Water Supply Reserve Fund – Grant and Loan Program
Water Activity Summary Sheet
September 18-20, 2018
Agenda Item 12(a)

Applicant & Grantee:	Surface Creek Ditch & Reservoir Company
Water Activity Name:	Deep Ward Dam Repair Project
Water Activity Purpose:	Multipurpose/Implementation
County:	Delta
Drainage Basin:	Gunnison
Water Source:	Ward Creek
Amount Requested:	$50,000 Gunnison Basin Account $190,000 Statewide Account $240,000 Total request
Matching Funds:	Applicant Match (cash) = $141,725 • 59% of Statewide Account request (meets 10% min) Basin Account Match = $50,000 • 26% of Statewide Account request (meets 10% min) Total Match (Applicant & Basin Account) = $191,725 • 80% of Statewide Account request (meets 50% min)

Staff Recommendation:

Staff recommends approval of up to $50,000 from the Gunnison Basin Account, and $190,000 from the Statewide Account to help fund the project titled: Deep Ward Dam Repair Project.

Water Activity Summary: WSRF grant funds, if approved, will assist the Surface Creek Ditch and Reservoir Company to rehabilitate the Deep Ward Dam located on the Grand Mesa in order to lift a fill restriction imposed by the State Engineer and preserve 1,710 acre feet of storage for agricultural irrigation, recreational uses, and potential M&I usage. The applicant will fund preliminary engineering, testing, existing topographic site surveying, geotechnical report, final engineering design, a portion of construction costs, construction oversight, post construction documentation, and contingencies. WSRF funding will be expended on the remaining construction costs, construction surveying, and the pay and performance bond. Construction activities include breeching the dam above the outlet pipe, recycling dam material for future placement, and the replacement of the outlet pipe.

Discussion: This effort will assist the Gunnison Basin Roundtable achieve Goal #1 in their Basin Implementation Plan: Protect existing water uses in the Gunnison Basin, and Goal #2: Improve agricultural water supplies to reduce shortages while simultaneously assisting the state reach the goals of maintaining storage and agriculture as highlighted in Chapter 10 of Colorado's Water Plan.

Issues/Additional Needs: No issues or additional needs have been identified.

Eligibility Requirements: The application meets requirements of all eligibility components: General Eligibility, Entity Eligibility, Water Activity Eligibility, and Eligibility Based on Match Requirements.

Evaluation Criteria: This activity has undergone review and evaluation and staff has determined that it satisfies the Evaluation Criteria. Please refer to Basin Roundtable Chair's Recommendation Letter and the WSRF Grant Application for applicant's detailed response.

Funding Summary/Matching Funds:

Funding Source	Cash	In-kind	Total	Status
Surface Creek Ditch & Reservoir Company	$141,725	$0	$141,725	Secured
WSRF Gunnison Basin Account	$50,000	n/a	$50,000	Secured
Sub-total	$191,725	$0	$191,725	
WSRF Statewide Account	$190,000	n/a	$190,000	
Total Project Costs	$381,725	$0	$381,725	

CWCB Project Manager: Rachel Pittinger

The Gunnison Basin Roundtable
501 Palmer Street
Delta, CO 81416

March 30, 2018

Mr. Craig Godbout
Water Supply Management Section
COLORADO WATER CONSERVATION BOARD
1313 Sherman St., Room 718
Denver, CO 80203

Re: WSRF Grant Request: Deep Ward Dam Repair Project

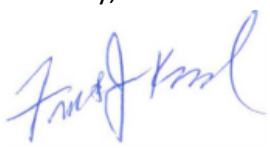
Dear Mr. Godbout:

This letter is presented to advise you that the grant application submitted by the Surface Creek Ditch and Reservoir Company for $75,000 from Basin Account funds and $215,375 from Statewide Account funds from the Water Supply Reserve Fund for the Kehmeier Dam Riprap Project was reviewed by the Gunnison Basin Roundtable and its Project Screening Committee. The request for funding was approved IN PART by a unanimous vote of the Gunnison Basin Roundtable during our meeting on March 19, 2018. The revised amount approved was $50,000 from Basin funds and $190,000 from Statewide funds.

This water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes. The requirements/language from the statute is provided in Part 3 of the Criteria and Guidelines. In addition, this project meets Goals 1, 2, 3 and 8 of the Gunnison Basin Implementation Plan.

Thank you for your support of this grant application.

Sincerely,



Frank J. Kugel
Gunnison Basin Roundtable

cc: Kathleen Curry (email)
Tom Alvey (email)
Surface Creek Ditch and Reservoir Company, applicant (email)

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Last Update: August 3, 2017

Colorado Water Conservation Board

Water Supply Reserve Fund Grant Application

Instructions

All WSRF grant applications shall conform to the current 2016 WSRF Criteria and Guidelines.

To receive funding from the WSRF, a proposed water activity must be approved by a Roundtable(s) **AND** the Colorado Water Conservation Board (CWCB). The process for Roundtable consideration and recommendation is outlined in the 2016 WSRF Criteria and Guidelines. The CWCB meets bimonthly according to the schedule on page 2 of this application.

If you have questions, please contact the current CWCB staff Roundtable liaison:

Arkansas	**Gunnison | North Platte | South Platte | Yampa/White**	**Colorado | Metro | Rio Grande | Southwest**
Ben Wade	Craig Godbout	Megan Holcomb
ben.wade@state.co.us	craig.godbout@state.co.us	megan.holcomb@state.co.us
303-866-3441 x3238	303-866-3441 x3210	303-866-3441 x3222

WSRF Submittal Checklist (Required)

x	I acknowledge this request for funding was recommended for CWCB approval by the sponsoring Basin Roundtable(s).
x	I acknowledge I have read and understand the 2016 WSRF Criteria and Guidelines.
x	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract.(1)
Exhibit A	
x	Statement of Work(2) *(Word – see Exhibit A Template)*
x	Budget & Schedule(2) *(Excel Spreadsheet – see Exhibit A Template)*
	Letters of Matching and/or Pending 3rd Party Commitments(2)
Exhibit C	
x	Map(2)
	Photos/Drawings/Reports
	Letters of Support
N/A	Certificate of Insurance(3) (General, Auto, & Workers' Comp.)not possible on national forest land
Contracting Documents	
x	Certificate of Good Standing(3)
x	W-9(3)
N/A	Independent Contractor Form(3) (If applicant is individual, not company/organization)
	Electronic Funds Transfer (ETF) Form(3)

(1) Click "Grant Agreements". For reference only/do not fill out or submit/required for contracting
(2) Required with application if applicable.
(3) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

Last Update: August 3, 2017

Schedule		
CWCB Meeting	**Application Submittal Dates**	**Type of Request**
January	December 1	Basin Account; BIP
March	February 1	Basin/Statewide Account; BIP
May	April 1	Basin Account; BIP
July	June 1	Basin Account; BIP
September	August 1	Basin/Statewide Account; BIP
November	October 1	Basin Account/BIP

Desired Timeline	
Desired CWCB Hearing Month:	March (if possible)
Desired Notice to Proceed Date:	July

Water Activity Summary	
Name of Applicant	Surface Creek Ditch & Reservoir
Name of Water Activity	Deep Ward Dam Rehabilitation Project

Approving Roundtable(s)	Basin Account Request(s)(1)
Gunnison	$50,000.00
Basin Account Request Subtotal	$ 50,000.00
Statewide Account Request(1)	$190,000.00
Total WSRF Funds Requested (Basin & Statewide)	$240,000.00
Total Project Costs	$381,725.00

(1) Please indicate the amount recommended for approval by the Roundtable(s)

Last Update: August 3, 2017

Grantee and Applicant Information	
Name of Grantee(s)	Surface Creek Ditch & Reservoir Company
Mailing Address	17528 Happy Hollow Road Cedaredge, CO 81413
FEIN	84-0458460
Grantee's Organization Contact(1)	Keith Waibel
Position/Title	President
Email	Gutierrez646@hotmail.com
Phone	970-201-6481
Grant Management Contact(2)	Loree Gutierrez
Position/Title	Hired secretary
Email	Gutierrez646@hotmail.com
Phone	970-234-3804
Name of Applicant (if different than grantee)	Keith Waibel
Mailing Address	17528 Happy Hollow Road Cedaredge, CO 81413
Position/Title	President
Email	Gutierrez646@hotmail.com
Phone	970-201-6481

(1) Person with signatory authority

(2) Person responsible for creating reimbursement invoices (Invoice for Services) and corresponding with CWCB staff.

Description of Grantee
Provide a brief description of the grantee's organization (100 words or less).
Surface Creek Ditch & Reservoir Company (SCDR) is a company comprised of 15 active reservoirs on the Grand Mesa with a total of 10,135.05 acre feet of water. The company has a total of 810 shares and comprised of 283 shareholders. The company has Senior decrees dating back to the 1880's. The SCDR water is administered to stockholders in the Surface Creek Valley via the Grand Mesa Water Users Association. SCDR is the responsible party for the maintenance and repair of all of its reservoirs. The company is comprised of 7 directors. They are elected at staggered two year terms. The company does retain a hired secretary. The company commenced work on Deep Ward Lake in August of 1886. At that time the reservoir held a total of 932.5 AF. In September of 1907 the dam of said reservoir was raised to 18.7 feet making the total capacity 1478.27AF. The dam was once again raised to 20 feet making our capacity 1710 AF. Deep Ward has a no.1 filling right of 932.5 AF adjudicated in 1907. It also has an H29 filling right of 545 AF adjudicated in 1937. Surface Creek Ditch and Reservoir has a blanket filing decree for all 15 reservoirs from 1948.

Last Update: August 3, 2017

Type of Eligible Entity (check one)	
	Public (Government): municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. 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
x	**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, any organization that is not part of the government
	Covered Entity: as defined in Section 37-60-126 Colorado Revised Statutes

Type of Water Activity (check one)	
	Study
x	Implementation

Category of Water Activity (check all that apply)		
x	Nonconsumptive (Environmental)	
x	Nonconsumptive (Recreational)	
x	Agricultural	
x	Municipal/Industrial	
	Needs Assessment	
	Education & Outreach	
	Other	Explain:

Location of Water Activity	
Please provide the general county and coordinates of the proposed activity below in **decimal degrees**. The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Counties	Delta County
Latitude	38.853136
Longitude	-107.763621

Last Update: August 3, 2017

Water Activity Overview
Please provide a summary of the proposed water activity (200 words or less). Include a description of the activity and what the WSRF funding will be used for specifically (e.g. studies, permitting, construction). Provide a description of the water supply source to be utilized or the water body affected by the activity. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, area of habitat improvements. If this project addresses multiple purposes or spans multiple basins, please explain. The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, and Schedule.
Seepage has been observed along the left outside edge of the outlet pipe penetrating through the dam and in an area to the downstream right side of the outlet. In September 2017 a dye tracer test was performed. It confirmed that the previously noted seepage near the existing outlet works conduit is proportional to reservoir water levels. It is concentrated along the existing outlet pipe and could lead to internal erosion and failure of the dam. As a result the engineer's report recommended a zero storage restriction and classified it as a small, high hazard structure. Our next step, beyond securing funding, is with our engineering company. They will proceed with site survey and testing at the site. They will provide a Geotechnical report and design criteria and design package. These will then be submitted to the Colorado Department of Water Resources. Once any corrections are made the final documents will be provided to the CDWR. Once this is approved we can start construction of the project. The dam will have to be breeched above the outlet pipe. We will collect all materials in hopes of being able to reuse as much material as possible. The outlet pipe will then be removed and replaced. The material will then be used to rebuild the dam according to specifications. The engineering company will be on site to assure general conformance to the approved construction plans and they will be performing material testing. Once the project is complete our engineering company will provide a final construction report and As-Built Drawings. The company has already paid for the dye testing in the fall of 2017 and the engineering cost to date. The company can manage some of the engineering costs if we are able to get funding for the construction costs. This reservoir is used for many things with the number one priority going to agriculture. It is a vital water storage structure on Grand Mesa. It has a capacity of 1710 acre feet. This is approximately 19% of the SCDR company water or 6% of the total stored water on Grand Mesa. It supplies irrigation water for numerous farms in the valley. The reservoirs on the Grand Mesa must be kept in working order so that the acreage irrigated by this source remains in agriculture and not dry land or urban sprawl. The Towns of Cedaredge and Orchard City own 26 of the 810 total water shares of the SCDR. It is not classified as municipal but could be used in the event of a drought. This reservoir is also used by many for fishing, boating and camping. There are native fish occupying the reservoir. Without the help of grant money to proceed, the cost of this project would be prohibitive for the stockholders of this company.

Measurable Results

Last Update: August 3, 2017

Measurable Results		
To catalog measurable results achieved with WSRF funds please provide any of the following values.		
	New Storage Created (acre-feet)	
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive	
1710 AC	Existing Storage Preserved or Enhanced (acre-feet)	
	Length of Stream Restored or Protected (linear feet)	
	Efficiency Savings (indicate acre-feet/year OR dollars/year)	
	Area of Restored or Preserved Habitat (acres)	
	Length of Pipe/Canal Built or Improved	
	Other	Explain:

Water Activity Justification
Provide a description of how this water activity supports the goals of Colorado's Water Plan, the most recent Statewide Water Supply Initiative, and the respective Roundtable Basin Implementation Plan and Education Action Plan [(1)]. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers). For applications that include a request for funds from the Statewide Account, the proposed water activity shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan criteria for state support (CWP, Section 9.4, pp. 9-43 to 9-44;) (Also listed pp. 4-5 in 2016 WSRF Criteria and Guidelines).

Last Update: August 3, 2017

Water Activity Justification

The Deep Ward Outlet Repair Project supports the goals of the Colorado Water Plan and the Roundtable Basin Implementation Plan. As stated in the Basin Implementation Plan, Section 1 Table 1 the primary goal is to protect existing water uses. This project will ensure a continued supply of water for agriculture and municipal (Towns of Cedaredge and Orchard City own 26 of the 810 shares). It will also ensure the safety of the dam. SCDR is the applying entity and is also a member of the Grand Mesa Water Users Association, which administers all storage water on Grand Mesa. This repair project will ensure the continued storage and use of existing Colorado water.

The Implementation Plan stated on page 30 Goal 1 reflects an agreement among inhabitants that the existing water uses for agriculture, industrial, environmental and recreational purposes be protected. Without this repair there will be a definite shortcoming of water. It would cause a loss of water affecting the environment, recreation, municipalities and agriculture. It would create a loss of 1710 AF of water which is 19% of the SCDR water and 6% of all stored water on the Grand Mesa. This project will preserve agricultural land in the Surface Creek Valley, thus helping to keep open space. There are no environmental concerns if this project is completed, but if it is not done, there will be a loss of fishery and wildlife habitat and recreation in the area. There would also be the severe lack of water for agriculture and municipalities. Goal #8 states to restore, maintain and modernize critical water infrastructures. This project will be a definite improvement to our current situation, modernizing this dam for efficiency and safety.

In the Colorado Water Plan section 10.1 it states that Colorado is one of the fastest growing states in the country. With this comes the uncertainty of our water. We need innovative solutions and additional conservation to stretch Colorado's water supplies and maintain aging reservoirs, canals and distribution systems. This project would promote maximum utilization of state water and will rehabilitate an aging reservoir dam and outlet.

SCDR has 810 shares of stock in the company. Deep Ward currently has a zero fill restriction, which causes an approximate storage loss of 2 acre feet per share per year.

Funding from WSRF will ensure that this repair takes place. SCDR is currently paying on a CWCB loan for another reservoir repair project. The Company makes a yearly payment to CWCB for $13,172.93. The company has a balance of $172,262.54 left on this CWCB loan. It is doubtful that the stockholders could withstand the higher assessments needed to have a second loan. The overall cost effectiveness is the value of stored water is so great that it must be preserved. The company is ready to proceed with this project at this time except for the funding.

The company currently has the state engineer's preliminary approval for the breach of the dam.

(1) Access Basin Implementation Plans or Education Action Plans from Basin drop down menu.

Last Update: August 3, 2017

Matching Requirements: Basin Account Requests	
Basin (only) Account grant requests require a 25% match (cash and/or in-kind) from the Applicant or 3rd party and shall be accompanied by a **letter of commitment** as described in the 2016 WSRF Criteria and Guidelines (submitted on the contributing entity's letterhead). Attach additional sheet if necessary.	
Contributing Entity	Amount and Form of Match (note cash or in-kind)
Total Match	
If you requested a Waiver to the Basin Account matching requirements, indicate the percentage you wish waived.	

Matching Requirements: Statewide Account Requests	
Statewide Account grant requests require a 50% match as described in the 2016 WSRF Criteria and Guidelines. A minimum of 10% match shall be from Basin Account funds (cash only). A minimum of 10% match shall be provided by the applicant or 3rd party (cash, in-kind, or combination). The remaining 30% of the required match may be provided from any other source (Basin, applicant, or 3rd party) and shall be accompanied by a **letter of commitment.** Attach additional sheet if necessary.	
Contributing Entity	Amount and Form of Match (note cash or in-kind):
Surface Creek Ditch & Reservoir Company	141,725.00----cash
Basin Roundtable	50,000.00---cash
Total Match	$191,725.00
If you requested a Waiver to the Statewide Account matching, indicate % you wish waived. (Max 50% reduction of requirement).	

Without a waiver from the Basin and State it would be doubtful if the company can come up with the additional money needed since we already have a large loan payment through CWCB.

Last Update: August 3, 2017

Related Studies
Please provide a list of any related studies, including if the water activity is complimentary to or assists in the implementation of other CWCB programs.
N/A

Previous CWCB Grants
List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order
1. Surface Creek Ditch & Reservoir Company 2. Eggelston Dam repair project 3. We worked with Dori Vigil and Ben Wade 4. July 20, 2016 5. #POGG1 2017-388 The Eggelston Dam repair project is a completely different reservoir than the one we are currently applying for with the Deep Ward Dam Repair Project.

Tax Payer Bill of Rights
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

Last Update: January 9, 2018

Colorado Water Conservation Board	
Water Supply Reserve Fund	
Exhibit A - Statement of Work	
Date:	**February 9, 2018**
Water Activity Name:	**Deep Ward Dam Repair Project**
Grant Recipient:	**Surface Creek Ditch & Reservoir Company**
Funding Source:	**CWCB Water Supply Reserve Fund**

Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for.

Deep Ward Reservoir has a definite seepage problem along the outlet pipe. A resent dye tracer test confirmed the problem. If this is not repaired it could cause internal erosion and dam failure.
We will need to breach the dam above the outlet pipe, remove and replace the old outlet pipe and then rebuild the dam according to specifications.
The company has funded the testing and engineering to date and will be accountable for the engineering costs and a portion of the contingency. We are asking for funding of the construction portion of this project. We are also applying for the River District Grant in December for 25,000.

Objectives: (List the objectives of the project)

The objective of this project is to replace the existing outlet pipe and rebuild the dam to the correct specification as to prevent possible internal erosion and dam failure. This project would save a lot of water and preserve the usefulness of the reservoir. It will also return the reservoir to full storage capacity with no restrictions. This will also preserve our decrees and continue to provide the allocated water to its shareholders.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 1 - Preliminary Engineering & Testing
Description of Task:
The preliminary engineering and testing began in September of 2017 with a dye tracer test. This test proved that there was internal erosion that could cause a possible dam failure. The engineering company will do a topographical site survey of the dam and preparation of a base map to be used in design of the recommended repairs. The Engineering company will also be doing tests like a sieve analysis, Atterberg limits and natural moisture density. They will perform CU and UU Triaxial Shear Strength tests or direct shear testing, unconfined compressive strength testing, Proctor Compaction tests and permeability tests.
Method/Procedure:
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The engineering company will provide all surveys, test and analysis reports to our company. These reports are used to help in the design phase of the project.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
The company can provide copies of all surveys, tests and analysis reports.

Last Update: January 9, 2018

Tasks
Provide a detailed description of each task using the following format:
Task 2 - Engineering reports, design and submittal
Description of Task:
Upon completion of the field investigation and lab testing the following reports will be prepared: Geotechnical Report and Design Criteria-Proving information on the geology and geologic hazard of the area. Summarize the field investigation and material available for the dam embankment. Conduct steady state seepage analysis and embankment stability evaluation. They will recommend design parameters for dam embankment and outlet repairs. Design Report: Summarize the design of the outlet repair. The engineering company will also prepare the following reports to be submitted to the CDWR Dam safely branch for review and approval: Construction Plans, Construction specifications and Detailed cost estimate. Preliminary filing, supplemental filing and final filing to CDWR.
Method/Procedure:
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The engineering company will provide all reports following their studies. These reports are sent to CDWR for approval. Once approved the project and resume.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
SCDR can provide copies of all studies and reports to the CWCB.

Repeat for Task 3, Task 4, Task 5, etc.

Task 3 - Construction

Description of Task: Construction project will consist of the following: Mobilization, removal of the gate stem, vent pipe and housing. We will then remove material above the outlet pipe then removing the old outlet pipe. Then they will put in a new gate stem, operator, vent pipe and housing. We will place a sand filter. We will replace the outlet pipe with 24" diameter DR 21 HDPE outlet pipe. Then they will build up the dam again.

Method/Procedure:

Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The engineering company will be monitoring all construction procedures. They will provide updates and an end of project report.

CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
The company can provide all reports and photos provided to the CWCB.

Task 4 - Construction Surveying

Description of Task: Construction Surveying will be done by the construction company.

Method/Procedure:

Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The construction company will provide a construction survey upon completion of the project.

CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
The company will provide all survey reports to the CWCB.

Task 5 - Pay and Performance Bond

Description of Task: Bond will be done by construction company.

Method/Procedure:

Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The Construction Company will provide a copy of the bond.

CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task Tasks
The company can provide a copy of the bond to the CWCB.

Task 6 - Construction Oversight
Description of Task: Construction observation, testing and reporting shall be performed.

Method/Procedure:

Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The engineering company will perform the construction observation and testing. They will provide the company with a report.

CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
The company can provide a copy of all reports for the CWCB.

Task 7 - Post Construction
Description of Task: The Final Construction report and the As-built drawings including survey will be completed.

Method/Procedure:

Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
The engineering company will provide a final construction report and As-Build drawings upon completion of the project.

CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
These reports and drawings can be provided to the CWCB.

Last Update: January 9, 2018

Task 8- Contingency
Description of Task:

Method/Procedure:

Grantee Deliverable: (Describe the deliverable the grantee expects from this task)

CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)

Budget and Schedule
Exhibit B - Budget and Schedule: This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.

Reporting Requirements
Progress Reports: The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status 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. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.
Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that: • Summarizes the project and how the project was completed. • Describes any obstacles encountered, and how these obstacles were overcome. • Confirms that all matching commitments have been fulfilled. • Includes photographs, summaries of meetings and engineering reports/designs.

Payments
Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions. The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements
Performance measures for this contract shall include the following: (a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment. (b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied

Reporting Requirements
with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment. (c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary. (d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

Last Update: 10/17/17

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Supply Reserve Fund

EXHIBIT B - BUDGET AND SCHEDULE - Direct & Indirect (Administrative) Costs

Date:

Water Activity Name:Deep Ward Dam Repair Project

Grantee Name:Surface Creek Ditch & Reservoir

Task No.[1]	Description	Start Date[2]	End Date	Matching Funds (cash & in-kind)[3]	WSRF Funds (Basin & Statewide combined)[3]	Total
1	Preliminary Engineering & Testing	Sep-17	Dec-23	$ 6,750.00		$6,750
2	Eng reports, design & submittal	Feb 2018	Dec 2023	$ 34,600.00		$34,600
3	Construction	Dec 2018	Dec 2023	$ 40,650.00	$ 232,000.00	$272,650
4	Construction surveying	Dec 2018	Dec 2023		$ 2,500.00	$2,500
5	Pay & Performance bond	Dec 2018	Dec 2023		$ 5,500.00	$5,500
6	Construction Oversight	Dec 2018	Dec 2023	$ 17,600.00		$17,600
7	Post Construction	Dec 2018	Dec 2023	$ 7,400.00		$7,400
8	Contingency	Dec 2018	Dec 2023	$ 34,725.00		$34,725
			Total	$141,725	$240,000	$381,725

(2) Start Date for funding under $100K - 45 Days from Board Approval; Start Date for funding over $100K - 90 Days from Board Approval.

(3) Round values up to the nearest hundred dollars.

• Reimbursement eligibility commences upon the grantee's receipt of a Notice to Proceed (NTP)

• NTP will not be accepted as a start date. Project activities may commence as soon as the grantee enters contract and receives formal signed State Agreement.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of the CWCB staff project manager. Once the Final Report has been accepted, the final payment has been issued, the water activity and purchase order (PO) or contract will be closed without any futher payment. Any entity that fails to complete a satisfactory Final Report and submit to the CWCB with 90 days of the expiration of the PO or contract may be denied consideration for future funding of any type from the CWCB.

• Additonally, the applicant shall provide a progress report every 6 months, beginning from the date of contract execution

• Standard contracting proceedures dictate that the Expiration Date of the contract shall be 5 years from the Effective Date.

Last Update: Oct 17, 2017

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Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Supply Reserve Fund

Exhibit B - BUDGET AND SCHEDULE - Indirect Costs (Grant Administration)

Date:

Water Activity Name: Deep Ward Dam Repair Project

Grantee Name: Surface Creek Ditch &Reservoir

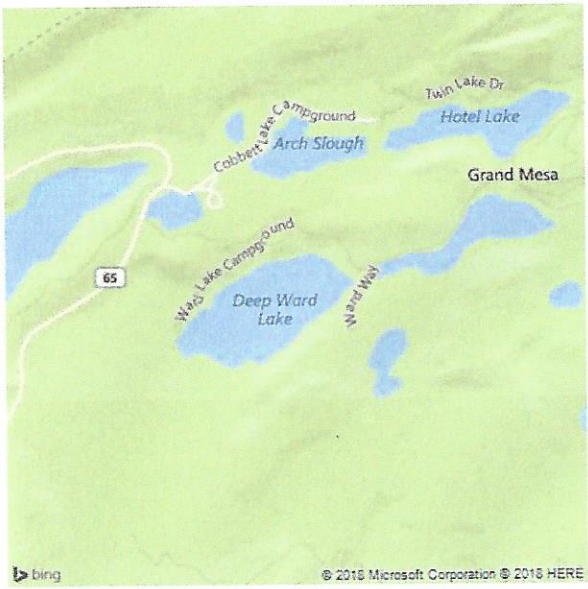
Task No. [1]	Title	Description (Grant Administration)	$/hour	Hours	Total
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
					$0
				Total	$0
				Total WSRF Grant Amount[2]	$0
				Indirect Costs as a percent of Total WSRF Grant amount	#DIV/0!

(1) Grant Administration costs must be submitted as a single task and may not exceed 15% of the Total WSRF Grant amount.

(2) Total WSRF Grant amount equals all Basin Account requests and all Statewide Account requests.

bing maps

Notes



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Department of Natural Resources

Dam Safety

Certified No.: 7015 0640 0007 6759 5521

Surface Creek Ditch & Reservoir Company
c/o Mr. Keith Waibel
PO Box 399
Cedaredge, CO 81413
also via email c/o Grand Mesa Water Users Association: gmwua@tds.net

When replying, please refer to:
WARD LAKE DAM,
DAMID 400533
Water Division 4, Water District 40

September 21, 2017

SUBJECT: Reservoir Zero Storage Restriction Order

Dear Mr. Waibel:

Section 37-87-107 of the Colorado Revised Statutes (C.R.S), assigns the State Engineer responsibility to determine the amount of water which is safe to impound in the reservoirs of all dams in the state of Colorado. Inspections of Ward Lake Dam were conducted on August 25, 2017 and September 18, 2017, by Mr. Jason Ward of our office. Observations during the inspections indicated a concentrated leak exists adjacent to the outlet pipe. The results of the inspections indicate unsatisfactory conditions. The dam is judged unsafe with observed condition which could lead to failure if reservoir storage is allowed. Copies of the inspection reports have been provided to you under separate cover.

Based on observed conditions, the reservoir is hereby restricted to zero storage and the outlet gate must be maintained in the fully open position. This storage restriction will result in a loss in storage volume of approximately 1,710 acre-feet.

Adherence to this restriction is the minimum action you can take at this time to improve the safety of your dam but it should not be considered a long-term solution. In order for the storage restriction to be removed you must engage a professional engineer registered in the State of Colorado with dam design and construction experience to design a satisfactory repair for the dam to address those issues identified here and in the recent inspection report. Plans and specifications regarding this work must be submitted to our office for our review and approval prior to any construction.

By copy of this letter the Division Engineer is directed to enforce this storage restriction order, but the primary responsibility for compliance is yours. The State Engineer, by ordering this reservoir restriction does not assume responsibility for any unsafe condition of the subject dam. The sole responsibility for the safety of this dam rests with the reservoir owner and operator,

who should take every step necessary to prevent damages caused by leakage or overflow of waters from the reservoir or floods resulting from a failure of the dam. Therefore, it is in the owner's best interest to operate and maintain the facility in a manner such that the safety of the dam and the general public are not jeopardized.

We appreciate your cooperation in this matter. If you or your engineer should have any questions, please contact Mr. Jason Ward in the Montrose office at (970) 249-6622.

Sincerely,

Kevin G. Rein, P.E.
Director/State Engineer

ec: Bill McCormick, Chief, Dam Safety Branch
Bob Hurford, Division 4 Division Engineer
Jason Ward, Dam Safety Engineer
James Holiman, Water District 40 Water Commissioner
Scott Frost, Water District 40 Water Commissioner
Jon Hare, Forest Service, jhare@fs.fed.us

Following is a collection of recent and historic file photos of seepage occurring along the left side (as looking in the downstream direction) of the outlet pipe.

August 21, 2015
Reservoir gage height (GH) = 15.5 ft

August 24, 2015 (three days after current inspection)
Reservoir GH = 15.5 ft

September 20, 2011
Reservoir GH = 18.5 ft

August 12, 2009 (Outlet Inspection)
Reservoir GH = less than 8.0 ft

July 14, 2008
Reservoir GH = 21.50 ft

July 12, 2006
Reservoir GH = 21.35 ft

July 25, 1995
Reservoir GH = 21.0 ft

September 20, 1998
Reservoir GH = 7.5 ft

Outlet discharge – seep enters channel adjacent to outlet pipe at arrow

August 11, 1983
Reservoir GH = 18 ft (estimated)

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CO Dam Safety

ENGINEER'S FOLLOW-UP INSPECTION REPORT

PROJECT INFORMATION			
Dam Name:	Ward Lake Dam (aka Deep Ward Lake)	Dam Safety Engineer:	Jason Ward, PhD, PE
DAMID:	400533	Date:	September 18, 2017
Other:		Time on Site:	1:00 p.m. – 2:30 p.m.

INSPECTION PARTICIPANTS			
Dam Owner:	Surface Creek Ditch and Reservoir Company	Contact:	Keith Waibel c/o Grand Mesa Water Users Association (970) 856-3165 (office) gmwua@tds.net
CO Dam Safety:	Jason Ward Dam Safety Engineer, Water Division 4	Contact:	970-209-1624 (cell) jason.ward@state.co.us
DWR Water Division 4:	James Holiman Water District 40 Water Commissioner (Cedaredge) Scott Frost Water District 40 Water Commissioner (Ward Creek)	Contact:	(970) 856-3527 (office) james.holiman@state.co.us (970) 778-1399 (cell) scott.frost@state.co.us

CONDITIONS	
Reservoir:	Gage height: N/A; Approximately 2.4 feet above invert of outlet valve.
Weather:	Partly sunny, cool
Ground Moisture:	Dry

REASON FOR INSPECTION

Investigation of the seepage source along the left outside edge of the outlet pipe occurred during the annual safety inspection for Ward Lake dam on August 25, 2017 (see file report for detailed discussion). Results of that investigation revealed a concentrated leak located just left and at approximately crown (top) level of the outlet pipe. The direction of flow was observed parallel to the outlet pipe and 2-inch PVC collection pipe was placed at the seepage exit location for monitoring purposes. The owner opened the outlet valve to begin drawing down the reservoir at the end of the inspection.

Monitoring of the collected seepage flow was performed by the owner approximately 2-3 times per week between August 25 and September 18, 2017. A plot of seepage data is enclosed with this report showing a direct reduction in seepage with lowering of the reservoir level.

On approximately September 15, 2017 the reservoir level dropped to approximately 3-feet above the invert of the outlet valve, or to the top edge of the concrete intake structure. A small swirl of debris was observed on the water surface near the upper left edge of the structure (Photos 1 and 2). The current follow-up inspection was then scheduled for September 18, 2017.

The purpose of the current inspection was to follow-up on the possible seepage entry point near the concrete intake structure and perform a dye test.

SEEPAGE

The following observations of the seepage flow were made during the follow-up inspection:

- The reservoir level was estimated at approximately 2.4 feet above the invert of the outlet valve.
- The outlet valve was discharging prior to arrival, but closed for the inspection and dye test.
    - A small amount of nuisance flow (30 gpm?) continued due to inability to fully close the valve.
- A small swirl of debris was observed just outside the upper left edge of the outlet intake structure (Photo 3).
- Seepage flow from the collection pipe was estimated at 8 gpm.

Dye Test:

- One (1) tablet of BrightDyes Flourescent FWT Red was dissolved in approximately 4.5 gallons of reservoir water (not quite full 5-gallon bucket)
- The dye was slowly introduced into the suspected void and seepage entry point (Photo 4).
- Dye dispersed in the reservoir, but was fairly contained to the area immediately adjacent to the intake structure (Photo 5).
- Visual monitoring of the seepage flow commenced at the downstream toe (Photo 6)
- Dye visually appeared in flow from the seepage collection pipe approximately 18-minutes after introduction into the upstream void (Photo 7).
- Dye was readily apparent after 20 minutes (Photos 8 & 9) and slowly dissipated over another 30-40 minutes.

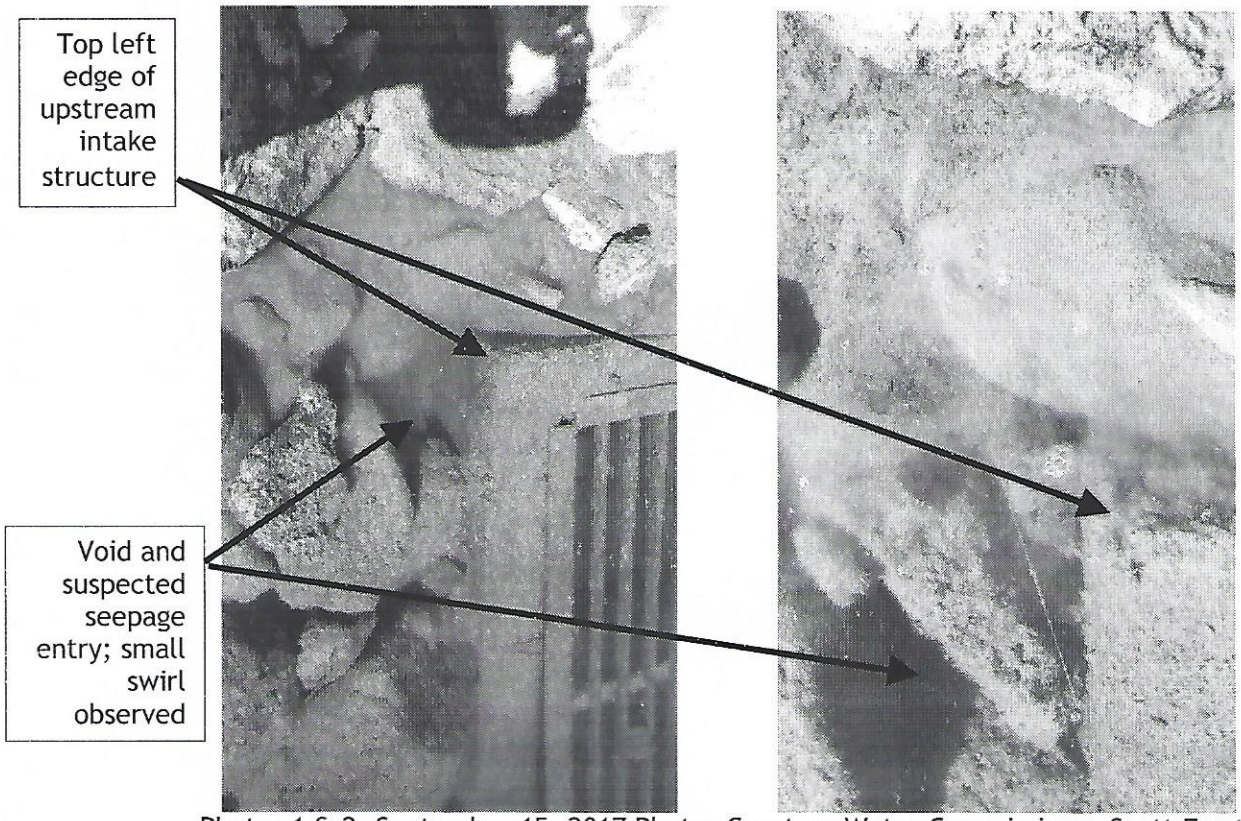
The outlet valve was partially opened at the end of the inspection to continue drawing down the reservoir and fully expose the seepage entry point and outlet valve.

A one-gallon bag soil sample was obtained from the downstream toe of the dam to be used for additional evaluation at a later date.

The overall condition rating for seepage is considered Poor due to clear evidence of a concentrated leak along the outlet pipe.

SAFE STORAGE LEVEL: RECOMMENDED AS A RESULT OF THIS INSPECTION

The Overall Condition of the dam and recommended safe storage level is based on results of the current inspection and several years of observations and inspection reports. Results from the recent seepage investigate, monitoring, and dye test revealed a concentrated leak exists along the outlet pipe that could lead to internal erosion and failure of the dam if used for reservoir storage. **Therefore a restriction of zero storage will be recommended to the State Engineer. A formal restriction order will follow under separate cover.**



Photos 1 & 2: September 15, 2017 Photos Courtesy Water Commissioner Scott Frost, Reservoir at approximately gage height 2.9 feet.

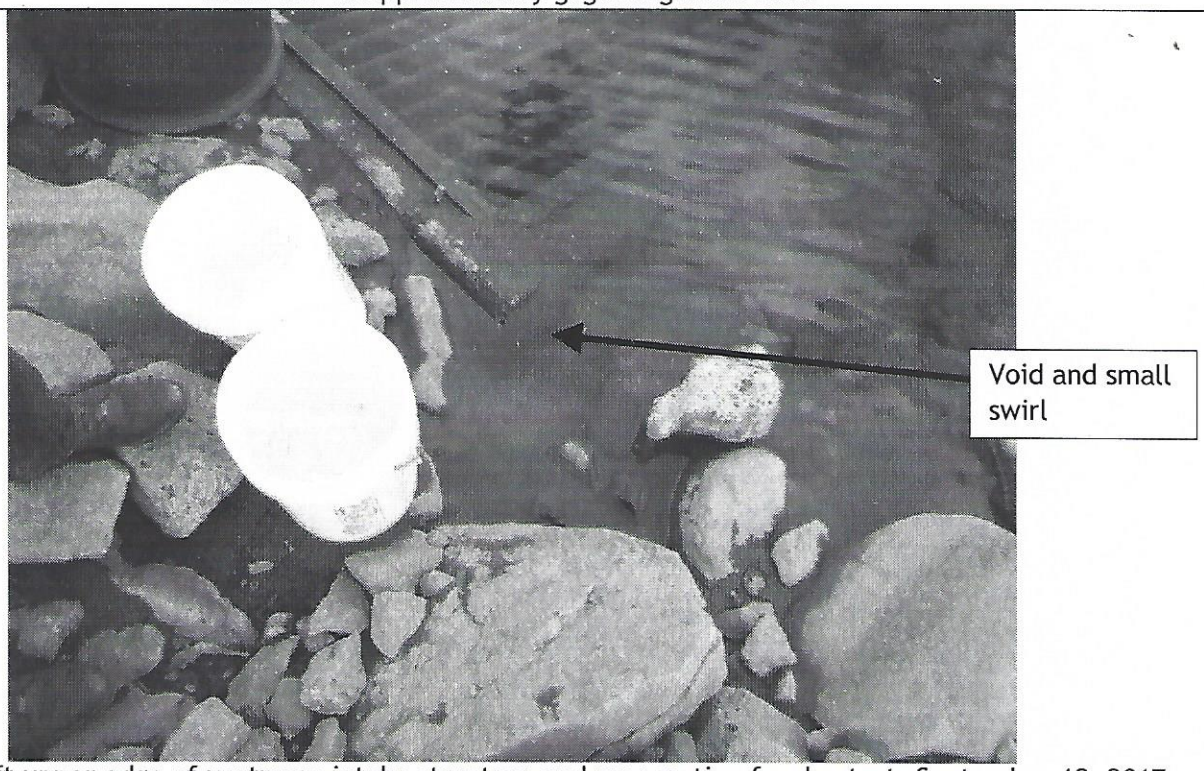


Photo 3: Left upper edge of upstream intake structure and preparation for dye test, September 18, 2017. Reservoir at gage height approximately 2.4 feet.

Photo 4: Introducing dye into suspected seepage entry location; Time 0 minutes.

Photo 5: Overall view of dye test site; Time approx. 2 minutes.

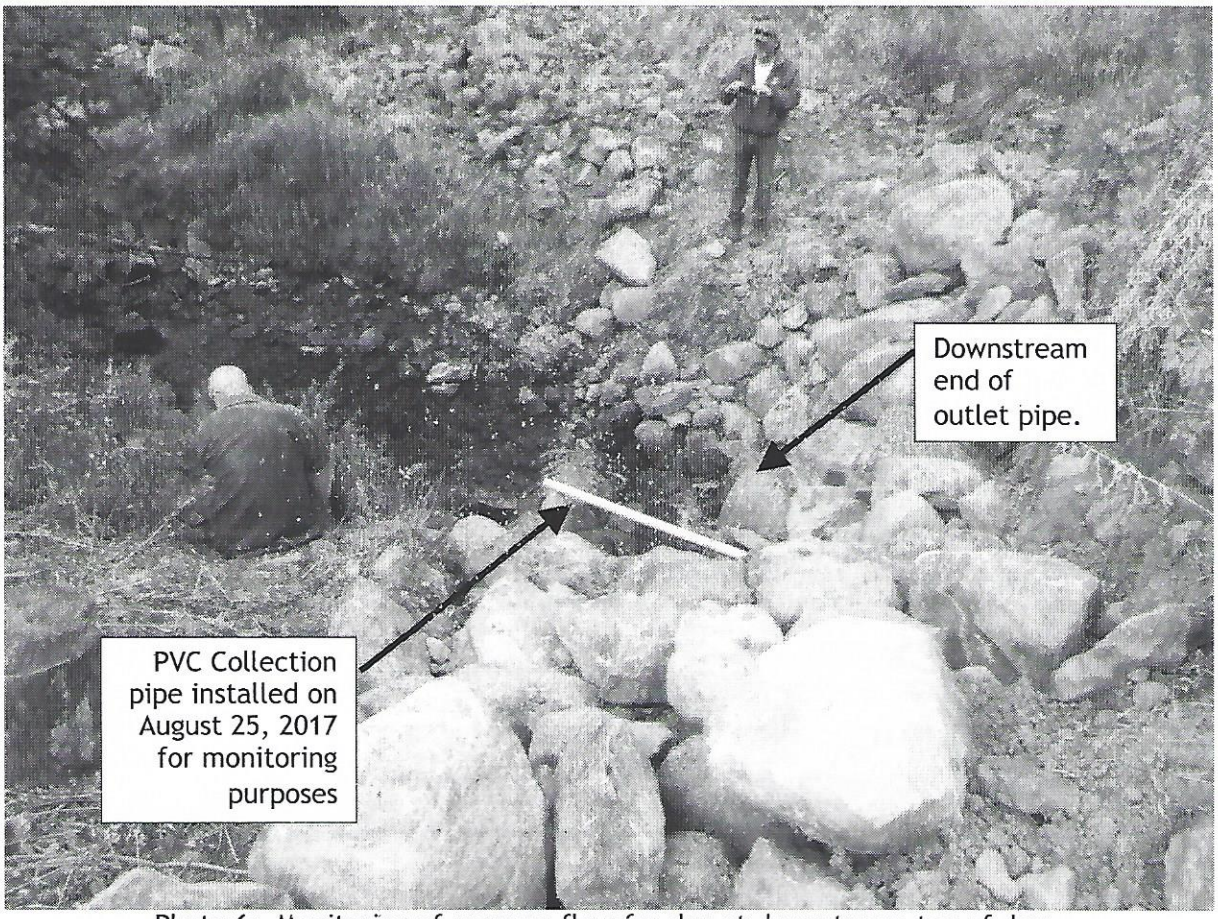
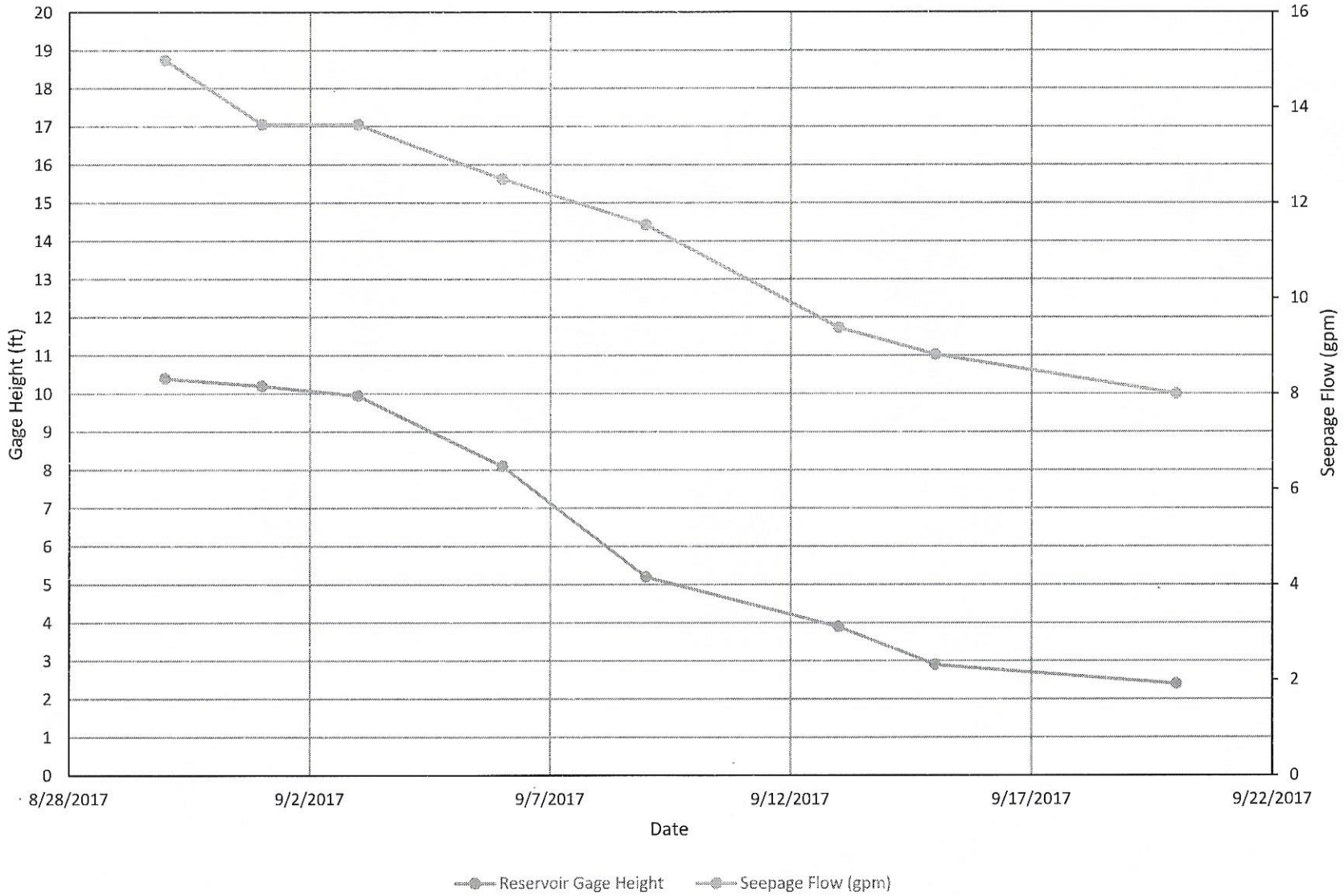


Photo 6: Monitoring of seepage flow for dye at downstream toe of dam.

Photo 7: First visual detection of dye from monitoring pipe; Time approx. 18 minutes

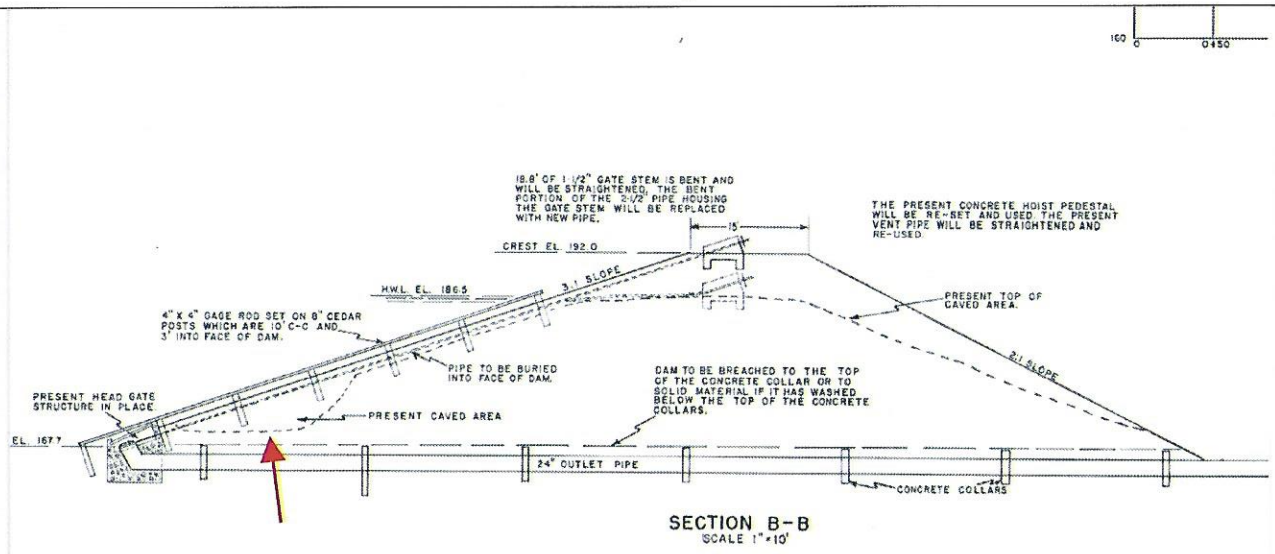
Photos 8 & 9 View looking upstream and across at outlet pipe and seepage collection pipe with visibly dye; Time approx. 20 minutes

Ward Lake Dam
DAMID 400533



PROBABLE FAILURE MODE (PFM) ANALYSIS - SUMMARY OF CONSTRUCTION HISTORY

Date	C #	Brief Description
1951	C-0590	Overall: Cut-and-cover of existing dam to facilitate installation of 24-inch welded steel pipe (1/4-inch wall thickness). Key takeaways related to 2017 internal erosion issue: • Cut and cover trench bottom width narrow and side slopes possibly very steep (0.5H:1V), ref: C-590 drawing *(create potential transverse avenue along perimeter of cut and cover for cracking, ADVERSE FACTOR) • Concrete pipe collars were constructed at all pipe joints (7 total), ref: C-590 drawing *(not standard of modern practice as has been shown as cause of failure many times, ADVERSE FACTOR) • Bonding trench and extra long concrete collar were installed at heel of existing dam, ref: C-590 drawing profile. *(Progression node on event tree, possible POSITIVE FACTOR). • The upstream 2/3 of the dam shall consist of most impermeable materials available, while downstream 1/3 of the dam shall consist of the more permeable materials. Downstream 1/3 shall consist of a suitable free draining mixture of rock fragments and cobblestone, sand, and gravel. The largest rock in the downstream 1/3 of the dam shall not be more that 1-cubic ft in volume, ref: C-590 Specifications *(speaks to filter compatibility between two zones) *(speaks to why there could be a matrix supported "pipe" along/near the outlet conduit discharge point downstream. Large rock fragments and cobblestones could form the matrix and the smaller sand/gravel could be flushed during periods of varying hydraulic loading conditions.) • Engineer of record (Platt) withdrew from the project due to construction proceeding without his knowledge, ref: September 6, 1952 letter from Platt to Hinderlider *Construction without engineering oversight (ADVERSE FACTOR) • New engineer (Morrll) inspected dam at end of construction only (ADVERSE FACTOR). However, testimony of acceptable work (possible POSITIVE FACTOR, but no construction record).
1958	C-0888	Overall: Repair work of partial failure of 1951 modifications.



Summary

- 1958 Repairs called for placement in the cut and cover zone with mixture of clay, sand, and gravel, with no stones larger than 5-inches allowed in fill (possible POSITIVE FACTOR).
- Care was to be taken to stitch old and new fill together and for the roller to not negatively impact the concrete collars and pipe, ref C-888 Specifications (POSITIVE AND ADVERSE FACTORS).
- Cut and cover was only to the top of the concrete collars. The concrete collars, outlet pipe, and zoned fill (See C-0590) were largely intended to be left in place with minimal disturbance (ADVERSE FACTOR)
- Area of little to no collapse could relate to bonding trench construction/progression node (POSITIVE FACTOR).

Key takeaways related to 2017 internal erosion issue (ADVERSE FACTORS):

- Note collapsed dashed line in screen capture above from this drawing set.
- Large zone of collapse could relate to filter incompatibility and extents of coarse downstream zone.
- Large zone of collapse would indicate either a more granular soil or shifting of matrix supported large rocks as opposed to clayey zone downstream.
- Upstream caved area showed definite connection to reservoir.

2017		 Photo supports well-defined concentrated exit point indicating possible erosion pipe formation (ADVERSE FACTOR).

Conclusion:
The fact that the 1958 repairs left the pipe, concrete collars, and surrounding original soils/rocks/zones in place is concerning. The area surrounding the pipe/collars could be fairly large diameter rock in point to point contact "infilled" with more granular soils. This infilled granular material could be eroded at lower critical stress than the above breach repair fill (possible CL material), leaving a matrix of rock to form pipe and transmit seepage.

There may be a concern with filter incompatibility where the upstream 2/3 "more impermeable" zone (CL?) comes into contact with the downstream 1/3 "more permeable" zone (See C-0590 Specifications). Effectively, the upstream zone might be CL type material; however, given that we know there is likely an open pipe in the downstream 1/3, the average hydraulic gradient "delta L" may be much more reduced, putting more potential critical shear stress on the upstream 2/3 that might remain as CL.

The file also reveals a history of seepage areas to the right of the outlet pipe downstream. In consideration for repairs, this failure mode may extend somewhat laterally beyond the outlet/concrete collars/cut and cover bottom trench width.