

UPPER COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

FY 2020 ANNUAL REPORT

PROJECT: C-34

Project Title

Operation, Maintenance, and Modification of Orchard Mesa Canal Automation Improvements.

Bureau of Reclamation Agreement Number:

12-WC-40-445

Project/Grant Period:

Start date: 11/13/2014

End date: Ongoing

Reporting period end date: 12/31/2020

Is this the final report? Yes _____ No ___

Principal Investigator:

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Abstract:

The project plan consisted of constructing a canal automation system composed of 33 canal check structures, 87 acre-foot regulating reservoir, pumping plant(s), upper/lower canal interconnect pipeline, replacement of open channel laterals with pressurized pipelines and integrated SCADA system. The pumping plants, upper/lower canal interconnect pipeline were not installed due to timing and budget constraints. The objective of the canal automation system is to reduce the volume of water diverted from the Colorado River for irrigation use by the Orchard Mesa Irrigation District and to redirect this water to generate more hydroelectric energy thereby indirectly improving flows in the Colorado River. Very conservative estimates indicate that ~17,000 acre-feet of water annually can be redirected to improve instream flows in the 15-Mile Reach of the Colorado River upon full buildout of canal improvements. This document reports on the 2020 operation, maintenance, and modification costs associated with implementing the various components of this automation system.

Study Schedule:

Preliminary project planning was initiated in the early 1990's using Reclamation's General Investigation Program. Project planning, preliminary designs, permitting, O&M contract execution and NEPA compliance was completed in FY 2013. Final designs for individual project components are being prepared as implementation proceeds in order to modify components based on operational experience. Project construction was initiated in FY 2013. Construction of all 33 canal check structures was completed during the winter of 2013-2014. These facilities were operated throughout the 2014, 2015 and 2016 irrigation seasons. A construction contract for the regulating reservoir was awarded in FY 2016. Construction of this facility was completed in June of 2017 and placed into operation in July following a 30 day monitoring period after first fill of the reservoir. Establishment of the gate automation features is mostly complete, with only some minor changes (likely less than \$5,000) remaining to be made.

Relationship to RIPRAP:

Colorado River tasks:

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- I.A.5 Provide and legally protect instream flow pursuant to Colorado River PBO
- I.A.5.k. Orchard Mesa Irrigation District (OMID) Canal Automation Project
- I.A.5.k.(4) Design and construct features of the OMID project

Accomplishment of FY XXXX Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

1st Quarter (January, February, March)

1. All weather Canal roads/road construction – gravel, road base
2. Gate automation and SCADA Installed on MML Lateral.
3. Silt removal from Regulating Reservoir.

2nd Quarter (April, May, June)

1. All weather Canal roads/road construction – gravel, road base

3rd Quarter (July, August, September)

1. All weather Canal roads/road construction – gravel, road base

4th Quarter (October, November, December)

1. All weather Canal roads/road construction – gravel, road base

End 2020

Monthly Irrigation Volumes:

2020

Month	Total Irrigation Volume (af)
November	0
December	0
January	0
February	0
March	0
April	6,684
May	8,915
June	8,601
July	9,127
August	8,937
September	7,927
October	5,921
Total	56,112
*Baseline	63,635
Savings	8,383
Target Savings	17,000
Percent of Target	49%

2018

Month	Total Irrigation Volume (af)
November	0
December	0

Past years water savings:

2019

Month	Total Irrigation Volume (af)
November	0
December	0
January	0
February	0
March	0
April	4,245
May	7,648
June	8,126
July	9,114
August	9,150
September	8,065
October	7,424
Total	55,252
*Baseline	63,635
Savings	8,383
Target Savings	17,000
Percent of Target	49%

2017

Month	Total Irrigation Volume (af)
November	0
December	0

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January	0
February	0
March	0
April	7,968
May	9,489
June	9,620
July	10,029
August	9,715
September	7,714
October	6,355
Total	60,890
*Baseline	63,635
Savings	2,745
Target Savings	17,000
Percent of Target	16%

January	0
February	0
March	0
April	7,722
May	8,295
June	8,093
July	9,463
August	9,051
September	7,738
October	6,567
Total	56,929
*Baseline	63,635
Savings	6,707
Target Savings	17,000
Percent of Target	39%

2016

Month	Total Irrigation Volume (af)
November	0
December	0
January	0
February	0
March	0
April	4,128
May	8,549
June	9,725
July	10,548
August	10,207
September	8,541
October	6,760
Total	58,458
*Baseline	63,635
Savings	5,177
Target Savings	17,000
Percent of Target	30%

2015

Month	Total Irrigation Volume (af)
November	0
December	0
January	0
February	0
March	0
April	6,583
May	9,194
June	9,257
July	9,882
August	8,555
September	9,227
October	8,343
Total	61,040
*Baseline	63,635
Savings	2,595
Target Savings	17,000
Percent of Target	15%

*Baseline is a 10-year average of irrigation flows prior to 2013 developed by the United States Bureau of Reclamation Western Colorado Area Office (WCAO).

Recommendations:

1. Continuation of creating all weather roads/road construction.
2. Pump monitoring and adjustments.
3. Manually regulating flows and operations at the Regulating Reservoir.
4. Maintaining and repairing weirs.
5. Remove silt from reservoir.

Project Status:

OMID has operated the 33 weirs and regulating reservoir for 3.5 years now. Every year the OMID crew gets better at adjusting the pumps to lower the flows. One of the learning curves is

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that when adjustments are made at the pumps there is a 10-12 hour time difference before the change in flows is evident at the reservoir. All the inflow and outflows are managed manually at the reservoir.

During the 2020 irrigation season an automated gate and SCADA were installed on the outflow valve in order for flows to be monitored and adjusted remotely. This should make flow adjustments much quicker and easier. OMID employees will be learning and using the new technology during the 2021 irrigation season. Weirs at the inlet of the reservoir have been adjusted so that when there is excess water in Canal #1 it will automatically be diverted into the reservoir. Every year management of the pumps, weirs and reservoir will improve.

FY 2020 Budget Status

Funds Budgeted: \$176,000 (\$88,000 Program funds, and \$88,000 in-kind services)

Funds Expended: \$87,554.86 (including \$43,777.43 in-kind services)

Difference: \$44,223.14 = unexpended 2020 Program budget

Percent of the FY 2020 work completed, and projected costs to complete: 100%

ITEM OR FEATURE	TOTAL
<i>2020 O & M Annual Report</i>	
Planned O&M Costs	\$87,206.02
Electric Power Costs	\$348.84
Emergency O&M Costs	\$0.00
Total Costs for 2020 (01/01-12/31)	\$87,554.86
Total from 2020 Work Plan (01/01-12/31)	\$176,000.00
<i>2020 Funds Disbursed</i>	
Improvement Account	\$0.00
In-Kind Services	\$43,777.43
Recovery Program Annual Funding	\$43,777.43

<i>2020 Improvement Account Annual Report</i>	
Starting Balance	\$132,808.73
Interest Earned	\$38,703.15
O&M Payment	\$0.00
Ending Balance	\$172,086.59

Status of Data Submission

N/A

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Signed: _____ **February 8, 2021**
Max Schmidt, Manager