

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. U.S. Bureau of Reclamation Agreement Number:

U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service;
Agreement Contract No.: **04-WC-40-040**

A. Project/Grant Period:

Start Date: 03/06/2004

End date: Ongoing

Reporting Period End Date: 30/09-2019

Is This the Final Report: Yes/ No/ X

III. Prepared By:

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IV. Project Summary:

The Redlands Water & Power Diversion is located on the Gunnison River near Grand Junction, CO, and 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 U.S. Fish and Wildlife Service. Redlands Water and Power Company operates and maintains the fish screen and performs maintenance on the fish passage.

V. Study Schedule:

Redlands Water & Power company (RW&PC) makes every effort to operate the fish screen whenever diverting water into Power Canal from the Gunnison River and adequate water supply allows for RW&PC's decreed diversion amount. Maintenance on the fish passage is performed after the U.S. Fish and Wildlife Service (USFWS) has completed annual operations.

VI. Relationship to RIPRAP: Colorado River Action Plan:

- A. Gunnison River II.B.1.c Operate and maintain Fish Ladder at Redlands
- B. Gunnison River II.B.1.h Operate and maintain Fish Screen at Redlands

VII. Accomplishment of FY- 2019 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

- A. The following major maintenance activities were completed on the fish passage.
 - 1) None this fiscal year.
- B. The following improvements were made to the Fish passage:
 - 1) None this fiscal year.

C. The fish screen was operated during the following periods:

FY-2019 Redlands Fish Screen Operation Periods:			
Dates of Operation and Description of Event	Days ON		Days OFF
Oct. 1st, 2018	Working online	33	
Nov. 4th, 2018	Shutdown due to winter icing		*
Mar. 21st, 2019	Back online and operational		* 137
April 21st, 2019	Trash rack repairs	31	0.5
July 10th, 2019	Heavy debris & rack maintenance	80	0.5
Aug. 12th, 2019	Heavy debris & rack maintenance	33	0.5
Sept.30th, 2019	Working online (end of FY-2019)	51	
	<i>FY-2019 Operational days Total:</i>	228	
	<i>Winter Shut-down non-irrigation season</i>		* 137

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

- 1) West screen cleaner – replaced motor and gearbox. Old gearbox had leaked oil into motor and ruined both units.
- 2) Replaced air compressor breaker in distribution panel.
- 3) Had concrete slab raised (slab jacked) under the air compressor slab that had settled 2 inches. Work was done by Mays Construction Specialties, Inc.

E. The following improvements were made to the fish screen:

- 1) Design and build a system that connected to ethernet to monitor the control signals on the air compressor, trash rake, brush drives and radial gates.
- 2) Install three (3/ea.) RING security camera devices. These provide visual observation of screen operation and provides security monitoring remotely for RW&PC by using cell phones.
- 3) Design and install a back-up battery system for the modem for the internet connection on site. This is for the ethernet, RING cameras, and monitor for the entire monitoring system.
- 4) Poured concrete slabs around maintenance and utility buildings on site.

VIII. Additional Noteworthy Observations: None

IX. Recommendations:

- A. Install an electric security gate on the access road going out to the fish screen. There seems to be more trespassing in the fish screen area.
- B. Install the electric gate opener on the main gate going into the fish screen. The gate opener was purchased this year but still needs to be installed. Need to purchase hardware items and install the unit.
- C. Silt and mud build-up at the fish screen needs to be dredged out and removed. The build-up prevents some of the screen baffles from turning and could help with better flows into the screens.
- D. Readjust the screen baffles (wicket-gates) for better and more even flows over the entire screen system. This would require using a flowmeter device which the BOR has offered to provide with an operator.
- E. Removal of vegetation along the west side of the screen bay area and possible grout the rip-rap on both sides to prevent or deter further vegetation growth.

X. Project status:
On schedule and on budget.

XI. FY 2019: Budget Status:

- A. Funds Provided: **\$76,358.57 (billed total)**
- B. Funds Expended: **\$76,358.57**
- C. See attached FY 2019 invoice summary for detail of expenditures by activity.

SUMMARY OF DETAILED EXPENDITURES					
Operation, Maintenance, and Repair of Redlands Fish Screen and Fish Passage Facilities					
PERIOD OF WORK PERFORMED	01-Oct-18	THRU	30-Sep-19		FY-2019
Activity / Facility	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL
FISH SCREEN FACILITY					
Administration	\$1,259.08	\$51.68	\$51.68	\$206.72	\$1,569.16
Labor	\$1,043.69	\$400.86	\$10,150.72	\$13,911.17	\$25,506.44
Utilities, Telephone & Internet	\$2,284.02	\$886.69	\$4,035.83	\$3,701.76	\$10,908.30
Materials	\$3,568.25	\$0.00	\$9,286.64	\$17,811.99	\$30,666.88
Equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Outside Services & Rental	\$1,336.24	\$225.00	\$2,360.00	\$3,504.58	\$7,425.82
Total Fish Screen Expense, O&M	\$9,491.28	\$1,564.23	\$25,884.87	\$39,136.22	\$76,076.60
FISH PASSAGE FACILITY O&M					
Administration	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Labor	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Utilities, Telephone & Internet	\$102.04	\$89.07	\$90.86	\$0.00	\$281.97
Materials	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Outside Services & Rental	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Fish Passage Expense, O&M	\$102.04	\$89.07	\$90.86	\$0.00	\$281.97
Both Facilities FY-20129 TOTAL:					\$76,358.57

XII. Status of Data Submission (where applicable):
Not applicable.

XIII. Signed: Kyle R. Vanderberg December 9th, 2019
Superintendent/Manager Date