

Exhibit A

Scope of Work

WATER ACTIVITY NAME –

Bull Creek Reservoir No. 5 Spillway Adequacy Analysis

GRANT RECIPIENT –

Bull Creek Reservoir Canal and Power Company

FUNDING SOURCE -

Colorado River Basin Account - \$50,000.00

BACKGROUND

Bull Creek Reservoir Canal and Power Company is a private non-profit corporation, incorporated in August 1896. The Company owns and operates five reservoirs located within the Grand Mesa - Uncompahgre National Forest in Mesa County, Colorado.

The reservoirs serve 26 stockholders, including Ute Water Conservancy District which serves nearly 70,000 customers in Mesa County. The Company also provides water to approximately 800 irrigated acres in the Plateau Valley on the north flank of Grand Mesa. The reservoirs are open to the public and are used for fishing and recreation. Additional uses include stock water, wetlands sustenance, and wildlife enhancement. The reservoirs are an amenity to the GMUG National Forest.

In 2006 the Colorado State Engineer ordered an analysis of the spillway adequacy on Bull Creek Reservoir No. 5. The purpose of the analysis is ultimately to determine what is needed to meet State safety standards. The desired outcome of the analysis is to determine how large the emergency spillway needs to be in order to safely pass inflow floods from potential dam breaks of upstream reservoirs, specifically a “sunny day” dam break from Bull Creek Reservoirs Nos. 1 and 2, and Bull Basin Reservoir No. 1

If the analysis is not performed, or if the analysis shows the existing spillway is too small in its current condition, and the capacity of the spillway is not enlarged, then the only option the Dam Safety branch of the State Engineer’s Office will have is to require that the reservoir be restricted from filling. A filling restriction, either in whole or in part, is undesirable as it would lead to a loss of usable water, not to mention a potential loss of senior water rights.

A feasibility study performed in May 2006 and updated in November 2006, identified excessive environmental impacts and high financial costs associated with attempting to bring the two upstream reservoirs owned by the Company (Bull Creek Reservoirs Nos. 1 and 2) up to “High Hazard” standards. Specifically, new borrow areas would require several acres of deforestation, and USFS access trails would need to be improved for construction traffic, then downgraded after the project to foot-trail conditions. Also, a reconnaissance level estimate of associated costs for improvements was significantly higher than enlarging the spillway of Reservoir No. 5.

A U.S. Army Corps of Engineers Section 404 permitting strategy (wetlands delineation and preparation of a permit strategy), and USFS permitting strategy (identification of NEPA compliance requirements) will need to be prepared.

SUMMARY OF TASKS

Task 1 – Survey Reservoirs and Prepare Topographic Maps of Reservoir Basins

In order to produce an accurate dam break analysis, the actual storage capacity of the reservoirs and the drainage characteristics of the surrounding areas must be known. This data will be obtained by doing area capacity surveys at Bull Creek Reservoir #5 and Bull Basin #1, the upstream reservoir for which such information is not yet available (such surveys have already been done at the other upstream reservoirs, those being Bull Creek #1, and Bull Creek #2). The survey work will be performed by Red Mountain Civil, a company well acquainted with the reservoirs in question. The deliverable will be area capacity tables and ACAD maps for Bull Creek Reservoir #5 and Bull Basin Reservoir #1, which will be the foundation of a dam break analysis.

The total cost for this task will be \$10,100

Task 2 – Delineate Wetlands as Required by the U. S. Army Corps of Engineers.

Enlarging the spillway at Reservoir #5 will require some construction, the extent of which will be determined by the “Spillway Adequacy Analysis” described under Task 4. Prior visual inspections have revealed the presence of wetlands near the potential spillway location(s). Prior to doing such construction, the U.S. Corps of Engineers requires potentially affected areas be studied to determine to what extent wetlands are present, the characteristics of those wetlands, possible impacts to those wetlands, and how impacts can be minimized. The wetlands study / evaluation will be conducted by Environmental Solutions. The deliverable will be a wetland delineation in accordance with USACOE guidelines, in the form of a map and analysis of the wetlands in the area of spillway construction, and a request for a “Jurisdictional Delineation” (JD) letter from the Corps. It will also include advice to the Company on the best possible permitting strategy. (Note: A final jurisdictional delineation concurrence from the USACOE is outside the scope of this grant, and will most likely happen in the summer of 2008).

The total cost for this task will be \$9,785

Task 3 – U. S. Forest Service NEPA Compliance Analysis

Before any spillway construction work can be done at Reservoir #5, a Special Use Permit or other permitting mechanism the USFS decides must be obtained from the USFS, which requires compliance with provisions of the National Environmental Policy Act. This can be an extensive process, requiring analysis of impacts to plants, wildlife, endangered species and archeological sites in the construction area and along any routes used to access the construction area. This requires field inspections by USFS personnel and subsequent meetings to evaluate impacts and determine how impacts might be mitigated. This analysis will be done by Environmental Solutions and Water Resource Consultants, working with personnel from the USFS. Preparation of an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is outside the scope of Task 3. The deliverable will be a report detailing the environmental impacts of spillway enlargement options and measures needed to ensure NEPA compliance.

The total cost for this task will be \$10,815

Task 4 – Dam Break Analysis and Routing of Flood Flow through the Bull Creek #5 Watershed and Through Bull Creek Reservoir #5

Information already available and obtained through surveys as described above will be analyzed and modeled using DMBRK software and a calibrated HEC-RAS Unsteady Flow Model. This work will be done by Water Resource Consultants. The deliverable will be a report, “Spillway Adequacy Analysis for Bull Creek Reservoir No. 5,” which will include the following:

- a. Results of a “sunny day” dam break analysis on Bull Creek Reservoir #1, Bull Creek Reservoir #2, and Bull Basin Reservoir #1.
- b. Attendant flood routing through the Bull Creek Reservoir No. 5 spillway.
- c. Spillway sizing, in conjunction with environmental permitting analysis, to determine an appropriate spillway configuration.

The total cost for this task will be \$11,520

Task 5 – Prepare USFS Permit Strategy

Information obtained from analyses and field inspections as described above will be compiled in preparation for obtaining a Special Use Permit or other appropriate permit from the USFS. The exact type of permit will be determined by the USFS. This work will be done by Water Resource Consultants and Environmental Solutions. The deliverable will be a report that identifies USFS and NEPA compliance issues and a detailed permit compliance strategy.

The total cost for this task will be \$4,386

Task 6 – Finalize Plans and Specifications for Spillway Enlargement for Submittal to the State Engineer’s Office.

Using the information from the Spillway Adequacy Analysis and Environmental Analysis reports described in Task 4 and Task 5 above, a design, if needed, for enlargement of the spillway at Reservoir #5 will be prepared. This work will be done by Water Resource Consultants. The deliverable will be complete plans and specifications for spillway enlargement suitable for submittal to the State Engineer.

The total cost for this task will be \$3,394

BUDGET

Engineering and environmental compliance costs for the spillway adequacy analysis are anticipated to be \$50,000. This is summarized below for the above described tasks. Detail for each task is shown on an attached spreadsheet.

Task	Description	Est. Hours	Cost of Labor	Travel & Supplies	Total Est. Cost of Task
I.	Survey Reservoirs and Prepare Topographic Maps of Res. Basins	56	8,720	1,380	10,100
II.	Delineate Wetlands (Required by the USACOE)	82	8,440	1,345	9,785
III.	USFS NEPA Compliance Analysis	82	9,840	975	10,815

IV.	Dam Break Analyses and Routing of the Bull Creek Res. 5 Watershed through BC#5	96	11,520	0	11,520
V.	Prepare USFS Permit Strategy	32	3,840	546	4,386
VI.	Finalize Plans and Specifications for Spillway Enlargement for SEO Submittal	28	3,360	34	<u>3,394</u>
	<i>Total Estimated Cost of Tasks:</i>				\$50,000

SCHEDULE

The engineering work is required by the State Engineer to be completed by Dec. 31, 2007. Thus, time is of the essence because all field work must be completed prior to snowfall, which is imminent at the elevation of 10,000 feet. This includes surveying, wetlands and environmental field work. The environmental permit application strategy will be done concurrently with the spillway sizing analysis, but will not need to be submitted to permitting agencies for actual permits until 2008. The intent is to submit permit requests during the first quarter of 2008; however, this is contingent upon the permitting agencies input into the permit process, which, depending on findings in the field, may require agency field review in the summer of 2008. Permit applications will be prepared to the extent possible, which is dependent upon weather, actual site conditions, coordination with engineering analysis, as well agency directives. Preparation of an Environmental Assessment or an Environmental Impact Statement, if needed, is beyond the scope of this project's scope, cost and schedule.

The chart on the next page shows the anticipated schedule. The start date is fully dependent upon final approval by CWCB staff of the grant application.

Bull Creek Reservoir No. 5
Spillway Adequacy Analysis
Proposed Schedule
(Weather and CWCB Approval Dependent)

Task	Description	Oct. 2007 Week beginning					Nov. 2007 Week beginning				Dec. 2007 Week Beginning					2008 1st Qtr
		1	8	15	22	29	5	12	19	26	3	10	17	24	31	
	Finalize CWCB Grant, Release Funds															
I.	Survey Reservoirs and Prepare Topographic Maps of Reservoir Basins															
II.	Delineate Wetlands (Required by the USACOE)															
III.	USFS NEPA Compliance Analysis															
IV.	Dam Break Analyses and Routing of the Bull Creek Res. 5 Watershed through Bull Creek Res. No. 5															
V.	Prepare USFS Permit Strategy															
VI.	Finalize Plans and Specifications for Spillway Enlargement for SEO															

BULL CREEK RESERVOIR NO. 5
WSRA Grant Application, Exhibit A Scope of Work
Supplemental Budget Information

Task	Description	Est. Hours	Hourly Rate	Cost of Labor	Travel & Supplies	Cost
1	Survey Reservoirs and Prepare Topographic Maps of Reservoir Basins					
	Survey Bull Basin No. 1; develop area-capacity table	20	170	3400	690	4090
	2-man survey crew using GPS and total stations (2 days)					
	4-Wheeler				300	300
	Supplies				50	50
	Survey equipment fees				340	340
	Survey Bull Creek Reservoir No. 5; develop area-capacity	20	170	3400	690	4090
	2-man survey crew using GPS and total stations (2 days)					
	4-Wheeler / day				300	300
	Supplies				50	50
	Survey equipment fees				340	340
	Prepare ACAD Maps	16	120	1920	0	1920
	Cost of Task 1	56		8720	1380	10100
2	Delineate Wetlands (Required by the USACOE)					
	Field delineation (2 field days); wetlands biologist	20	120	2400	470	2870
	Mileage				220	220
	4-Wheeler / day				150	150
	Supplies				100	100
	Survey in wetlands per USACOE requirements	20	170	3400	690	3400
	2-man survey crew using GPS and total stations (2 days)	20	170	3400		0
	4-Wheeler / day				300	300
	Supplies				50	50
	Survey equipment fees				340	340

			120		138
Wetlands verification with USACOE (1 field day)	10	120	0	185	5
Mileage				110	110
4-Wheeler / day				75	75
			144		144
Prepare JD Report and Permit Application (assuming NWG Permit)	12	120	0	0	0
			844		978
Cost of Task 2	82		0	1345	5

3	USFS NEPA Compliance Analysis				
	Field inspection with USFS				
	Note: usually requires separate field trips due to scheduling issues with USFS personnel				
			240		258
	Tree impact inspection (2 field days)	20	120	0	185
	Mileage				110
	4-Wheeler / day				75
			240		258
	Wetland impact inspection (2 field days)	20	120	0	185
	Mileage				110
	4-Wheeler / day				75
			120		138
	Archeological Resource Inspection (1 field day)	10	120	0	185
	Mileage				110
	4-Wheeler / day				75
			384		426
Report preparation, meetings with USFS		32	120	0	420
	Mileage				420
			984		108
Cost of Task 3	82		0	975	15

4	Dam Break Analyses and Routing of the Bull Creek Reservoir #5 Watershed through BC #5				
			384		384
Dam Break Analysis of Tributary Reservoirs using DMBRK	32		0	0	0
Bull Creek Res. No. 1	8	120	960	0	960
Bull Creek Res. No. 2	8	120	960		960
Bull Basin Res. No. 1	8	120	960		960

	Prepare final output documentation for SEO	8	120	960		960
				576		576
Route Hydrographs Through Bull Basin #2 and into BC #5 using HEC-RAS		48		0	0	0
				144		144
	Set up HEC-RAS Unsteady Flow Model	12	120	0		0
				144		144
	Calibrate model	12	120	0		0
				144		144
	Route Hydrographs	12	120	0		0
				144		144
	Prepare final output documentation for SEO	12	120	0		0
				192		192
Spillway Routing, BC #5		16		0	0	0
	Initial hydraulic sizing of spillway	8	120	960		960
	Optimize spillway size based on hydraulics and environmental conditions	8	120	960		960
				115		115
Cost of Task 4		96		20	0	20

5	Prepare USFS Permit Strategy					
	Preparation for and Scoping Meetings with USFS	32	120	384		438
	Mileage			0	546	6
					546	546
				384		438
Cost of Task 5		32		0	546	6

6	Finalize Plans and Specifications for Spillway					
	Enlargement for SEO Submittal					
	Finalize hydraulics of spillway	8	120	960	0	960
	Prepare ACAD drawings and specifications	8	120	960	0	960
	Prepare cost estimate for construction	4	120	480	0	480
	Report preparation	8	120	960	34	994
				336		339
Cost of Task 6		28		0	34	4

Estimated Project Total **500
00**

PAYMENT

Costs incurred prior to grant authorization cannot be reimbursed. Payment will be made based on actual expenditures and invoicing by the water activity sponsor. The request for payment shall 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.

Invoicing to CWCBC will be billed on a time and materials basis, up to a maximum of \$50,000. Billing will be only for actual time and materials expended towards the above noted deliverables. Note that an average rate of \$120/hour was used in the budget analysis. Actual rates will vary in accordance with the July, 1, 2007 fee schedule of Water Resource Consultants, LLC, which is as follows:

Engineering and Hydrology Services	\$135 / hr - Senior Engineer \$110 / hr - Junior Engineer \$ 78 / hr – Eng. Technician
Surface and Groundwater Hydrology	
Stream Restoration	
Flood Delineation	
Water Rights	
Water Supply Planning	
Reservoir Design and Planning	
Water Quality Planning and Monitoring	
Construction Management	
Permitting	
Expert Witness	\$150 / hr - Senior Engineer \$120 / hr - Junior Engineer
ACAD Drafting	\$ 78 / hr
Secretarial / Administrative	\$ 56 / hr
Services by Others	At Cost + 5%
Surveying	
Wetlands Delineation	
Laboratory Analysis	
Geotechnical	
Expenses	
Mileage	\$ 0.85 / mile
GPS Mapping Rental, +- 1.0 feet horz.	\$ 65 / day
Total Station Rental, Reflectorless	\$ 95 / day
4-Wheeler Rental	\$ 75 - \$ 125 / day
Sonar Depth Sounder and Boat Rental	\$ 125 / day
Other expenses	At Cost + 5%