Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
September 11-12, 2014
Agenda Item 13(f)

Applicant & Program Sponsor: West Reservoir and Ditch Company

Water Activity Name: West Reservoir No.1 Outlet Pipe Replacement

Water Activity Purpose: Agricultural

County: Delta

Drainage Basin: Gunnison

Water Source: Surface water from Grand Mesa

Total Amount Requested: $225,658

Source of Funds: $50,000 Gunnison Basin Account; $175,658 Statewide Account

Matching Funds: Basin Account Match ($50,000) = 22% of total grant request ($225,658)
Basin Account & Applicant Match (cash & in-kind: $250,659) = 111% of total grant request ($225,658)
Applicant Match (cash: $200,659) = 47.1% of total project costs ($426,317)
(refer to *Funding Summary/Matching Funds*)

Staff Recommendation:

Staff recommends conditional approval contingent upon the applicant satisfying the concerns as identified in the *Issues/Additional Needs* section of up to $50,000 from the Gunnison Basin Account and $175,658 from the Statewide account to help fund the project titled: West Reservoir No.1 Outlet Pipe Replacement, contingent upon the applicant successfully qualifying for a loan from CWCB for the remainder of the project costs ($146,997).

Water Activity Summary: WSRA funds will be expended to fund the replacement of the existing outlet pipe on West Reservoir No. 1. The existing outlet pipe, upon inspection by the State Engineer's Office (SEO) has undergone severe corrosion with many of the sections missing which has subsequently caused scouring of earth and stone beneath the missing sections of pipe. The SEO has issued a zero fill order for 2014 on West Reservoir No. 1. The project comprises three components: 1) safely emptying the reservoir (completed); 2) engineering and planning; and 3) construction of new outlet pipe.

Discussion:
The applicant originally requested $75,000 from the Gunnison Basin Account, however the Gunnison Basin Roundtable approved up to $50,000 from the Gunnison Basin Account.

Issues/Additional Needs:
The applicant has contacted CWCB's Finance Section to inquire about qualifying for and obtaining a loan for the remaining costs of the project not covered by the WSRA Grant funds and applicant's in-kind match.

Threshold and Evaluation Criteria:
The application meets all four Threshold Criteria

Tier 1-3 Evaluation Criteria:

Tier 1: (a) The replacement of the outlet pipe and resumption of reservoir operations will allow the reservoir owners and operators to: provide occasional emergency water for firefighting purposes; provide water for dust control; provide periodic storage of early run-off water for other water rights owners; and generate sub-surface return flows that provide irrigation water to other irrigators as documented in *Groundwater Systems in Delta County, Colorado: Oak Mesa Area – GIS-Based Hydrological and Environmental Systems Analysis and Formulation of Conceptual Site Models* prepared for Dealt County Board of County Commissioners, Colorado, authored by Integral Consulting Inc. dated August 31, 2012 (available upon request).

(b) not addressed (n/a)

(c) n/a

Tier 2: (d) The applicants states that: "Due to the limited resources of the three company shareholders, this application for Grant money is crucial to continuing with the dam outlet repair".

(e) If the applicant obtains a CWCB Loan, the applicant's contribution (cash and in-kind) represent 88.9% of total project costs.

Tier 3: (f) The replacement of the outlet pipe and resumption of reservoir operations will allow the reservoir owners and other irrigators to continue agricultural operations. Currently there are approximately 600 acres irrigated under the West Reservoir and Ditch Company.

(g) The stored water is pre-compact water dating to 1905.

(h) The reservoir provides habitat for a significant population of Northern Leopard frogs, a Colorado "state special concern" animal. Abandoning the reservoir would severely impact, if not eliminate that population. Preserving the reservoir will help protect this species, as documented in: NEPA Environmental and Bio-report and map prepared by John Monarch, (Monarch Associates, Cedaredge, co) as part of Oxbow' Corp's coal exploration efforts in 1/ 2012 and updated throughout 2013, filed with the BLM Montrose office, Desty Dyer BLM project specialist; NEPA Environmental and Bio-report and Map prepared by John Monarch, as part of Gunnison Energy's gas exploration efforts in 1/ 2002 and updated throughout 2008, filed with the BLM Montrose office; and Conservation Easement Environmental assessment prepared by Biologics Ltd in 2000 and kept on record with Black Canyon Regional Land Trust 1561 Oxbow Drive, Timberline Bank Bldg, Montrose, CO 970.240.2050

(i) n/a

(j) n/a

Funding Summary/Matching Funds:

	Cash	In-kind	Total
WSRA Gunnison Basin Account	$50,000	n/a	$50,000
WSRA Statewide Account	$175,658	n/a	$175,658
CWCB Loan (if obtained)	$146,997	$0	$146,997
Applicant provided	$53,662	$0	$53,662
Total Project Costs	**$426,317**	**$0**	**$426,317**

All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform. In accordance with the revised WSRA Criteria and Guidelines, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

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

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

Engineering: All engineering work (as defined in the Engineers Practice Act (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.

The Gunnison Basin Roundtable
501 Palmer Street
Delta, CO 81416

May 12, 2014

Mr. Craig Godbout
Intrastate Water Management and Development Section
COLORADO WATER CONSERVATION BOARD
1580 Logan Street, Suite 600
Denver, CO 80203

Re: Grant Request from the Water Supply Reserve Account
West Reservoir Ditch Company
West Reservoir #1 Outlet Pipe Replacement Project

Dear Mr. Godbout:

This letter is presented to advise you that the grant application submitted by the West Reservoir Ditch Company for $75,000 from Basin Account funds and $175,658 from Statewide Account funds from the Water Supply Reserve Account for the West Reservoir #1 Outlet Pipe Replacement Project was reviewed by the Gunnison Basin Roundtable and its Project Screening Committee, and was approved by a unanimous vote of the Gunnison Basin Roundtable during our meeting on May 5, 2014.

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.

This activity furthers basin-wide consumptive needs for the Gunnison Basin by repairing aging infrastructure and maintaining agricultural water supplies.

Sincerely,

Michelle Pierce
Chair

cc: Tom Alvey (e-mail)

COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

West Reservoir No.1 Outlet Pipe Replacement

Name of Water Activity/Project

West Reservoir and Ditch Company

Name of Applicant

Gunnison Basin Roundtable

Approving Basin Roundtable(s)
(If multiple basins specify amounts in parentheses.)

Amount from Statewide Account:	$175,658
Amount from Basin Account(s):	$75,000
Total WSRA Funds Requested:	**$250,658**

Application Content

Required Exhibits

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

Appendices – Reference Material

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

Instructions

To receive funding from the Water Supply Reserve Account (WSRA), a proposed water activity must be approved by the local Basin Roundtable **AND** the Colorado Water Conservation Board (CWCB). The process for Basin Roundtable consideration and approval is outlined in materials in Appendix 1.

Once approved by the local Basin Roundtable, the applicant should submit this application **with a detailed statement of work including budget and schedule as Exhibit A** to CWCB staff by the application deadline.

WSRA applications are due with the roundtable letter of support 60 calendar days prior to the bi-monthly Board meeting at which it will be considered. Board meetings are held in January, March, May, July, September, and November. Meeting details, including scheduled dates, agendas, etc. are posted on the CWCB website at: http://cwcb.state.co.us Applications to the WSRA Basin Account are considered at every board meeting, while applications to the WSRA Statewide Account are only considered at the March and September board meetings.

When completing this application, the applicant should refer to the WSRA Criteria and Guidelines available at: http://cwcb.state.co.us/LoansGrants/water-supply-reserve-account-grants/Documents/WSRACriteriaGuidelines.pdf

The application, statement of work, budget, and schedule **must be submitted in electronic format** (Microsoft Word or text-enabled PDF are preferred) and can be emailed or mailed on a disk to:

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

If you have questions or need additional assistance, please contact Greg Johnson at: 303-866-3441 x3249 or gregory.johnson@state.co.us.

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

1. Applicant Name(s): **West Reservoir and Ditch Company**

Mailing address: P.O. Box 25
Paonia, CO 81428

Taxpayer ID#: 80-0621293

Primary Contact: Nick Hughes Position/Title: President

Email: nihughes@starband.net

Phone Numbers: Cell: 970.201.1476 Office:

Alternate Contact: Mitch Hart Position/Title: Vice President

Email: n/a

Phone Numbers: Cell: 970.201.3347 Office:

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

	Public (Government) – municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities and the local entity should be the grant recipient. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts) – authorities, Title 32/special districts, (conservancy, conservation, and irrigation districts), and water activity enterprises.
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 defined as any organization that is not part of the government.

3. Provide a brief description of your organization

West Reservoir and Ditch Company is a non-profit mutual ditch company founded in 1908 for the purposes of the construction of West Reservoir No. 1 and the Wakefield Ditch. Those structures were designed to convey irrigation water from branches of Jay Creek, eastward across Oak Mesa for delivery to the Basin and Wakefield Mesa near Paonia.
The water is used as stock water as the ditch runs east across 1,100 acres of private land, then onto 600 acres of BLM grazing lease. From there it is used to irrigate three ranches' hay fields and pastures. Tail or waste water return flows enter Roatcap Creek, augmenting irrigation water for the Overland Ditch, and the Fire Mountain Canal.

The organization comprises three shareholders.

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

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

X	The Applicant will be able to contract with the CWCB using the Standard Contract
	The Applicant has reviewed the standard contract and has some questions/issues/concerns. Please be aware that any deviation from the standard contract could result in a significant delay between grant approval and the funds being available.

6. The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant. **NONE**

Part II. - Description of the Water Activity/Project

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

	Nonconsumptive (Environmental or Recreational)
X	Agricultural
	Municipal/Industrial
	Needs Assessment
	Education
	Other Explain:

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

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

	Study	X	Implementation

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

	New Storage Created (acre-feet)
	New Annual Water Supplies Developed, Consumptive or Nonconsumptive (acre-feet)
454	Existing Storage Preserved or Enhanced (acre-feet)
	Length of Stream Restored or Protected (linear feet)
	Length of Pipe/Canal Built or Improved (linear feet)
	Efficiency Savings (acre-feet/year OR dollars/year – **circle one**)
120	Area of Restored or Preserved Habitat (acres)
	Other -- Explain:

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

Latitude: 38.55.31.60 N Longitude: 107.43.50.88 W

5. Please provide an overview/summary of the proposed water activity (no more than one page). Include a description of the overall water activity and specifically what the WSRA funding will be used for. A full **Statement of Work** with a detailed budget and schedule is required as **Exhibit A** of this application.

West Reservoir No. 1 is categorized as a (small) High Hazard Dam by the Office of the State Engineer, due to possible threat to a residence near State Highway 133 in the Jay Creek corridor in the event of failure of the dam.

In the course of the annual inspection of West Reservoir by the Office of the State Engineer, the outlet pipe was explored and videoed. This revealed severe corrosion to the bottom of the outlet pipe, with many sections completely gone, with scouring of the earth and stone beneath the missing sections of pipe.

As a consequence, the OSE issued a "zero fill" order for 2014, and requested a plan from the company for safely drawing down the 454 acre feet of stored water so repairs could be planned.

The project comprises three elements: 1) safely emptying the reservoir; 2) engineering review and planning; 3) construction.

1) It was agreed between the Company and the OSE that the safest method of emptying the reservoir would be to pump it down, rather than run the risk of opening the outlet pipe valve and washing out the material remaining around the outlet pipe and failing the dam. This step has been accomplished at a cash cost of approximately $43,662 born by the shareholders of the Company. (detailed expenditures Exhibit A) We would like to request that this amount be considered the Company's share contribution for purposes of any WRSA grant.
2) The Company has received a detailed project plan from a reputable engineering firm with expertise in dam construction meeting the requirements of the OSE. The engineers (RJH Consultants) completed on-site testing etc in October. The engineering costs are bid at $35,000, of which dam owners have paid $5,000 for the initial work, and $5,000 for survey of the dam. The further $30,000 would be funded by any WSRA grant.
3) At this point the construction stage is anticipated to include excavating the center section of the dam down to the outlet pipe; replacing the outlet pipe, valve, measurement rod; then rebuilding the dam. This element

would be funded by the WSRA grant and is estimated to be approximately $336,000 (based on recent similar projects managed by the engineers).

Part III. – Threshold and Evaluation Criteria

1. Describe how the water activity meets these **Threshold Criteria.** (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines.)

   a) The water activity is consistent with Section 37-75-102 Colorado Revised Statutes.[1]
   This project will protect senior storage rights which were adjudicated pre-compact (1905 appropriation).

   b) The water activity underwent an evaluation and approval process and was approved by the Basin Roundtable (BRT) and the application includes a description of the results of the BRTs evaluation and approval of the activity. At a minimum, the description must include the level of agreement reached by the roundtable, including any minority opinion(s) if there was not general agreement for the activity. The description must also include reasons why general agreement was not reached (if it was not), including who opposed the activity and why they opposed it. Note- If this information is included in the letter from the roundtable chair simply reference that letter.

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

c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.[2] The Basin Roundtable Chairs shall include in their approval letters for particular WSRA grant applications a description of how the water activity will assist in meeting the water supply needs identified in the basin roundtable's consumptive and/or non-consumptive needs assessments.

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

Of a total estimated budget of $426,317, West Reservoir and Ditch Company ("company") has already incurred cash expenditures of $53,662, for approximately 12.6 % of the total estimated budget. With planned active participation with the contractors, including owners' equipment and labor, West Reservoir and Ditch Co will contribute $100,411 (or 25%) of the project's total budget. This is 57% of the requested amount from the state fund.

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

2. For Applications that include a request for funds from the **Statewide Account**, describe how the water activity/project meets all applicable **Evaluation Criteria.** (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines and repeated below.) Projects will be assessed on how well they meet the Evaluation Criteria. **Please attach additional pages as necessary.**

Evaluation Criteria – the following criteria will be utilized to further evaluate the merits of the water activity proposed for funding from the Statewide Account. In evaluation of proposed water activities, preference will be given to projects that meet one or more criteria from each of the three "tiers" or categories. Each "tier" is grouped in level of importance. For instance, projects that meet Tier 1 criteria will outweigh projects that only meet Tier 3 criteria. WSRA grant requests for projects that may qualify for loans through the CWCB loan program will receive preference in the Statewide Evaluation Criteria if the grant request is part of a CWCB loan/WSRA grant package. For these CWCB loan/WSRA grant packages, the applicant must have a CWCB loan/WSRA grant ratio of 1:1 or higher. Preference will be given to those with a higher loan/grant ratio.

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

a. The water activity addresses multiple needs or issues, including consumptive and/or non-consumptive needs, or the needs and issues of multiple interests or multiple basins. This can be demonstrated by obtaining letters of support from other basin roundtables (in addition to an approval letter from the sponsoring basin).
b. The number and types of entities represented in the application and the degree to which the activity will promote cooperation and collaboration among traditional consumptive water interests and/or non-consumptive interests, and if applicable, the degree to which the water activity is effective in addressing intrabasin or interbasin needs or issues.
c. The water activity helps implement projects and processes identified as helping meet Colorado's future water needs, and/or addresses the gap areas between available water supply and future need as identified in SWSI or a roundtable's basin-wide water needs assessment.

Tier 2: Facilitating Water Activity Implementation

d. Funding from this Account will reduce the uncertainty that the water activity will be implemented. For this criterion the applicant should discuss how receiving funding from the Account will make a significant difference in the implementation of the water activity (i.e., how will receiving funding enable the water activity to move forward or the inability obtaining funding elsewhere).
e. The amount of matching funds provided by the applicant via direct contributions, demonstrable in-kind contributions, and/or other sources demonstrates a significant & appropriate commitment to the project.

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

f. The water activity helps sustain agriculture & open space, or meets environmental or recreational needs.
g. The water activity assists in the administration of compact-entitled waters or addresses problems related to compact entitled waters and compact compliance and the degree to which the activity promotes maximum utilization of state waters.
h. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado State species of concern.
i. The water activity provides a high level of benefit to Colorado in relationship to the amount of funds requested.
j. The water activity is complimentary to or assists in the implementation of other CWCB programs.

Continued: Explanation of how the water activity/project meets all applicable **Evaluation Criteria**.
Please attach additional pages as necessary.

Tier 1:

a.)

West Reservoir not only supplies irrigation water, but the company acts proactively to assist and support local community needs and concerns.

* During the Oak Mesa Wildfire in 2008, West Reservoir was used as an emergency source for water dumped by BLM aircraft and Hotchkiss Fire District vehicles to contain the fire, saving time and money for the agencies and expediting containment of the fire.

* During natural gas exploration on Oak Mesa in 2010, under BLM leasing, the Company and the gas exploration group applied for and received a Temporary Substitute Use ruling from the DNR for using West Reservoir water for the exploration drilling. Neighbors and the community along LeRoux Creek road were concerned about water truck traffic, noise and disturbance, dust etc. This cooperation was entered in order to minimize these effects on members of the community.

* The company cooperates with private water right owners in Wolf Park, and periodically provides storage of early run-off water for later summer and fall use in the Jay Creek drainage.

* The fill ditch for West Reservoir is used cooperatively by a private water right holder on LeRoux Creek (across from North Road) to deliver their early water.

* During the winter 2012 – 2013 the dead pool water was used to provide drilling water during the coal exploration being performed under BLM license, to minimize travel disturbance and damage to the Oak Mesa county road.

* The West Reservoir and Ditch effectively transfer water from the Jay Creek drainage towards the Roatcap drainage, replenishing local aquifers, numerous springs from Sunshine Mesa to Stucker Mesa and ultimately returning to the Overland Ditch users and Fire Mountain Canal users.

* Finally, as the company releases West Reservoir water in the late season (typically mid-July through September) our flow maintains aquifer levels after the larger ditches like Overland have been closed.

Tier 2.

d.)

Due to the limited resources of the three company shareholders, this application for Grant money is crucial to

continuing with the dam outlet repair. CWCB loan assistance is being applied for as a complementary source for proceeding with the project.

e)

To date, the company has demonstrated a significant and appropriate commitment in terms of the cash outlays (which currently approximate 14% of total project estimated costs). Without grant funding the company most likely will not be able to proceed with repairs.

Tier 3

f)

The stored water is used for a variety of agricultural purposes, most notably stock water for cattle grazing Oak Mesa and the adjoining BLM leases, and crop irrigation.

Notably, the land surrounding the reservoir itself is committed to a conservation easement (4,330 acres), and the waters are a useful augmentation to wildlife needs, including those of big game animals (deer, moose, elk, bear and lions), smaller mammals (coyote, grouse, ducks, marmots, weasels etc), amphibians (northern leopard frog listed as a Colorado "*state special concern*" animal and salamanders), reptiles, and numerous hawk and bird species.

g.)

The stored water is pre-compact water dating to 1905. Without repair to the dam, 454 acre-feet could be abandoned.

h.)

The reservoir provides habitat for a significant population of Northern Leopard frogs, a Colorado "state special concern" animal. Abandoning the reservoir would severely impact, if not eliminate that population. Preserving the reservoir will help protect this species.

Part IV. – Required Supporting Material

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

The West Reservoir storage right collects water from the three branches of Jay Creek (tributary to the North Fork of the Gunnison) and the watershed surrounding them. Additionally water is provided from seven sources above Roatcap Creek (tributary to the North Fork of the Gunnison) along the Overland Ditch. A copy of the Water Rights Report for West Reservoir from the DNR Hydrobase is attached.

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

There are no permitting issues to resolve, and we have attached the Dam Safety Report from the Office of Dam Safety, with their guidance letter, which is the stimulus for this project.

3. Statement of Work, Detailed Budget, and Project Schedule

The statement of work will form the basis for the contract between the Applicant and the State of Colorado. In short, the Applicant is agreeing to undertake the work for the compensation outlined in the statement of work and budget, and in return, the State of Colorado is receiving the deliverables/products specified. **Please note that costs incurred prior to execution of a contract or purchase order are not subject to reimbursement**. All WSRA

funds are disbursed on a reimbursement basis after review invoices and appropriate backup material.

Please provide a detailed statement of work using the template in Exhibit A. Additional sections or modifications may be included as necessary. Please define all acronyms and include page numbers.

REPORTING AND FINAL DELIVERABLE

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

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

PAYMENT

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

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

Signature of Applicant:

Print Applicant's Name:

Project Title:

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

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

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

Signature of Applicant: N Hughes

Print Applicant's Name: Nick HUGHES

Project Title: West Reservoir Outlet Repair

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

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

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director/State Engineer

Bob W. Hurford. P.E.
Division Engineer

June 3, 2013

Mr. Nick Hughes
West Reservoir & Ditch Company
708 1250 Road
Delta, CO 81416
nihughes@starband.net

VIA EMAIL

When replying, please refer to:
WEST #1, DAMID: 400538
Water Division 4, Water District 40

SUBJECT: Reservoir Storage Restriction Compliance Plan and Dam Repair Guidance

Dear Mr. Hughes:

As a result of the recent inspection of West #1 dam, you will be receiving an order from the State Engineer restricting the reservoir to zero storage. The reason for the restriction is the severe deterioration of the outlet pipe discovered during the inspection, which could lead to failure of the dam if conditions worsen. As owner of the dam, it is your responsibility to comply with the storage restriction and if you desire to return the dam to full storage, you must first make suitable repairs. The purpose of this correspondence is to provide you guidance on complying with the restriction order and the regulatory requirements for repairing the dam. The regulatory process for repairing and modifying dams in Colorado is provided in the State of Colorado's *Rules and Regulations for Dam Safety and Dam Construction*, which is available on our website (http://water.state.co.us/SurfaceWater/DamSafety). You have indicated that you wish to repair the outlet pipe and the information below is intended to provide you with guidance on making the necessary repairs.

BACKGROUND

To provide perspective on the conditions leading up to the current storage restriction, it is beneficial to provide a brief history of the dam. This file history is considered cursory and does not constitute a full review of the file, which may be necessary for your engineer to design a satisfactory repair.

File History:

- Map and Filing Statement #2506 on file with the State Engineer's Office indicates work on the dam commenced in 1905 with the intent to construct the dam to a height of 35-ft.

- Map and Filing Statement #2543 subsequently indicates a First Enlargement of the dam in 1906 intending to add an additional five-feet to the dam, or a height of 40-ft.
- Construction File No. C-545 (1950) indicates the original dam was constructed to a height of approximately 28-ft ("jurisdictional height" as defined by Rule 4.2.19).
- The 1950 enlargement resulted in the present jurisdictional height of approximately 35-ft.
- The C-545 drawing indicates the original 6" diameter pipe (no material description) was left in place and a 32-foot extension of 6" pipe was "…attached to present outlet pipe by field welding".
- In 1979, the Dam Safety Branch classified the dam as a Moderate hazard dam.
- The dam was subsequently classified as a Small-size, Significant hazard dam as defined in the *Rules and Regulations for Dam Safety and Dam Construction* (Rules), dated January 2007.
- In 2012, the Dam Safety Branch conducted a study of the consequences of failure on the downstream floodplain and reclassified the dam as a Small-size, High hazard dam.
- Repair of a hole in the elbow of the upstream intake structure occurred in 1987 per C-545A and indicates the pipe is 6" in diameter.
- No inspection of the outlet pipe is on file until the recent inspection.

OUTLET INSPECTION – MAY 23, 2013

Concurrent with inspection of the dam on May 23, 2013, you provided for inspection of the outlet pipe to be conducted by Southwest Systems, Inc. of Ekert, CO, using a remotely operated vehicle (ROV) video camera. A copy of the video inspection was provided at the end of the inspection and is on file in the Division 4 Montrose office. Following are observations made during the live video feed of the outlet inspection; snapshot photos from review of the video are provided as an enclosure with this report:

Observations during outlet pipe cleaning:

- The downstream end of the pipe measures 10-inches in diameter (as opposed to 6-inches shown in C-545 and C-545A) and appears to be welded steel.
- Southwest Systems, Inc. attempted to water jet and clean the pipe from the downstream end prior to inspection and the following observations were made:
    - Rust colored water discharged for several seconds at the beginning of the cleaning.
    - As the jetting continued, the color of the water turned to a brown muddy color and did not clear up throughout the cleaning process.
    - The first attempt to fully clean the pipe failed with the cleaning tool getting "hung-up" at approximately 35-ft from the downstream end.
    - The second attempt with a smaller cleaning tool progressed further upstream, but again hung-up and was the process was aborted.
- What appeared to be small pieces of rusty steel were found in the discharge channel immediately following the aborted cleaning.

Observations during live video feed inspection:

- A grade break in the pipe was observed at approximately 36-feet from the downstream end (Figure 1). No change in diameter was observed.
- A joint offset or gap in the pipe was observed in the invert of the pipe at the transition point; whether the gap was open or welded closed could not be determined (Figure 2).
- Welded joints in the first 36-ft of pipe were spaced approximately 12-ft apart.
- The first discernable rust penetration was observed at approximately 54-ft (Figure 3).

- The next area of rust deterioration was observed at approximately 70-ft, although several small questionable areas were observed along the invert between 54 and 70-ft.
- In general, areas of rusted through invert were observed along the length from approximately 54-ft to 99-ft where the pipe became impassible for the ROV. The rust penetrations ranged from small diameter holes to completely missing sections of invert on the order of one to two feet in length spanning the bottom 1/4 of the pipe diameter. Exposed voids, soil, and rocks could be clearly seen below the missing invert sections.
- The ROV inspection was aborted at approximately 99-ft due to risk of the tracks becoming stuck in the deteriorated pipe and being unable to retrieve the camera.

RESERVOIR EMERGENCY DRAWDAWN PLAN

During the inspection conducted on May 23, 2013 the reservoir was at gage height 27-ft, or near full storage. The deteriorated condition of the outlet pipe makes it unsafe to use for normal drawdown of the reservoir. Therefore, an emergency drawdown plan must be provided to our office for review and approval prior to using the reservoir for irrigation or in response to the restriction order. The emergency drawdown plan should contain the following information:

1. The selected alternative to drawing down the reservoir without using the outlet pipe.
2. The plan should provide sufficient detail for our office to understand how you will drawdown the reservoir and if any modifications to dam are required.
3. A timeline for complete draining of the reservoir and compliance with the zero storage restriction order.
4. Address how nuisance inflows will be passed through the dam following drawdown of the reservoir.
5. Address how monitoring of the dam and any emergency action response will occur during drawdown.

The outlet valve must remain closed and not operated until an emergency drawdown plan has been submitted and approved by the State Engineer. Additionally, be advised that it may be necessary to operate diversion or bypass works upstream of the reservoir in such a manner to limit inflow into the reservoir.

DAM REPAIR GUIDANCE

If you wish to have the restriction lifted, 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. Plans and specifications regarding this work must be submitted to our office in a form acceptable to the State Engineer and receive approval of the construction plans and specifications from the State Engineer prior to construction. Upon approval of the plans and specifications and completion of the repair work, this office will make a final inspection. After the repair work has been inspected and found satisfactory, the storage restriction will be lifted.

Our assessment of the condition of the existing outlet pipe is that it is not a candidate for renovation alternatives such as cured-in-place pipe (CIPP) lining or traditional grouted in-place sliplining. The video inspection revealed severe deterioration in the form of rust holes and missing portions of the pipe invert with observed voids along the outside of the pipe. The area of severe deterioration appears to be near the embankment centerline and the structural integrity of the pipe has likely been compromised. Additionally, the change in grade and gap in the joint found approximately 36-ft from the downstream

end is likely a limitation that may prevent sliplining as an alternative. Therefore, a design for replacement of the outlet pipe must be developed by your engineer.

SUMMARY OF OWNER REQUIRED ACTION ITEMS

The following action items are required for you to safely drawdown the reservoir to comply with the restriction order and repair the dam:

1. Provide an emergency drawdown plan to safely drain the reservoir without using the outlet pipe. The plan must be received within 30-days of receipt of the zero storage restriction order from the State Engineer and must be reviewed and approved by our office prior to construction.
2. Engage a professional engineer registered in the State of Colorado with dam design and construction experience to design a satisfactory repair for the dam. The plans and specifications must receive approval from the State Engineer prior to construction.

We appreciate your efforts in complying with the storage restriction order and undertaking repair of the dam. If you have any questions concerning this matter or any dam safety related issues, please feel free to contact me at (970) 249-6622.

Sincerely,

Jason P. Ward, P.E.
Dam Safety Engineer

ec: Bob Hurford, Division Engineer
William McCormick, Chief, Dam Safety Branch
Stephen Tuck, District 40 Lead Water Commissioner
Paul Schmucker, District 40 Deputy Water Commissioner

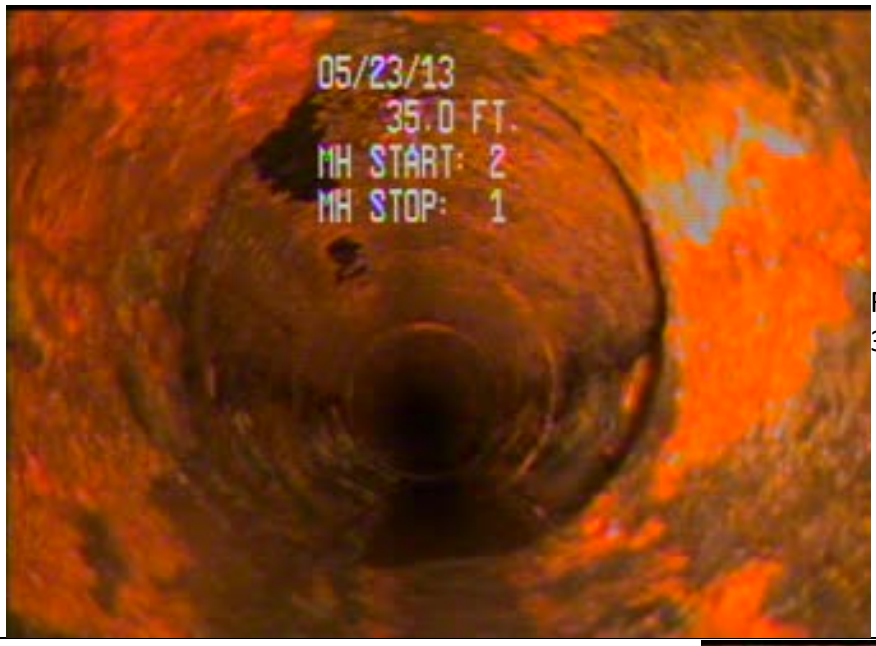


Figure 1 – Joint and grade break at approximately 36-ft from the downstream end of the pipe.

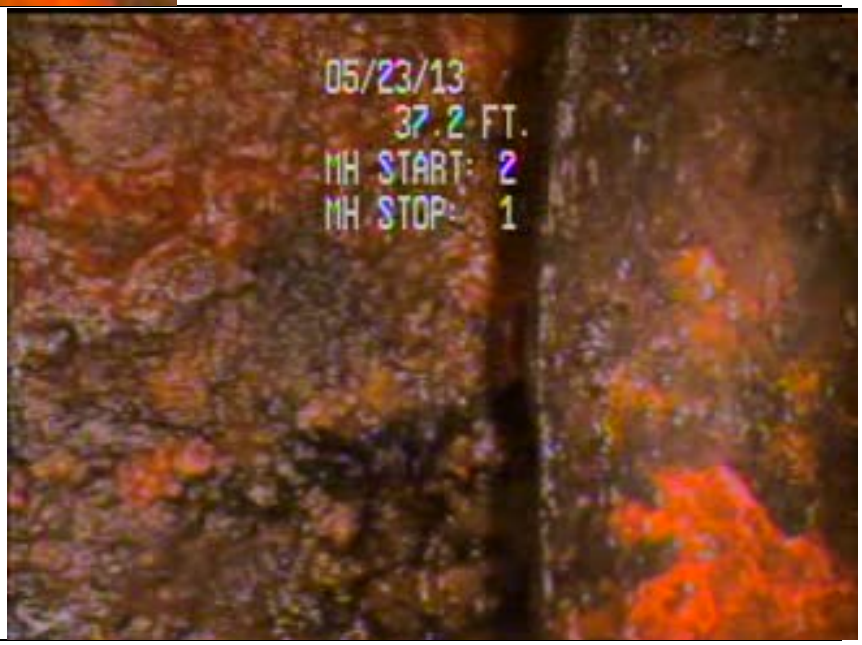


Figure 2 – Close-up of joint offset in invert of pipe at above mentioned grade break.

Figure 3 – Rusted through invert of pipe at 54.7 ft.

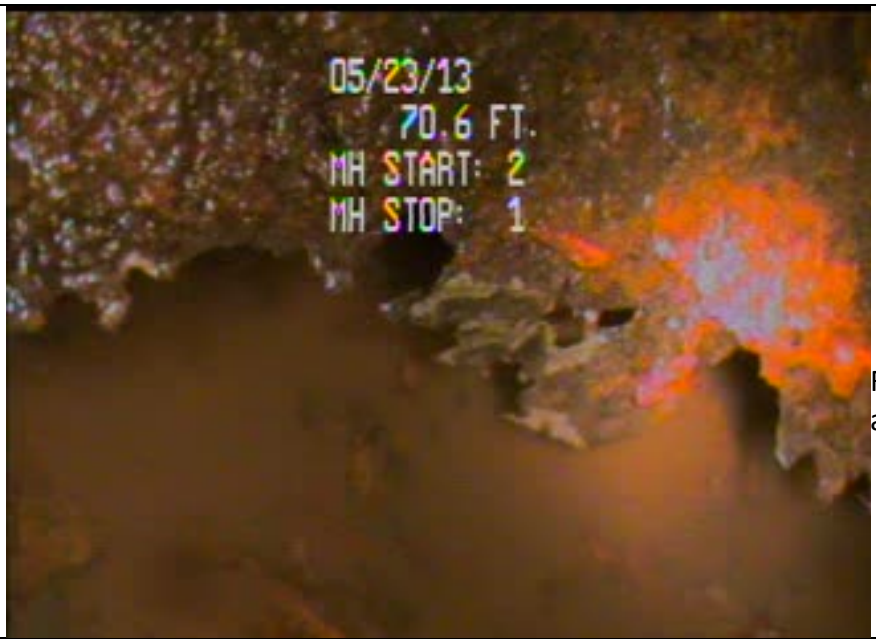


Figure 4 – Close-up of rusted through pipe invert at 70.6 ft (flow is right to left in photo).

Figure 5 – Overall view of missing invert at 70.6 ft. (note that view is rotated 90 degrees).

Figure 6 – View of rust holes in pipe invert just upstream of above photo (view is rotated).

Figure 7 – Close-up of rock in section of missing invert at 76.6 ft (rotated view).

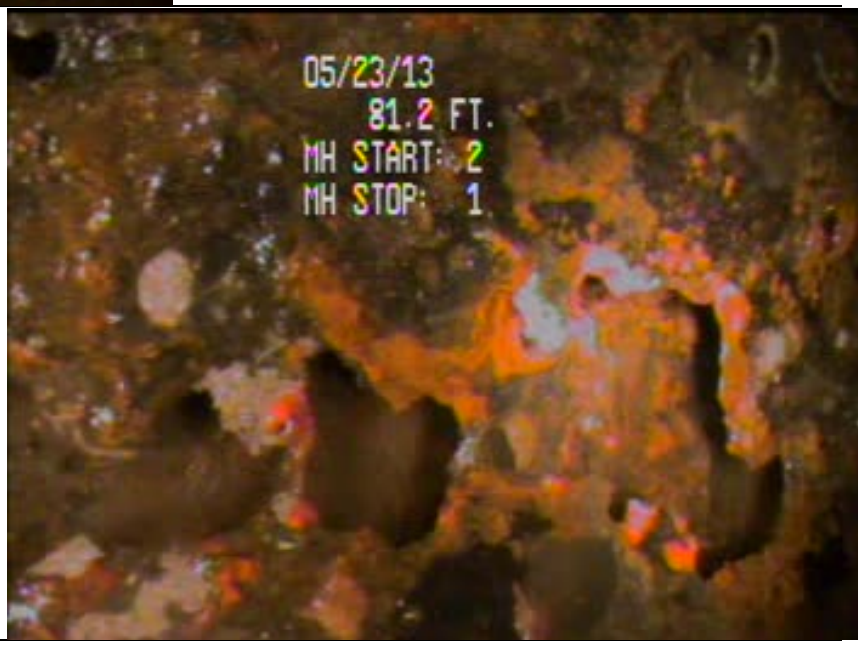


Figure 8 – Close-up of rust penetrations at 81.2 ft (rotated view).

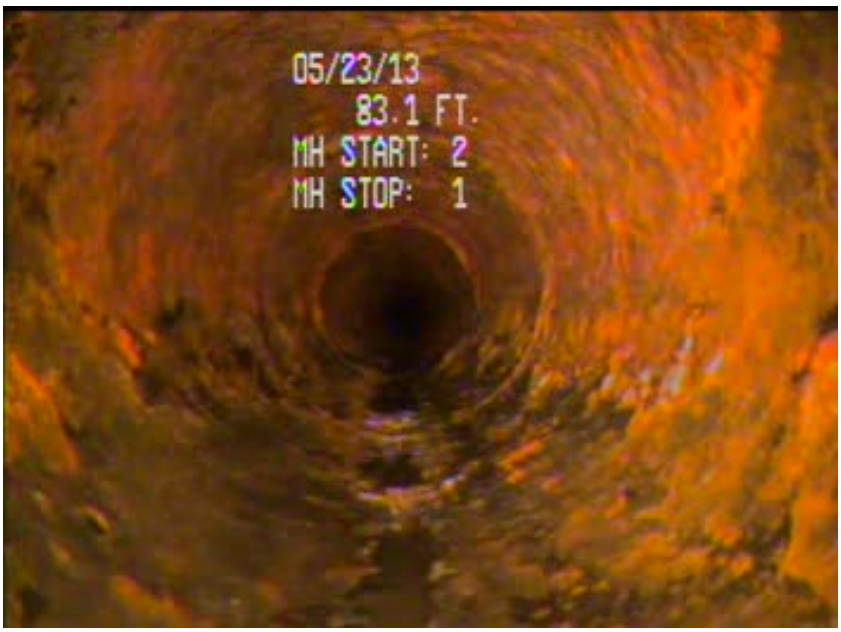


Figure 9 – Overall view of pipe and section of invert penetrations at 83.1 ft.

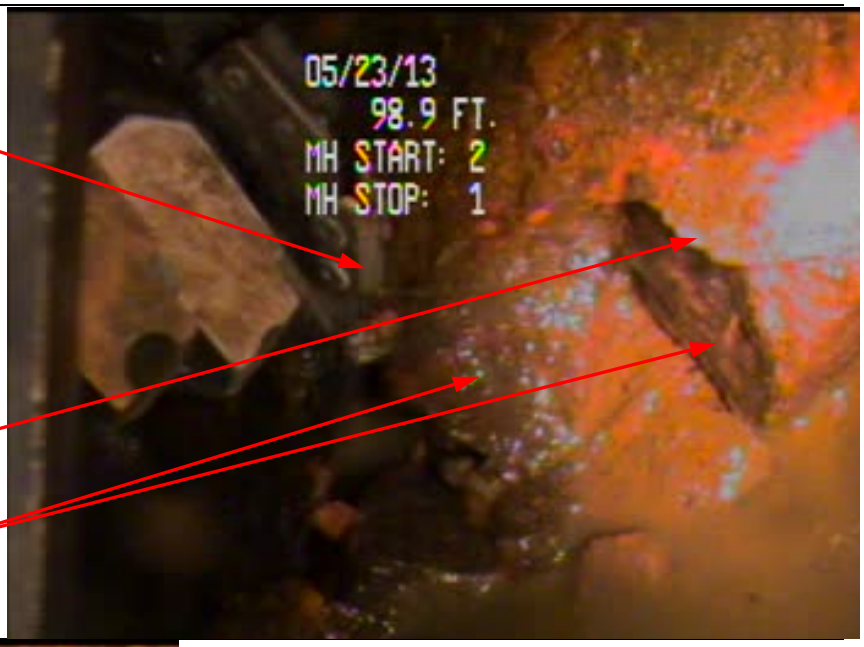
Figure 10 – Missing invert starting at 97.3 ft.

ROV track

Figure 11 – Close-up of left (looking upstream) ROV track near downstream end of missing invert section.

Edge of missing steel pipe

Exposed rock



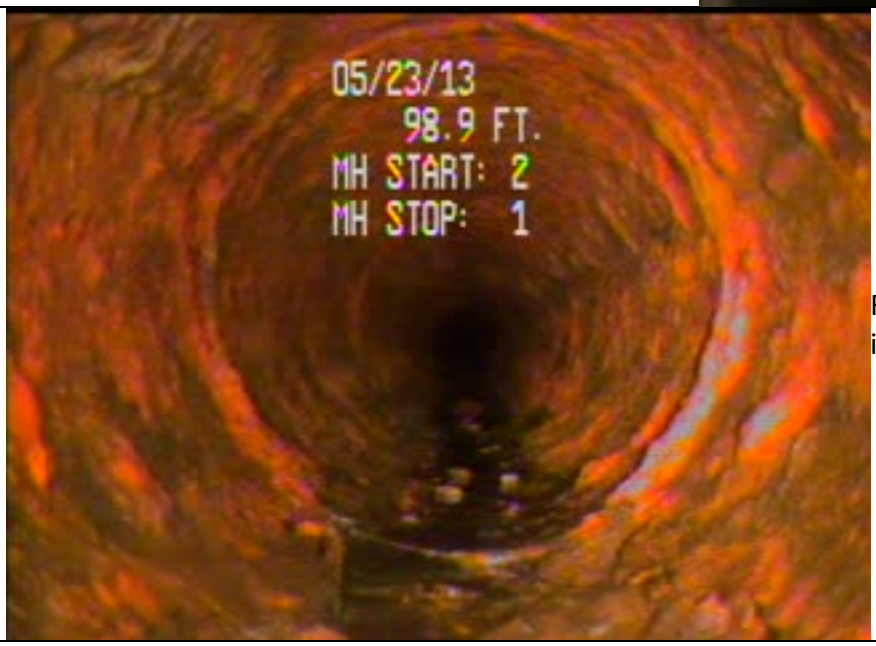


Figure 12 –Zooming in beyond 98.9 ft. Video inspection aborted.

West Reservoir No. 1 Statement of Work

Task 1 Draw-down of West Reservoir Stored Water

Office of Dam Safety had prohibited us from emptying the reservoir through the outlet pipe
A diesel pump was acquired, piping placed along the back of the dam to prevent erosion,
and we pumped out all 454 acre feet of water.

Task 2 Engineering Design

Engineering design prepared initial plans and recommendations with the Office of Dam Safety
in order to arrive at an acceptable build plan.

Task 3 Breaching Dam

Two self propelled scrapers will be used to evacuate the dam material and stockpile near the dam.
A D5 dozer and 311B excavator will also be used to move soil to the scapers and contour the sides of the cut.
The old outlet pipe will be removed and the base compacted to specifications from ODS.

Task 4 Replacing Outlet works

The 14" pipe will be assembled and welded on the compacted area formerly occupied by the old outlet pipe.
A timber form will be built into which concrete will be poured, surrounding the new pipe.
A new gate valve box will be built and valve installed, and the exit side will have a concrete splash basin poured.

Task 5 Rebuild Dam

The scrapers will be used to load the dam material from the stockpile and deposit along and on top ot the new outlet.
filter sand will be applied with each 6 to 9" layer to improve impermiabilty.
The dozer and excavator will shape the fill, and two compactors will pack each level
Then scrapers return with new fill until the dam has been rebuilt. At this stage, rip-wrap rock will
beplaced with the excavator to provide protection to the dam and mitigate any wave activity.

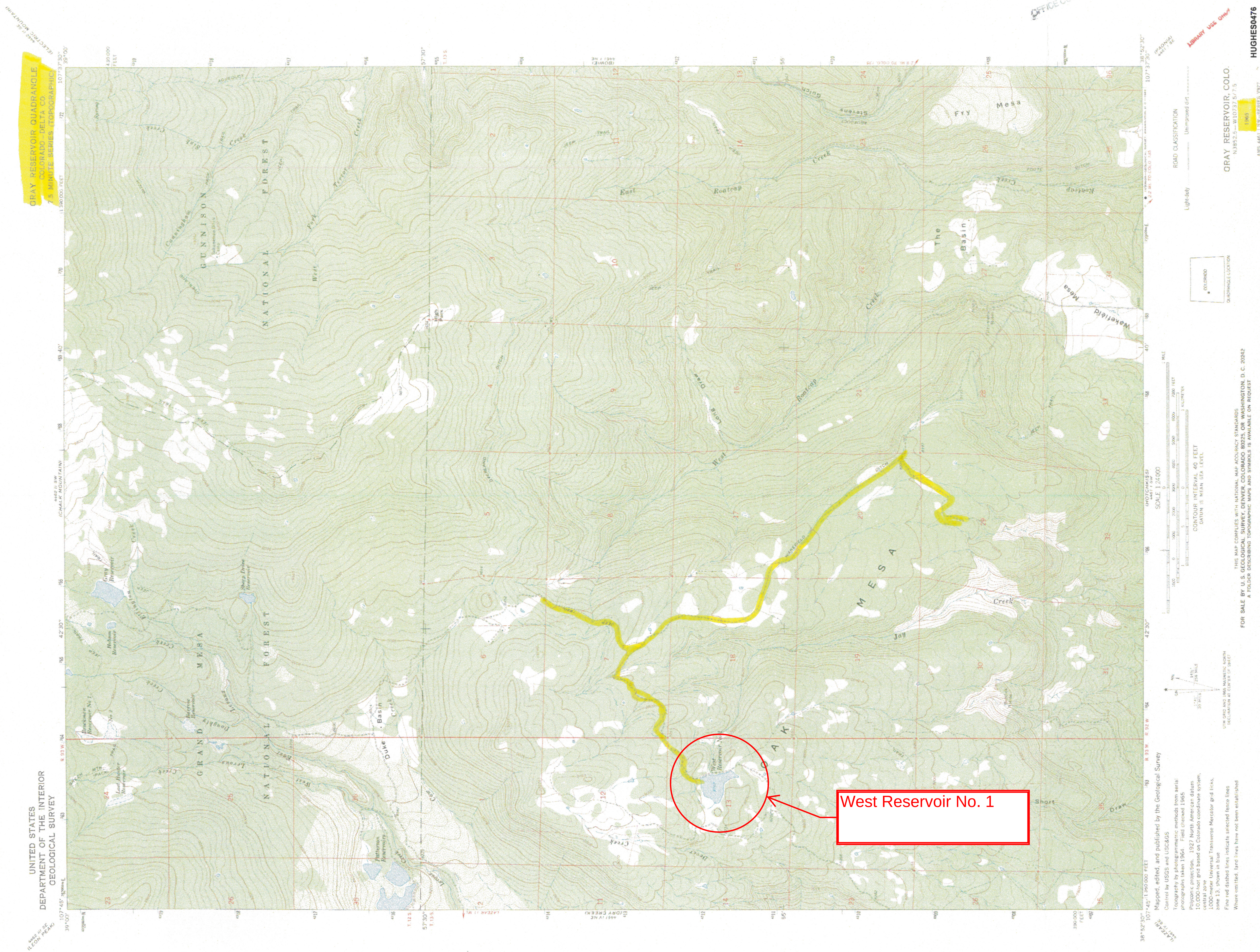
Task 6 Post Construction Survey

Once the rebuild is completed, a final survey will be made so that Office of Dam Safety's records are up to date.

West Reservoir No. 1 Budget		**non-WSRA contributions**		**WSRA Funds**	**Total**
Task	Description	**In-kind**	**Cash**		
Task 1	Draw-down of West Reservoir Stored Water	$0	$43,662	$0	$43,662
Task 2	Engineering Design & Surveying	$0	$10,000	$30,000	$40,000
Task 3	Breaching Dam	$0	$22,571	$66,779	$89,350
Task 4	Replacing Outlet works	$0	$5,636	$47,864	$53,500
Task 5	Rebuild Dam	$0	$100,737	$52,601	$153,338
Task 7	Construction Contingency (14% of Tasks 3-5)	$0	$18,052	$23,414	$41,466
Task 6	As-Built Survey & Drawings	$0	$0	$5,000	$5,000
	Totals	**$0**	**$200,658**	**$225,658**	**$426,316**

West Reservoir No. 1 Schedule

	Duration in weeks		Start Date	Finish Date
Task 1	6		7/30/2013	9/5/2013
Task 2	8		10/15/2013	NTP + 70
Task 3	2.85		NTP + 10	NTP + 38
Task 4	0.5		NTP + 39	NTP+ 42
Task 5	3.275		NTP + 45	NTP + 70
Task 6	4		NTP + 70	NTP + 98



GRAY RESERVOIR QUADRANGLE
COLORADO—DELTA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
GRAY RESERVOIR, COLO.
HUGHES0476
West Reservoir No. 1

Exhibit

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