$161,345</b>
<b>Less Borrower Contribution:</b>		<b>-\$40,000</b>
<b>WSRA Grant Funding</b>		<b>\$161,345</b>

## **SCHEDULE**

The final engineering design and approval process is scheduled to begin following execution of the WSRA grant contract. It is anticipated that engineering design and approval will take up to 4 months. Construction will follow the bidding and procurement phase, and expected to take up to 15 months to complete. No project costs initiated prior to grant contract approval will be eligible for reimbursement from grant funds.

**Table 2: Project Schedule**

<b>Task</b>	<b>Start Date</b>	<b>Finish Date</b>
Engineering Design*	December 30, 2012	March 31, 2013
Bidding and Procurement	March 31, 2013	June 30, 2013
Construction/Construction Management	June 30, 2013*	September 30, 2014

\* pending approval of grant funding contract

## **PAYMENT**

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and help promote the development of a common technical platform.

**Pisgah Reservoir and Ditch Company  
Water Supply Reserve Account Grant  
Performance Monitoring Provisions**

**Statutory Requirements**

2) Each personal services contract entered into pursuant to this code with a value of one hundred thousand dollars or more shall contain

- (a) Performance measures and standards developed specifically for the contract by the governmental body administering the contract. The performance measures and standards shall be negotiated by the governmental body and the vendor prior to execution of the contract and shall be incorporated into the contract. The measures and standards shall be used by the governmental body to evaluate the performance of the governmental body and the vendor under the contract.
- (b) An accountability section that requires the vendor to report regularly on achievement of the performance measures and standards specified in the contract and that allows the governmental body to withhold payment until successful completion of all or part of the contract and the achievement of established performance standards. The accountability section shall include a requirement that payment by the governmental body to the vendor shall be made without delay upon successful completion of all or any part of the contract in accordance with the payment schedule specified in the contract or as otherwise agreed upon by the parties.
- (c) Monitoring requirements that specify how the governmental body and the vendor will evaluate each others' performance, including progress reports, site visits, inspections, and reviews of performance data. The governmental body shall use one or more monitoring processes to ensure that the results, objectives, and obligations of the contract are met.
- (d) Methods and mechanisms to resolve any situation in which the governmental body's monitoring assessment determines noncompliance, including termination of the contract.

**Performance Monitoring Standards**

Performance monitoring for this contract shall include the following:

- (a) Performance measures and standards: The grantee shall complete design and construction of repairs to the inlet structure, control valves and dual 30-inch intake conduits to restore control and extend the useful life of the Pisgah Dam.. Grantee will produce detailed deliverables for the task specified in Exhibit A. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions per the budget in Exhibit A. Per WSRA Criteria and Guidelines, retainage of 5% of the grant funds shall be withheld until receipt of the final report and all other deliverables.
- (b) Accountability: Per WSRA Criteria and Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must certify that all grant conditions have been complied with on each invoice. In addition, per WSRA Criteria and Guidelines progress reports must be submitted at least once every 6 months. A final project report must be submitted and approved before final project payment and release of retainage.
- (c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A and Paragraphs 9 & 19 of the contract. Progress shall be detailed in the required invoice documentation and progress reports as detailed above. Additional inspections or field consultations will be arranged as may be necessary.
- (d) Noncompliance Resolution: Per paragraphs 9, 14, 15, and 19 of the contract: payment will be withheld until grantee is current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the purchase order.



# COLORADO WATER CONSERVATION BOARD



## WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

**Mount Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation**

**Name of Water Activity/Project**

Pisgah Reservoir and Ditch Company

**Name of Applicant**

Arkansas Basin RT

**Amount from Statewide Account:**

\$136,345

**Amount from Basin Account(s):**

\$ 25,000

**Total WSRA Funds Requested:**

\$161,345

**Approving Basin Roundtable(s)**

*(If multiple basins specify amounts in parentheses.)*

### Application Content

Application Instructions	page 2
Part I – Description of the Applicant	page 3
Part II – Description of the Water Activity	page 5
Part III – Threshold and Evaluation Criteria	page 7
Part IV – Required Supporting Material	
Water Rights, Availability, and Sustainability	page 10
Related Studies	page 10
Signature Page	page 12

### **Required Exhibits**

- A. Statement of Work, Budget, and Schedule
- B. Project Map
- C. As Needed (i.e. letters of support, photos, maps, etc.)

### **Appendices – Reference Material**

- 1. Program Information
- 2. Insurance Requirements
- 3. WSRA Standard Contract Information (Required for Projects Over \$100,000)
- 4. W-9 Form (Required for All Projects Prior to Contracting)

## Water Supply Reserve Account – Application Form

Revised December 2011

### Part I. - Description of the Applicant (Project Sponsor or Owner);

1.	Applicant Name(s):	Pisgah Reservoir and Ditch Company		
	Mailing address:	P.O. Box 352 Rocky Ford, CO 81067		
	Taxpayer ID#:	84-0407037		
	Primary Contact:	Wayne Whittaker	Position/Title:	Secretary
	Email:	Waynewhittaker32@yahoo.com		
	Phone Numbers:	Cell:	Office:	719-254-3389
	Alternate Contact:	Alan Frantz	Position/Title:	Director
	Email:	<a href="mailto:frantz farms@rural-com.com">frantz farms@rural-com.com</a>		
	Phone Numbers:	Cell:	Office:	

2. Eligible entities for WSRA funds include the following. What type of entity is the Applicant?

- ☐ Public (Government) – municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities and the local entity should be the grant recipient. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
- ☐ Public (Districts) – authorities, Title 32/special districts, (conservancy, conservation, and irrigation districts), and water activity enterprises.
- ☒ Private Incorporated – mutual ditch companies, homeowners associations, corporations.
- ☐ Private individuals, partnerships, and sole proprietors are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.
- ☐ Non-governmental organizations – broadly defined as any organization that is not part of the government.

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3. Provide a brief description of your organization

The Pisgah Reservoir and Ditch Company is a mutual ditch company and as such a non-profit corporation. It was incorporated in 1923.

The Company has 283 shareholders who are also associated with the Canon Heights Irrigation and Reservoir Company and 290 shareholders who are associated with the Catlin Canal Company. Water is delivered down Four Mile Creek to the Pisgah shareholders at Canon City. Water is delivered down Four Mile Creek and the Arkansas River to Pisgah shareholders at Otero County, Colorado. Park Center Water Company has shares in Canon Heights Irrigation and Reservoir Company and uses some of the water for domestic use. Current water usage is about 1000 A.F. per year, depending on the snow pack and rainfall. Operations are funded by annual assessment on the shareholders and leasing of reservoir recreation rights.

4. If the Contracting Entity is different then the Applicant (Project Sponsor or Owner) please describe the Contracting Entity here.

n/a

5. Successful applicants will have to execute a contract with the CWCB prior to beginning work on the portion of the project funded by the WSRA grant. In order to expedite the contracting process the CWCB has established a standard contract with provisions the applicant must adhere to. A link to this standard contract is included in Appendix 3. Please review this contract and check the appropriate box.

☒ The Applicant will be able to contract with the CWCB using the Standard Contract

☐ The Applicant has reviewed the standard contract and has some questions/issues/concerns. Please be aware that any deviation from the standard contract could result in a significant delay between grant approval and the funds being available.

6. The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant.

n/a

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### Part II. - Description of the Water Activity/Project

1. What is the primary purpose of this grant application? (Please check only one)

☐ Nonconsumptive (Environmental or Recreational)

☐ Agricultural

☐ Municipal/Industrial

☐ Needs Assessment

☐ Education

☒ Other      Explain: Structural, affecting recreation, agriculture, residential and municipal uses.

2. If you feel this project addresses multiple purposes please explain.

Wright Reservoir provides water to the Canon Heights Irrigation and Reservoir Company and the Catlin Canal Company for Agricultural, Domestic, and Municipal (City of Rocky Ford) use. The DOW owns over 2,000 shares of Catlin Canal water (approximately 11%).

Funding for the maintenance of Wright Reservoir has been partially provided by leasing recreational rights to the reservoir. Most recently, the reservoir was leased to a private club, but the Pisgah Reservoir and Ditch Company is currently working with the DOW regarding an agreement to manage the area. This would open the Reservoir to the public, for non-consumptive recreational uses including fishing, bird-watching and hiking.

3. Is this project primarily a study or implementation of a water activity/project? (Please check only one)

☐ Study      ☒ Implementation

4. To catalog measurable results achieved with WSRA funds can you provide any of the following numbers?

New Storage Created (acre-feet)

New Annual Water Supplies Developed, Consumptive or Nonconsumptive (acre-feet)

Existing Storage Preserved or Enhanced (acre-feet)

Length of Stream Restored or Protected (linear feet)

Length of Pipe/Canal Built or Improved (linear feet)

Efficiency Savings (acre-feet/year OR  – **circle one**)

Area of Restored or Preserved Habitat (acres)

Other -- Explain:

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4. To help us map WSRA projects please include a map (Exhibit B) and provide the general coordinates below:

Latitude: 38-47'-37.47"

Longitude: 105-16'-14.45"

5. Please provide an overview/summary of the proposed water activity. Include a description of the overall water activity and specifically what the WSRA funding will be used for. A full **Statement of Work** with a detailed budget and schedule is required as **Exhibit A** of this application.

### Brief Overview of Water Activity

Mount Pisgah Dam is a large size, significant hazard earth embankment located in Teller County, about 12 miles from Cripple Creek, Colorado. The dam is located on Fourmile Creek and impounds Wrights Reservoir, with a capacity of approximately 2,192 acre-feet supplied by direct inflow from Fourmile Creek. The embankment has an upstream slope at approximately 3H:1V, a crest width of about 10 feet, and a downstream slope of approximately 2H:1V.

The dam was originally constructed around 1911. There was an upstream slope failure around 1928. After the slope failure, the upstream ends of the original outlet works were plugged, a new outlet conduit was constructed through the right abutment, and the upstream slope was rebuilt. The spillway is located at the left abutment and was enlarged in 1988.

An SEO Inspection was made in June, 2011 (see attached report). The existing storage capacity of the reservoir is in jeopardy of being restricted by the State Engineer for safety deficiencies. The existing gate operators have become nearly inoperable. The Company hired RJH Consultants, Inc. to conduct further analysis of the dam. Their analysis was followed by an evaluation of alternatives to rehabilitate the Mount Pisgah Dam/Wrights Reservoir Outlet Works.

The alternative chosen provides the greatest flow capacity, and consists of removing the existing downstream control valves and installing a new upstream control valve on the existing outlet works intake structure located near the upstream toe of the dam. The existing valve house will be removed and replaced with a new structure that will be located at the same location. The existing concrete intake structure will be modified as necessary to accommodate the improvements.

This water activity will ensure that existing storage capacity will be maintained. Because the Company is negotiating with DOW to open the area for public access, the project has non-consumptive recreational value as well.

Preliminary design drawings are attached. The objective of this funding will be to complete design elements and construction of the repairs.

Engineering costs for this project to date, paid by the Pisgah Ditch and Reservoir Company, total \$33,923.35. The estimated cost to complete this project is \$362,690. In addition to monies spent, Pisgah Ditch and Reservoir Company has committed an additional \$40,000 in matching funds for this project. The Company is asking for \$25,000 in Basin funds, \$136,345 in Statewide funds, and they will be applying for a CWCB loan in the amount of \$161,345.

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### Part III. – Threshold and Evaluation Criteria

1. This water activity meets the eligibility requirements outlined in Part 2 of the Criteria and Guidelines. This is a structural water project, and the applicant, Pisgah Reservoir and Ditch Company, is an eligible entity.

1. a) The water activity is consistent with Section 37-75-102 Colorado Revised Statutes.<sup>1</sup> The project will not supersede, abrogate, or otherwise impair the State's current system of allocating water within Colorado nor does it in any manner repeal or amend the existing water rights adjudication system. The project does not affect the State Constitution's recognition of water rights as a private usufructuary property right nor is it intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law.

1. b) The water activity has been approved by the Arkansas Basin Roundtable (BRT). It was approved unanimously by the Needs Assessment Committee, and passed by consensus at the March 2012 Roundtable meeting. Several roundtable members expressed their support of the application, and there were no dissenting opinions.

1. c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.<sup>2</sup> The project will preserve 2,192 acre feet of existing storage that is in danger of being lost. It will also restore 116 acres of aquatic habitat. It benefits recreational users in Teller County, as well as agricultural, residential and municipal water users in the lower Arkansas Valley.

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<sup>1</sup> 37-75-102. Water rights - protections. (1) It is the policy of the General Assembly that the current system of allocating water within Colorado shall not be superseded, abrogated, or otherwise impaired by this article. Nothing in this article shall be interpreted to repeal or in any manner amend the existing water rights adjudication system. The General Assembly affirms the state constitution's recognition of water rights as a private usufructuary property right, and this article is not intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law. (2) The General Assembly affirms the protections for contractual and property rights recognized by the contract and takings protections under the state constitution and related statutes. This article shall not be implemented in any way that would diminish, impair, or cause injury to any property or contractual right created by intergovernmental agreements, contracts, stipulations among parties to water cases, terms and conditions in water decrees, or any other similar document related to the allocation or use of water. This article shall not be construed to supersede, abrogate, or cause injury to vested water rights or decreed conditional water rights. The General Assembly affirms that this article does not impair, limit, or otherwise affect the rights of persons or entities to enter into agreements, contracts, or memoranda of understanding with other persons or entities relating to the appropriation, movement, or use of water under other provisions of law.

<sup>2</sup> 37-75-104 (2)(c). Using data and information from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the on-going Statewide Water Supply Initiative, develop a basin-wide consumptive and nonconsumptive water supply needs assessment, conduct an analysis of available unappropriated waters within the basin, and propose projects or methods, both structural and nonstructural, for meeting those needs and utilizing those unappropriated waters where appropriate. Basin Roundtables shall actively seek the input and advice of affected local governments, water providers, and other interested stakeholders and persons in establishing its needs assessment, and shall propose projects or methods for meeting those needs. Recommendations from this assessment shall be forwarded to the Interbasin Compact Committee and other basin roundtables for analysis and consideration after the General Assembly has approved the Interbasin Compact Charter.

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1.d) Matching Requirement: For requests from the **Statewide Fund**, the applicants is required to demonstrate a **20 percent** (or greater) match of the request from the Statewide Account. Statewide requests must also include a minimum match of **5 percent** of the total grant amount from Basin Funds. Sources of matching funds include but are not limited to Basin Funds, in-kind services, funding from other sources, and/or direct cash match. Past expenditures directly related to the project may be considered as matching funds if the expenditures occurred within 9 months of the date the application was submitted to the CWCB. Please describe the source(s) of matching funds. (NOTE: These matching funds should also be reflected in your Detailed Budget in **Exhibit A** of this application)

The project funding is summarized here:

WSRA Loan:	\$161,345
Basin Funds:	\$ 25,000 (over 5% match)
Statewide Funds:	\$136,345
Cash Match:	<u>\$ 40,000</u> (over 20% match)
Total	\$362,690

Plus:

Pisgah Reservoir & Ditch Company \$ 33,923.35 spent between August 2011 and February 2012 for preliminary engineering and design.

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2. For Applications that include a request for funds from the **Statewide Account**, describe how the water activity/project meets all applicable **Evaluation Criteria**.

### Tier 1: Promoting Collaboration/Cooperation and Meeting Water Management Goals and Identified Water Needs

- a. The water activity addresses multiple needs or issues, including consumptive and/or non-consumptive needs. This structural project preserves existing storage capacity that is currently in jeopardy of being restricted by the State Engineer for safety deficiencies. It benefits the environment by ensuring the preservation of 116 acres of surface water habitat. The Pisgah Reservoir and Ditch Company is currently negotiating with DOW in hopes of opening the reservoir to public access. This project allows the reservoir to remain a fishery, and preserves bird and wildlife habitat.
- b. The project will benefit numerous water interests, as shareholders/water users represented in the Pisgah Reservoir and Ditch Company include the Catlin Canal, Canon Heights Irrigation and Reservoir Company, Park Center Water Company, City of Rocky Ford, and DOW.
- c. Although the activity does not create new water or storage, it preserves existing storage capacity that is in danger of being restricted.

### Tier 2: Facilitating Water Activity Implementation

- d. Funding from the WSRA is critical for this project to be completed. This project would not be implementable by the Pisgah Reservoir and Ditch Company alone. The combination of WSRA Grant/CWCB Loan funding reduces debt service to a manageable level.
- e. The amount of matching funds provided by the applicant via direct contributions totals \$40,000, an amount much higher than the required 20% match of Statewide Funds. In addition, the applicant has spent \$33,923.35 on the project to date, showing their strong commitment to the project.

### Tier 3: The Water Activity Addresses Other Issues of Statewide Value and Maximizes Benefits

- f. The water activity helps sustain agriculture and meets environmental and recreational needs.

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### Part IV. – Required Supporting Material

1. **Water Rights, Availability, and Sustainability** – This information is needed to assess the viability of the water project or activity. Please provide a description of the water supply source to be utilized, or the water body to be affected by, the water activity. This should include a description of applicable water rights, and water rights issues, and the name/location of water bodies affected by the water activity.

The Pisgah Reservoir and Ditch Company received a Decree to the Reservoir on October 3, 1927. The original decree, for irrigation purposes, was transferred from a previous owner, and is dated October 15, 1907. The reservoir, now named Wrights Reservoir, is the water body that will be affected by the water activity. It's located in Water District 12, and is situated on Fourmile Creek, a tributary of the Arkansas River. Proposed repairs will assure the availability and sustainability of the water supply.

2. Please provide a brief narrative of any related studies or permitting issues.

RJH Consultants prepared a report after their inspection of the dam. That report is included as an attachment, along with the Alternatives Evaluation and their Proposal for Engineering Services.

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### **Statement of Work**

**WATER ACTIVITY NAME – Mount Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation**

**GRANT RECIPIENT – Pisgah Reservoir and Ditch Company**

**FUNDING SOURCE – Basin/Statewide Funds, CWCBC Loan**

#### **INTRODUCTION AND BACKGROUND**

The Mount Pisgah Dam was built in 1911. It is a large size, significant hazard earth embankment located in Teller County, about 12 miles from Cripple Creek, Colorado. The dam is located on Fourmile Creek and impounds Wrights Reservoir, with a capacity of approximately 2,192 acre-feet supplied by direct inflow from Fourmile Creek.

In July of 2011, the Pisgah Reservoir and Ditch Company received an Inspection Report from the State Engineer's Office (SEO) which detailed multiple issues that need to be addressed, including further inspections to be made after the reservoir was emptied, modifications to the outlet works, new gates/valves, and modifications to the intake structure. Prior to this report, the outlet works had never been inspected.

The Ditch Company secured the services of RJH Consultants, Inc., who performed a detailed inspection of the dam, including an internal inspection of the outlet and intake conduits, as requested by the SEO. RJH then drew up an Evaluation of Alternatives to address SEO concerns.

The Ditch Company chose an alternative based on a flow control concept that would put control upstream only at the intake structure. It provides the greatest Peak Flow capacity. This alternative has the following main components:

- Provide a slide gate on the existing intake structure.
- Extend hydraulic control lines and an air vent from the intake structure to a gate operator in the existing valve house.
- Remove existing valve internal components

#### **GOALS AND OBJECTIVES**

The overall objective of this project is to address SEO concerns and make repairs as necessary to ensure the safety of the dam and outlet works. The project will allow for full use of the reservoir's storage capacity, and preserve its recreational uses and environmental values.

- The dam is currently classified as a large size, significant hazard dam and will remain this classification.
- Outlet drawdown capacity will meet current operational criteria and SEO minimum drawdown criteria for a high hazard dam.
- A single upstream hydraulically operated gate will be used for both flow control and SEO drawdown requirements.
- Electrical power, 220 volt-single phase, is currently available to the existing valve house and will remain available for operation of the hydraulic system for the new control gate.

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- The existing valve house will be removed and replaced with a new structure that will be in the same location.
- The existing concrete foundation and walkway will be used for the new valve house structure.
- The existing concrete intake structure will not be removed and replaced but will be modified to the extent necessary to accommodate the proposed improvements.

### TASKS

#### TASK 1 – DESIGN

##### **Description of Task**

Perform design analyses and prepare drawings for the project.

##### **Method/Procedure**

- 1a. Hydraulic Gate Design and Detail
- 1b. Trash Rack Design and Detail
- 1c. Valve House Pre-fab metal building design and detail
- 1d. Electrical Design and Detail
- 1e. Design Drawings
- 1f. Construction Docs and Specs
- 1g. Design Summary Report
- 1h. Engineer's Opinion of Probable Cost
- 1i. Progress Reports, Invoices, 50% Completion Meeting

##### **Deliverable**

Completed Drawings, Specs, Opinion of Probable Construction Costs and Design Summary Report

#### TASK 2 – BIDDING AND PROCUREMENT

##### **Description of Task**

Address any comments from the SEO, finalize bid documents, and assist in obtaining and evaluating the bids.

##### **Method/Procedure**

- 2a. Participate in a meeting with the SEO to discuss their review comments.

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2b. Provide responses to comments from the SEO on the submitted drawings, specs and Design Report.

2c. Finalize drawings and specs for bidding and prepare Issued for Bid documents.

2d. Pre-bid meeting and site visit.

2e. Evaluate bids.

### **Deliverable**

Stamped drawings and specifications that incorporate the SEO's comments, suitable for bidding and constructing the work

## **TASK 3 – CONSTRUCTION**

### **Description of Task**

Actual construction of the project.

### **Method/Procedure**

3a. Barge and Lift Mobilization/Demobilization

3b. Barge and Lift Operations

3c. Demolition of Internal Valve Components

3d. 36" x 36" Slide Gate and Transition Pieces

3e. Hydraulic Actuator/HPU

3f. Air Vent and Hydraulic Line for Slide Gate

3g. Trash Rack

3h. Underwater Installation

### **Deliverable**

As in the above task, deliverables include daily field reports and construction photos, Record Drawings, and the Construction Completion Report.

## **TASK 4 – CONSTRUCTION MANAGEMENT**

### **Description of Task**

Observe the work to ensure that work is being completed in conformance with the contract documents and intent of design. Provide administrative assistance with contract and invoices. Prepare Record Drawings and a Construction Completion Report as required by the SEO.

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### **Method/Procedure**

4a. Pre-Construction Meeting

4b. Prepare a construction observation plan for SEO review and approval.

4c. Review and process contractor invoices and change orders.

4d. Provide a full-time project representative to observe and document the work and to assess that work is completed correctly.

4e. Prepare Record Drawings of the completed work based on information provided by the contractor and a Construction Completion Report as required to meet SEO requirements.

### **Deliverable**

Deliverables include hard copies of responses to invoice submittals, hard copies of daily field reports and construction photos, Record Drawings, and the Construction Completion Report.

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BUDGET						
			Labor	Direct Costs	Matching Funds	Total Cost
<b>TASK 1: DESIGN</b>						
Task	1a.	Hydraulic Gate Design & Detail	7,036.00	422.16		7,458.16
Task	1b.	Trash Rack Design and Detail	3,105.00	186.30		3,291.30
Task	1c.	Valve House Pre-fab metal Bldg	2,632.00	157.92		2,789.92
Task	1d.	Electrical Design & Detail	4,572.00	274.32		4,846.32
Task	1e.	Design Drawings	9,702.00	582.12		10,284.12
Task	1f.	Construction Docs and Specs	17,992.00	1,079.52		19,071.52
Task	1g.	Design Summary Report	10,672.00	640.32		11,312.32
Task	1h.	Engineer's Opinion of Probable Cost	6,366.00	381.96		6,747.96
Task	1i.	Progress Reports, Invoices & Meeting	2,748.00	164.88		2,912.88
			<b>64,825.00</b>	<b>3,889.50</b>	<b>-</b>	<b>68,714.50</b>
<b>TASK 2: BIDDING AND PROCUREMENT *</b>						
Task	2a.	Meeting between SEO & Engineer				2,000.00
Task	2b.	Engineer response to SEO				2,000.00
Task	2c.	Finalize drawings & specs for bidding				2,000.00
Task	2d.	Pre-bid meeting & site visit				2,000.00
Task	2e.	Evaluate bids				2,000.00
			<b>-</b>	<b>4,436.34</b>	<b>-</b>	<b>10,000.00</b>
<b>TASK 3: CONSTRUCTION *</b>						
Task	3a.	Barge & Lift Mobilization/Demobilization				50,000.00
Task	3b.	Barge and Lift Operations				8,000.00
Task	3c.	Demo of Internal Valve Components				1,000.00
Task	3d.	36" x 36" Slide Gate & Transition Piece				21,000.00
Task	3e.	Hydraulic Actuator/HPU				40,000.00
Task	3f.	Air Vent & Hydraulic Line for Slide Gate				13,500.00
Task	3g.	Trash Rack				15,000.00
Task	3h.	Underwater Installation				10,000.00
		Contingency				55,475.00
			<b>-</b>	<b>-</b>	<b>-</b>	<b>213,975.00</b>
<b>TASK 4: CONSTRUCTION MANAGEMENT *</b>						
Task	4a.	Pre-construction meeting				2,000.00
Task	4b.	Construction observation plan				2,000.00
Task	4c.	Review & process contractor submittals				5,000.00
Task	4d.	FT Project observation & documentation				51,000.00
Task	4e.	Record drawings & Completion report				10,000.00
			<b>-</b>	<b>-</b>	<b>-</b>	<b>70,000.00</b>
<b>TOTAL COSTS</b>						<b>362,689.50</b>

\* Costs for Tasks 2, 3 and 4 are estimated costs - detailed costs for these items will be developed upon completion of design documents. Estimates provided by RJH Consultants, Inc.

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Engineering & Design Costs										
Project Personnel:	Senior Professional Grade 8	Senior Professional Grade 7	Senior Professional Grade 6	Grade 5	Grade 4	Grade 3	CADD Designer	Word Processing/Admin	Total Hours	Cost
Hourly Rate:	\$ 184	\$ 169	\$ 145	\$ 130	\$ 107	\$ 97	\$ 87	\$ 67		
Task 1a	2	4			56				62	7,036.00
Task 1b	2	1			24				27	3,105.00
Task 1c	2	2			18				22	2,632.00
Task 1d	2	6	22						30	4,572.00
Task 1e	2	4			24		70		100	9,702.00
Task 1f	2	24			80	24		40	170	17,992.00
Task 1g	8	8		48				24	88	10,672.00
Task 1h	8	6			24	8		8	54	6,366.00
Task 1i	1	12						8	21	2,748.00
TOTAL Task 1										64,825.00

## SCHEDULE

Task	Start Date	Finish Date
1: Design	Upon NTP *	NTP + 60 days
2: Bidding	Upon NTP	NTP + 90 days
3: Construction	NTP + 60-90 days	NTP + 180 days
4: Management	Upon NTP	NTP + 180 days

NTP = Notice to Proceed

\* The ability to proceed immediately after NTP may be affected by weather conditions. Once begun, the project should take 90 – 180 days to complete.

The following exhibits are included:

Exhibit A: Mt. Pisgah Reservoir

Exhibit B: Mt. Pisgah Reservoir Topo

Exhibit C: DOWR Letter & Inspection

Exhibit D: RJH Consultants Outlet Inspection Report

Exhibit E: RJH Consultants Alternatives Evaluation

Exhibit F: RJH Drawing of Existing Outlet Works (to come)

Exhibit G: RJH Drawing of Alternative 1 (to come)

Exhibit H: Pisgah Reservoir and Ditch Company Decree

Exhibit I: Pisgah Reservoir and Ditch Company Bylaws

Exhibit J: Articles of Incorporation

Exhibit K: Letters of Support (more to come)

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The above statements are true to the best of my knowledge:

**Signature of Applicant:**

**Print Applicant's Name:** Wayne Whittaker

**Project Title:** Mount Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation

**Return an electronic version (hardcopy may also be submitted) of this application to:**

Greg Johnson – WSRA Application  
Colorado Water Conservation Board  
1580 Logan Street, Suite 200  
Denver, CO 80203  
[gregory.johnson@state.co.us](mailto:gregory.johnson@state.co.us)

THE PISGAH RESERVOIR AND DITCH COMPANY

ARTICLES OF INCORPORATION

FIRST. The corporate name and style of our said corporation shall be "THE PISGAH RESERVOIR AND DITCH COMPANY "

SECOND. The objects for which our said corporation is formed and incorporated are as follows:

1. (as amended 12/3/2001) To acquire by purchase, lease, or in any other manner and to operate, maintain and own water and water rights, reservoirs, canals, ditches, flumes, pipe-lines, laterals, pumping plants and equipment, and for the purpose of appropriating, storing, taking, conducting, exchanging, augmenting and distributing water for domestic, irrigation, municipal, industrial, recreational, piscatorial, and all other beneficial purposes, all as a mutual ditch company, and to do any and all other acts and things that may be necessary, expedient or incident to the enjoyment of and to carry out said objects and purposes and the objects and purposes hereinafter set forth

2. To acquire by purchase, lease, or in any other manner, real estate of every kind or description necessary or proper in connection with the business of said company, and to carry on its objects and purposes as herein set forth.

3. To acquire and to own, use, maintain, possess and enjoy any and all real estate, franchises, rights of way and easements which may be necessary, proper or desirable for any and all ditches, reservoirs, laterals, flumes, tunnels, embankments, pipes, pipe-lines, feeders, water ways, bridges and other accessories and appurtenances thereto for any of the objects or purposes of this company; and also to own and enjoy any and all tools, implements, machinery, fixtures and other personal property which shall be necessary or desirable for the advancement, promotion or convenience of any of the objects or purposes of this company.

4. (as amended 12/3/2001) To appropriate, convey, store, exchange, augment, distribute and supply water for domestic, irrigation, municipal, industrial, recreational, piscatorial and all other beneficial purposes.

5. To borrow money for the uses of the company and in furtherance of its objects and purposes and to mortgage or pledge in such manner as may be deemed advisable, the water, water rights, reservoirs, real estate, franchises, ditches, laterals, privileges and other property belonging to the company, or any part thereof, as security for the repayment of money so borrowed on such terms and conditions as may be deemed advisable.

6. To issue bonds and other obligations in payment for any property purchased or acquired by the company, or for any other object or purpose, in or about its corporate business; to mortgage or pledge stocks, bonds, or other obligations, or any property real, personal and mixed, including

franchises which may be acquired by the company, to secure any bonds or other obligations by it issued or incurred; to guarantee any dividends or bonds or contracts or other obligations; to make and perform contracts of every kind and description in connection with its corporate business or for the purpose of attaining or in furtherance of any of its objects and purposes; and to do any and all other acts and things which may be necessary, prudent or proper to carry on or to maintain its said corporate business

7. (as amended 12/3/2001) To acquire by lease, purchase or otherwise the Mount Pisgah Reservoir, so called, located in Teller County, State of Colorado, on Oil Creek or Four Mile and which covers part of the East half of the Northwest quarter and Lots one and two in Section 31, the East half of the Southwest quarter and Lots Three and Four in Section 30, and the Southwest quarter of the Northeast quarter, and the Southeast quarter of the Northwest quarter of Section 30, all in Township 14 South of Range 70 West of the Sixth Principal Meridian; also all prior rights to store water in said Reservoir acquired by impounding waters of Four Mile Creek therein and by the application thereof for all beneficial purposes.

8. To acquire by purchase or otherwise certain ditches or interest in ditches named and described in general decree of the District Court of Fremont County, Colorado, made and entered on the 3rd day of February, 1894, and by supplemental decree or decrees made and entered in said Court thereafter as follows, to-wit:

- a. Garden Park Ditch Number 34;
- b. Lucas Ditch Number 266;
- c. Terry Ditch Number 36;
- d. Aaron Ripley Ditch Number 37;
- e. Cottage Rock Ranch Ditch Number 28;
- f. Felch's West Side Ditch Numbers 349 and 424;
- g. O'Brien Ditch Number 26;
- h. Hunt Ditch Number 175;
- i. West Ditch Number 226;
- j. Lower Ditch Number 201;
- k. Westall Ditch Number 192;

and also to acquire all or a part of the water decreed to said ditches, or any or more of them, respectively.

THIRD. (as amended 3/23/44) The term and existence of said corporation shall be extended in perpetuity.

FOURTH. The capital stock of said corporation shall be 50,000 shares and such shares shall be without nominal or par value, and every share of such stock shall be equal to every other share thereof

FIFTH. (as amended 12/3/2001) The number of directors of said company shall be not more than seven and the names of those who shall manage the affairs of the company, as such directors for the

first year of its existence are J. F. Underwood, V. H. Mann and J. C. Bailey.

SIXTH. (as amended 12/5/55) The principal office of the Company shall be kept at Rocky Ford, Otero County, State of Colorado, and the business of said company shall be carried on in the Counties of Otero, Teller and Fremont in said State.

SEVENTH. (as amended 3/6/89) The By-laws may only be amended by two-thirds vote of the outstanding shares either at an annual meeting of the shareholders or at a special meeting of the shareholders called for that purpose and only providing notice of such meeting or meetings and the proposed amendments have been given as provided for under "Shareholders Meetings" of the By-laws, paragraphs three through ten, inclusive.

IN WITNESS WHEREOF, the said incorporators have hereunto set their hands and seals, in triplicate, this 25th day of May A. D. 1923.

s/ J. C. Bailey  
J F Underwood  
V H Mann

BYLAWS  
OF  
THE PISGAH RESERVOIR AND DITCH COMPANY

OFFICES

1. The company shall maintain its principal offices for the transaction of its business at Rocky Ford, County of Otero, and State of Colorado. It may have other offices at such other places as the directors may from time to time determine.

SEAL.

2. The company shall have a common seal, consisting of a circle having on its circumference the words, THE PISGAH RESERVOIR AND DITCH COMPANY and across its interior body the word SEAL.

SHAREHOLDERS MEETINGS.

3. Shareholders meeting may be held at the principal office of the company at Rocky Ford, County of Otero, and State of Colorado, or at any other place within or without the State of Colorado designated by written consent of a majority of the shareholders entitled to vote thereat.

4. (as amended 3/5/90) The annual meeting of the shareholders shall be held on the first Monday in the month of December in each year for the purpose of electing a board of directors and transacting such other business as may properly be brought before the meeting.

5. The holders of the majority of the stock issued and outstanding and entitled to vote thereat, present in person, or represented by proxy, shall be requisite and shall constitute a quorum at all meetings of the shareholders for the transaction of business except as otherwise provided by law. If, however, such majority shall not be present or represented at any of the meetings of the shareholders, the shareholders entitled to vote thereat, present in person or by proxy, shall have power to adjourn the meeting from time to time without notice other than announcement at the meeting until the requisite amount of voting stock shall be represented, and business maybe transacted which might have been transacted at the meeting as originally notified.

6. (as amended 12/3/2001) The stockholders may vote either in person or by proxy and shall be entitled to one vote for each share of stock standing in their respective names and

the fraction of a share shall entitle the holder thereof to the same fraction of one vote. The voting for the board of directors may be done in the manner prescribed by the statute with reference to cumulative voting.

7. Written notice of the annual, regular and special meetings of the stockholders shall be mailed to each shareholder entitled to vote thereat at the address that appears on the books of the company, in the manner prescribed by law.

8. Special meetings of the shareholders for any purpose or purposes, unless otherwise prescribed by statute, may be called by the president, and shall be called by the president or the secretary or other person at the request in writing of the majority of the board of directors or at the request in writing of one or more share holders holding not less than 40% of the voting power of the corporation. Such request shall state the purpose or purposes of the proposed meeting.

9. Business transacted at all special meetings shall be confined to the objects stated in the call.

10. (as amended 12/3/2001) Deleted.

11. The property and business of this corporation shall be managed by the board of directors with not less than three nor more than seven members who need not be shareholders. They shall be elected at the annual meeting of the shareholders and each director shall be elected to serve until a successor shall be elected and shall qualify. The number of directors, pursuant to this provision in relation thereto contained in the Articles of Incorporation, may be increased to not more than seven by action of the directors according to these by-laws.

12. Without prejudice to the general powers and other powers conferred by these by-laws, the board of directors shall have the following powers, namely:

(a) From time to time to make and change rules and regulations, not inconsistent with law or these by-laws for the management of the company's business and affairs.

(b) To lease, purchase or otherwise acquire, in any lawful manner, for and in the name of the company, any and all real estate and other property, rights, or privileges, whatsoever deemed necessary or convenient for the prosecution of its business, and which the company is authorized to acquire, at such price or consideration and generally on such terms and conditions as it thinks fit.

(c) To sell or dispose of any real or personal estate, property, rights or privileges belonging to the company, except water rights, canal, or diversion dam, or any other part of the property used in the diversion and distribution of priorities owned by the company,

whenever in its opinion its interests would be thereby promoted.

13. It shall be the duty of the directors to cause to be kept a complete record of all their minutes and acts, and of the proceedings of the shareholders.

14. The board of directors shall supervise all officers, agents and employees and see that their duties are properly performed.

15. In addition to the powers and authorities by these by-laws expressly conferred upon them, the board may exercise all such powers of the corporation and do all such lawful acts and things as are not by statute or by the Articles of Incorporation or these by-laws directed or required to be exercised or done by the shareholders.

#### COMPENSATION OF DIRECTORS

16. Directors, as such, shall receive an amount to be fixed by the board of directors for each meeting of the board of directors attended and shall also receive all necessary and proper expenses incurred by them while on company business. Nothing herein shall be construed to preclude any director from serving the corporation in any other capacity and receiving compensation therefor.

#### MEETINGS OF THE BOARD

17. Stated meetings of the directors shall be held without notice on the day of the annual stockholders meeting immediately following each stockholders meeting, at the principal office of the company at Rocky Ford, Colorado.

18. Special meetings of the board may be called by the president on two days notice to each director, either personally, by mail or by telephone. Special meetings shall be called by the president or secretary or any board member in like manner on like notice on the written request of two directors.

19. Meetings of the board of directors may be held at any time or place fixed by a quorum thereof.

20. The transactions of any meeting of the board of directors, however called and noticed and wherever held, shall be as valid as though had at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present sign a written waiver of notice of a consent to holding such meeting, or an approval of the minutes thereof. All such waivers, consents or approvals shall be attached to and made apart of the minutes of the meeting.

21. At all meetings of the board a majority of the directors shall be necessary and sufficient to constitute a quorum for the transaction of business, and the act of the majority

of the directors present at which there is a quorum shall be the act of the board of directors except as may be otherwise specifically provided by statute, the Articles of Incorporation, or these by-laws.

#### OFFICERS

22. The officers of the corporation shall be chosen by the directors, and shall be a president, vice-president, secretary and treasurer. The secretary and treasurer may be the same person, and the vice-president may hold at the same time the office of secretary or treasurer.

23. The board of directors, at its first meeting after each annual meeting of shareholders, shall choose a president, and vice-president from its own number, and a secretary and treasurer who need not be a member of the board.

24. The board may appoint such other officers and agents as it shall deem necessary, who shall hold their offices for such terms and shall exercise such powers and perform such duties as shall be determined from time to time by the board.

25. The salaries of all officers, employees and agents of the corporation, shall be fixed by the board of directors.

#### PRESIDENT

27. The president shall preside at all meetings of the shareholders and directors, and shall see that all orders and resolutions of the board are carried into effect.

28. He shall execute bonds, mortgages and other contracts requiring a seal, under the seal of the corporation, which have been first approved by the board of directors. When any instrument requires a seal it shall be attested by the signature of the secretary or assistant secretary.

#### VICE-PRESIDENT

29. The vice-president shall, in the absence or disability of the president, perform the duties and exercise the powers of the president, and shall perform such other duties as the board of directors shall prescribe.

#### SECRETARY

30. The secretary shall attend all sessions of the board and all meetings of the shareholders and record all votes in the minutes of all proceedings in a book to be kept for that purpose.

31. He shall keep the corporate seal of the corporation and the book of blank certificates of stock, fill up and countersign all certificates issued, and make the corresponding entries in the margin of such book on such issuance; and he shall affix the said corporate seal to all papers requiring a seal.

32. He shall keep a proper transfer book and a stock ledger in debit and credit form showing the number of shares issued to and transferred by any shareholder, and the dates of such issuance and transfer.

33. He shall give, or cause to be given, notice of all meetings of the shareholders and of the board of directors when such notice is required by law or by these by-laws to be given, and shall perform such other duties as may be prescribed by the board of directors or president, under whose supervision he shall be. He shall be sworn to the faithful discharge of his duty.

#### TREASURER

34. The treasurer shall have the custody of the corporate funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belonging to the corporation, and shall deposit all moneys and other valuable effects in the name and to the credit of the corporation, in such depositories as may be designated by the board of directors.

35. He shall disburse the funds of the corporation as may be ordered by the board, taking proper vouchers for such disbursements, and shall render to the president and directors, at the regular meetings of the board, or whenever they may require it, an account of all his transactions as treasurer and of the financial condition of the corporation.

36. He shall give the corporation a bond, if required by the board of directors, in a sum, and with one or more sureties satisfactory to the board, for the faithful performance of the duties of his office, and for the restoration to the corporation, in case of his death, resignation, retirement, or removal from office, of all books, papers, vouchers, money and other property of whatever kind in his possession or under his control belonging to the corporation.

#### VACANCIES

37. If the office of any director, or of any officer or agent, one or more, becomes vacant by reason of death, resignation, retirement, or removal from office, or otherwise, the directors then in office, although less than a quorum, by a majority vote, or by a sole remaining director, may choose a successor, or successors, who shall hold office until his or their successors are elected at an annual or regular or a special meeting of the shareholders.

#### DUTIES OF OFFICERS MAY BE DELEGATED

38. In case of the absence of any officer of the corporation, or for any other reason that the board may deem sufficient, this board may delegate, for the time being, the powers or duties, or any of them, of such officer to any other officer, or to any director, provided a majority of the entire board concur therein.

#### CORPORATE STOCK

39. (as amended 3/6/89) Upon surrender of the certificate standing in the name of the Company, each stockholder of the Company shall receive a certificate or certificates for the number of shares of corporate stock to which he may be entitled to the extent of the percentage of ownership of the common capital stock that the stockholder presently owns in the CATLIN CANAL COMPANY and/or THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY. All fractional shares shall be computed to the nearest ten thousandth and rounded off on each certificate to the nearest one thousandth. For those stockholders owning shares in the CATLIN CANAL COMPANY, for each share of CATLIN CANAL COMPANY stock owned, the shareholder shall receive 1.1635 shares of THE PISGAH RESERVOIR AND DITCH COMPANY. For those stockholders owning shares in THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY, for each share of THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY stock owned, the shareholder shall receive 1.0086 shares of THE PISGAH RESERVOIR AND DITCH COMPANY. Each share of the capital stock of the said Company so issued shall be fully paid, and each certificate thereof shall be signed by the President and Secretary of the Company, under the seal thereof, and shall be numbered in the order in which it is issued.

#### TRANSFER OF STOCK

40. (as amended 3/6/89 and 12/3/2001) Section 1. The holders of any shares of the capital stock of THE PISGAH RESERVOIR AND DITCH COMPANY, their successors in interest or assigns, shall not be able to sell any shares of stock in the Company without also selling an equal percentage of ownership of shares of stock in either the CATLIN CANAL COMPANY or THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY. No requested transfer of stock will be deemed valid unless the request for the equivalent amount of CATLIN CANAL COMPANY stock or THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY stock accompanies such request. The purpose of this By-law is to prevent any attempt by any individual shareholder or a group of shareholders from selling or attempting to sell or hypothecate any shares of stock in this Company separate and apart for any purpose whatsoever. The only method by which said stock may be sold separate and apart is only upon a vote of the shareholders at a meeting called for that purpose and then only by a positive vote of a majority of the votes entitled to be cast at which a quorum is present.

**Section 2.** Any request for transfer of water represented by the shares in this Company shall be accompanied by an equal request for transfer of water represented by an equivalent ownership of shares in the CATLIN CANAL COMPANY or THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY and whether or not such requests are for inner-ditch or outer-ditch transfers, said transfers shall be solely subject to the discretion of the Board of Directors as to whether said transfer can be made without creating injury to the Company, the canal, or the other stockholders. In making such determination, the Board of Directors, upon receiving any such request, may require the requesting party to advance sufficient funds for engineering and legal expenses which the Company may incur in analyzing such request to enable them to make such determination. The Board of Directors may refuse to act upon any such request until such estimated costs have in fact been paid by the requesting party.

**Section 3.** Any attempt by any stockholder to either mortgage, sell, or hypothecate stock in this Company separate and apart from the equivalent ownership of shares in the CATLIN CANAL COMPANY or THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY, other than as provided in Section 1 above, shall be ineffective to require the Company to transfer any such stock independently of the provisions of these By-laws and all stock issued by this Company shall bear a legend upon which the same shall be stated so that these By-laws together with such legend shall become notice to any third persons, parties, individuals, partnerships, or corporations.

#### CLOSING OF TRANSFER BOOKS

41. The Board of Directors may close the transfer books, in its discretion, for a period not exceeding ten days preceding any meeting, annual or special, of the stockholders, or the day appointed for the payment of a dividend.

#### LOST CERTIFICATE

42. No new certificate shall be issued in case one is stated to be lost except (1) by order of the Board of Directors after proper legal evidence under oath of such lost certificate and a bond of indemnity satisfactory to the Board of Directors shall have been received and approved at a regular or special meeting, or (2) in the absence of a bond, if more than three years have elapsed since such stockholder, legal representative, or assignee has notified the corporation in writing that such certificate has been lost, mislaid, or destroyed, and such stockholder, legal representative, or assignee has paid all assessments levied by such corporation against such stock since such notification, the stockholder or his legal representative or assignee may file with the Secretary of said corporation a statement under oath that the certificate of stock has been lost, mislaid, or destroyed and that the certificate is the property of the person making such statement and has not been transferred or hypothecated by him, and demand the issuance of a duplicate certificate in accordance with these provisions.

Upon receipt of such demand, the corporation shall mail with postage prepaid a notice to all persons shown of record on the stub of the lost certificate, at the last known address of each such person, and further, shall publish at the expense of the person making such demand, at least once a week for five successive weeks the fifth publication being on the twenty-eighth day after the first publication, in a newspaper of general circulation in Otero County or if there is no newspaper in such County, then in such a newspaper of an adjoining County, a notice that such a demand has been filed with the corporation in accordance with these provisions, setting forth such demand in full and stating that said corporation will issue, on or after a date therein stated, following the last publication of said notice by at least thirty days, a duplicate certificate to the registered owner or his legal representative or assignee unless a contrary claim is filed with said corporation prior to the date stated in the notice.

If no claim of interest or ownership other than that made by the person filing such notice or his legal representative or assignee is filed with the Secretary of the corporation prior to the date stated in the notice, the corporation shall issue, on or after said date, a duplicate certificate to said person or his legal representative or assignee, and all rights under the original certificate shall immediately cease and determine and no person shall at any time thereafter assert any claim or demand against the corporation or any other person on account of such original certificate.

#### ASSESSMENT ON STOCK

43. Whenever it is deemed necessary to raise funds to keep the reservoir, dam, ditches, valves, gates and all related equipment in good repair, or it is deemed necessary to raise funds to pay any indebtedness theretofore contracted or the interest thereon, a majority of the stockholders thereof shall have power to make and levy an assessment on the capital stock thereof, to be levied pro rata on the shares of stock, payable in money or labor or both, for the purpose of keeping the property of this company in good repair and for the payment of any such indebtedness or interest thereon; provided that no assessment shall be made unless the question of making the same shall have been submitted to the stockholders at an annual meeting, or at a special meeting called for that purpose and a majority of the stock issued and outstanding represented either by the owner in person or by proxy, voting thereon, shall vote in favor of making such assessment, and in case said stockholders fail to hold such meeting or fail to make or authorize any such assessment by the first of April in any year, then the directors shall have power to make any such assessment at any regular or special meeting called therefor for such year.

In making and levying assessments against the stock as aforesaid the stockholders or the board of directors, as the case may arise, shall and they do have the power to fix the due dates of such assessment and the penalties for failure to pay said assessments if and when due and delinquent.

Shares of stock shall be deemed personal property and the shares of any stockholder

who becomes delinquent in the payment of any assessment ordered by the stockholders, or the directors, if such case may arise as aforesaid, may be forfeited and sold in the following manner:

A notice in writing shall be mailed to such stockholder at his last known post office address, which notice shall be signed by the president or secretary of the company, stating such delinquency, the amount due, and demanding payment thereof. Said notice shall also state that unless payment of such assessment be made on or before a certain date, which shall not be less than thirty days from date of such notice, the stock so delinquent shall stand forfeited to the Company, and will be sold pursuant to these by-laws. If payment be not made on or before the date specified the president or secretary shall then give notice by advertising in a weekly newspaper published in the County of Otero, in the State of Colorado, for not less than three weeks, that the shares of such delinquent stockholder will be sold for cash to the highest bidder at the office of the Company in Rocky Ford, Otero County, Colorado, on a day and hour in said notice specified, for the purpose of realizing such assessment. At the time and place aforesaid, the president or secretary shall offer said stock for sale, and sell the same for the highest cash price obtainable, not less than the amount of said assessment, with cost of said sale, and the proceeds of said sale over and above the amount due on said shares, including costs of sale, shall be paid to the delinquent stockholder. New certificate or certificates shall be issued to the purchaser, and the certificate or certificates of the delinquent stockholder shall be cancelled on the books of the Company. The remedy provided in this section for collecting delinquent and past due assessments is cumulative and shall not be deemed to take away or affect any other right which the Company now or may hereafter have relative to the collection of delinquent assessments. Providing however, that the delinquent stockholder may at any time before sale of stock have privilege of redemption by paying said assessment and all costs in the matter.

#### FISCAL AGENT FOR COLLECTION

43(a), (as adopted 3/6/89). For all stockholders who have equivalent stock in the CATLIN CANAL COMPANY, the CATLIN CANAL COMPANY is appointed as the fiscal agent for the collection of all assessments of this Company, which collection shall be on a pro rata basis with the collection of assessments of the CATLIN CANAL COMPANY. For all stock-holders who have equivalent stock in THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY, THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY is appointed as the fiscal agent for the collection of all assessments of this Company, which collection shall be on a pro rata basis with the collection of assessments of THE CANON HEIGHTS IRRIGATION AND RESERVOIR COMPANY.

Funds shall be receipted for when received by each Company and the pro rata proportion belonging to this Company shall be submitted monthly with a full accounting of the same.

#### INSPECTION OF BOOKS

44. The directors shall determine from time to time whether, and, if allowed, when and under what conditions and regulations, the accounts and books of the corporation (except such as may by statute be specifically open to inspection), or any of them, shall be open to the inspection of the shareholders, and the shareholders' rights in this respect are and shall be restricted and limited accordingly.

#### CHECKS

45. All checks or demands for money and notes of the corporation shall be signed by such officer or officers as the board of directors may from time to time designate.

#### FISCAL YEAR

46. The business year shall begin January 1st of each year.

#### DIRECTORS ANNUAL STATEMENT

47. The board of directors shall present at each annual meeting, and when called for by vote of the shareholders, at any special meeting of the shareholders, a full and clear statement of the business and condition of the corporation.

#### NOTICES

48. Whenever under the provisions of these by-laws notice is required to be given to any director, officer or shareholder, it shall not be construed to mean personal notice, but such notice may be given in writing, by mail, by depositing the same in the post office or letter box, in a postpaid sealed wrapper, addressed to such shareholder, officer or director at such address as appears on the books of the corporation, or, in default at other address to such director, officer or shareholder at the general post office in the city of Rocky Ford, Colorado, and such notice shall be deemed to be given at the time when the same shall be thus mailed.

49. Any shareholder, director or officer may waive any notices required to be given under these by-laws.

#### AMENDMENT OF BY-LAWS

50. (as amended 3/6/89) These By-laws may only be amended by two-thirds vote of the outstanding shares either at an annual meeting of the stockholders or at a special meeting of the stockholders called for that purpose and only providing notice of such meeting or meetings and the proposed amendments have been given as provided for under "Shareholders Meetings" of these By-laws, paragraphs three through ten, inclusive.

IN THE DISTRICT COURT OF THE ELEVENTH JUDICIAL DISTRICT  
OF THE STATE OF COLORADO IN AND FOR FREMONT COUNTY

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In The Matter Of the Priority Of )  
Water Rights in Water District )  
No. 12 of The State of Colorado; )  
And In The Matter Of The Petition )  
Of The Pisgah Reservoir and Ditch )  
Company for a Decree To Mount )  
Pisgah Reservoir )

4796

D E C R E E

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Now on this 13th day of January, A.D. 1928, the same being one of the regular juridical days of the November Term, A.D. 1927, of our said District Court, the above entitled matter comes on regularly for hearing on the petition of The Pisgah Reservoir and Ditch Company, a Colorado corporation, and in pursuance of the order made and entered herein on October 3, 1927 fixing the time for this hearing and prescribing the notice thereof to be given to all parties interested adversely to the said petitioner herein. The said petitioner appeared herein by its attorney, H. R. Waldo, Esquire; and no person or corporation appeared in opposition to petitioner or otherwise, nor has any protest or other objection been filed herein opposing the claims of said petitioner, although the time allowed therefor has now expired. Thereupon the said petitioner offered its evidence in open court in support of the allegations of its petition herein; and the court, having heard and considered the same and the argument of counsel thereon and being well and fully advised in the premises; doth now find;

1. - That at all times before this day the said petitioner herein has failed to offer any evidence in any of the proceedings heretofore had in this court in the matter of the Priority of Water Rights in Water District No. 12 of the State of Colorado, in support of the rights now claimed by it as fully set forth in its petition herein.

2. - That before giving or offering any evidence herein and before filing its said petition, the said petitioner made and filed in this court its statement of claim in form and substance as required by the laws of the State of Colorado in such case made and provided, setting forth its rights and claims in and to the waters in said Water District No. 12 which are herein involved, a true copy of which statement of claim appears as a part of the said petition herein.

3. - That before giving and offering any evidence herein, the said petitioner duly procured leave of this court so to do on terms as to notice to all parties interested adversely thereto more fully specified in the said order of this court made and entered herein on October 3, 1927, all as is required by the said laws of the State of Colorado.

4. - That petitioner has caused due and sufficient notice of its claims, and of the time and place fixed for the hearing thereon when any parties interested adversely thereto might appear and be heard in opposition thereto, to be given to all such parties interest adversely thereto in strict and complete accordance with the provisions of the said order herein of October 3, 1927; so that there is now vested in this court full and complete right and jurisdiction to adjudicate and determine the rights and priorities in said Water District No. 12 claimed by said petitioner.

5. - That said petitioner is now and at all times herein mentioned has been a corporation duly organized and existing under and by virtue of the laws of the State of Colorado.

6. - That petitioner is the owner of that certain reservoir known as the Mount Pisgah Reservoir and situated on Four Mile Creek, a tributary of the Arkansas River, in Water District No. 12 of the State of Colorado, and in Teller County, Colorado, and of all of the land overflowed by said reservoir and upon which the same is situated; that said reservoir is created by a dam across the natural stream bed of said Four Mile Creek situated in the E½ NW¼ of Sec. 31 in Twp. 14 S. of R. 70 W. of the 6th P.M. and with its east end located at or near a point from whence the NW corner of said Sec. 31 bears N. 46°46' 50" W. 2567.14 feet, from which point the center line of said dam runs S. 85°25' W. 642.93 feet to the westerly end thereof; that said dam is approximately 74 feet high and forms a reservoir having a depth at high water mark of 65 feet, a surface area at such high water mark of 117 acres or 5,093,600 square feet, and a capacity when filled to such 65 foot level of 2743 acre feet or 119,549,500 cubic feet of water, and which inundates all or portions of the E½ NW¼, and Lots 1 and 2 of said

Section 31 and the E $\frac{1}{2}$  SW $\frac{1}{4}$ , SW $\frac{1}{4}$  NE $\frac{1}{4}$ , SE $\frac{1}{4}$  NW $\frac{1}{4}$ , and Lots 3 and 4 in Sec. 30 in the township and range aforesaid; and that said reservoir is the same reservoir particularly described in the plat of a resurvey thereof made by C.L. Milton and on file herein as Petitioners Exhibit No. 3, and is in substance in accordance with the original plat and statement of said Mount Pisgah Reservoir made by James Turnbull as amended by the Amended Plat of said reservoir made by The Garden Park Irrigation Company, the successor in interest of said James Turnbull, both of which plats were duly filed and are now of record in the office of the State Engineer of Colorado all as is required by the laws of the State of Colorado.

7 - That petitioner has duly succeeded to all the rights and interests of said James Turnbull and The Garden Park Irrigation Company in and to said Mount Pisgah Reservoir; that work was commenced on said reservoir by the original survey thereof on October 15, 1907 and was thereafter prosecuted to completion with all due and reasonable diligence by the said petitioner and its predecessors in interest; that ever since the completion of said reservoir water has been impounded and stored therein to its full capacity from the natural flow of said Four Mile Creek so far as the same has been available therefor without infringement on the rights of prior appropriators from said Four Mile Creek and said Arkansas River, and such water so stored therein has from time to time been released therefrom into the natural channel of said Four Mile Creek and thereafter diverted therefrom and from the said Arkansas River into which said Four Mile Creek flows and beneficially used in the irrigation of lands within the State of Colorado lying along said streams and below said reservoir and susceptible of irrigation therefrom which are otherwise inadequately supplied with water for the irrigation thereof and the production of crops thereon; and that by virtue thereof the said petitioner and its said predecessors in interest have duly appropriated in accordance with the laws of the State of Colorado, with priority date as of October 15, 1907, 2743 acre feet per year of the natural flow of said Four Mile Creek above said Mount Pisgah Reservoir for storage therein and release therefrom all as allowed by said laws of the State of Colorado, and said petitioner is now the owner of said appropriation and entitled to all the rights and privileges resulting therefrom.

8. - That there are large bodies of land within the State of Colorado lying along said Four Mile Creek and said Arkansas River and below said Mount Pisgah Reservoir which are susceptible of irrigation therefrom and which are inadequately supplied with water for the irrigation thereof from the normal natural flow of said streams, to-wit: More than 80,000 acres thereof; that all of the water so appropriated and so stored in said Mount Pisgah Reservoir has been and can be beneficially used in the irrigation of said land so inadequately supplied with water; and that there is no supply ditch for carrying water into said Mount Pisgah Reservoir, the water being carried directly therein by the natural stream of said Four Mile Creek.

It is, therefore, Considered, Ordered, Adjudged, and Decreed by this Court, as follows:

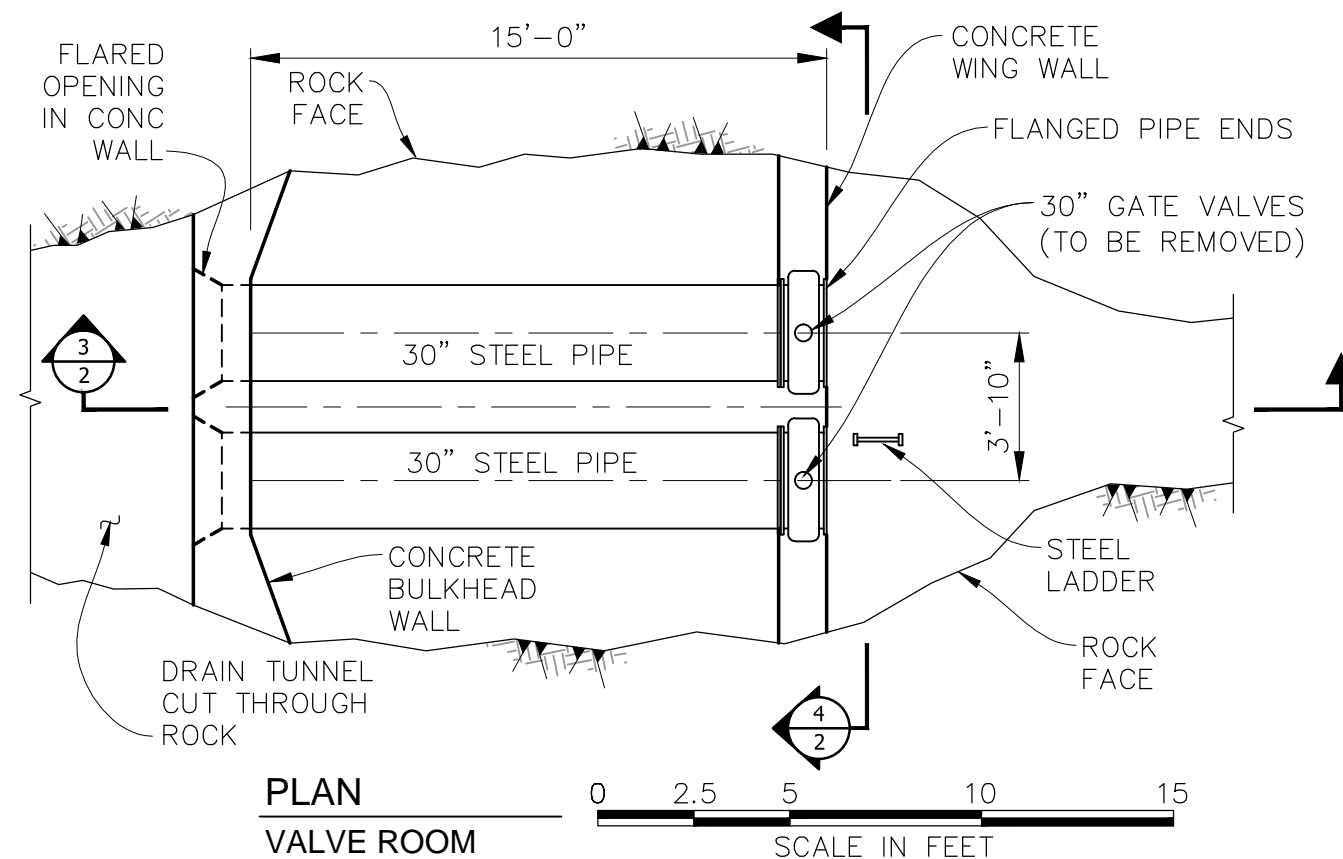
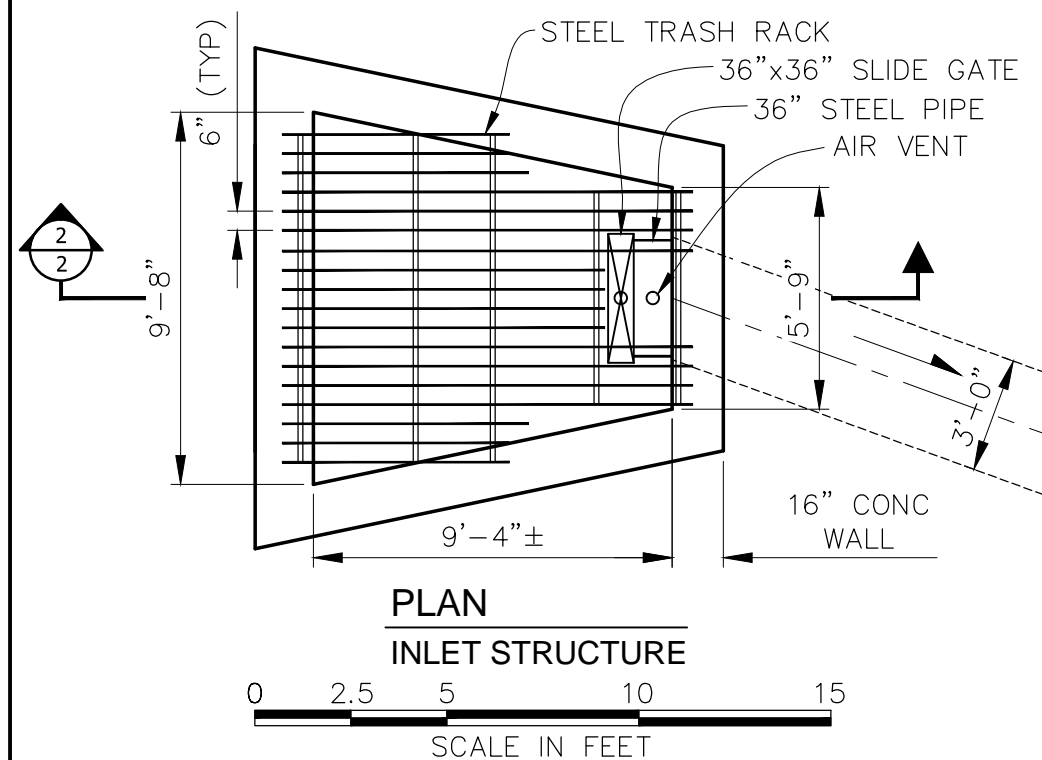
1. - That the said Mount Pisgah Reservoir is entitled to and is hereby awarded Arkansas River Storage Priority No. \_\_\_\_\_, the same being Four Mile Creek Storage Priority No. \_\_\_\_\_; with priority date as of October 15, 1907; and that under and by virtue thereof there be allowed to flow into said Mount Pisgah Reservoir and be impounded and stored therein each year sufficient of the natural flow of said Four Mile Creek to fill said reservoir to its said capacity of 2743 acre feet of water, in so far as the same may be available therefor without infringement on the rights of appropriators having appropriations with priority dates prior to said October 15, 1907.

2. - That The Pisgah Reservoir and Ditch Company, a Colorado Corporation and the petitioner herein, is now the owner of said Mount Pisgah Reservoir and of the rights and priorities appurtenant thereto as herein decreed; and that it and its successors and assigns are and shall be entitled to at will release from said Mount Pisgah Reservoir waters impounded therein in pursuance of this decree and allow the same to flow down the natural channel of said Four Mile Creek and said Arkansas River as permitted by the laws of the State of Colorado, and thereafter divert the same therefrom, less all losses in transit by seepage, evaporation, or otherwise to be determined as provided by the laws of the State of Colorado, and use the same in the irrigation of lands within the State of Colorado lying along said streams and susceptible of irrigation therefrom which are otherwise inadequately supplied with water for the irrigation thereof and the production of crops thereon.

3. - That the petitioner shall pay all the costs of this proceeding to be taxed against it herein, including the cost of extending the testimony for filing herein.

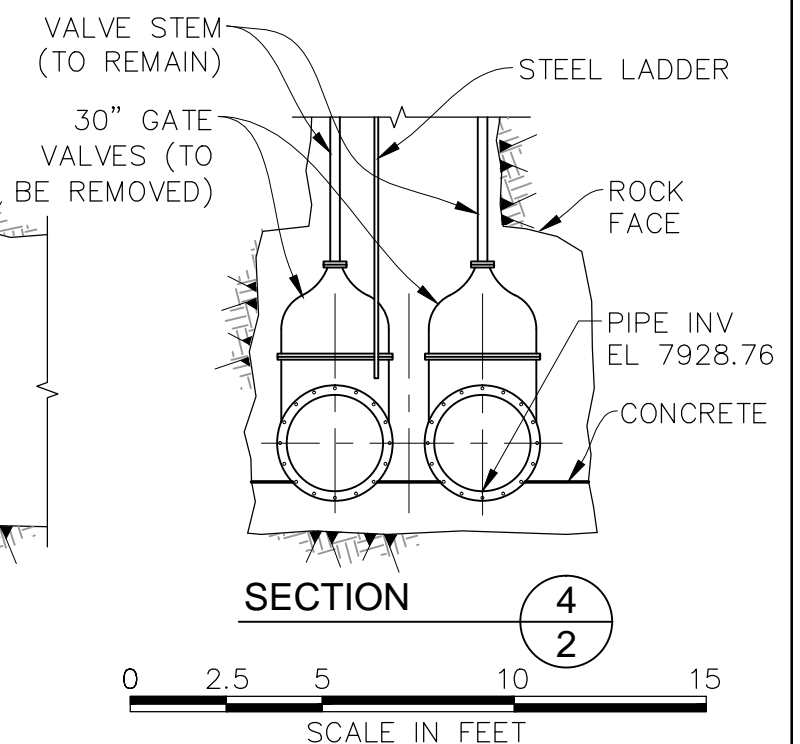
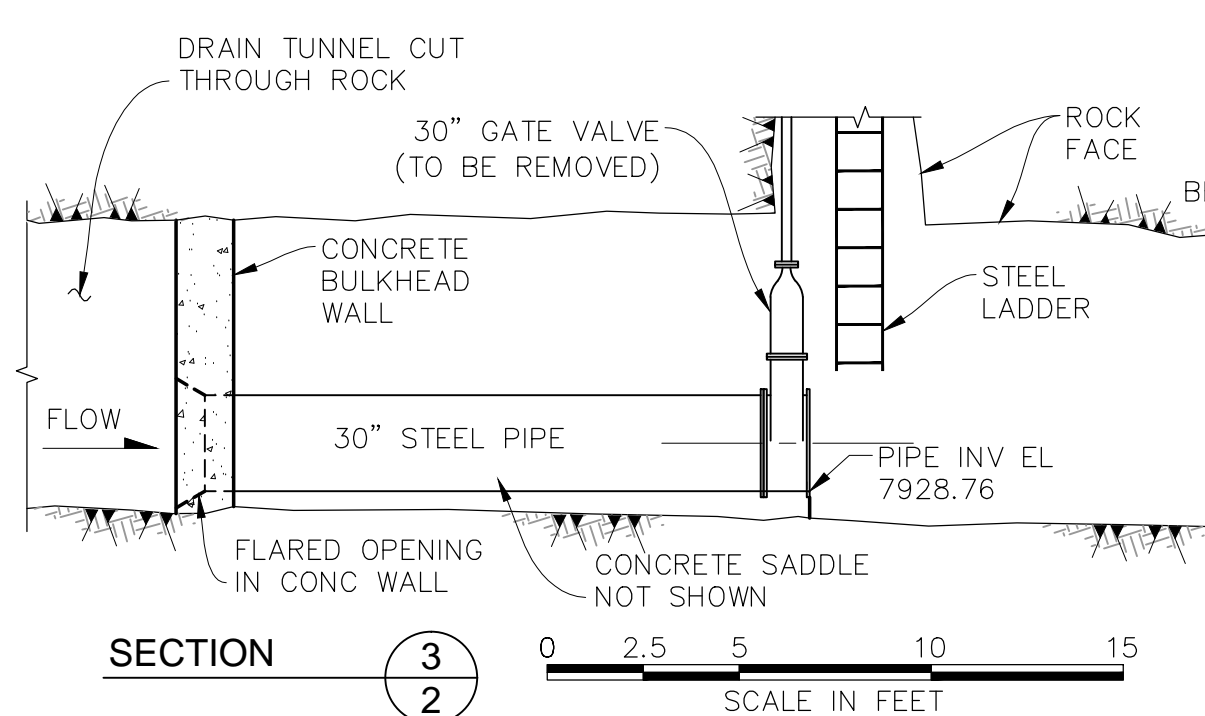
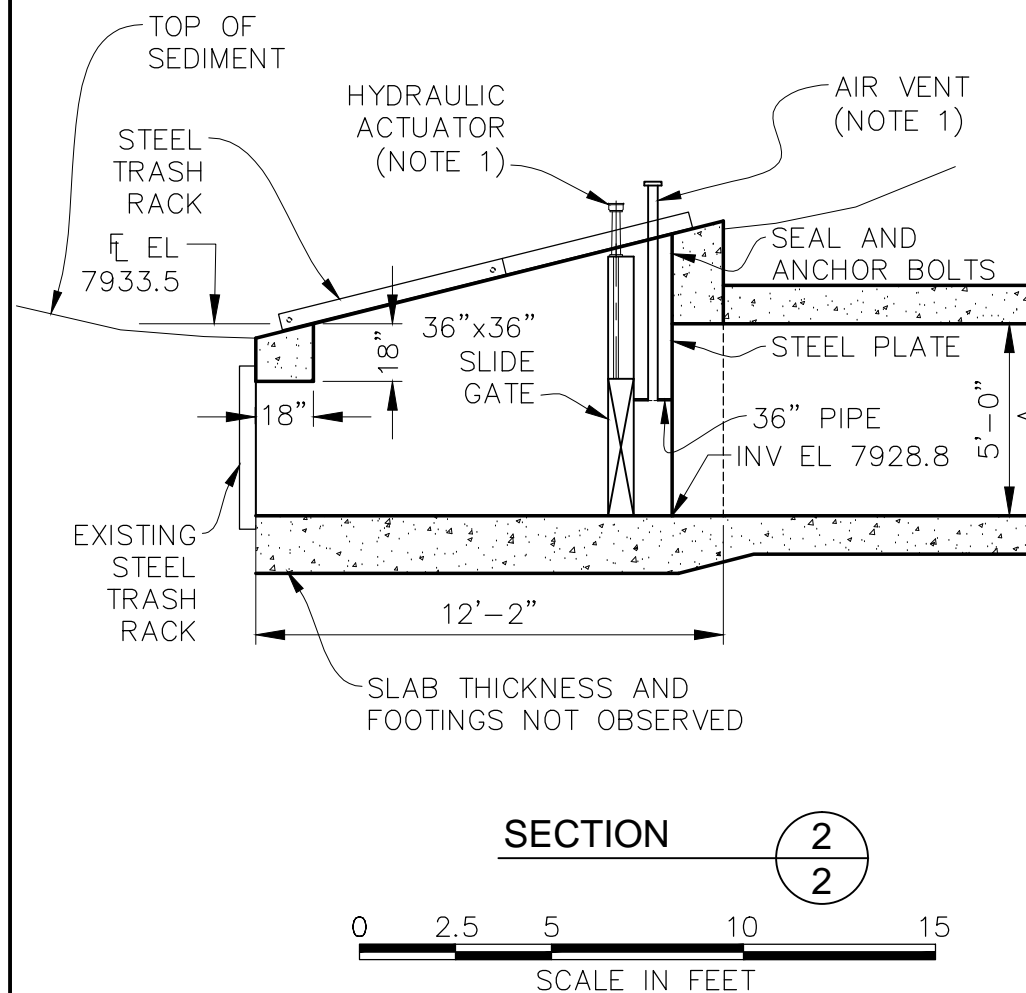
Done in Open Court.


By the Court: James L. Cooper, Judge.



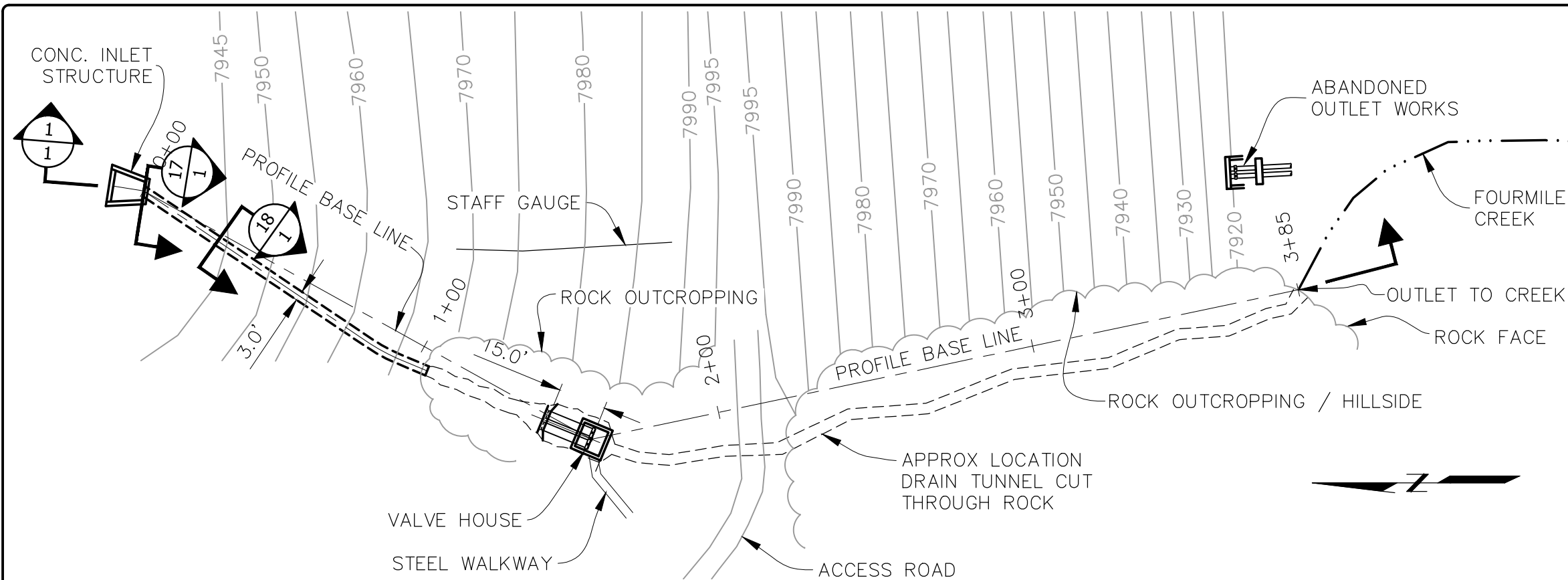
NOTES:

1. HYDRAULIC CONTROL LINES AND AIR VENT WILL EXTEND TO EXISTING VALVE HOUSE.

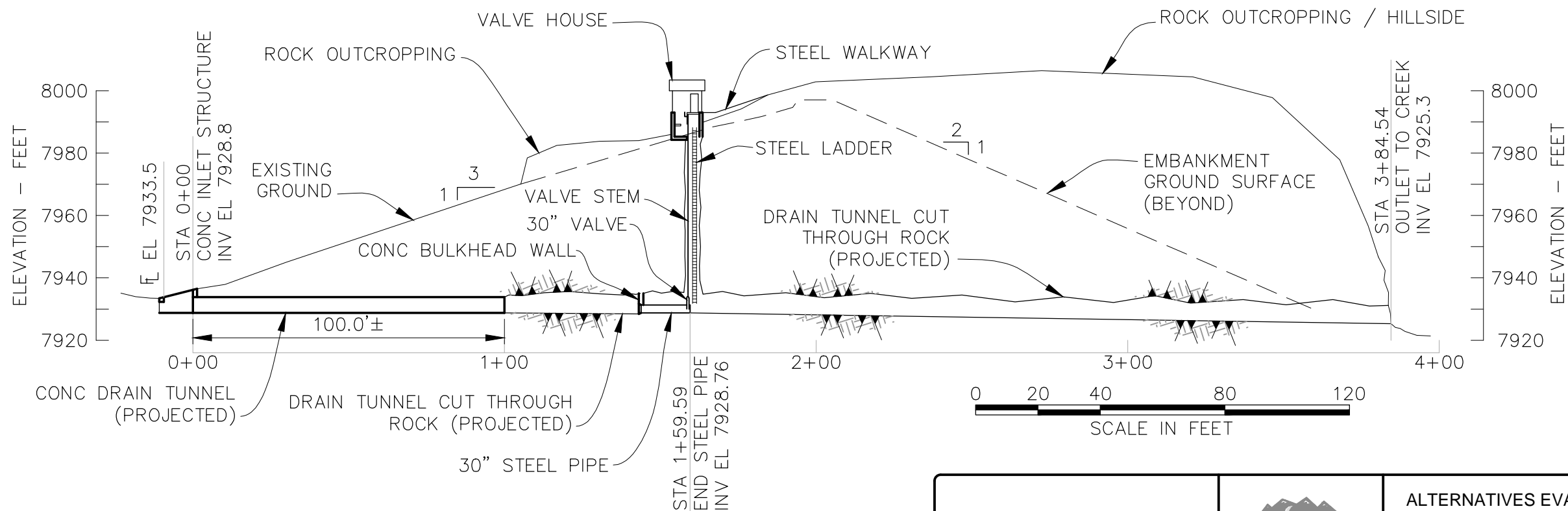
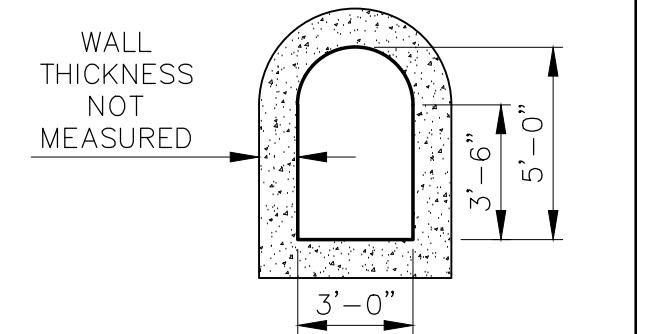
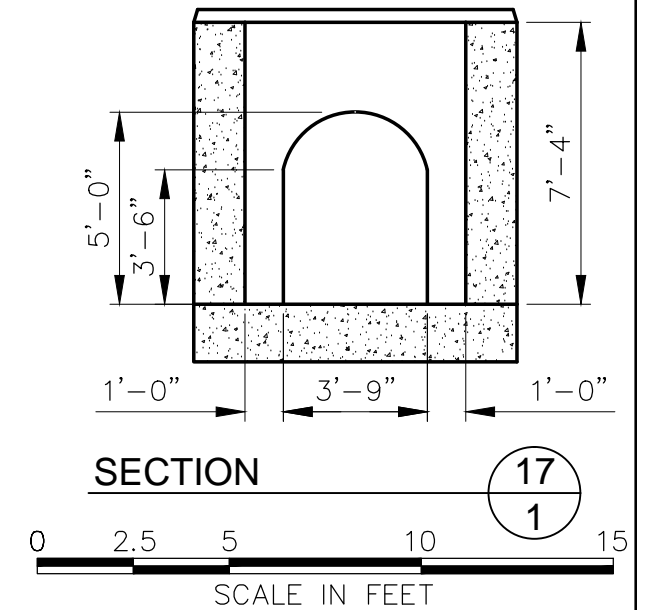


PISGAH RESERVOIR AND DITCH COMPANY		ALTERNATIVES EVALUATION MT. PISGAH DAM / WRIGHT'S RESERVOIR OUTLET WORKS	<b>ALTERNATIVE 1</b>  November 2011
		PROJECT NO. 11119	

**Figure 2.1**



**PLAN**  
**EXISTING OUTLET WORKS**



**SECTION**  
**EXISTING OUTLET WORKS**

1  
1

PISGAH RESERVOIR AND  
DITCH COMPANY



ALTERNATIVES EVALUATION  
MT. PISGAH DAM / WRIGHTS  
RESERVOIR OUTLET WORKS

PROJECT NO. 11119

EXISTING OUTLET WORKS  
PLAN AND PROFILE

November 2011

Figure 1.1

**NOTES:**

1. THE HORIZONTAL DATUM IS WGS 1984 AND THE VERTICAL DATUM IS NAVD27.
2. THE SIZE, SHAPE, AND CONFIGURATION OF THE OUTLET WORKS AND APPURTENANT FACILITIES WERE ESTIMATED BASED ON RJH SITE VISITS. DIMENSIONS ARE APPROXIMATE.



GEOTECHNICAL AND  
WATER RESOURCES ENGINEERING

## ALTERNATIVES EVALUATION

### MOUNT PISGAH DAM/WRIGHTS RESERVOIR OUTLET WORKS REHABILITATION TELLER COUNTY, COLORADO

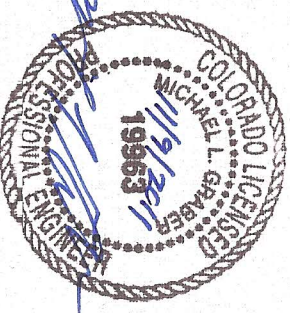
Submitted to

**Pisgah Reservoir and Ditch Company**  
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November 2011  
Project 111119



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Michael L. Graber, P.E.  
Project Manager

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## **SECTION 1 - INTRODUCTION**

---

### **1.1 Purpose**

The purpose of this memorandum is to present the results of the alternatives evaluation for rehabilitation of the Mount Pisgah Dam/Wrights Reservoir outlet works.

### **1.2 Objectives**

The objectives of the alternatives evaluation are as follows:

- Identify conceptual-level alternatives for rehabilitation of the outlet works including concepts for the intake structure, piping, and gate and valve configuration.
- Identify an appropriate new flow control type and configuration based on operational criteria and space limitations.
- Develop a planning-level opinion of probable cost for the components that are different between the various alternatives to support evaluation of cost differences between the alternatives.
- Identify the general advantages and disadvantages for each alternative.
- Identify preferred alternatives to move forward into final design.

### **1.3 Scope of Services**

RJH Consultants, Inc. (RJH) performed the following services for this phase of the project:

- Performed an inspection of the outlet works including intake structure, horseshoe concrete tunnel, rockcut tunnels, concrete bulkhead, control valves, and 30-inch-diameter intake pipes.
- Performed a topographic survey of the dam cross section near the outlet works and key points of the outlet works.
- Obtained copies of the existing design drawings.
- Performed engineering analyses to identify conceptual-level sizes and configurations for each alternative.

- Performed simplified hydraulic analyses to evaluate hydraulic conditions (i.e., velocities, flow rates, etc.) for each alternative.
- Prepared conceptual-level plans and sections for each alternative.
- Estimated quantities of primary materials and estimated a planning-level cost to construct the non-similar components of each alternative. We did not develop an opinion of total probable project costs.
- Prepared this memorandum.

## 1.4 Background

Mount Pisgah Dam is a large, significant hazard earth embankment located in Teller County, about 12 miles from Cripple Creek, Colorado. The dam is located on Fourmile Creek and impounds Wrights Reservoir, with a capacity of approximately 2,192 acre-feet (ac-ft) supplied by direct inflow from Fourmile Creek. The embankment has an upstream slope at approximately 3H:1V, a crest width of about 10 feet, and a downstream slope of approximately 2H:1V.

According to SEO descriptions, the upstream slope was originally about 1.5H:1V with a reinforced concrete face when constructed around 1911. There was an upstream slope failure around 1928. After the slope failure, the upstream ends of the original outlet works were plugged, a new outlet conduit was constructed through the right abutment, and the upstream slope was rebuilt to about 3H:1V. The spillway is located at the left abutment and was enlarged in 1988. The crest elevation provides more than 10 feet of freeboard above the spillway elevation based on the June 2011 Colorado Office of the State Engineer (SEO) Engineer's Inspection Report.

Limited drawings available from the SEO office did not include as-built conditions and were not in agreement with RJH observations of the existing outlet works. An SEO condition of the outlet works assessment required dewatering and inspection of the outlet works and preparation of as-constructed drawings of the outlet geometry. RJH prepared as-constructed drawings based on RJH site visits and surveying performed on August 23 and 31, 2011. The drawings are submitted under separate cover.

The outlet works extends from Wrights Reservoir through Mount Pisgah Dam at the right abutment. A general plan and profile of the outlet works is shown on Figure 1.1. The outlet works consists of a series of tunnels and piping including a concrete intake structure and trashrack, a concrete intake tunnel, a rockcut tunnel intake with concrete bulkhead, two parallel 30-inch-diameter steel pipes with control valves, and a rockcut

drain tunnel discharging to Fourmile Creek at the downstream toe of the right abutment. The existing control valves appear to be knife-type valves and the current operating range of each valve is from closed to approximately 50 percent open due to poor operating valve condition. The owner reports that the two 30-inch-diameter valves have become increasingly difficult to operate and suffer from icing problems in the winter. Ice builds up on the valve stems, which requires the owner to use a heater to thaw out the valve stems if wintertime valve operation is needed.

The original outlet works consists of dual 16-inch-diameter cast-iron pipes that, following the upstream slope failure in 1929, were plugged or sealed at the upstream end and are no longer in use. The 16-inch outlets were not inspected or evaluated.

## **1.5 Existing Conditions**

RJH performed a hydraulic evaluation of the existing outlet works to estimate the capability for meeting the SEO requirement for evacuating the top 5 feet of reservoir storage in 5 days. Based on the results of this analysis, the existing outlet works can evacuate the top 5 feet of reservoir storage in under 2 days. RJH assumed the valves will not open greater than about 50 percent as observed during site visits. The capacity of the existing outlet works at the normal maximum pool Elevation (El.) 7984.35 is estimated to be 194 cfs. The minimum capacity required to release the upper 5 feet of the reservoir within 5 days is estimated to be about 53 cfs.

Wrights Reservoir is operated as an irrigation reservoir and the water elevation varies throughout the year. The capacity of the outlet works is reduced during times of low water.

The valves and stems are intact but have more than 50 turns of slack in the gear driven operators. The limited operating range is most likely due to a lack of fully opening both valves on a routine basis, which has resulted in corrosion and gaulding of the operators in the unused range. The steel pipes were significantly corroded on both the interior and exterior of the pipe surfaces and sounding of the pipes indicated that the wall thickness was diminished and minimal. There did not appear to be any pipe joints. All concrete appeared in good condition and rockcut surfaces were smooth but irregular in section and shape. The rock appeared sound.

Stream channel erosion issues have been noted in Fourmile Creek downstream of the dam when significant flows have been released through the outlet works; however, this evaluation is limited in scope to the outlet works conduit and intake structure and RJH

did not evaluate the need for energy dissipation structures or downstream channel improvements.

## 1.6 Key Design Considerations

Based on RJH's understanding of project objectives, constraints, and site conditions, RJH has identified the following key considerations that will influence design of the project:

- The reservoir water level may or may not be lowered for construction. If the reservoir is lowered, sediment management may be difficult. Sediment-laden discharges may result in federal fines on the order of \$20,000 per day.
- Based on the age and condition of the existing 30-inch-diameter intake pipes, the pipes will require lining, subject to the selected rehabilitation alternative. Lining would involve inserting a smaller diameter pipe into both of the 30-inch-diameter outlet pipes and grouting the resulting annular space between the pipes.
- The modified outlet works will be required to flush sediment deposits from the reservoir bottom.
- The existing outlet works pipes meet the SEO requirement for evacuating the top 5 feet of reservoir storage in 5 days. The modified outlet works should maintain as much of the existing capacity of the outlet works as possible.
- The outlet works will typically be operated at or near 30 to 40 cfs. Releases greater than 40 cfs are not typical and are generally short-term to minimize impacts to the downstream channel.
- Flow control will be provided by hydraulically-operated gates/valves at either the upstream end of the concrete tunnel or at the current valve location near the mid-section of the dam. Design of gates/valves will require throttling operations for variable flow control. Flow measurement in the outlet works pipes will not be required.
- The existing concrete intake structure will only be modified to the extent necessary for the different selected alternatives. It will not be removed and replaced with a new structure. The existing intake structure trashracks are unsuitable for re-use and must be replaced regardless of the design selected.

## **SECTION 2 - MODIFICATIONS**

---

### **2.1 General**

RJH developed three conceptual-level outlet works rehabilitation alternatives. The developed alternatives vary based on the flow control concept. Generally, the flow control concepts are upstream control only at the intake structure, control on the midsection of dam as it is controlled now, or a combination of both upstream and midsection flow control. A description of the rehabilitation components follows.

### **2.2 Pipe Lining**

RJH selected steel pipe to use for slip lining the existing outlet works pipes in selected alternatives. The steel pipes will extend through the existing 30-inch-diameter steel pipes, which are about 17 feet long, assuming the bulkhead wall is 2 feet thick. It is our opinion that a minimum annular space of 1 inch should be maintained between the new and existing pipes to provide sufficient space to effectively insert the new pipe into the old pipe and provide adequate annular space for grouting. We anticipate that a 24-inch-diameter pipe will be used. RJH also considered the use of high-density polyethylene (HDPE) pipe. HDPE is more flexible and may cost less; however, flexibility is not required for the short, straight pipe alignments, and the cost difference will be negligible due to the short pipe length. HDPE may not perform well at relatively high flow velocities that may occur through the outlet pipes when the valves are exercised to the fully open position. For this reason, RJH selected steel pipe.

### **2.3 Flow Control**

RJH developed three conceptual-level flow control alternatives and evaluated technical, operational, and economic considerations associated with each alternative. The alternatives are described as follows:

- Alternative 1 – Upstream Flow Control Only
  - Provide a slide gate on the existing intake structure
  - Extend hydraulic control lines and an air vent from the intake structure to a gate operator in the exiting valve house
  - Remove existing valve internal components
- Alternative 2 – Single Mid Dam Section Flow Control

- Remove left valve internal components and grout the left pipe
- Remove entire right valve, line the right pipe with 24-inch steel pipe, and install new knife valve on 24-inch pipe
- Remove existing hydraulic control lines and extend new line to new gate control in the valve house
- Alternative 2A – Single Mid-Section Control with Bulkhead:
  - Similar to Alternative 2
  - Add a bulkhead at the intake structure so that the outlet works can be dewatered.
- Alternative 3 – Dual Mid Dam Section Flow Control
  - Excavate rock above left pipe for valve operator clearance
  - Remove both valves in entirety, line both pipes with 24-inch steel pipes, and install two new knife valves
  - Remove existing hydraulic control lines and extend new lines to new gate controls in the valve house
- Alternative 3A – Dual Mid-Section Control with Bulkhead:
  - Similar to Alternative 3
  - Add a bulkhead at the intake structure so that the outlet works can be dewatered.

The alternatives are shown on Figures 2.1 through 2.5.

Based on the simplified hydraulic analyses developed by RJH, the peak capacity of the outlet works configuration for each intake structure alternative is shown in Table 2.1. All alternatives meet the SEO requirement for releasing the top 5 feet of the reservoir within 5 days. In addition, all alternatives are capable of distributing 40 cfs operational releases with the reservoir nearly empty.

**TABLE 2.1**  
**PEAK OUTLET WORKS CAPACITY**

Alternative	Peak Flow <sup>(1)</sup> with Pool El. 7984.35 (cfs)	Pool Elevation Required to Release 40 cfs <sup>(1)</sup> (ft)
Alternative 1	303	7931.6
Alternative 2 or 2A	130	7935.7
Alternative 3 or 3A	236	7932.2

Note:

1. Approximate peak flow. Assumes control gates/valves fully open.

## SECTION 3 - EVALUATION

### 3.1 Cost Estimate

RJH developed a conceptual-level opinion of probable costs for each alternative. Cost estimates were developed by estimating quantities of primary elements of the work based on the conceptual-level design concepts and unit costs developed from the following sources:

- Published and non-published bid price data for similar work.
- R.S. Means Heavy Construction Cost Data for 2010.
- Manufacturer's budgetary price quotes.
- Our previous experience and judgment.

A summary of our cost estimate is presented in Table 3.1. A 35 percent contingency has been added to account for unforeseen items.

**TABLE 3.1**  
**ALTERNATIVES**  
**OPINION OF PROBABLE CONSTRUCTION COSTS**

<b>Alternative</b>	<b>Opinion of Probable Construction Costs<sup>(1)(2)</sup> (OPCC, 2011) (\$)</b>
Alternative 1	214,000
Alternative 2	218,000
Alternative 2A	191,000
Alternative 3	287,000
Alternative 3A	260,000

**Notes:**

1. Costs rounded to \$1,000.
2. Opinion of Probable Construction Costs does not include costs associated with insurance, design engineering, construction engineering, legal fees and permitting, and unscheduled items.

### 3.2 Evaluation of Alternatives

RJH evaluated the conceptual-level repair alternatives for technical, operational, and economic considerations. A summary of the advantages and disadvantages for each alternative is presented in Table 3.2.

**TABLE 3.2**  
**OUTLET REHABILITATION ALTERNATIVES**  
**SUMMARY OF ADVANTAGES AND DISADVANTAGES**

Alternative	Advantages	Disadvantages
<b>Alternative 1</b>	<ul style="list-style-type: none"> <li>Provides the greatest flow capacity</li> <li>The mid dam section pipes remain in place where they could potentially be lined and fitted with valves in the future</li> <li>Work could be performed under full or partial reservoir head, eliminating the need to drain the reservoir</li> </ul>	<ul style="list-style-type: none"> <li>Construction requires a barge and lift with divers</li> <li>Future gate access requires divers</li> <li>Does not provide redundancy in flow control for outlet repairs or backup closure</li> </ul>
<b>Alternative 2</b>	<ul style="list-style-type: none"> <li>Provides precise flow control even at small flow volumes</li> </ul>	<ul style="list-style-type: none"> <li>Provides the lowest flow capacity</li> <li>Parallel valve option is permanently closed</li> <li>Does not provide redundancy in flow control for gate repairs or backup closure</li> <li>Relies on the unknown structural integrity of the existing concrete bulkhead. If the bulkhead were to fail, it would result in draining the reservoir in an uncontrolled manner</li> <li>Requires reservoir drawdown and stream diversion</li> </ul>
<b>Alternative 2A</b>	<ul style="list-style-type: none"> <li>Provides precise flow control even at small flow volumes</li> <li>Provides a means to dewater for valve maintenance</li> <li>Work could be performed under full or partial reservoir head, eliminating the need to drain the reservoir</li> <li>Would be the least expensive to construct</li> </ul>	<ul style="list-style-type: none"> <li>Construction requires a barge and lift with divers</li> <li>Provides the lowest flow capacity</li> <li>Parallel valve option is permanently closed</li> <li>Bulkhead closure may require crane and divers and will increase routine operation and maintenance costs by about \$30,000 once every 10 years</li> </ul>

Alternative	Advantages	Disadvantages
<b>Alternative 3</b>	<ul style="list-style-type: none"> <li>Provides precise flow control with a larger flow capacity compared to Alternative 2</li> <li>Preserves the existing schematic of two parallel valves</li> </ul>	<ul style="list-style-type: none"> <li>Would be the most expensive to construct</li> <li>Does not provide redundancy in flow control for gate repairs or backup closure</li> <li>Relies on the unknown structural integrity of the existing concrete bulkhead. If the bulkhead were to fail, it would result in draining the reservoir in an uncontrolled manner</li> <li>Requires reservoir drawdown and stream diversion</li> </ul>
<b>Alternative 3A</b>	<ul style="list-style-type: none"> <li>Provides precise flow control with a larger flow capacity compared to Alternative 2</li> <li>Preserves the existing schematic of two parallel valves</li> <li>Provides a means to dewater for valve maintenance</li> <li>Work could be performed under full or partial reservoir head, eliminating the need to drain the reservoir</li> </ul>	<ul style="list-style-type: none"> <li>Construction requires a barge and lift with divers</li> <li>Bulkhead closure may require crane and divers and will increase routine operation and maintenance costs by about \$30,000 once every 10 years</li> </ul>

## SECTION 4 - CONCLUSIONS

---

Based on work completed for the conceptual-level evaluation, we offer the following general conclusions:

- Flow control with throttling can be provided at either the upstream intake end of the outlet works or at the mid-section of the dam:
  - Slide gate on the upstream end of the outlet works
  - Knife gate valves at mid-section in the location of the existing valves
- A bulkhead could be added to provide an upstream control if mid-section flow control is selected. The bulkhead provides redundancy in case of emergency and allows for dewatering for outlet inspection and valve and tunnel maintenance. It also reduces construction costs by allowing the work to be performed without drawing down the reservoir. Due to the shape and condition of the intake, other methods to plug the intake for construction were not feasible.
- Existing pipes require lining if mid-section valves are used. Steel is appropriate for liner pipe because of installation conditions, sediment laden flows, and potentially high flow velocities.
- Underwater construction with a barge would cost less than constructing in the dry. The high cost for dry construction comes from building access over the sediment, stream diversion, and potential fines for sediment release.
- Advantages and disadvantages of the alternatives:
  - The least expensive alternative is Alternative 2A. This alternative provides the lowest flow capacity. Alternative 2A relies on the integrity of the existing concrete bulkhead wall near the mid-section of the outlet conduit.
  - The most expensive alternative is Alternative 3, which would essentially preserve the existing outlet works layout and operation.
  - Alternative 1 provides the greatest flow capacity. The mid-section pipes would remain in place and it would be possible to restore mid-section flow control in the future if desired.

## SECTION 5 - RECOMMENDATIONS

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Based on the work completed during the conceptual-level evaluation, we offer the following recommendations:

- Alternatives 2 and 3 should be eliminated from consideration because similar results can be obtained from Alternatives 2A and 3A, respectively, at a lower cost.
- Alternatives 1, 2A, and 3A are acceptable alternatives to move forward into final design. The preferred alternative should be selected by Pisgah Reservoir and Ditch Company based on the technical, operational, and economic trade-offs between these alternatives, as presented in this memorandum.



## MEMORANDUM

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Project 11119

Performed: August 23 & 31, 2011

By: Michael L. Graber, P. E.

*MLG* 11/9/2011

CLIENT: Catlin Canal Company

SUBJECT: Mt. Pisgah Dam and Reservoir Outlet Inspection

---

### Section 1 Background

The original dam was constructed in 1911 with dual 16-inch-diameter outlet pipes that had downstream control gate valves installed at the toe of the dam. In 1928 a slide on the upstream slope of the dam covered the intake of the dual 16-inch pipes with embankment material rendering the outlet unusable. A rehabilitation approach was developed in November 1928 by H.I. Reid, a consulting engineer from Colorado Springs. The rehabilitation approach included blowing a hole in the 16-inch pipes with "powder" to drain the reservoir and then constructing a tunnel through the right (west) abutment of the dam. A plan prepared by H.I. Reid indicated that the majority of the upstream portion of the tunnel was to be constructed of concrete in the shape of a horseshoe, which was 5 feet high and 3 feet wide with a grated intake structure. Water in the concrete tunnel flowed into two 30-inch-diameter gate valves located in a rockcut tunnel near the transverse midpoint of the dam. A vertical rockcut shaft was shown to the dam crest in which the valve stems and operators were to be located. The valves discharged into an open rockcut tunnel, which was to be excavated to daylight.

The 16-inch valves were to be plugged and then abandoned once the new outlet works was complete and functional.

### Section 2 As-Constructed Outlet

There are no known as-constructed plans for the new outlet works that were prepared after the construction was completed in 1929. RJH measurements and inspection of the outlet works discovered some significant changes made to the original plan prepared by H.I. Reid in 1928. The intake structure had both low level and upper level intake openings that were covered by trashracks. The original plan indicated only a upper level intake opening. The current inflow control elevation of the intake structure is at Elevation (El.) 7928.8 and the maximum reservoir elevation, which corresponds to the emergency spillway flowline elevation, is at El. 7984.35.

The horseshoe tunnel was generally constructed to the cross section dimensions shown in the original 1928 plan but the length and alignment were found to be significantly different. The intake structure was generally located so that it was parallel to the longitudinal axis of the dam but the tunnel was not perpendicular to the intake structure having a skewed alignment of approximately 15 degrees to the right (southwest). The tunnel followed this alignment for approximately 100 feet where it began a circular curve to the left (southeast). After the curve, there was a short tangent section which terminated in an open rockcut tunnel. A short rockcut tunnel section downstream of the concrete horseshoe tunnel of

approximately 40 feet terminated at a concrete bulkhead wall which had two, 30-inch-diameter intake pipes through the bottom of the wall. The rockcut tunnel made a gradual transition from the horseshoe tunnel termination to an open chamber approximately 7 feet wide by 10 feet high.

The 30-inch-diameter pipes were approximately 15 feet in length and supplied the two, 30-inch-diameter gate valves located in the vertical rockcut shaft and downstream tunnel. The valves discharged directly into the downstream rockcut tunnel.

The downstream rockcut tunnel was generally 5 feet wide by 7 feet high but had four locations where the tunnel width narrowed to 42 inches. The alignment was not straight but veered right and left at approximate 15 to 20 degree angles about every 40 feet. The daylight discharge to the stream channel was visible at approximately 40 feet from the exit point.

GPS survey points were taken at the tunnel intake, the center of the vertical valve shaft, and at the daylight discharge of the downstream tunnel. All other measurements are approximate.

### **Section 3    Outlet Inspection**

#### **3.1    Intake Structure**

The exterior of the intake structure was completely surrounded by silt and located in a depression in the reservoir bottom. The top of the deposited silt is approximately 7.6 feet above the structure control section. The center section of the top trashrack was removed and laying on top of the silt deposits, approximately 50 feet to the northeast of the intake structure. There is a low-level intake opening with trashrack on the upstream side of the intake structure. The opening extends from the floor of the intake structure upward approximately 2.5 feet and extends across the front of the structure. The opening has a trashrack across it and is completely silted in with no flow coming through the opening.

Intake structure concrete was generally in good condition, having no apparent cracks, displacement, or spalling. Chipped concrete was noted on the right (west) side of the horseshoe shaped concrete intake tunnel. The floor of the intake structure was completely covered with silt and silt-laden inflow and was not visible at the time of inspection. Inspection of the floor was completed using a wooden dowel to probe and "feel" the floor. This inspection procedure found no cracks or holes in the intake structure floor. Based on the inspection, the intake is considered serviceable and sufficient for consideration of reuse in rehabilitation alternatives development.

The trashrack was found to be in very poor overall condition displaying advanced corrosion on all surfaces that has reduced steel framing member cross sections. The trashrack likely does not meet current design criteria for opening sizes and flow velocities through the rack and is considered unusable for reuse in the rehabilitation alternatives development.

#### **3.2    Concrete Intake Tunnel**

As previously described, the concrete intake tunnel is horseshoe shaped in cross section, 3 feet wide by 5 feet high, and has a concrete floor. The tunnel is not perpendicular to the intake structure or the embankment and follows a southwest bearing for approximately 100 feet where it makes a gradual circular turn in a more southerly direction for approximately 25 feet. The concrete tunnel then terminates and is followed by a rockcut tunnel for

approximately 40 feet where the concrete bulkhead upstream of the control valves is located.

The tunnel surfaces and concrete were found to be in generally good to satisfactory condition. There were a number of cracks and small holes observed in the tunnel walls that displayed seepage flows that will require repair to return the concrete to a more watertight and acceptable condition. The floor of the tunnel was not visible and completely covered in an approximately 8 inches of silt and silt-laden flow. Additional inspection of the floor is recommended after the silt has been flushed from the tunnel and once upstream flow control is established during the rehabilitation process.

### **3.3 *Rockcut Intake Tunnel From Concrete Tunnel to Bulkhead***

This section of the outlet works tunnel was typical for what would be expected for tunnel bored using handheld equipment and completed in 1929. The cross section was not uniform with many jagged rock edges and points. The exposed rock face was found to be sound with no loose or displaced rock material. The tunnel floor was generally smooth and even.

### **3.4 *Rockcut Intake Tunnel Concrete Bulkhead***

The bulkhead concrete was found to be smooth on both the upstream and downstream side with no cracks or holes in the concrete. Joints against the rockcut tunnel were tight and the rock face at the joints was sound. Previously documented inspections by the SEO found little or no seepage through the bulkhead on the downstream side under full reservoir head. The current control configuration with the valves on the downstream side of the bulkhead relies on the pressure integrity of the bulkhead and the 30-inch pipe penetrations through the bulkhead. If the bulkhead were to fail and lose pressure integrity, the result would be an uncontrolled reservoir release.

### **3.5 *30-Inch-Diameter Intake Pipes From Bulkhead to Control Valves***

The 15-foot-long pipe sections from the downstream end of the bulkhead to the control valves were found to be severely corroded, thin in wall thickness, and generally in very poor overall condition. The bottom half of the pipes was bedded in concrete. If the pipes are to be used for outlet rehabilitation where pressure integrity is required, replacement or lining will be required.

### **3.6 *Control Valves***

The two 30-inch-diameter control valves will only open approximately 50 percent before the operators become very difficult to turn and the operators have more than 50 turns of slack before the valve stems begin to move. The right valve stem is relatively straight and vertical but the left valve stem is bent near the bottom of the vertical rockcut shaft so that it can line up with the left valve, which is not located under the vertical rockcut. Previously documented inspections by the SEO found little or no seepage through the valve faces and seats under full reservoir head. The valves and operators will require replacement or repair if they are to be used for rehabilitation of the outlet works.

### **3.7 *Downstream Rockcut Discharge Tunnel***

The downstream rockcut discharge tunnel was found to be similar in cross section as the upstream tunnel but undulating in alignment. The floor of the tunnel was found to be very irregular with holes and high points differing by as much as 2 vertical feet. The rock

surfaces were jagged but sound and no fractured or loose rock was observed. The tunnel discharges directly into the stream channel below the dam, which has a rock bottom and no indications of past erosion.

## Section 4 Photographs

### 4.1 Intake Structure



View of trashrack looking upstream from the upstream slope.



View of trashrack looking upstream from the upstream slope.



View of horseshoe tunnel intake looking downstream.



View of silted in lower level intake and trashrack looking upstream.



View of downstream side of control valves.



View looking upward into the vertical rockcut shaft for valve stems.



COPY Board 7/16/11  
DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF WATER RESOURCES

John W. Hickenlooper  
Governor

Mike King  
Executive Director

Dick Wolfe, P.E.  
Director & State  
Engineer

Steven J. Witte, P.E.  
Division Engineer

July 8, 2011

Mr. Greg Williams  
Pisgah Reservoir and Ditch Co.  
P.O. Box 352  
Rocky Ford, CO 81067

When replying, please refer to:  
**MOUNT PISGAH DAM:**  
**Water Division 2, DAMID 120129**

**SUBJECT:** Transmittal of Dam Safety Inspection Report

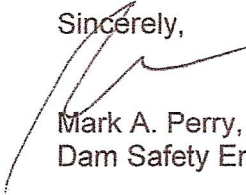
Dear Mr. Williams:

As you know a dam safety inspection of the above-referenced dam was performed on June 28, 2011, in accordance with Colorado Revised Statute 37-87-107, which assigns to the State Engineer's Office the responsibility for determining the safe storage levels for all reservoirs in this state. The enclosed inspection report (2 copies) summarizes the conditions observed during the inspection and identifies actions required to improve the condition and extend the useful life of the structure. Please review the report and implement all recommendations listed in the section entitled, "Items Requiring Action by Owner to Improve the Safety of the Dam" on page 2 of the reports. Please sign, date, and return one copy of the inspection report and retain the other copy for your files and future reference.

The last Emergency Action Plan that we have on file for Mount Pisgah Reservoir is dated 1994. If a more recent EAP was prepared, please provide a copy to our office. Otherwise, the EAP needs to be updated. Please visit the SEO website (<http://www.water.state.co.us/damsafety/>) for new guidelines for preparing an EAP and a sample Microsoft Word EAP template to assist you.

Please contact me at your earliest convenience if you have questions or comments regarding the information contained in the report or if you require assistance with any dam-safety related issues.

Sincerely,

  
Mark A. Perry, P.E.  
Dam Safety Engineer

Encl.

cc: Denver File  
Division 2 File Pueblo  
Steve Witte, Division Engineer  
Brian Sutton, Water Commissioner

Water Division 2

310 E. Abriendo Ave. Suite B • Pueblo, CO 81004 • Phone: 719-542-3368 • Fax: 719-544-0800

[www.water.state.co.us](http://www.water.state.co.us)

# ENGINEER'S INSPECTION REPORT

INSPECTOR: **MP3**

OFFICE OF THE STATE ENGINEER - DIVISION OF WATER RESOURCES - DAM SAFETY BRANCH

1313 SHERMAN STREET, ROOM 818, DENVER, CO 80203, (303) 866-3581

DAM NAME: MOUNT PISGAH		T: 140S R: 0700W S: 31	COUNTY: TELLER	DATE OF INSPECTION: 6/28/2011
DAM ID: 120129	YRCmpl: 1911	DAM HEIGHT(FT): 69.0	SPILLWAY WIDTH(FT): 60.0	PREVIOUS INSPECTION: 9/29/2009
CLASS: Significant hazard		DAM LENGTH(FT): 610.0	SPILLWAY CAPACITY(CFS): 6073.0	NORMAL STORAGE (AF): 2250.0
DIV: 2	WD: 12	CRESTWIDTH(FT): 12.0	FREEBOARD (FT): 11.0	SURFACE AREA(AC): 124.0
EAP: 10/21/1994		CRESTELEV(FT): 8034.8	DRAINAGE AREA (AC.): 46460.0	OUTLET INSPECTED: 9/20/1990

CURRENT RESTRICTION: -- NONE --

OWNER: PISGAH RES. AND DITCH COMPANY	OWNER REP.: GREG WILLIAMS
ADDRESS: P. O. BOX 352	CONTACT NAME: HOWARD STONE
ROCKY FORD CO 81067-0000	CONTACT PHONE: (719) 689-2277

INSPECTION PARTY: Greg Williams, Howard Stone	Dustinn Valdez	Mark Perry
REPRESENTING: Mt Pisgah Co./Catlin Canal	DWR	Colorado Dam Safety

FIELD CONDITIONS OBSERVED	WATER LEVEL: BELOW DAM CREST	FT.	Above Spillway	FT.	GAGE ROD READING	33.32
	GROUND MOISTURE CONDITION:	<input checked="" type="checkbox"/> DRY	<input type="checkbox"/> WET	<input type="checkbox"/> SNOWCOVER	OTHER	

DIRECTIONS: MARK AN X FOR CONDITIONS FOUND AND UNDERLINE WORDS THAT APPLY

## UPSTREAM SLOPE

PROBLEMS NOTED ☐ (0) NONE ☐ (1) RIPRAP - MISSING, SPARSE, DISPLACED, WEATHERED ☐ (2) WAVE EROSION - WITH SCARPS  
☐ (3) CRACKS WITH DISPLACEMENT ☐ (4) SINKHOLE ☐ (5) APPEARS TOO STEEP ☐ (6) DEPRESSIONS OR BULGES ☐ (7) SLIDES  
☐ (8) CONCRETE FACING - HOLES, CRACKS, DISPLACED, UNDERMINED ☒ (9) OTHER

- top ~1-2 ft of the slope is steep (~1:1) down to a 3-ft high stone parapet wall. Below the wall the upstream slope is ~3H:1V. Reportedly the slope becomes less steep farther down the slope (GH 30-ft?) when the owner had to change the grade of the new slant gage.  
 - The original slope (C-55) was 1.5H:1V with reinforced concrete face. There was an upstream slope failure around 1928 and the upstream slope was rebuilt to ~3H:1V. According to the specifications dated May 11, 1929, provided by your office there was a cutoff trench constructed along the new upstream toe that went down to bedrock or impervious clay. From Stations "2+50 to 5+50" the specifications allowed timber or steel sheet piling to be used in lieu of the trench, but it is not known whether the sheet piling was in fact used.  
 - Granite riprap appears durable and in good condition.  
 - There is a stand of willows on the left side. Continue to control them as needed.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## CREST

PROBLEMS NOTED ☐ (10) NONE ☐ (11) RUTS OR PUDDLES ☐ (12) EROSION ☐ (13) CRACKS - WITH DISPLACEMENT ☐ (14) SINKHOLES  
☐ (15) NOT WIDE ENOUGH ☐ (16) LOW AREA ☐ (17) MISALIGNMENT ☐ (18) IMPROPER SURFACE DRAINAGE ☒ (19) OTHER

- approximately 10-ft wide. Crest appears to be level and straight. No depressions, holes or changes in alignment were observed.  
 - crest should be monitored for subsidence along the alignment of the old outlet conduits.  
 - According to the 1988 C-1690 as-built plans the minimum freeboard after construction was ~11.4-ft to a low point on the crest. According to the C-1690 plans the crest was overbuilt and the design freeboard was 10.9 ft. During the inspection we shot the dam crest at 54.8' (new slant gage datum) and the spillway crest at 43.35 for a freeboard of 11.45-ft. OK.  
 - Prior to the C-1690 construction it appears the crest was very uneven after it had been leveled according to the 1928 specifications. Since 1988 it appears the crest is stable.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## DOWNSTREAM SLOPE

PROBLEMS NOTED ☐ (20) NONE ☐ (21) LIVESTOCK DAMAGE ☐ (22) EROSION OR GULLIES ☐ (23) CRACKS - WITH DISPLACEMENT ☐ (24) SINKHOLE  
☐ (25) APPEARS TOO STEEP ☐ (26) DEPRESSIONS OR BULGES ☐ (27) SLIDE ☐ (28) SOFT AREAS ☒ (29) OTHER

- The downstream slope appears to be ~2H:1V. The original 1911 C-55 plans shows a 2H:1V and there is no indication the downstream slope has ever been modified.  
 - Remove brush and large vegetation from both left and right groins.  
 - An access road cuts along the downstream toe of the dam approximately 200-ft right of the left end of the dam. Below the access road there is a ~5-ft high stone retaining wall along the spillway return channel. This section of the downstream slope should be monitored for local instability, especially if there is spillway flow that could saturate the soils behind the stone wall.  
 - numerous rodent holes were observed. Control rodents.  
 - No cracking, depressions or other signs of distress or instability were observed.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## SEEPAGE

- PROBLEMS NOTED ☐ (30) NONE ☐ (31) SATURATED EMBANKMENT AREA ☐ (32) SEEPAGE EXITS ON EMBANKMENT  
☐ (33) SEEPAGE EXITS AT POINT SOURCE ☒ (34) SEEPAGE AREA AT TOE ☒ (35) FLOW ADJACENT TO OUTLET ☐ (36) SEEPAGE INCREASED / MUDDY  
DRAIN OUTFALLS SEEN ☒ No ☐ Yes Show location of drains on sketch and indicate amount and quality of discharge. ☐ (37) FLOW INCREASED / MUDDY ☐ (38) DRAIN DRY / OBSTRUCTED  
☒ (39) OTHER

- Pounded water was observed downstream of the old outlet conduit endwall. This is a historical seepage area. We found the V-notch weir to be in poor condition -- bowed, clogged with weeds, and needs a staff gage. The weir should be reset and this seepage should be monitored regularly for flow quantity and turbidity and recorded along with reservoir gage height, especially at high reservoir levels.

- Thank you for providing our office with the specifications from the dam rehabilitation after the 1928 upstream slope failure. According to the specifications the upstream damaged portion of the two original 16" dia. C.I. conduits were removed and the "sound" portion of the pipes were left in place and was either sealed with cast iron stoppers, leaded in, or the upstream ends were filled with concrete plugs depending on which way the bell ends were found to be facing. We have no record of which was actually done. Regardless it sounds as if the remainder of the two C.I. pipes were left inside the dam and they are now around 100 years old. According to the C-55 plans the original upstream slope was 1.5H:1V. The present slope was extended out at ~3H:1V. The C-55 plans show the crest at 76-ft above the original outlet pipes. Therefore we can say that the plugs in the old conduits would be a minimum of 114 ft (76' x 1.5) into the dam from the present upstream slope and likely more because some sections of the conduits may have been removed if they were damaged in the 1928 slope failure. This would still put the upstream end of the old conduits at about the upstream 1/3 of the dam and there are likely significantly pore pressures along the old conduits. The conduits should be monitored carefully for increased seepage and external signs of distress. Consider inspecting the conduits and planning to grout them or otherwise properly abandon them in the long term.

- Very dry conditions have left the grass on the dam brown and would make seepage very obvious. Besides the green wet area mentioned above at the old outlet outfalls no indications of seepage were observed on the embankment or at the downstream toe or the groins.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## OUTLET

- PROBLEMS NOTED ☐ (40) NONE ☐ (41) NO OUTLET FOUND ☐ (42) POOR OPERATING ACCESS ☐ (43) INOPERABLE  
☐ (44) UPSTREAM OR DOWNSTREAM STRUCTURE DETERIORATED (45) OUTLET OPERATED DURING INSPECTION ☐ YES ☒ NO  
INTERIOR INSPECTED ☒ (120) NO ☐ (121) YES ☐ (46) CONDUIT DETERIORATED OR COLLAPSED ☐ (47) JOINTS DISPLACED ☐ (48) VALVE LEAKAGE  
☒ (49) OTHER

- There was a 5 cfs release through the tunnel so we were not able to inspect it.

- Valves and valve house are old and in poor condition. Owner is working with contractors to have the valves, operators and valve house replaced. Currently there are proposals to do the work with water in the reservoir and to drain the reservoir by different contractors.

- The intake pipes upstream of the valves need to be inspected and as built conditions documented if they differ from the 1928 C-224H plans.

- Ice builds up on the valve stems in the winter. Owner keeps a heater on-site to thaw out the valve stems if needed.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## SPILLWAY

- PROBLEMS NOTED ☐ (50) NONE ☐ (51) NO EMERGENCY SPILLWAY FOUND ☐ (52) EROSION WITH BACKCUTTING ☐ (53) CRACK - WITH DISPLACEMENT  
☐ (54) APPEARS TO BE STRUCTURALLY INADEQUATE ☐ (55) APPEARS TOO SMALL ☐ (56) INADEQUATE FREEBOARD ☐ (57) FLOW OBSTRUCTED  
☐ (58) CONCRETE DETERIORATED / UNDERMINED ☒ (59) OTHER

- we surveyed a cross-section approximately at the spillway control section and found it to agree closely with the 1988 C-1690 as-built plans: approx 11.4 ft freeboard (design freeboard was ~10.9 ft per C-1690), spillway top width ~90.6 ft and bottom with ~57-ft. The bottom width is about 4-ft narrower than shown on the C-1690 plans and may be because of talus material that has fallen from the left rock slope. Talus material should probably be cleared from the left side, depending on the results of the Spillway Hydrology study and future plans for enlargement.

- Based on the C-1690 sections we computed a spillway capacity of ~7,000 cfs at 11-ft of head (0.4 feet residual freeboard). However, during the inspection we shot the low point of the downstream dike along the right side of the spillway at El. 7990.74-ft. According to our hydraulic model the dike may overtop at ~6500 cfs. Depending on the result of the Spillway Hydrology study and future plans for spillway enlargement the dike may need to be raised ~0.5 ft to prevent overtopping. The dike should be monitored during spillway events.

- We surveyed a cross-section through the spillway return channel at the downstream toe of the dam. Currently the channel is overgrown with willows -- using a roughness of 0.20 for thick willows and slope of 7.5% (from USGS topo) the return channel capacity is ~1900 cfs before overtopping the stone wall at the toe of the dam. Assuming the willows are cleared and using roughness of 0.035 the capacity would be ~4000 cfs. Willows should be cleared from return channel in the short term. Long term the return channel needs to be designed to convey the inflow design flood.

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## MONITORING

EXISTING INSTRUMENTATION FOUND ☐ (110) NONE ☒ (111) GAGE ROD ☐ (112) PIEZOMETERS ☒ (113) SEEPAGE WEIRS / FLUMES  
☐ (114) SURVEY MONUMENTS ☐ (115) OTHER

MONITORING OF INSTRUMENTATION ☐ (116) NO ☒ (117) YES PERIODIC INSPECTIONS BY: ☒ (118) OWNER ☐ (119) ENGINEER

**- Strongly recommend that the owner/caretaker perform routine visual inspections and fill out a report. I have enclosed a blank report for you to copy. Colorado's Dam Safety Manual recommends monthly visual inspections when the reservoir level is above one-half full.**

**- The weir at the old outlets is bowed and needs to be reset. Need to clear vegetation from the weir pool and set a staff gage. Seepage should be monitored monthly for flow rate and turbidity. Reservoir gage height needs to be recorded as well.**

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

## MAINTENANCE AND REPAIRS

PROBLEMS NOTED ☐ (60) NONE ☐ (61) ACCESS ROAD NEEDS MAINTENANCE ☐ (62) CATTLE DAMAGE

☒ (63) BRUSH ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE ☐ (64) TREES ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE

☐ (65) RODENT ACTIVITY ON UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, TOE ☐ (66) DETERIORATED CONCRETE - FACING, OUTLET SPILLWAY

☐ (67) GATE AND OPERATING MECHANISM NEED MAINTENANCE ☒ (68) OTHER

**- Clear willows/brush from spillway return channel along the downstream toe of dam in order to maximize channel flow capacity.**

**- Control vegetation on upstream slope of dam as needed.**

**- Control burrowing rodents on downstream slope as needed.**

**- Perform monthly routine inspections and read seepage weir. Reset seepage weir & install staff gage. Repair leak in diversion pipe so seepage can be monitored better.**

**- Clear brush from both right and left groins.**

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

*Go to next page for Overall Conditions and Items Requiring Actions*

## OVERALL CONDITIONS

Overall the dam appears to be performing well. Main issues are the valves, the spillway size and the old outlet conduits.

1) Valves: Owner is working on replacing them possibly this fall.

2) Spillway Size: Owner's engineer performed a spillway hydrology study and we recently returned it with comments. We had concerns about the results from our Extreme Precipitation Analysis Tool program. We will continue to work with your engineer toward approval of a inflow design flood.

3) Old outlet conduits: Short term-- need to monitor seepage closely and monitor for external signs of distress along the old conduit alignment. Long term -- perform internal inspection if possible and plan to properly abandon the conduits (ex. grouting).

Based on this Safety Inspection and recent file review, the overall condition is determined to be:

☐ (71) SATISFACTORY

☒ (72) CONDITIONALLY SATISFACTORY

☐ (73) UNSATISFACTORY

## ITEMS REQUIRING ACTION BY OWNER TO IMPROVE THE SAFETY OF THE DAM

### MAINTENANCE - MINOR REPAIR - MONITORING

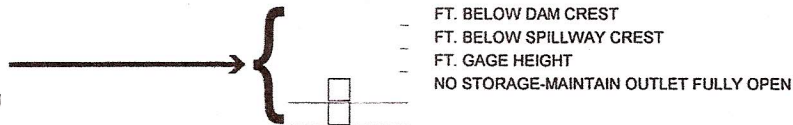
- ☐ (80) PROVIDE ADDITIONAL RIPRAP: \_\_\_\_\_
- ☒ (81) LUBRICATE AND OPERATE OUTLET GATES THROUGH FULL CYCLE continue to maintain
- ☒ (82) CLEAR TREES AND/OR BRUSH FROM: spillway return channel along downstream toe of dam, upstream slope, and from right & left groin.
- ☒ (83) INITIATE RODENT CONTROL PROGRAM AND PROPERLY BACKFILL EXISTING HOLES: downstream slope as needed
- ☐ (84) GRADE CREST TO A UNIFORM ELEVATION WITH DRAINAGE TO THE UPSTREAM SLOPE: \_\_\_\_\_
- ☐ (85) PROVIDE SURFACE DRAINAGE FOR: \_\_\_\_\_
- ☒ (86) MONITOR: seepage at old outlets. Reset weir & install staff gage. Fix leak in diversion pipe so seepage can be monitored better.
- ☒ (87) DEVELOP AND SUBMIT AN EMERGENCY ACTION PLAN: EAP needs to be updated. The copy in our files is dated 1994.
- ☒ (88) OTHER Perform monthly routine monitoring when reservoir is above 1/2 full. I've enclosed a blank inspection form.
- ☒ (89) OTHER Monitor dike on right side of spillway and spillway return channel during spillway flows.

### ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO: (Plans and Specifications must be approved by State Engineer prior to construction.)

- ☒ (90) PREPARE PLANS AND SPECIFICATIONS FOR REHABILITATION OF THE DAM: Please provide us with plans and specifications for the valve replacement project.
- ☐ (91) PREPARE AS-BUILT DRAWINGS OF: \_\_\_\_\_
- ☐ (92) PERFORM A GEOTECHNICAL INVESTIGATION TO EVALUATE THE STABILITY OF THE DAM: \_\_\_\_\_
- ☒ (93) PERFORM A HYDROLOGIC STUDY TO DETERMINE REQUIRED SPILLWAY SIZE: Returned with comments to your engineer. We will continue to work with them to approve an inflow design flood.
- ☒ (94) PREPARE PLANS AND SPECIFICATIONS FOR AN ADEQUATE SPILLWAY: if the hydrology report shows it is needed.
- ☐ (95) SET UP A MONITORING SYSTEM INCLUDING WORK SHEETS, REDUCED DATA AND GRAPHED RESULTS: \_\_\_\_\_
- ☒ (96) PERFORM AN INTERNAL INSPECTION OF THE OUTLET: When gates are closed. Also need to inspect intake conduits upstream of gate valves & document as-built conditions if different from the old construction drawings (C-244H)
- ☐ (97) OTHER: \_\_\_\_\_
- ☐ (98) OTHER: \_\_\_\_\_
- ☐ (99) OTHER: \_\_\_\_\_

## SAFE STORAGE LEVEL: RECOMMENDED AS A RESULT OF THIS INSPECTION

- ☐ (101) FULL STORAGE
- ☒ (102) CONDITIONAL FULL STORAGE
- ☐ (103) RECOMMENDED RESTRICTION
- ☐ (104) CONTINUE EXISTING RESTRICTION



REASON FOR RESTRICTION

- perform required maintenance. Continue to make progress on valves, spillway hydrology, and monitoring old outlet conduits.

ACTIONS REQUIRED FOR CONDITIONAL FULL STORAGE OR CONTINUED STORAGE AT THE RESTRICTED LEVEL

Engineer's  
Signature

INSPECTED BY

Owner's  
Signature

OWNER/OWNER'S REPRESENTATIVE

DATE: 7/11/11

### GUIDELINES FOR DETERMINING CONDITIONS

#### CONDITIONS OBSERVED - APPLIES TO UPSTREAM SLOPE, CREST, DOWNSTREAM SLOPE, OUTLET, SPILLWAY

##### GOOD

In general, this part of the structure has a near new appearance, and conditions observed in this area do not appear to threaten the safety of the dam.

##### ACCEPTABLE

Although general cross-section is maintained, surfaces may be irregular, eroded, rutted, spalled, or otherwise not in new condition. Conditions in this area do not currently appear to threaten the safety of the dam.

##### POOR

Conditions observed in this area appear to threaten the safety of the dam.

#### CONDITIONS OBSERVED - APPLIES TO SEEPAGE

##### GOOD

No evidence of uncontrolled seepage. No unexplained increase in flows from designed drains. All seepage is clear. Seepage conditions do not appear to threaten the safety of the dam.

##### ACCEPTABLE

Some seepage exists at areas other than the drain outfalls, or other designed drains. No unexplained increase in seepage. All seepage is clear. Seepage conditions observed do not currently appear to threaten the safety of the dam.

##### POOR

Seepage conditions observed appear to threaten the safety of the dam. Examples:

- 1) Designed drain or seepage flows have increased without increase in reservoir level.
- 2) Drain or seepage flows contain sediment, i.e., muddy water or particles in jar samples.
- 3) Widespread seepage, concentrated seepage, or ponding appears to threaten the safety of the dam.

#### CONDITIONS OBSERVED - APPLIES TO MONITORING

##### GOOD

Monitoring includes movement surveys and leakage measurements for all dams, and piezometer readings for High hazard dams. Instrumentation is in reliable, working condition. A plan for monitoring the instrumentation and analyzing results by the owner's engineer is in effect. Periodic inspections by owner's engineer.

##### ACCEPTABLE

Monitoring includes movement surveys and leakage measurements for High and Significant hazard dams; leakage measurements for Low hazard dams. Instrumentation is in serviceable condition. A plan for monitoring instrumentation is in effect by owner. Periodic inspections by owner or representative. OR, NO MONITORING REQUIRED.

##### POOR

All instrumentation and monitoring described under "ACCEPTABLE" here for each class of dam, are not provided, or required periodic readings are not being made, or unexplained changes in readings are not reacted to by the owner.

#### CONDITIONS OBSERVED - APPLIES TO MAINTENANCE AND REPAIR

##### GOOD

Dam appears to receive effective on-going maintenance and repair, and only a few minor items may need to be addressed.

##### ACCEPTABLE

Dam appears to receive maintenance, but some maintenance items need to be addressed. No major repairs are required.

##### POOR

Dam does not appear to receive adequate maintenance. One or more items needing maintenance or repair has begun to threaten the safety of the dam.

#### OVERALL CONDITIONS

##### SATISFACTORY

The safety inspection indicates no conditions that appear to threaten the safety of the dam, and the dam is expected to perform satisfactorily under all design loading conditions. Most of the required monitoring is being performed.

##### CONDITIONALLY SATISFACTORY

The safety inspection indicates symptoms of structural distress (seepage, evidence of minor displacements, etc.), which, if conditions worsen, could lead to the failure of the dam. Essential monitoring, inspection, and maintenance must be performed as a requirement for continued full storage in the reservoir.

##### UNSATISFACTORY

The safety inspection indicates definite signs of structural distress (excessive seepage, cracks, slides, sinkholes, severe deterioration, etc.), which could lead to the failure of the dam if the reservoir is used to full capacity. The dam is judged unsafe for full storage of water.

#### SAFE STORAGE LEVEL

##### FULL STORAGE

Dam may be used to full capacity with no conditions attached.

##### CONDITIONAL FULL STORAGE

Dam may be used to full storage if certain monitoring, maintenance, or operational conditions are met.

##### RESTRICTION

Dam may not be used to full capacity, but must be operated at some reduced level in the interest of public safety.

#### HAZARD CLASSIFICATION OF DAMS

##### High hazard

Loss of human life is expected in the event of failure of the dam, while the reservoir is at the high water line.

##### Significant hazard

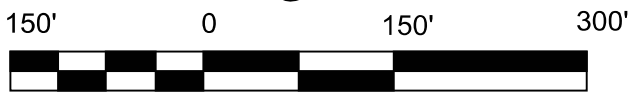
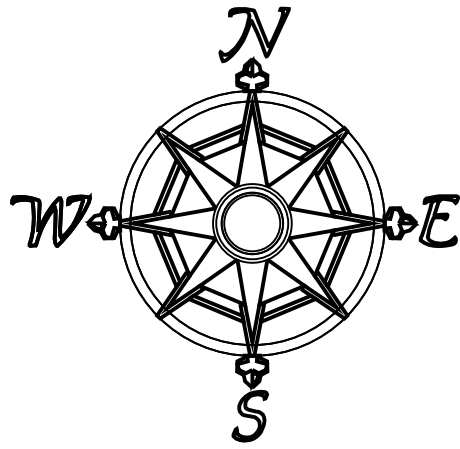
Significant damage to improved property is expected in the event of failure of the dam while the reservoir is at the high water line, but no loss of human life is expected.

##### Low hazard

Loss of human life is not expected, and damage to improved property is expected to be small, in the event of failure of the dam while the reservoir is at high water line.

NPH hazard - No loss of life or damage to improved property, or loss of downstream resource is expected in the event of failure of the dam while the reservoir is at the high water line.





SCALE 1" = 150'  
U.S. SURVEY FEET

ELEVATIONS SHOWN HEREON OBTAINED BY GPS OBSERVATION ON OCTOBER 24, 2008  
Project name 2008-187  
Coordinate Units US survey feet  
Distance Units US survey feet  
Height Units US survey feet  
Date printed 11/1/2008 11:22:27 AM  
Coordinate System Not selected  
Datum WGS 1984  
Zone Not selected  
Geoid model Not selected

<i>ELEVATION</i>	<i>SURFACE AREA SqFt</i>	<i>VOLUME CuFt</i>	<i>CUMULATIVE VOLUME CuFt</i>	<i>CUMULATIVE VOLUME AcFt</i>
7941.13	0.00	0.00	0.00	0.00
7942	15433.12	6,713.41	6,713.41	.015
7943	103655.99	59,544.56	66,257.96	1.52
7944	222724.73	163,190.36	229,448.33	5.27
7945	320810.94	271,767.83	501,216.16	11.51
7946	504667.34	412,739.14	913,955.30	20.98
7947	617850.21	561,258.78	1,475,214.07	33.87
7948	684060.43	650,955.32	2,126,169.40	48.81
7949	750372.03	717,216.23	2,843,385.63	65.28
7950	814849.88	782,610.96	3,625,996.59	83.24
7951	899983.82	857,416.85	4,483,413.44	102.93
7952	1032386.90	966,185.36	5,449,598.80	125.11
7953	1147679.19	1,090,033.05	6,539,631.85	150.13
7954	1232844.68	1,190,261.94	7,729,893.79	177.45
7955	1312903.06	1,272,873.87	9,002,767.66	206.68
7956	1390113.61	1,351,508.34	10,354,276.00	237.70
7957	1511185.05	1,450,649.33	11,804,925.33	271.00
7958	1599363.39	1,555,274.22	13,360,199.55	306.71
7959	1682985.27	1,641,174.33	15,001,373.88	344.38
7960	1763736.47	1,723,360.87	16,724,734.75	383.95
7961	1834618.40	1,799,177.44	18,523,912.18	425.25
7962	1923878.87	1,879,248.63	20,403,160.81	468.39
7963	2017535.96	1,970,707.42	22,373,868.23	513.63
7964	2106545.46	2,062,040.71	24,435,908.94	560.97
7965	2202762.08	2,154,653.77	26,590,562.71	610.44
7966	2357747.17	2,280,254.62	28,870,817.34	662.78
7967	2484106.60	2,420,926.88	31,291,744.22	718.36
7968	2611929.47	2,548,018.03	33,839,762.25	776.85
7969	2764327.82	2,688,128.64	36,527,890.90	838.56
7970	2945820.86	2,855,074.34	39,382,965.24	904.11
7971	3078295.83	3,012,058.34	42,395,023.58	973.26
7972	3217321.60	3,147,808.71	45,542,832.29	1045.52
7973	3385086.00	3,301,203.80	48,844,036.09	1121.30
7974	3544946.89	3,465,016.44	52,309,052.53	1200.85
7975	3665738.62	3,605,342.75	55,914,395.28	1283.62
7976	3772187.99	3,718,963.30	59,633,358.58	1368.99
7977	3881242.31	3,826,715.15	63,460,073.74	1456.84
7978	3995781.36	3,938,511.84	67,398,585.57	1547.26
7979	4115853.43	4,055,817.40	71,454,402.97	1640.37
7980	4242301.01	4,179,077.22	75,633,480.19	1736.31
7981	4377151.00	4,309,726.00	79,943,206.19	1835.24
7982	4522912.52	4,450,031.76	84,393,237.95	1937.40
7983	4681935.48	4,602,424.00	88,995,661.95	2043.06
7984	4859777.68	4,770,856.58	93,766,518.53	2152.58
7984.35	5053907.36	1734894.88	95501413.41	2192.41
43.22 TOTAL				

25 30  
36 31  
NORTHWEST CORNER SECTION 31  
GLO BRASS CAP, DATED 1915  
ELEV: 8041.30

N 45°48'00" E  
1593.96'

S 53°00'00" E  
2137.85'

S 46°00'00" E  
2337.65'

The outflow structure of Mt. Pisgah Reservoir is 5' X 10' concrete (assumed) with trash rack. The North end of trash rack, top of wall is the 0.00 Elevation per Staff Gauge and is 8.00' below the bed of Reservoir, according to the resurvey and amended map of Mt. Pisgah Reservoir approved April 14, 1948, by State Engineer Office, previously approved November 23, 1908, by State Engineers Office.

VALVE HOUSE  
INVERT ELEV: 7929.35'  
FIRST FLOOR ELEV: 7993.25'  
BM X IN ROCK 17' ± SOUTH OF GATE HOUSE  
ELEV: 8000.14'

47' MARK ON GAUGE  
ELEV: 7979.95'  
54' MARK ON GAUGE  
ELEV: 7986.41'  
STAFF GAUGE

BM X CHISELED IN CONCRETE  
ELEV: 7994.40'

Wachob and Wachob, Inc.

Professional Land Surveyors, Colorado City, Colorado  
P.O. Box 19376, Zip 81019 Phone (719)-676-3665

Job Name: 2008-187.TRV

Scale: 1" = 150'

Date: = 11-11-2008

Job No. 2008-187

Drawn By: w.s.b

Sheet 1/1

*Lower Arkansas Valley* *Serving Bent, Crowley, Otero, Prowers and Pueblo counties*  
WATER CONSERVANCY DISTRICT

February 27, 2012

Mr. Todd Doherty  
Colorado Water Conservation Board  
1580 Logan Street, Suite 600  
Denver, CO 80203

RE: Letter of Support for Mount Pisgah Dam/Wrights Reservoir Outlet Works Rehabilitation Project


Dear Mr. Doherty,

The Lower Arkansas Valley Water Conservancy District (LAVWCD) enthusiastically supports the CWCB grant application for the repairs to the Mount Pisgah Dam, a project that will serve both consumptive and non-consumptive purposes, and which will benefit multiple water users.

Existing storage capacity is in jeopardy of being restricted by the State Engineer at this time. This project will ensure that the existing storage capacity will be maintained, for recreation, irrigated agriculture, residential and municipal uses.

Please contact me if you have any questions.

Sincerely,



Jay Winner  
Executive Director