

Scope of Work

Overland Reservoir Dam Expansion/Restoration Project

October 3, 2007

WATER ACTIVITY NAME –

Overland Reservoir Dam Expansion/Restoration Project

GRANT RECIPIENT –

Overland Ditch and Reservoir Company

FUNDING SOURCE -

Statewide Account - \$68,000.00

Task A—Reservoir Yield Analysis

To date, the Overland Ditch and Reservoir Company has been satisfied with making project decisions based on existing water supply information. However that information is dated and incomplete. It has become apparent that updating the yield information will be beneficial in pursuing further finding options. Therefore, the cost estimate includes conducting a reservoir yield investigation.

- 1. Data Collection:** Stream flow data will be collected from USGS gaging stations. Nearby streams that may provide applicable data include Leroux Creek (period of record 1936-1969) Cow Creek (period of record 1960-1969), Leroux Creek at Hotchkiss (period of record 1976-1996), Surface Creek, Hubbard Creek, Terror Creek, Buzzard Creek and Muddy Creek. Any flow pattern correlation will need to be adjusted for storage effects and other applicable diversions. During filling periods, storage adjustment will consist of reduction of the effective drainage area. During spilling periods, the dampening effects of reservoir spills will need to be accounted for by reducing the base flow. If the ratio of total storage to total drainage basin area is similar for two basins, no adjustment will be necessary. Available data from prior studies will be used as much as possible. Historic water rights diversion data will be collected from the records of the Colorado Division of Natural Resources.
- 2. Interviews and Meetings:** Input from local individuals and groups will be important to approximate such factors as site specific diversion characteristics, likely locations for return flows, potential for future water rights development, runoff flow patterns, etc.
- 3. Stream Correlation:** Using spreadsheets or surface water modeling software (such as the Colorado Water Conservation Board/Division of Natural Resources' StateMod) or a combination, a model of the drainage basin will be developed based on the historic stream flow and diversion data obtained. Several subtasks will be required for this part of the project:
 - a. It will be necessary to identify the typical current diversion patterns so that they can be applied to the earlier data.
 - b. Overlap between gaging stations may provide elevation-runoff relationships.
- 4. Reservoir Operation:** The resulting stream model will be used to evaluate the potential operation both the existing reservoir and the proposed increased reservoir capacity.
- 5. Report Preparation:** A final yield analysis report will be prepared which describes the study process, summarizes the results and provides yield-reliability relationships.

Deliverables: Deliverables for this task will include the final yield analysis report.

Task B—Permitting

1. Corps of Engineers Permits: It will be necessary to obtain a DA (Department of Army) permit from the U.S. Army Corps of Engineers. This permit will fall under section 404 of the Federal Clean Water Act. Primary issues will likely consist of mitigation for any wetlands that will be displaced by the project. A detailed wetlands delineation will be performed to identify any wetlands areas that will be displaced or damaged by the project. A field survey of the areas impacted will be necessary to establish the limits for the wetlands inventory. There is a special category of wetlands called “fen” that is impossible to replace and very difficult to mitigate. Therefore, under the “Contingent Permitting Issues” shown on the attached Engineering/Permitting cost estimate, we have included an estimated cost for evaluation and design of mitigation of identified fens should they be found in the area to be disturbed by the project. The portion of this work which might be performed in late 2007 includes designs for mitigation of wetlands displacement.

2. Forest Service Special Use Permits: A special use permit will be required from the Forest Service. The special use permit process will include the following items:

- a. Environmental Assessment:** Conducting an Environmental Assessment (EA) concerning the impacts of the project. The EA is currently in process and is expected to be completed by the end of summer 2007. The EA includes conducting characterization field studies for existing biologic and cultural resources and evaluating the impact that the project will have on those resources. It also includes consulting with interested agencies, soliciting public input and consideration of significant issues that are raised by consultation and public input. If there are no substantial environmental issues, the Forest Service will issue a Finding of No Significant Impact (FONSI). Alternatively, if significant environmental issues are encountered related to the project, the Forest Service may require that the process move on to the next step – making an Environmental Impact Statement (EIS). Until the issues of concern are known, it is difficult to anticipate the scope needed for an EIS.

Mitigation Plans: Mitigation plans will be conceived in accordance with the EA and other Forest Service requirements and concerns. It is anticipated that, at a minimum, the following items will require mitigation:

- i. **Fisheries** – Plans will be made for addressing the Forest Service needs to protect and maintain the existing fish populations.
- ii. **Roads** – An assessment will be made of the impact of the construction traffic on the existing Forest Roads and the measures required to prevent and/or repair damage to the roads will be determined.

iii. **Timber** – A certain amount of timber will be inundated and otherwise impacted by the increased reservoir size. This timber will be identified, quantified and sold to the project. It will be necessary for the owner to remove this timber in an acceptable manner.

b. Preparation of Special Use Permit: A final Special Use Permit will be issued which contains the conditions for construction and long-term use and maintenance. This permit will not be issued until all technical issues and other permitting issues are resolved. Therefore, it is possible that this final permit processing will not occur until late 2007.

c. Technical Review: The Forest Service will make a technical review of the proposed project studies and plans. It is possible that this review will take place in late 2007.

3. Delta County Permits: Delta County does not have a requirement for special use permits when the project is located in a National Forest. However, issues such as road use will have to be addressed with the County. This work may take place during late summer or fall of 2007.

4. Permitting Contingency: The above discussion and attached cost estimates include anticipated permits and engineering required for starting construction. They do not include engineering costs, oversight by the Forest Service or other construction related cost items. It is important to note that, at this stage of the project, it is impossible to anticipate permitting costs with a very high degree of certainty. There may be other costs or additional permits that are not included in this description or the attached cost estimate. A contingency amount of \$6000 is included with the cost itemization to cover these uncertainties.

The Forest Service has recently instituted a cost recovery program whereby they charge the permittee for their services involved with the permit process. The Overland permit was initiated prior to starting of that program. That means that the cost for the initial field studies and initial scoping was absorbed by the Forest Service, but the costs for further services will be charged to the owner. Costs expected to be incurred by the Forest Service are included in the cost estimate.

Deliverables: Other than final permits, deliverables will include progress reports issued at the intervals indicated on the attached schedule.

PAYMENT

Payment will be made based on actual expenditures and invoicing by the water activity sponsor. 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 CWCB in hard copy and electronic format as part of the project documentation.

ANALYSIS / PERMITTING COSTS: Overland Reservoir Expansion and Restoration

COST ESTIMATE										
STUDY TASK	ESTIMATED MAN HOURS								OTHER	TOTAL COST
	LEAD ENGR	ENVIRONMENTAL SPECIALIST								
	SENOIR ENGINEER	PROJECT MANAGER	ENVIRONMNT SCIENTIST	PERMITTING OFFICER	GS-9	GS-7	GS-5	GS-4		
	\$85	\$85	\$55	\$50	\$35	\$26	\$21	\$18		
A. RESERVOIR YIELD ANALYSIS:										
1. Data Collection	50									\$4,250
2. Interviews and Meetings	30									\$2,550
3. Stream Correlation	80									\$6,800
4. Reservoir Operation	70									\$5,950
5. Report Preparation	45									\$3,825
6. Printing, Copying, Mileage, etc.									\$600	\$600
B. PERMITTING:										
1. Corps of Engineers Permits:										
d. Wetlands Mitigation Designs										
i. Engineering Designs	60	30	16							\$8,530
ii. Forest Service Consultation and Review				40						\$2,000
iii. Printing, Copying, Mileage, etc.									\$500	\$500
2. Forest Service Permits:										
a. Environmental Assessment										
i. Mitigation Designs										
- Fisheries	30			35						\$4,300
- Timber Sales	55				72	24	16	48		\$9,019
b. Preparation of Special Use Permit	35			45						\$5,225
c. Technical Review	35				40				\$200	\$4,575
3. Delta County Permits:	50									\$4,250
4. Permitting Contingency										\$6,000
TOTAL ESTIMATED COST										\$68,374

	2007			2008									
TASK ITEM:	October	November	December	January	February	March	April	May	June	July	August	September	October
RESERVOIR YIELD ANALYSIS													
Data Collection		←→	→										
Interviews and Meetings			←→	→									
Stream Correlation				←→	→								
Reservoir Operation					←→	→							
Report Preparation						←→	→						
PERMITTING:													
Corps of Engineers Permits		←		→									
Forest Service Permits		←		→									
Delta County Permits		←		→									
STATUS REPORTS:			X			X							
SCHEDULE OF COSTS:													
RESERVOIR YIELD ANALYSIS													
Data Collection													
Interviews and Meetings		\$2,100	\$2,100										
Stream Correlation			\$2,500										
Reservoir Operation				\$6,800									
Report Preparation					\$6,000								
						\$4,500							
PERMITTING:													
Corps of Engineers Permits		\$4,200	\$4,300	\$4,300									
Forest Service Permits		\$8,900	\$8,900	\$8,900									
Delta County Permits		\$1,600	\$1,600	\$1,700									
TOTAL COST		\$16,800	\$19,400	\$21,700	\$6,000	\$4,500							
FUNDING REQUEST													

OVERLAND DAM ENLARGEMENT
YIELD ANALYSIS AND PERMITTING
SCHEDULE OF WORK ITEMS AND COSTS

FIGURE 1
5/8/2007