

Water Supply Reserve Fund – Grant and Loan Program
Water Activity Summary Sheet
July 15, 2020
Agenda Item 16(f)

Applicants & Grantee: Nicholas & Ann Charchalis
Water Activity Name: Drescher Dam Rehabilitation – Engineering Design
Water Activity Purpose: Agriculture/Implementation
County: Moffat
Drainage Basin: Yampa
Water Source: unknown
Amount Requested: \$10,000 Yampa/White/Green Basin Account
Matching Funds: Applicant Match (cash & in-kind) = \$6,000
 • 60% of the Basin Account request (meets 25% min)

Staff Recommendation:
Staff recommends approval of up to \$10,000 from the Yampa/White/Green Basin Account to help fund the project titled: Drescher Dam Rehabilitation – Engineering Design.

Water Activity Summary: WSRF grant funds, if approved, will assist Nicholas and Ann Charchalis obtain an engineering design solution to the current fill restriction and to perform immediate risk reduction measures (rehabilitation) on the existing dam, such as placing riprap on the emergency spillway, and mitigate rodent burrows in the dam. Current production is approximately 70 ac irrigated alfalfa. Once all repairs and approvals are complete irrigated acres will increase to 120 under pivot and an additional 30 ac in a new sideroll system totaling 150 ac.

Discussion: This effort will assist the Yampa/White/Green Basin Roundtable meet the goals of: “Maintenance of Historical Use, Protection of Water Supplies for Future Demands, and Environmental Protection”; “Protect and encourage agricultural uses of water in the YWG Basin within the context of private property rights”; “Improve agricultural water supplies to increase irrigated land and reduce shortages”; and “Restore, maintain, and modernize water storage and distribution infrastructure” as called for in the Yampa/White/Green Basin implementation Plan.

Issues/Additional Needs: None.

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: n/a

Funding Sources/Match	Cash	In-kind	Total	Status
Nicholas & Ann Charchalis	\$4,000	\$2,000	\$6,000	Secured
WSRF Yampa/White/Green Basin Account	\$10,000	\$0	\$10,000	Secured
Total Project Costs	\$14,000	\$2,000	\$16,000	

CWCB Project Manager: Craig Godbout



May, 27, 2020

Re; Drescher Dam Rehabilitation, Nick and Ann Charchalis

To Whom It May Concern,

On behalf of the Yampa-White-Green Basin Roundtable, we are writing to express our support for the Drescher Dam Rehabilitation Basin WSRF funding request of \$10,000 for this two (2) phase dam rehabilitation. Phase 1 includes, Reduction Measures and Engineering Design, and Phase 2 Long-Term Dam Rehabilitation. Support was not unanimous with one vote of non-support due to one party benefiting and having limited public benefit from the project.

As shared by Mr. Charchalis during the May 13, 2020 BRT meeting the present structure is operating at restricted capacity. Upon completion the rehabilitation of Drescher Dam will restore the original storage capacity of 240 Acre-feet of Pre-Compact Water to irrigate up to 180 acres of agricultural land.

This project fits in well with YWG BRT Basin Implementation Plan goals and objectives. The project is on private land aligning with all YWG BRT goals; 1) Protect the YWG Basin from the Colorado River Compact curtailment of existing decreed water uses, 2) Protect and encourage agricultural uses of water in the YWG Basin within the context of private property rights, 3) Improve agricultural water supplies to increase irrigated land and reduce shortages, 4) ability to address Municipal and Industrial water shortages, 5) Quantify and protect non-consumptive water uses, 6) Maintain and consider the existing natural range of water quality that is necessary for current and anticipated water uses, 7) Restore, maintain, and modernize water storage and distribution infrastructure, 8) Develop an integrated system of water use, storage, administration and delivery to reduce water shortages and meet environmental and recreational needs.

Please look favorably on this grant request to help in the completion of this valuable project.

Sincerely,

A handwritten signature in black ink that reads 'Alden Vanden Brink'. The signature is fluid and cursive, with the first name 'Alden' being the most prominent.

Alden Vanden Brink

Yampa-White-Green BRT Chair



Last Update: July 31, 2018

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 recommended for approval 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 WSRF Grant Program Manager (for all Roundtables):

Craig Godbout
craig.godbout@state.co.us
303-866-3441 x3210 (office)
303-547-8061 (cell)

WSRF Submittal Checklist (Required)

X	I acknowledge this request was recommended for CWCB approval by the sponsoring roundtable.
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⁾
Application Documents	
X	Exhibit A: Statement of Work ⁽²⁾ (<i>Word – see Template</i>)
X	Exhibit B: Budget & Schedule ⁽²⁾ (<i>Excel Spreadsheet – see Template</i>)
	Letters of Matching and/or Pending 3 rd Party Commitments ⁽²⁾
X	Map ⁽²⁾
X	Photos/Drawings/Reports
	Letters of Support
Contracting Documents ⁽³⁾	
	Detailed/Itemized Budget ⁽³⁾ (<i>Excel Spreadsheet – see Template</i>)
	Certificate of Insurance ⁽⁴⁾ (<i>General, Auto, & Workers' Comp.</i>)
	Certificate of Good Standing ⁽⁴⁾
X	W-9 Form ⁽⁴⁾
X	Independent Contractor Form ⁽⁴⁾ (<i>If applicant is individual, not company/organization</i>)
X	Electronic Funds Transfer (ETF) Form ⁽⁴⁾

(1) Click "Grant Agreements". For reference only/do not fill out or submit/required for contracting

(2) Required with application if applicable.

(3) Additional documentation providing a Detailed/Itemized Budget maybe required for contracting.

Applicants are encouraged to coordinate with the CWCB Project Manager to determine specifics.

(4) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

Last Update: July 31, 2018

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:	July 2020
Desired Notice to Proceed Date:	August 1, 2020

Water Activity Summary		
Name of Applicant	Nicholas & Ann Charchalis	
Name of Water Activity	Drescher Dam Rehabilitation – Engineering Design	
Approving Roundtable(s)	Basin Account Request(s) ⁽¹⁾	
Yampa White Green	\$10,000.00	
Basin Account Request Subtotal	\$10,000.00	
Statewide Account Request ⁽¹⁾	\$	
Total WSRF Funds Requested (Basin & Statewide)	\$	
Total Project Costs	\$16,000.00	

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



Last Update: July 31, 2018

Grantee and Applicant Information	
Name of Grantee(s)	Nicholas and Ann E. Charchalis
Mailing Address	6795 Highway 394
FEIN	522-84-3533
Grantee's Organization Contact ⁽¹⁾	Nicholas Charchalis
Position/Title	Owner/operators
Email	charchalisfarms@gmail.com
Phone	970-629-1745
Grant Management Contact ⁽²⁾	Nicholas Charchalis
Position/Title	operator
Email	charchalisfarms@gmail.com
Phone	
Name of Applicant (if different than grantee)	
Mailing Address	
Position/Title	
Email	
Phone	

(1) Person with signatory authority

(2) Person responsible for creating reimbursement invoices (Invoice for Services) and corresponding with Oh yeah yeah yes we are going B staff.

Description of Grantee
Provide a brief description of the grantee's organization (100 words or less).
<p>Grantee is an operating farm/cattle ranch individually owned by Nick and Ann Charchalis. Total acreage is approximately 3000 consisting of 1500 Ac of expiring CRP, (converting to improved grazing land), 400 Ac of dryland hay 120 Ac of irrigated hay and the balance of 980 Ac in native pasture. The current goal is to increase the mother cow herd to 175 from the current 80 head. For the last 20+ years we have worked closely with the DOW now CPW hosting several studies on different species of wildlife. Sage Grouse/Sharptail Grouse to critical severe winter habitat for Elk, annual Deer capture and tagging and Antelope counts to determine quantity of hunting permits to be issued. Over the last 5 years we have improved the original CRP monoculture by interseeding the fields to much more palatable and grazing preferred varieties of grasses, forbes and legumes.</p> <p>The grant request is for the storage reservoir that we use to irrigate, by center-pivot, hayfields next to the Yampa River. The question was asked during the presentation "how does this benefit the public?". Agricultural producers have created superior forages, water sources and generally better habitat for virtually all wildlife for over 100 years. Wildlife does not occupy just public lands. We've committed our lives to the betterment of our land and water. Abundant wildlife the public enjoys is more plentiful to a great extent because of those improvements.</p>

Last Update: July 31, 2018

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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
	Private Incorporated: mutual ditch companies, homeowners associations, corporations
X	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)		
	Nonconsumptive (Environmental)	
	Nonconsumptive (Recreational)	
X	Agricultural	
	Municipal/Industrial	
	Needs Assessment	
	Education & Outreach	
	Other	Explain:



Last Update: July 31, 2018

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/Countries	Eastern Moffat County
Latitude	
Longitude	

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.

The Drescher Dam is currently restricted in its storage capacity to 8' below the emergency spillway by the DOWR. By meeting with the dam safety engineer and our design engineer we have agreed on a preliminary plan to develop approved specifications for construction and schedule to complete the project.

2020- Immediate risk reduction measures:

- 1) Riprap the emergency spillway with concrete rubble delivered to site in the past
- 2) Mitigation of rodent burrows in embankment
- 3) Development of a reservoir control plan and engineered design for the above repairs and for future repairs per DOWR dam safety engineer.

The above repair and design work will take up the \$10,000.00 ask and another \$6,000.00 "In Kind" cash for equipment rental, plus our own labor to complete repairs.

Engineering design, soil tests, misc fees	\$7,500.00
Other expenses, fuel, parts, laborer	\$1,500.00
Equipment rental	\$5,000.00
Underlayment fabric and sand	\$2,000.00
Total	\$16,000.00

Current production is approximately 70 Ac irrigated alfalfa. Once repairs and approvals are complete irrigated acres will increase to 120 under pivot and an additional 30 Ac in a new sideroll system totaling 150 Ac. Effectively doubling production acres.

Wildlife habitat will be preserved and enhanced by more water surface area provided by the improvements.

Measurable Results

Last Update: July 31, 2018

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	
240 acre-feet	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 (linear feet)	
	Other	Explain:

Water Activity Justification
<p>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).</p> <p>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).</p> <p>The Drescher dam is an important structure to the basin simply for being 240 Acre Feet of pre-compact water storage. Providing a professionally designed plan to reconstruct the structure is the most important first step to restoring the reservoir to its original capacity. Since the Division of Water Resources dam safety engineers have deemed it a "restricted, low hazard dam" a rehabilitation design that is approved by the state will insure the longevity of this structure.</p> <p>Colorado's water plan states several goals that this project meets. It does "Protect and restore healthy streams, rivers, lakes and riparian areas". It sustains agriculture and adds to the concept of "basin wide conservation" this improvement will indeed meet 3 of the 5 original future needs goals stated by the CWCB: Agricultural, Environmental and Recreational. Although the reservoir is not accessible by the public it is only a couple of miles from the Yampa River State Park and is key acting as another quite large rest area in the migrating water fowl system. One can conclude this project coincides with the goals of the Yampa White Green BIP.</p>



Last Update: July 31, 2018

Water Activity Justification

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

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)
Nicholas & Ann Charchalis	\$4,000 (cash)



Last Update: July 31, 2018

Matching Requirements: Basin Account Requests	
Nicholas & Ann Charchalis	\$2,000 (in-kind)
Total Match	\$6,000
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 3 rd 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):
Total Match	\$
If you requested a Waiver to the Statewide Account matching, indicate % you wish waived. (Max 50% reduction of requirement).	

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.



Last Update: July 31, 2018

Related Studies

none

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

none

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: March 17, 2020

Colorado Water Conservation Board	
Water Supply Reserve Fund	
<u>Exhibit A - Statement of Work</u>	
Date:	June 19, 2020
Water Activity Name:	Drescher Dam Rehabilitation – Engineering Design
Grant Recipient:	Nicholas & Ann E. Charchalis
Funding Source:	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. (PLEASE DEFINE ALL ACRONYMS).)	
<p>Rehabilitation of an older dam structure to restore and preserve 240 Acre Feet of pre-compact water storage rights. Current use is providing irrigation water for hay production. The reservoir also serves as an undisturbed shelter area for abundant water - wildlife as well as a water source for deer, elk and antelope. Its proximity to the Yampa River and the State Trust land Wildlife Management area along the Yampa provide a mini flyway during migration seasons.</p> <p>The reservoir is currently restricted by the Colorado Div. of Water Resources to a water level of 8' below the emergency spill-away level. It is not serving the potential for agriculture, wildlife or water storage in our state.</p>	
Objectives: (List the objectives of the project. (PLEASE DEFINE ACRONYMS).)	
<p>The requested grant will serve as the beginning of the restoration of the dam structure. Most of the grant will serve to pay for soil testing, engineered design to address and correct the deficiencies set out by the state dam inspector. After meeting with the state engineer and our engineer a preliminary plan was developed. This grant will help complete the first steps to the needed repairs.</p> <p>Required repairs will satisfy the dam safety issues and the reservoir can return to its full capacity.</p>	



Last Update: March 17, 2020

Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
<u>Task 1 – Engineering and Design</u>
Description of Task: Engineering and Design
2020- Design work for the dam will be completed.
Method/Procedure:
Soil testing to be completed and design criteria and drawings completed.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)
Completion of first phase of rehabilitation and design plan sets
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)
Pictures of completed Spillway, letter from dam safety engineer indicating completion and engineered plan sets.

Last Update: March 17, 2020

Tasks	
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)	
<u>Task 2 – Phase 1 Construction</u>	
Description of Task: Emergency spillway armored and rodent damage mitigated.	
Emergency spill-away will be regraded and armored. Rodent damage to dam will be repaired	
Method/Procedure:	
Backhoe and dump vehicle rented to shape spillway and place concrete rubble over fabric and sand Rodent damage to dam excavated and recompactd – continue rodent control	
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)	
Complete 2 nd phase of rehabilitation	
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)	
Pictures of work completed and schedule of inspections and approval from the state dam safety engineer.	

Last Update: March 17, 2020

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 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.

**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: 5-22-20

Water Activity Name: Drescher Dam Rehabilitation - Engineering Design

Grantee Name: Nicholas & Ann E. Charchalis

<u>Task No.</u> ⁽¹⁾	<u>Description</u>	<u>Start Date</u> ⁽²⁾	<u>End Date</u>	<u>Matching Funds</u> (cash & in-kind) ⁽³⁾	<u>WSRF Funds</u> (Basin & Statewide combined) ⁽³⁾	<u>Total</u>
1	Engineering and Design	8/15/2020	8/15/2021	\$2,500.00	\$7,500.00	\$10,000
2	Phase 1 Construction	8/15/2020	8/15/2023	\$3,500.00	\$2,500.00	\$6,000
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
						\$0
Total				\$6,000.00	\$10,000.00	\$16,000

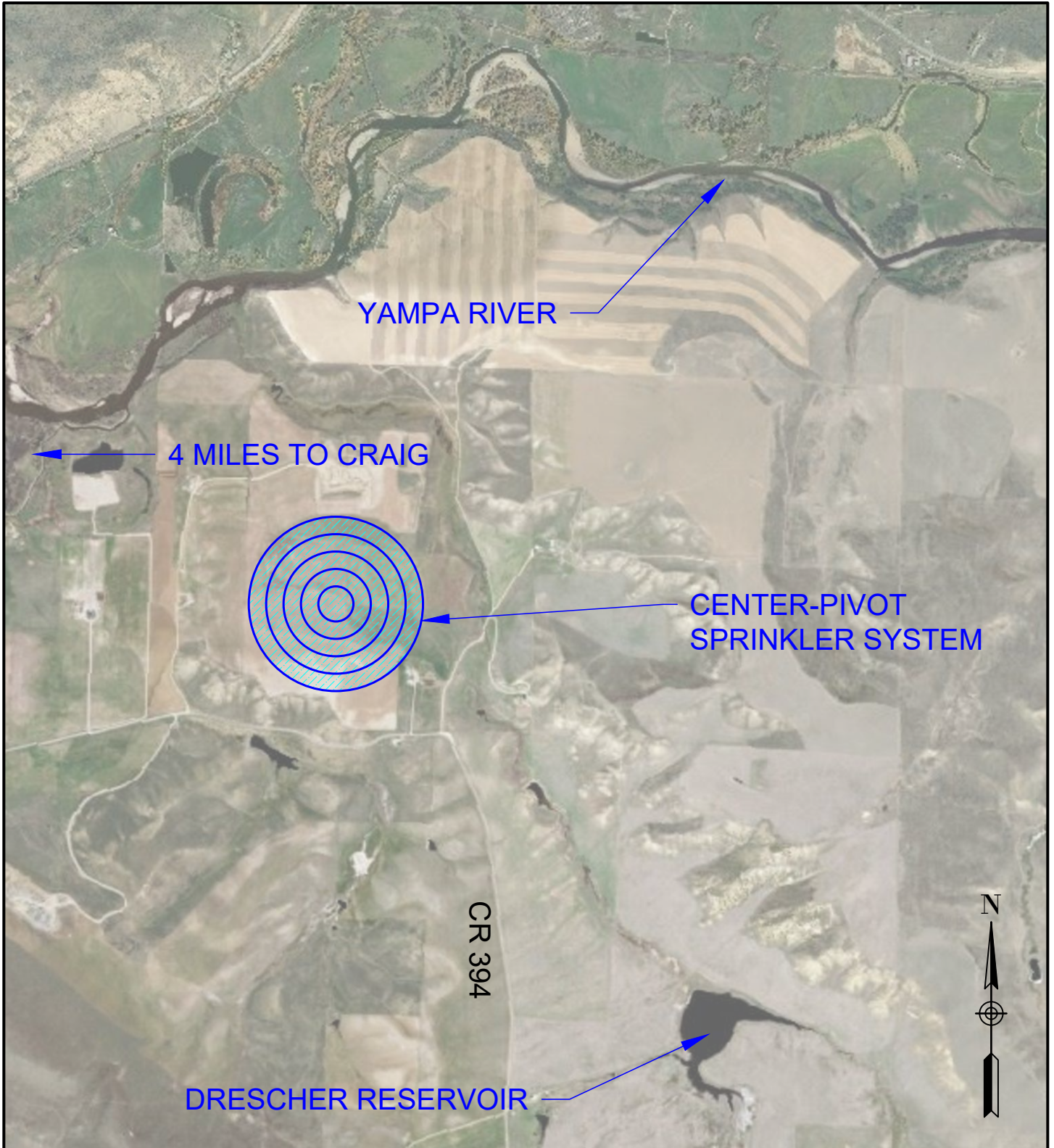
(1) The single task that include costs for Grant Administration must provide a labor breakdown (see Indirect Costs tab below) where the total WSRF Grant contribution towards that task does not exceed 15% of the total WSRF Grant amount.

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

• Additional documentation providing a Detailed/Itemized Budget may be required for contracting. Applicants are encouraged to coordinate with the CWCB Project Manager to determine specifics.

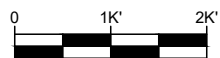
The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of the CWCB staff project manager. Once the Final Report has been accepted, the final payment has been issued, the water activity and purchase order (PO) or contract will be closed without any further 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.

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



Prepared By:
Headwater Engineering
Craig, CO 81625

Prepared For:
Nick and Ann Charchalis
6795 Hwy 394
Craig CO, 81625



GRAPHIC SCALE (FEET)
Drawing Coordinates:
Modified CO83NF

Location:

DRESCHER DAM REPAIRS
SECTION 12,
T 6 N - R 90 W, 6TH P.M.
MOFFAT COUNTY, COLORADO

File:

Drawn By: WAM

Checked By: WAM

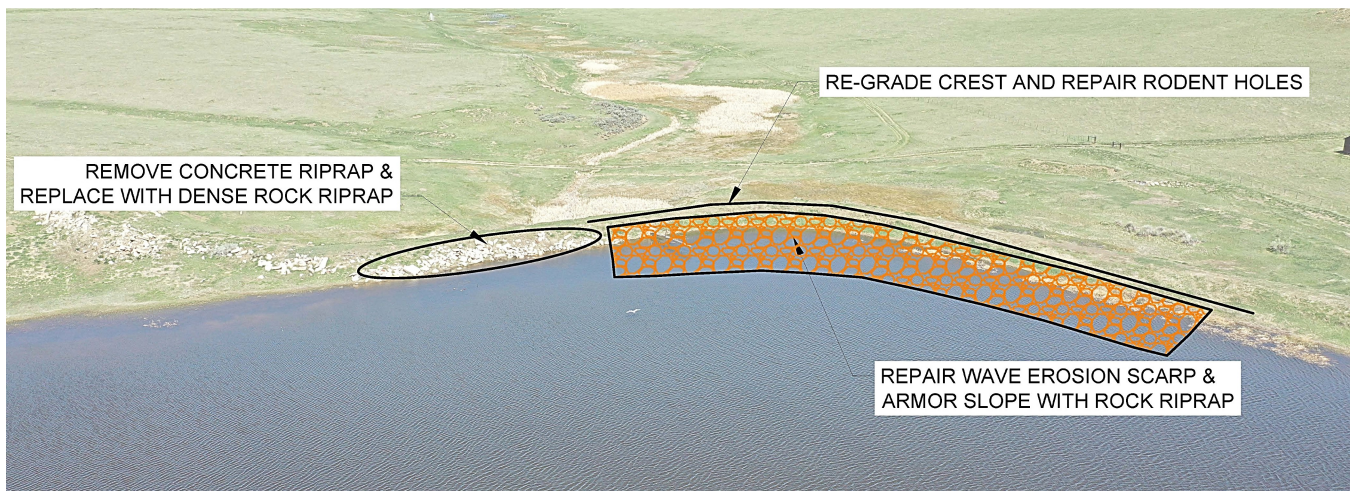
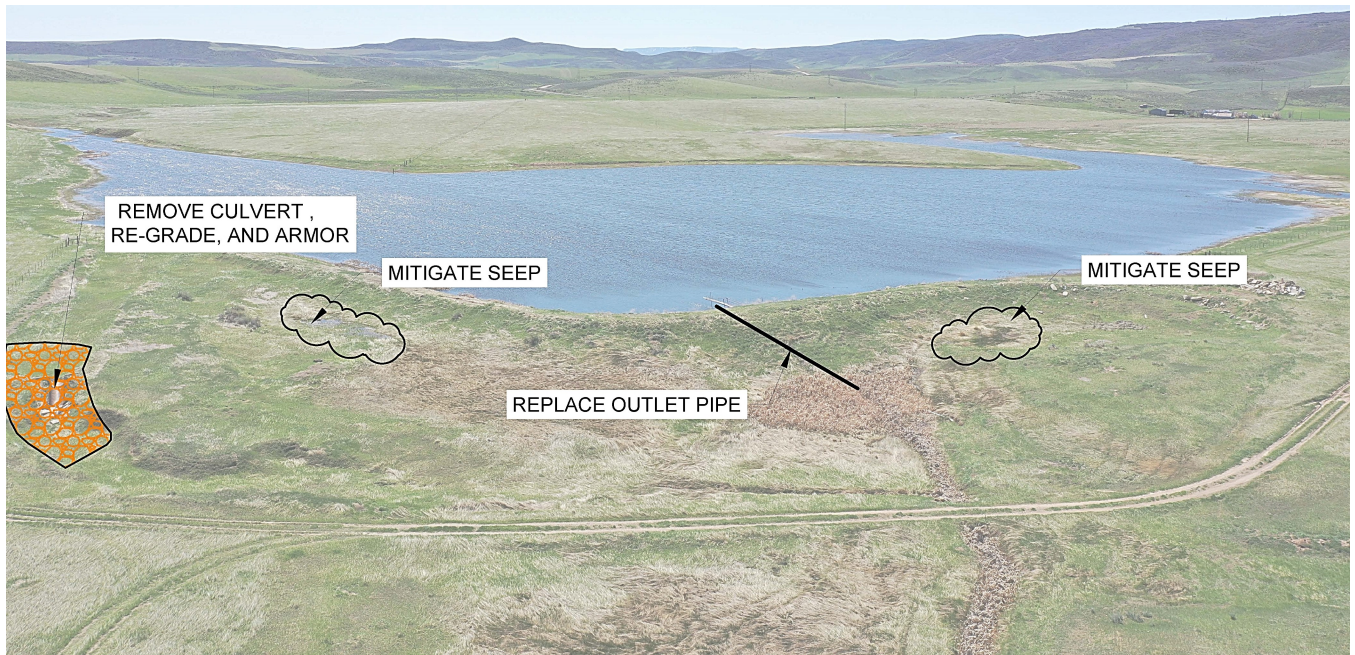
Date:

Revised:

Revised:







ENGINEER'S INSPECTION REPORT

INSPECTOR: DSM

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: DRESCHER		T: 060N R: 0900W S: 12	COUNTY: MOFFAT	DATE OF INSPECTION: 6/25/2019
DAM ID: 440120	YR Compl: 1904	DAM HEIGHT(FT): 24.0	SPILLWAY WIDTH(FT): 27.0	PREVIOUS INSPECTION: 5/9/2013
CLASS: Low hazard		DAM LENGTH(FT): 612.0	SPILLWAY CAPACITY(CFS): 770.0	NORMAL STORAGE (AF): 240.0
DIV: 6	WD: 44	CRESTWIDTH(FT): 10.0	FREEBOARD (FT): 4.9	SURFACE AREA(AC): 30.0
EAP: Not Required		CRESTELEV(FT): 6380.0	DRAINAGE AREA (AC.): 4516.0	OUTLET INSPECTED:

CURRENT RESTRICTION: 8.0 SPILLWAY

OWNER: CHARCHALIS, NICK	OWNER REP.: NICK CHARCHALIS
ADDRESS: 6795 HIGHWAY 394	CONTACT NAME: NICK CHARCHALIS
CRAIG CO 81625-	CONTACT PHONE: (970) 824-8874
INSPECTION PARTY: Nick Charchalis	Will Myer
REPRESENTING: Owner	Headwater Engineering
	Tyler McWilliams, Dana Miller
	DWR

FIELD CONDITIONS OBSERVED	WATER LEVEL: BELOW DAM CREST 8 FT. Below Spillway 4 FT. GAGE ROD READING
	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 Rodent burrows

Historical observations include (1), (2) no riprap on a significant portion of the embankment, with large scarps. Concrete rubble riprap left of the outlet bridge, but with no filter material. (9) Muskrat dens at current water line, approximately 3.5 feet below spill.

Current observations similar. Scarping is largely obscured by high grasses and vegetation.

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 Rodent burrows

Historical observations include: (15) a narrow crest in the scarped area (minimum 7 feet); (18) a poorly draining, uneven surface; and (19) large rodent holes, especially towards the right side.

Current observations similar.

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 Seepage, wet embankment, groin; hole with seepage

Historical observations include: (21) possible old livestock trails causing damage; (26) old slumps, especially towards the left side, causing an uneven surface; and (28), (29) seepage in the left groin and on the right side of the embankment causing soft material.

Current observations similar. (26) Pronounced slump right of the outlet around mid slope in the historical seepage area. Does not appear new. (29) Rodent hole with seepage (20 gpm) 12 feet off the crest right of the outlet. See Seepage.

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

Historical observations include: (31), (32) embankment saturated about 1/3 of the way up on the right side; seepage from the left groin; and (34) seepage along most of the toe.

Current observations include: standing water at the toe on both the left and right side of the dam on the upper benches; saturated embankment along the toe of the maximum section extending above the outlet; evidence of historical seepage from the embankment about 1/3 of the way up, right of the toe, but left of the benched area; concentrated leak from a rodent hole towards the left side of this seepage area, approximately 12 feet below the crest, flowing approximately 20 gpm, currently clear.

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 Pressurized by downstream valve

Historical observations include: (42), (43), (44) upstream gate and operator in poor condition, generally left open; (46) exposed downstream end of outlet conduit corroded and flaking; and (49) conduit pressurized by a valve on the downstream end.

Current observations generally the same. Connection between the steel outlet and PVC leaking due to back pressure from the closed valve downstream. Discussed the likely condition of the pipe, and the state's preference/recommendation to replace.

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

Historical observations include (52), (54) a half section of CMP placed in an eroded portion of the channel to form a sort of drop structure. Likely structurally inadequate for high spillway flows. Flow currently passes through a fence, but the channel could be regraded to direct flows more directly into the channel instead of following this alignment.

Current observations similar. (57) Berm forcing flow through the CMP section constricts the channel.

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

CONDITIONS OBSERVED: ☐ Good ☒ Acceptable ☐ Poor

MAINTENANCE AND REPAIRS

PROBLEMS NOTED ☐ (60) NONE ☐ (61) ACCESS ROAD NEEDS MAINTENANCE ☐ (62) LIVESTOCK 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 Embankment/dam require rehabilitation.

Major rehabilitation is required on this structure to address upstream erosion, rodent damage, seepage, the outlet structure, and spillway condition.

CONDITIONS OBSERVED: ☐ Good ☐ Acceptable ☒ Poor

Go to next page for Overall Conditions and Items Requiring Actions

OVERALL CONDITIONS

Major rehabilitation is required on this structure to make it safe, with a compliance process started in 2013. Discussed today with the owner his desire to move forward. To recap items that will need to be addressed:

- **Upstream slope erosion repair and protection;**
- **Embankment cross section repair (erosion, rodent damage, remove buried concrete rubble);**
- **Embankment seepage mitigation (downstream filter & buttress suggested);**
- **Spillway realignment (entrance) and stabilization;**
- **Filter collar around the outlet pipe (minimum) and/or replace the pipe.**

Discussed a time frame for engineering to support grant applications. Preliminary engineering plan by this fall for local round table meeting; also for application to Upper Colorado Water Conservancy District for annual grant, due January 31. Could potentially design, review, and approve over winter 2019/20, ready for construction in summer 2020.

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 - ORDINARY REPAIR - MONITORING

☐ OTHER

6/25/2019 - Lower the reservoir immediately and repair the leaking rodent hole from the upstream side with a clay plug. MARK this location on the downstream slope and MONITOR it when the reservoir is within 8 feet of spill.

ENGINEERING - EMPLOY AN ENGINEER EXPERIENCED IN DESIGN AND CONSTRUCTION OF DAMS TO

☐ PREPARE PLANS AND SPECIFICATIONS FOR REHABILITATION OF THE DAM

6/25/2019 - Begin the process by developing preliminary plans for rehabilitation, and a cost estimate for presentation to funding agencies. Make sure the plan is comprehensive and includes replacing the outlet conduit.

The State Engineer, by providing this dam safety inspection report, 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 or 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.

SAFE STORAGE LEVEL: RECOMMENDED AS A RESULT OF THIS INSPECTION

☐ (101) FULL STORAGE

☐ (102) CONDITIONAL FULL STORAGE

☐ (103) RECOMMENDED RESTRICTION

☒ (104) CONTINUE EXISTING RESTRICTION

RESTRICTED LEVEL
OFFICIAL ORDER TO FOLLOW

8

FT. BELOW DAM CREST

FT. BELOW SPILLWAY CREST

FT. GAGE HEIGHT

NO STORAGE-MAINTAIN OUTLET FULLY OPEN

REASON FOR RESTRICTION

Seepage and instability.

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: / /

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.



Photo 1 - Upstream slope



Photo 2 - Spillway drop structure



Photo 3 - Leaking rodent hole about
12 feet off the crest, 10 feet right of
the outlet, 20+/- gpm



Photo 4 - Downstream slope