

## OPERATION AND MAINTENANCE REPORT

COLORADO RIVER RECOVERY PROGRAM  
FY 2017 ANNUAL PROJECT REPORT

RECOVERY PROGRAM  
PROJECT NUMBER 01-WC-40-7050

I. Project Title: Operation and Maintenance of the Fish Screen and Fish Passage Facility at the Grand Valley Irrigation Company Diversion in Palisade.

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III. **Project Summary:**

The Grand Valley Irrigation Company (GVIC) diversion, located on the Colorado River (River) near Palisade, Colorado, diverts water in the GVIC Mainline Canal. A fish passage structure was constructed in the River on the downstream side of and adjacent to GVIC's diversion structure in 1998-1999 during the off water season. The fish screen was constructed in the GVIC canal below the river diversion gates in 2002. This fish passage and fish screen is owned by the US Fish and Wildlife Service. GVIC operates and maintains the fish screen and the fish passage through a cooperative agreement with the United States.

IV. **Study Schedule:**

GVIC makes every effort to operate the fish screen whenever diverting water in the GVIC canal from the Colorado River and adequate supply allows for GVIC's decreed diversion amount and needed fish screen by-pass pipe flows. Maintenance of the fish screen/passage is performed following the US Fish and Wildlife Service, the Bureau of Reclamation and GVIC completing an annual inspection and submittal and approval of an annual work plan by GVIC.

V. **Accomplishments of FY 2017 Tasks and Deliverables, Discussion of Initial Findings and shortcomings:**

**The following maintenance and activities were completed on the fish screen:**

October, 2016

1. Festoon lead trolley puller pole broke, main pulley #2 brush arm bearings destroyed.
2. Work on Annual Operation and Maintenance Report for FWS.
3. Normal maintenance on fish screen and pre-cleaner rack.

Nov-Dec, 2016

1. Work on Annual report for FWS.
2. Start & check back-up generator to monitor start procedure.
3. Contact Wagner Equip. on maintenance for back-up generator.

January, 2017

1. Office billing.
2. Replace all trolleys on all three brush arms, grease all points on fish screen.
3. Check back-up generator for proper functioning.

Feb-May, 2017

1. Fix #2 brush arm and replace wear blocks on bottom of all three brush arms. Grind brush arm wear concrete ledge.
2. Install mobile pumps and pump out floor bay in preparation of coating on wear concrete ledge with Castagra Ecodur 201 coating, which is a vegetable oil base & gypsum product coating.
3. Clean up after application of coating, and remove pumps.
4. Lower screens and test run brush arm and air festoon system for water season.
5. Have air compressor company service air compressor.
6. Normal maintenance on fish screen and pre cleaner.
7. Attend HUP wrap up meeting and gave report on fish screen.
8. Raised and lowered screens then raised again due to excessive algae from runoff, May 7th.
9. Attempted to lower screens, still algae in screens, excessive debris in river due to increasing runoff.
10. Pressure wash and scrape algae off all 23 screens.
11. Fix brush arm air line.
12. Work on Annual work plan.
13. Fueled generator and bobcat.
14. Debris decreased after runoff lowered screen May 31<sup>st</sup>.

June, 2017

1. By-pass 48" gate excessively plugged, cleaned 48" by pass-gate.
2. Lubricated all cable guides & pulleys.
3. Screens up due to by-pass still plugged and not able to pull algae off face of fishscreens.
4. Removed 1 ½ cubic yards of organic debris from entry of by-pass, pumped water in to try to unplug by-pass. Replaced drive pulley belt, tightened cable.
5. Attempt to lower screens, by-pass still plugged, not pulling water.
6. Finally realized exit to river of by-pass pipe plugged with huge boulders rolled in river at by-pass pipe structure exit.

July, 2017

1. Discuss F/S alarms and pull screens.
2. Put screens down, change belt cable. Met with Brian from Mtn. Peaks controller on PLC F/S.
3. Maintenance on A/C unit for PLC. Variable Frequency Drive (VFD) trouble code on PLC functions.
4. Contact electrician from Ridge on replacing belt cable pulley drive motor and VFD.
5. Adjusted drive motor housing for air circulation.
6. Installed new drive motor, could not get VFD for existing motor.
7. Lowered screens after new motor and VFD installed.

August, 2017

1. Prep for annual meet with BOR-FWS.
- 2 Met with BOR-FWS Annual meeting on site.

September, 2017

1. Raise Obermeyer, check screen functions and adjust by-pass gate. September 1, 2017.
2. Lowered Obermeyer gate. September 28, 2017.
3. Checked F/S function, by-pass exit.
4. Oil leak on air compressor unit for brush arm air system, cleaned up oil and called service tech. Fixed air compressor.
5. Cleaned debris at by-pass return pipe ground area.

**END FY 2017**

**VI.**

**The fish screen was operated during the following periods:**

**FISHSCREEN OPERATIONS – 2017 On-Off**

| Lowered<br>On Date/Time | Raised<br>Off Date/Time | Days On    | Days Off   | Shutdown Reason                                 |
|-------------------------|-------------------------|------------|------------|---|
| 04/03/17                | 05/07/17                | 34         | 24         | Excessive moss/algae/river debris               |
| 05/31/17                | 06/10/17                | 10         | 5          | Excessive river debris                          |
| 06/15/17                | 06/20/17                | 5          | 6          | By-pass entry plugging off w/debris             |
| 06/26/17                | 07/03/17                | 7          | 2          | By- pass still not flowing correctly            |
| 07/05/17                | 07/06/17                | 1          | 23         | Brush arm cable motor out & VFD                 |
| 07/29/17                | 07/30/17                | 1          | 1          | Excessive river debris, storm event             |
| 07/31/17                | 10/30/17                | 92         |            | Water out of the canal October 30 <sup>th</sup> |
| <b>TOTAL RUN</b>        | <b>211 DAYS</b>         | <b>150</b> | <b>61</b>  |   |
| <b>Percentages</b>      |                         | <b>71%</b> | <b>29%</b> |   |

GRAND VALLEY IRRIGATION CO. DIVERSION APRIL 1-OCT 30 2017

Colorado's Surface Water Conditions

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Arkansas
Colorado
Gunnison
Rio Grande
San Juan/Dolores
South Platte
Yampa/White
Login

|   |  |   |  |  |   |
|---|--|---|--|--|---|
| <b>View</b><br><input type="radio"/> Normal<br><input checked="" type="radio"/> Zoom In | <b>Show</b><br><input checked="" type="checkbox"/> Historic Ave.<br><input type="checkbox"/> Log Scale<br><input checked="" type="checkbox"/> Measurements<br><input type="checkbox"/> Historic Only | <input checked="" type="radio"/> Calendar<br><input type="radio"/> Days<br><input type="radio"/> Water Year<br><input type="radio"/> Custom | <b>Period</b><br>(1 to 365 days)<br>Start: <input type="text"/> <input type="button" value="Calendar"/><br>End: <input type="text"/> <input type="button" value="Calendar"/> | <b>Compare</b><br><input checked="" type="radio"/> Stations<br><input type="radio"/> Years | <b>Graph(s)</b><br><input type="radio"/> Individual<br><input checked="" type="radio"/> Composite |
|---|--|---|--|--|---|

Compare Station Data  
 ...Add Station...  
 GRDVALCO,DISCHRG

**Composite Graph**  
 Change Title

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**GRAND VALLEY CANAL NEAR PALISADE, CO (GRDVALCO)**  
 Data Source: Co. Division of Water Resources

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**NOTE:**

All down spikes in above graph are directly related to fishscreen plugging operations.

VII.

The fish passage was operated during the following periods:

| FISH PASSAGE                |          |          |        |         |   |
|-----------------------------|----------|----------|--------|---------|---|
|                             |          | Days     |        |         |   |
| OBERMEYER OPERATIONS - 2017 | Raised   | Lowered  | Raised | Lowered | Reason                                  |
| Gate Lowered as             |          |          |        |         |   |
| Normal Positions            |          |          |        |         |   |
|                             |          | 04/03/17 |        | 151     | Adequate water in river, water in Canal |
|                             | 09/01/17 |          | 27     |         | Low river water                         |
|                             |          | 09/28/17 |        | 33      | Adequate water in river                 |
|                             |          |          |        |         |   |
|                             |          |          |        |         |   |
|                             |          | 10/30/17 |        |         | Water out of Canal October 30, 2017     |
|                             |          |          |        |         |   |
|                             |          |          |        |         |   |
|                             |          |          |        |         |   |
|                             |          |          |        |         |   |
| TOTAL                       | 211 Days |          | 27     | 184     |   |
|                             |          |          |        |         |   |
| Percentage                  |          |          | 13%    | 87%     |   |

VIII. Expenditures FY 2017:

Funds requested/budgeted for FY17 \$77,423.20

Total fiscal period October 1, 2016 – September 30, 2017

Screen/Passage  
\$46,052.66

Break Down of Expenses

|                      |                    |
|----------------------|--------------------|
| Administration       | <u>\$ 364.66</u>   |
| Labor Screens -      | <u>\$20,944.06</u> |
| Electrical Screens - | <u>\$14,727.74</u> |
| Phone Screens -      | <u>\$ 737.73</u>   |
| Material Screens -   | <u>\$ 5,496.51</u> |
| Equipment Screens -  | <u>\$ 3,484.67</u> |

|                      |                  |
|----------------------|------------------|
| Labor Passage -      | <u>\$ 136.74</u> |
| Electrical Passage - | <u>\$ 160.55</u> |
| Material Passage -   | <u>\$ 0</u>      |
| Equipment Passage -  | <u>\$ 0</u>      |

TOTAL \$46,052.66

Note:

1. Section V. accomplishments includes October 2016 FY 17 activity however is part of 2016 water operating season.
2. Section VI. and VII. Operations, include October 2017 for a clear water season operations report.

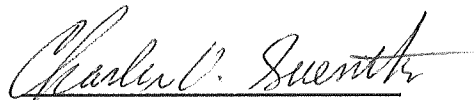
**IX. Recommendations:**

1. Sand blast and replace hot galvanizing on screen and baffle slots below water surface.
2. Continue evaluating replacing of some wedgewire screens with travelling screens. Price, engineering, operations, installing, etc.
3. Video camera by-pass pipeline, have had no internal inspection on by-pass pipe since 2002.
4. Place curb on diversion approximately 350 LP to allow screens to perform during lower water in river.
5. Clean out pools in fish passage.
6. Replace brushes on brush arms for two year rotation.
7. Increase surface area of screens by additional screen system.

Non GVIC fishscreen/passage recommendation:

New Colorado River gauging station at end of 15 mile reach upstream of the confluence of the Gunnison River. To reflect return flows from the Grand Valley within the 15 mile reach.

**X. Signed:**



Charles D. Guenther  
Assistant Superintendent

11/13/2017

Date



GVIC-BOR-FWS

ANNUAL INSPECTION

GVIC FISHSCREEN/PASSAGE FACILITIES

AUGUST, 2017

INSPECT CURRENT OPERATIONS FISHSCREEN

REVIEW PROBLEMS ENCOUNTERED AND REPAIRS THIS SEASON

AIR SUPPLY LINE ON TOP BRUSHARM #1 BROKE

ENTRANCE AND EXIT OF BY-PASS PIPE PLUGGED

VFD ON DRIVE MOTOR WENT BAD NO REPLACEMENT FOR THAT MOTOR HAD TO REPLACE

MOTOR AND VFD. DRILLED HOLES IN MOTOR COVER FOR AIRFLOW

INSTALLED NEW WEARBLOCKS ON BOTTOM BRUSHARMS AND EPOXY COATED ONE FOOT

WALL TO PROTECT WEAR ON NEW BLOCKS, LAST ONES ONLY WENT ONE SEASON

BRAINSTORM OPTIONS FOR MORE EFFICIENT OPERATIONS i.e.;

ADDITIONAL BRUSHARMS

TRAVELING SCREENS IN SCREEN SLOTS

MAY NEED ADDITIONAL AIR SUPPLY IF BRUSHARMS ARE ADDED

FISHPASSAGE:

INSPECT POOLS FOR CLEANING WHEN RIVER DOWN

INSPECT RIFFLES FOR CLEANING

OTHER: