

I. Project Title: Operation and Maintenance of the Fish Screen and Maintenance of the Fish Passage Facility at the Redlands Water and Power Company Diversion Dam

II. Prepared by: Kevin E. Jones, Superintendent
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III. Project Summary: The Redlands Water and Power Diversion, located on the Gunnison River near Grand Junction, CO, diverts water into the Redlands Power Canal. A fish passage structure was constructed around the diversion dam in 1996. A fish screen and fish return pipeline was constructed in the canal in 2004. The fish passage is operated by the US Fish and Wildlife Service. Redlands operates and maintains the fish screen and performs maintenance on the fish passage.

IV. Study Schedule: Redlands makes every effort to operate the fish screen whenever diverting water into Power Canal. Maintenance on the fish passage is performed after the US Fish and Wildlife Service completed annual operation.

V. Relationship to RIPRAP: Colorado River Action Plan: Mainstem II.B.3.

VI. Accomplishment of FY 2010 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

The following major maintenance activities were completed on the fish passage.

- 1) Refer to US Fish and Wildlife Service. Bob Burdick
- 2) Redlands Water and Power cooperated with FWS on maintenance

The following improvements were made to the fish passage:

- 1) Refer to US Fish and Wildlife Service. Bob Burdick
- 2) Redlands Water and Power cooperated with FWS on maintenance

The fish screen was operated during the following periods

- | | | |
|-------------|---------|--|
| 1) online | 3-24-10 | |
| 2) bypassed | 4-20-10 | screens plugged. East brush intermittent. |
| 3) online | 4-26-10 | |
| 4) bypassed | 7-16-10 | East brush stopped. West brush unable to keep screen clear |
| 5) online | 7-27-10 | Found loose wire connection in East brush control panel. |
| 6) bypassed | 8-05-10 | Flash flooding upriver caused debris to plug screens |
| 7) online | 8-09-10 | |

8) bypassed	8-17-10	Partial bypass by raising radial gates slightly. Heavy mud and debris. Compressor control board failed. Water still passing through screens at reduced flow.
9) online	8-23-10	Compressor repaired.
10) canal offline	11-01-10	maintenance on Power Canal
11) canal online	11-04-10	
12) bypassed	11-01-10	

The following major maintenance activities were completed on the fish screen:

- 1) Complete service on air compressor increased to twice per season
- 2) Complete service on trash rake
- 3) Replaced Main control board on air compressor and reset parameters.
- 4) Added electricity to storage container.
- 5) Installed computer in storage container for water level monitoring.
- 6) Painted storage container and trash rake bulkhead for corrosion protection.
- 7) Continued daily log book and maintenance log entries.

The following improvements were made to the fish screen:

- 1) New water level sensors were installed
- 2) Additional lighting installed at trash rake for night operations.
- 3) New operation screen installed for automated operation.
- 4) Electrical junction boxes were added to aid in the future replacement of water level sensors.

VII. Recommendations:

- 1) Add water flow meter to discharge pipe.
- 2) Add manhole or cleanout in discharge line for power cleaning.
- 3) Add concrete apron on East edge of trash rake to aid in debris removal.
- 4) Arrange Industrial Electricity and Hydraulic Systems training for RWP Fish Screen operator Mark Sievers.

VIII. Project Status: On schedule and on budget.

IX. FY 2010 Budget Status

- A. Funds Provided: \$85,000* (2009)
- B. Funds Expended: \$77,757.50 *(RWP)

See attached FY2010 Invoice summary for detail of expenditures by activity.

X. Status of Data Submission (Where applicable): Not applicable

XI. Signed: Kevin E. Jones November 30, 2010
Principal Investigator Date