GARRISON DIVERSION CONSERVANCY DISTRICT

ENGINEERING & OPERATIONS COMMITTEE

Holiday Inn Riverside
Minot, North Dakota
July 13, 2017

A meeting of the Engineering and Operations Committee of the Garrison Diversion Conservancy District was held at the Holiday Inn Riverside, Minot, North Dakota, on July 13, 2017. The meeting was called to order by Chairman Anderson at 7:25 a.m.

DIRECTORS PRESENT

Board Chairman Ken Royse
Committee Chairman Dave Anderson
Director John Peyerl
Director Alan Walter

DIRECTORS ABSENT

Director Jeff Breker

OTHERS PRESENT

Staff members of the Garrison Diversion Conservancy District were present along with others. The registration sheet is attached to these minutes as Annex I.

The meeting was recorded to assist with compilation of the minutes.

READING OF THE MINUTES

Motion by Director Peyerl to dispense with a reading of the January 12, 2017, Engineering & Operations Committee minutes and approve them as distributed. Second by Director Royse. Upon voice vote, motion carried.

2017 WORK PLAN UPDATE

Jerry Kellar and Darren Murray, O&M Division, Garrison Diversion, provided an update on operation and maintenance (O&M) activities and work performed by the O&M crews, including a PowerPoint presentation of jobs completed at various locations.

MCCLUSKY CANAL REFERENCE MAP

Ryan Anderson, Engineer, Garrison Diversion, referred to the McClusky Canal reference map, which shows a layout of the major features located along the canal. This is provided for the committee's information.

MCCLUSKY CANAL SLIDE UPDATE

Kip Kovar, District Engineer, Garrison Diversion, referred to and explained the preliminary designs prepared for the McClusky Canal slide repair project. The work was originally intended to be done under the existing cooperative agreement with the Bureau of Reclamation. A separate cooperative agreement had to be completed and was submitted to the Dakotas Area Office in Bismarck this spring. It is a five-year scope of work, including budget. It was also submitted to the regional office in Billings, and Garrison Diversion is still waiting for this agreement to be approved.

FIVE-YEAR OM&R WORK PLAN & BUDGET

Mr. Anderson referred to the Draft GDU Five-Year Operation, Maintenance & Replacement (O&MR) Plan and reviewed it with the committee, a copy which is attached to these minutes as Annex II. The OM&R Plan lays out all of the general maintenance and routine work activities for the O&M division over the next five years. It also helps with budget preparation.

Mr. Anderson said this is the last year of the current Five-Year O&MR Plan. A new plan is being drafted and will be submitted to Reclamation this fall.

Mr. Anderson referred to the breakdown of two budgets; the top table shows the O&M budget and the bottom table shows the budget for the major slides. The numbers for the next five years appear a little lower on the O&M side due to more work anticipated at the major slide area. The total five-year budget amount for O&M is $14.7 million and $16.9 million for the major slides.

Mr. Kovar said both budgets are being provided for the committee's awareness. The budget for the major slides is what was submitted with the scope of work for the slide repair construction agreement. The O&M budget is what will be submitted with the new Five-Year O&MR Plan. The five-year plan is presented to the committee each July since it is updated annually.

Motion by Director Walter to approve the Garrison Diversion Unit Five-Year Operation, Maintenance and Replacement Plan 2018-2022. Second by Director Peyerl. Upon roll call vote, the following directors voted aye: Anderson, Peyerl, Walter and Royse. Directors voting nay: none. Absent and not voting: Breker. Motion carried.

2017 O&M WORK PLAN & BUDGET

Mr. Kovar reported that six years ago Garrison Diversion submitted a Five-Year O&MR Plan and Budget for operation and maintenance on the canal. At that time, it took almost a year to get the plan approved. Due to work being done on the slide repair cooperative agreements, Garrison Diversion was approved for a one-year extension on the Five-Year OM&R Plan, which it is currently working under.

Mr. Kovar stated that the 2017 O&M Work Plan was submitted to Reclamation in January. It took another month or two to work out the details, and then it got sent off to the regional office in Billings. Garrison Diversion is still waiting for the 2017 O&M Work Plan and Budget to be approved and, in the meantime, Garrison Diversion is paying for O&M expenses from

its general fund. It is seven months into the work plan, which is part of the overall Five-Year OM&R Plan, and it still has not been approved.

Mr. Kovar referred to a copy of the letter that Garrison Diversion submitted to Mike Ryan, Regional Director, Bureau of Reclamation, questioning the delay. A copy of the letter is attached to these minutes as Annex III.

Arden Freitag, Area Manager, Bureau of Reclamation, stated there are over 200 agreements to be approved and only one grants officer to review them at the regional office. The process of agreement review really changed about seven or eight years ago, and they take a lot more work. He added that Garrison Diversion's letter has helped to move this forward, and Reclamation is looking at ways to streamline the process. There are also a couple of individuals in training to assist the grants officer. Reclamation hopes to have this issue resolved in a few weeks.

LAKE AUDUBON WATER CONTROL PLAN

Mr. Kovar presented an illustration of the Snake Creek Embankment along Highway 83 between Lake Audubon and Lake Sakakawea and explained the water elevation that is needed to push water down the McClusky Canal.

Duane DeKrey, General Manager, Garrison Diversion, reported on the U.S. Army Corps of Engineers (USACE) Proposed Lake Audubon Water Control Plan, which would implement a differential pool restriction of 43 feet between Lake Sakakawea and Lake Audubon. The proposed restriction would be very harmful to the GDU preventing water deliveries for MR&I and irrigation and affecting mitigation features in a drought. It would also cause significant financial implications on the GDU and economic impacts to the state.

Garrison Diversion has prepared a response to the USACE addressing the financial and legal concerns associated with the proposed plan. A task order has also been issued to provide Garrison Diversion with technical assistance for discussions with the USACE.

2017 EQUIPMENT LIST

Mr. Anderson called attention to the current list of Garrison Diversion equipment. This is provided for the committee's information.

OTHER BUSINESS

There being no further business to come before the committee, the meeting adjourned at 8:20 a.m.

(SEAL)

Dave Anderson, Chairman

Kip Kovar, Secretary

REGISTRATION

Engineering and Operations Committee
Minot, North Dakota
July 12, 2017

NAME	ADDRESS
Lisa Schafer	GDCD
Dave Anderson	GDCD
Dawn Murray	GDCD
[illegible]	GDCD
Ryan Anderson	GDCD
Kimberly Cook	GDCD
Duane DeKrey	GDCD
Arden Freitag	Reclamation
Kip Lover	GDCD
Mike Marohl	Reclamation
Paul Boeshans	BTV
Bill Ongstad	GDCD Wells County
John Beyer	" Ramsey "
Ellen M. Walter	GDCD - WARD CTY
Ken Course	Burleigh Co. - GDCD

Garrison Diversion Unit Five-Year Operation, Maintenance & Replacement Plan

2018-2022

July 6, 2017

Table of Contents

I. PURPOSE AND OBJECTIVES

A. Purpose

The purpose of this plan is to reaffirm objectives and maintenance criteria and to present a plan of work activities and estimated funding requirements to guide the Operation, Maintenance and Replacement (OM&R) Program of constructed Garrison Diversion Unit (GDU) facilities over the next five years under a cooperative agreement with the Garrison Diversion Conservancy District (Garrison Diversion).

B. Objectives

The objectives of the OM&R Program are: 1) to protect the federal investment, 2) to maintain public safety, 3) to provide long-term beneficial use and public benefits, 4) to protect water, land, wildlife, and cultural resources, and 5) to provide for future operations and management of project facilities as authorized by current legislation and within current environmental analyses.

II. BACKGROUND

GDU Project facilities constructed to date include: Snake Creek Pumping Plant (SCPP), McClusky Canal, Wintering Dam, Lonetree Wildlife Management Area, New Rockford Canal, Jamestown Dam and Reservoir, Oakes Test Area (OTA) irrigation facilities, Kraft Slough Wildlife Management Area, recreation facilities, radio towers, scattered tracts wildlife development areas, Audubon and Arrowwood National Wildlife Refuge (NWR) mitigation features, State and Tribal Municipal, Rural and Industrial (MR&I) water systems, and office and shop facilities at McClusky, New Rockford, Oakes, and Carrington.

In July 1991, Reclamation entered into Cooperative Agreement No. 1-FC-60-01790 with Garrison Diversion for OM&R of the McClusky Canal, New Rockford Canal, and OTA and to provide assistance as needed on other GDU facilities. Primary responsibilities for OM&R on other GDU facilities are covered either by Reclamation or by other agencies under separate agreements with Reclamation. This five-year plan covers work proposed to be completed by Garrison Diversion under a continuing cooperative agreement. Reclamation provides Garrison Diversion with the funding, from annual GDU appropriations, necessary to perform the OM&R functions. Reclamation also cooperates with Garrison Diversion in providing technical assistance on OM&R activities and administrative assistance on NEPA/NHPA compliance requirements. The Dakota Water Resources Act of 2000 (DWRA), the current legislative authority for GDU, states in part in Section 1 (g) “The Secretary shall enter into one or more agreements with the State of North Dakota to carry out this Act, including operation and maintenance of the completed unit facilities….”.

III. GENERAL OPERATION, MAINTENANCE AND REPLACEMENT CRITERIA

- Routine OM&R, as covered in the Cooperative Agreement with Garrison Diversion is to continue with particular focus on:
    - Protecting the federal investment
    - Maintaining a competent, well-trained OM&R work force
- Clear instances of public safety are to be given priority (i.e. structural integrity of bridges).
- Safe access is to be maintained along at least one side of the canals.
- Protection of private and public lands outside project ROWs from activities associated with OM&R of project facilities is to be given priority.
- The canal prism should be maintained to protect O&M roads, lands outside the canal ROWs, and to protect canal lining on watered canal reaches.
- At New Rockford, minimum maintenance will be provided to protect the federal investment and public safety.
- Slides on the McClusky Canal should be repaired to the extent needed to meet existing water demands. Repair measures are to be developed on a case-by-case basis.
- Low cost measures to prevent landslides are to proceed (i.e. V ditch drain conversions, berm drain modifications, and interceptor drains).
- Provide OM&R at the OTA at a minimal level necessary to provide contracted water deliveries until title transfer or an O&M transfer is complete. Water deliveries shall be in accordance with the July 6, 1998 “Oakes Operating Principles”.
- Focus on efficient and economical methods to minimize costs, including contracting.

IV. STATUS

A. McClusky

Primary construction of the McClusky Canal covered the period beginning in the early 1970s through 1980. Overall, the McClusky Canal is in satisfactory condition, except for the major slide area between mile marker (MM) 20-21.5. On average, the McClusky Canal currently delivers approximately 10,000 acre-feet of water a year for uses such as irrigation, fish and wildlife mitigation and enhancement, livestock watering, recreation, water quality maintenance, and in-stream flow needs. The canal is used from MM 1 to MM 59. From MM 59 to the end, at MM 74, the canal is dewatered. Interest in contracting for irrigation water from the McClusky Canal has been increasing in recent years.

Completed major projects have improved conditions along the canal, such as V ditching along O&M roads, berm drain modifications, re-painting of structures,

vegetation management, and erosion control on canal prism slopes. Structures such as turnouts, radial gates, cross drain siphons, bridges, the tunnel, and concrete culverts are in satisfactory working condition; although, corrugated metal pipe (CMP) culverts are showing signs of eminent failure and need to be replaced.

Two major areas which will need to be addressed in the future to ensure delivery of a firm water supply which are not included in this plan are: 1) repairs to the major slide area between MM 20-21.5 and 2) modification to the MM 59 Plug.

The area between MM 20-21.5 has major landslides blocking the canal, allowing only a minimum amount of flow. The slide area is in a deep cut section with unstable 2:1 canal slopes, approximately 8,000 feet in length. Landslides remain active with a small quantity of slide material needing to be excavated annually to maintain flows through the area. The estimated maximum capacity through this area is 75 cfs. The area needs to be fixed before any significant amount of flow can be delivered without concern of interruption. Laying the slopes back to a 4:1 slope in this area has been selected at the preferred corrective action for the slides. This slide repair work will be performed under a separate cooperative agreement with Reclamation. The 5-year cost estimate, based on 2017 pricing, for slide repairs is approximately $17 million.

The McClusky Canal lies in both the Missouri River and Hudson Bay drainage areas. Two earthen plugs, one at MM 58 and one at MM 59, were placed in the canal to prevent water transfer between the two basins. The MM 59 Plug, with a top elevation of 1847, is considered the dividing line between the two basins. Results from Reclamation's 1993 flood analysis and canal routing study concluded that the existing MM 59 Plug would contain up to a 500-year flood and in order to contain a Probable Maximum Flood (PMF) would require raising the MM 59 Plug to elevation 1860. Future plans for modifying the MM 59 Plug are currently pending a Record of Decision (ROD) on the Red River Valley Environmental Impact Statement (RRVEIS).

B. New Rockford

Construction of the New Rockford Canal covered the period beginning in 1983 through 1991. Overall, the New Rockford Canal is in satisfactory condition. The Canal does not deliver water for any use and is not in operation. Natural runoff which accumulates in the canal is outlet to the James River. The New Rockford Canal was considered and eliminated from further consideration in the RRVEIS.

Major projects have improved conditions along the canal, such as V ditching along O&M roads, touch-up painting of structures, vegetation management, and erosion control on canal prism slopes. Shop and office facilities are in good condition. Significant items which need to be addressed on the canal for the future are dealing with the effects the canal has on cross drainage along its 42-mile length and how best to manage and maintain the canal given its unknown future.

C. Oakes

Construction of the OTA covered the period beginning in 1982 through 1988, with first water deliveries that year. OTA facilities include the Oakes Pumping Plant, 8.7 miles of canal and Lateral 0-2.0, three lateral pumping plants, 10.7 miles of buried water distribution pipe, 52 farm turnouts, control system, 52 groundwater wells, 48 miles of buried pipe drains, and 4 miles of open drains.

The Oakes Pumping Plant, Oakes Canal, Lateral 0-2.0, three lateral pumping plants, pipe distribution system, and drains are in satisfactory working condition. The controls for the various systems are, in many cases, outdated and need to be replaced. Valves in the farm turnouts are problematic. The cathodic protection for the buried pipelines needs to be investigated. The water supply for the OTA comes all, or in part, from three limited sources: 1) recaptured drain flows from the area, 2) surplus flows in the James River, and 3) ground water which may be made available through annual temporary permits from the State Water Commission (SWC). The acreage which may be served is determined each year based on available water supplies and has varied from 512 to 4,382 acres, with the average being 2,547 acres.

Section 9 of the DWRA directs the Secretary of Interior to enter into an agreement with the State of North Dakota or its designee to convey title of the OTA not later than two years following the ROD on the RRVEIS. Dickey-Sargent Irrigation District (DSID), the anticipated recipient for title transfer, has applied for ground water permits and requested SWC to conduct studies in an attempt to obtain a firm water supply for the OTA. Having a firm water supply is a vital part of a successful title transfer. Progress towards finalizing the ROD has slowed significantly; thereby, Reclamation has begun discussions with DSID regarding execution of an O&M transfer agreement to turn over O&M responsibilities to DSID while the ROD works its way through the process. For purposes of this plan, until such time as title or O&M responsibilities to the OTA facilities are transferred to some other entity or the facilities are disposed of, operation and maintenance of the OTA facilities shall be conducted under this plan.

D. Other GDU Facilities

Garrison Diversion provides assistance on other GDU facilities as part of the OM&R program under the subject cooperative agreement. However, primary responsibilities for funding and managing the work on these other GDU facilities are the responsibility of Reclamation or other agencies under separate agreements with Reclamation. Work by Garrison Diversion on other GDU facilities is coordinated through Reclamation. This work is typically smaller projects and requires equipment and personnel expertise available from Garrison Diversion. Working in this manner makes the most efficient and cost effective use of equipment which has been purchased with funds provided by Reclamation. Other GDU facilities which Garrison Diversion provides assistance on include the following:

- Snake Creek Pumping Plant
- Wintering Dam
- Lonetree Wildlife Management Area
- Jamestown Dam and Reservoir
- Audubon and Arrowwood NWR mitigation features
- Scattered Tracts Wildlife Development Areas
- Radio towers
- Tribal Municipal, Rural & Industrial Water Systems
- State Municipal, Rural & Industrial Water Systems
- State, County and local recreational areas

E. Non-Program Work

Non-Program Work is defined as work performed by Garrison Diversion which is outside the cooperative agreement Scope of Work for which Garrison Diversion or some other agency has the responsibility for funding. Non-program work may include work on GDU Project Facilities or non-GDU Project Facilities. Expenses and work progress for non-program work are reported by facility or agency, such as; Carrington headquarters, Chain-of-Lakes recreation enhancement, Dickey-Sargent Irrigation District, Turtle Lake Irrigation District, Buford Trenton Irrigation District, North Dakota State Water Commission – Devils Lake Outlet, Lake Agassiz Water Authority, Mni Wiconi MR&I project, North Dakota Game and Fish Department, Fish and Wildlife Service, Corps of Engineers, and the city of Turtle Lake.

V. PLANNED WORK ACTIVITIES, 2018-2022

A. Routine OM&R Work

Routine OM&R of the McClusky Canal, New Rockford Canal, and OTA is to continue. Routine OM&R activities include: buildings and yard maintenance, equipment maintenance, canal surveillance, geographical information system (GIS) maintenance, vegetation control, fence maintenance, O&M road maintenance, canal structure maintenance, water operations, canal slope stabilization, drain maintenance, painting and coating, radio tower maintenance, recreation facilities maintenance, and equipment replacements.

1. Buildings and Yard Maintenance

Garrison Diversion personnel will perform all maintenance of buildings and yards and provide janitorial services for all office, shop and storage facilities at McClusky, New Rockford, and Oakes.

2. Equipment Maintenance

Regularly scheduled maintenance and repairs will be performed to keep all equipment in good working order. Garrison Diversion and Reclamation shall jointly conduct biennial equipment inventories.

3. Canal Surveillance

Portions of canals and other facilities are monitored and inspected on a daily basis, which results in general monitoring of all facilities on at least a weekly basis. Some activities, such as reading wells and monitoring water elevations and flows, have specific schedules to follow. The canals will be monitored for slides, erosion, drainage, and other related problems, and action taken as needed. Additional monitoring and inspections will be conducted during significant rainfall events and during spring snow melt to ensure that all drainage facilities are operating correctly and desirable water levels in the canals are maintained within reason. Muskrat, beaver, and other rodent activity will be monitored on a continual basis, and action taken as needed.

4. Geographical Information System (GIS)

A GIS database has been established for the project facilities. The next phase is to manage and maintain the database, such as updating information and gps coordinate data, inputting physical changes along the canal and pertinent lands data, i.e. easements, as-builts, correcting errors and implementing GIS into our daily O&M work. Field verification of existing GIS data is ongoing.

5. Vegetation Control

The vegetation management program, especially the control of noxious weeds, requires a significant effort in terms of time and finances. Several control methods have been used with satisfactory results including aerial and ground spraying, mowing of ROW areas, grazing, burning, or other biological non-chemical control methods. The program will continue to use an integrated pest management approach to achieve effective, cost efficient and environmentally sound results. As new information and technologies become available, their application into the program will be considered. An annual “Vegetation Management Report” is prepared by Garrison Diversion and submitted to Reclamation to report on past and future activities.

6. Fence Maintenance

This is an ongoing activity consisting of repairing fence as needed, cleaning or removing cattle guards when not needed, and other general related maintenance. Fences will not be repaired where it is obvious they are not and will not be needed in the future; rather, they will be removed as time and resources permit. When fences are removed, right-of-way boundaries will be marked with concrete boundary markers. Adjacent landowners will be informed before any fence is removed. In all areas, the bottom strand of wire on four strand fences will not be repaired and will be removed as appropriate.

7. O&M Road Maintenance

This work consists of blading roadways (generally four times per year dependent on conditions), vegetation control on roads, graveling when needed, filling holes, clearing material deposited from small landslides, and other miscellaneous maintenance items. County roads will be mowed in accordance with county regulations. The O&M roadways along the New Rockford Canal will no longer be bladed. In the future, staff will maintain O&M roadways along the New Rockford Canal with chemical or mowing methods.

8. Canal Structure Maintenance

All structures are listed in the GIS database. A master schedule detailing all structures and a schedule for inspecting each type of structure will be prepared. Maintenance will be performed as required. Water conveyance structures along the canals and associated facilities must be maintained in an unobstructed and operable condition to ensure unobstructed flows, to prevent damage to private property, and to protect the integrity of project facilities.

Reclamation will conduct certified bridge inspections biennially on all Type I bridges, as specified in Reclamation’s master bridge inspection schedule. Inspections are scheduled for 2019 and 2021. These inspections include the following bridges on the McClusky Canal: Headworks culvert, Hwy 200 Tunnel, R3-2, R3-3, R4-1, R4-2, R4-3, R4-4 and R4-5; the following bridges on the New Rockford Canal: NR1-4, NR1-11, NR2-2A and NR2-8; and the Oakes Pumping Plant discharge pipes. Garrison Diversion shall assist Reclamation with conducting these inspections.

The seven bridges on the McClusky Canal in Sheridan County, for which Reclamation holds title to, are to be inspected and cleaned on a regular basis to remove gravel and debris from the bridge decks. It is important to keep the decks clean to maintain drainage and reduce debris filling of the expansion joints. Cleaning should be completed at least annually, or more frequent as necessary, and recorded on the maintenance schedule each time it is done.

The abutments on all bridges across the McClusky Canal, New Rockford Canal, and Oakes Lateral 0-2.0 shall be inspected annually. Ensure that there is no piping or erosion occurring under the bridge piling cap or under pillow blanks. Needed repairs are to be made as soon as practical.

Many of the structures with metal components are in need of touch-up recoating. An inventory of these structures has been made, and a schedule for recoating has been prepared. This work should proceed on a routine basis so that there is an ongoing painting and coatings program, where there is a little work each year, and it does not become such an overwhelming task. Managing the program in this manner also helps staff maintain their expertise and minimizes budget impacts.

9. Water Operations

Garrison Diversion will cooperate with Reclamation in the management and delivery of project water to various water users for various purposes, including but not limited to the Fish and Wildlife Service, North Dakota Game and Fish Department, park boards, irrigators, landowners and ranchers, for wildlife enhancement, recreation, in-stream flow maintenance, livestock watering, water quality improvement, irrigation, and freshening of the canal and lakes. Monitoring of water supplies, flows, elevations, deliveries and other pertinent water operations information is accomplished periodically (usually weekly) at numerous sites by the O&M staff at McClusky and Oakes. All new requests for water are directed to Reclamation.

One part of the McClusky Canal water operations includes maintaining the water quality in the canal. This is accomplished by running water from Lake Audubon down the canal and discharging it down the Painted Woods Creek Outlet Channel. The Painted Woods Outlet is located on the south side of New Johns Lake at approximately MM 36.5. The channel, approximately one mile in length, flows south to East Lost Lake and eventually into Painted Woods Creek, which empties into the Missouri River. The hydraulic head to flow water down the channel is limited, and channel cleaning every two to five years is important to maintain flows. Water quality samples should be taken annually to monitor water quality in the canal system.

The McClusky Canal from MM 59 to the end, or approximately MM 74, is to be maintained in a dewatered or drained condition. By design, this portion of the canal should drain by gravity. However, the slope of the canal is .00003, which is a relatively flat slope; as a result, ponding is inevitable. This reach of canal should be monitored and occasionally cleaned to maintain it in a dewatered condition as near as practical.

Water operations on the New Rockford Canal involve maintaining the canal in a dewatered condition as much as practical. Natural runoff accumulates in the canal prism and outlets to the James River through canal turnouts. However, there is currently no outlet for the water on the furthest most downstream end of the canal; therefore, water levels in this reach can rise to problematic levels. It is important that

all turnouts are maintained open so water levels do not rise to levels which may overtop the canal banks and cause damage to adjacent private property.

Under this plan, water operations at Oakes are anticipated to continue. Pumping plants and the water distribution system will be operated and maintained to provide water to the contracted acreage. The acreage to be offered a water service contract is determined annually based on estimated available water supplies in accordance with the July 6, 1998, “Oakes Operating Principles”. The acreage has varied from 512 to 4,382 acres, with the average being 2,547 acres.

10. Canal Slope Stabilization

Beach belting along the canal prism is to be replaced where erosion (wave action) has removed existing material. Reach 1 and 2 are most susceptible to this erosion and should be monitored on a regular basis. Repairs should be made as soon as practical to avoid large areas from eroding, particularly in fill sections. The method of repairs should be concurred with by Reclamation.

Stabilization of the cut slopes on the McClusky Canal is a continuing effort. In addition to affecting flows in the canal, slides also pose potential safety hazards to the public, i.e. hunters, hikers, etc. Numerous slides have occurred through the years, and different studies have been completed to determine the cause of the slides, alternative methods of repairs, and measures which may be implemented to prevent slides. There are about 25 miles (includes both sides) of the canal prone to slides. Depending on the type of slide, size, location, soils, cause of failure, and various other factors, the repair methods varied from slide to slide. Repair methods and slide prevention measures have included: conversion of V ditch drains to buried pipe drains, berm drain modifications (reshaping), construction of Interceptor drains (French drains, aardvark drains and “T” drains), redesign of surface drainage, reshaping of cut slopes, or combinations of various methods. Repairing smaller slides and implementing measures to prevent slides is to continue on the basis that the costs for the repairs and preventive measures are significantly less than the costs for repairing a potential larger slide. The scope of this work is limited to the repair of smaller slides and areas prone to slides. Repair methods and preventive measures are to be concurred with by Reclamation.

Obtaining field stone to be used for rip rap throughout the canal for slope stabilization and erosion protection is an ongoing work activity. Garrison Diversion acquires the field stone from landowners with field rock piles near project facilities. Each rock pile is identified by GPS coordinates, photographed and sent to Reclamation for NHPA clearance. Reclamation reviews and approves each rock pile site. Following approval, Garrison Diversion collects and stockpiles the rock on the canal ROW. The rock is then screened to separate the soil and sorted by size. The soil removed during the process is used to top soil disturbed areas on other projects for reseeding.

11. Drain Maintenance

Cleaning buried pipe drains will be completed in accordance with a master schedule, which includes all pipe drains at Oakes (42 miles), New Rockford (24 miles), McClusky (40 miles), and Jamestown Dam relief wells and toe drains. All pipe drains will be maintained in an operational basis and inspected regularly, no less than monthly. All open drains, including culverts and cross drainage siphons, will be inspected at a minimum semi-annually and more frequently during spring runoff and immediately after significant rainfalls to ensure unobstructed flows. Open drains, culverts and cross drainage siphons will be cleaned periodically as needed to ensure flows are not obstructed. Garrison Diversion will also monitor project facilities to ensure they are not being used to facilitate drainage of non-project lands. Any findings of unauthorized drainage will be reported to Reclamation as soon as practical.

12. Painting & Coating

The effectiveness of coatings on structures and equipment considerably influences the life, safety, operating efficiency, appearance, and economy of projects. All paints eventually fail by weathering, especially exterior weathering. A well-executed maintenance painting program is an effective way of stretching maintenance dollars and preventing costly service interruptions. A comprehensive survey of all GDU facilities was completed, and a priority list of structures needing coatings work was made and will be followed. Turnouts, radial gates structures, and stop logs are top priority at McClusky, Oakes, and New Rockford.

13. Radio Tower Maintenance

Garrison Diversion will maintain the towers, buildings and grounds at Dogden Butte and Prophets Mountain radio tower sites. Noxious weed control and site security will be performed at the Harvey, Jamestown, LaMoure, Oakes, and Devils Lake sites.

14. Recreation Area Maintenance

Recreation area maintenance is to cover maintenance of minimum basic facilities only, primarily in the Chain-of-Lakes Area. This includes routine maintenance of restroom facilities, boat docks, boat ramps, parking areas, roads, winter access sites, camp sites and fire rings, signs, and garbage pickup. It also includes spraying noxious weeds and managing the vegetation. Standard operating procedures (SOP) have been developed for describing the recreation facilities, O&M activities, schedules and procedures. The recreation SOP is reviewed annually and updated as necessary by Reclamation and Garrison Diversion.

Construction of recreational enhancement facilities is cost shared and managed under a separate agreement between Garrison Diversion and Reclamation.

Recreational enhancement facilities are clearly identified and distinguished from minimum basic recreational facilities in the recreation SOP.

15. Equipment Replacements

There is a major investment in equipment in the O&M program; therefore, an equipment maintenance/replacement schedule is used to plan equipment replacements. Following the schedule reduces equipment failures, downtime, and maintenance costs and ensures equipment is ready and reliable when needed, especially when emergency situations occur. According to the schedule, approximately 10% of the total investment is needed annually for equipment replacements.

B. McClusky Canal Extra Ordinary Maintenance

1. Slide Repairs

The area between MM 21.5-23 is an area where smaller landslides occurred several years ago, but since the slides were above the O&M road and did not significantly affect the watered portion of the canal prism, they were left out and were not repaired. In 2009-2010, some repairs were made to the left side of the canal, and in 2012, repairs were started on the right side of the canal in this area. When the repairs were made, it was discovered that drain outlets from buried French drains were plugged and not functioning, which may have led to increased slide activity. To complete repairs in this area requires: investigating the French drain outlets on the right side and cleaning them if needed; removing material to reopen the O&M road on the right side; reducing the canal side slopes in the area of the slides; beach belting the watered portion of the canal prism; possibly installing interceptor drains; top-soiling disturbed areas and reseeding. The repairs to the right side of the canal are ongoing but are expected to be completed in 2017. Also in 2013, approximately 500 feet of the invert was cleaned allowing water to flow through the area. Garrison Diversion is preparing designs for repairing this area and will submit the designs for Reclamation’s review and approval.

The area between MM 38.5-41.5 is another area where slides have occurred and have not been repaired. However, slides in this area are less active and have not significantly affected the watered portion of the canal prism when compared to the slides in the major slide area, MM 20-21.5. The right side of the canal in this area has been repaired and is relatively stabilized; however, the left side has not been repaired, and the O&M road is blocked. To repair the left side requires: redesigning the surface drainage in this area; removing significant quantities of material to reopen the O&M road; reducing the canal side slopes above the O&M road; possibly installing interceptor drains; repairing the beach belt within the canal prism; top-soiling disturbed areas and reseeding. Garrison Diversion is preparing designs for repairing this area and will submit the designs for Reclamation’s review and

approval. This work is also relatively low priority, and proceeding with it depends on other higher priority work and funding availability.

Currently, final designs are being prepared for repairing the major slide area between MM 20-21. Final designs should be complete in the summer of 2017, and the repair started in the fall of 2017. Reclamation and Garrison Diversion have a mutual goal to repair the slides to stabilize the canal slopes, restore the canal capacity, and improve the reliability of delivering water for multipurpose project benefits. In a cooperative effort, Reclamation and Garrison Diversion examined several options for repairing the slides, determined a preferred option, and prepared a plan to implement the preferred option. The implementation plan proposed to complete the work with Garrison Diversion staff under a cooperative agreement with Reclamation. The decisions and path forward were communicated in an April 2, 2014, memorandum of concurrence from Reclamation Area and Regional Offices.

2. Beach Belting and Rip Rap

Although beach belt protection was deleted from the original construction contracts, the canal from MM 0 to MM 59 has been beach belted to provide erosion control. No new beach belting construction is anticipated; however, there will be routine maintenance and repairs required on the beach belting placed.

3. Berm Drain Outlet Replacements

CMP culverts in areas with corrosive soils are failing and need to be replaced. This is most evident with many of the berm drain outlets, which are conduits that transfer surface water from the upper berm down to the watered canal prism in a cut section. Inspections of selected outlets showed varying degrees of corrosion. Approximately 150 upper berm drain outlets have been prioritized for needed repairs. CMP culverts, which involve public roadways, were given high priority for replacement. Garrison Diversion will prepare designs for repairing these drain outlets and submit them to Reclamation for concurrence. Repairs may include either replacing the CMP with polyethylene (PE) pipe or designing a large rip rap drain down the side slope. Currently, approximately 25 of the prioritized upper berm drain outlets have been repaired.

4. O&M Road Repairs

Boat traffic between West and East Park Lakes (MM 30-31) has caused significant erosion of the right canal bank, resulting in the loss of the O&M road on the right side and the canal prism filling in with sediment. The plan is to re-establish the O&M road on the right side, rip rap the canal prism to eliminate future erosion, and to remove the sediment from the canal. Reclamation will estimate quantities and prepare designs for the O&M road.

Increased use of the Chain-of-Lakes area has led to the need to improve the roads through the area. The original roads were constructed to serve as project O&M roads for minimal travel. The area is becoming a popular recreational area with increasing traffic. Plans have been developed to widen the roads, straighten curves, provide access approaches and signage to reduce safety hazards, and to control use of the area. Providing access approaches, along with the road improvements, facilitates management of the area by designating camp sites and helping to control the number of users in specific sites and how the sites are used. This work is being coordinated with the recreational development plan for the Chain-of-Lakes, which is being carried out through a separate agreement.

5. V-Ditch Drain Conversions

The original design to provide drainage along the canal O&M roads in cut sections was an open “V” ditch. This was not a good design as the drains were impossible to maintain, resulting in water ponding on the roads, creating safety problems and serious structural damage to the road. Replacing the open “V” ditch drains with buried pipe drains has proven to be an effective solution. Most “V” ditch drains have been replaced; however, there are still some areas remaining to be completed. Buried drains should be installed or repaired near mile marker 22. Inspections have shown that these sites after spring melt or after significant rainfall are soft and take time to dry out. Buried drain tile will aid in drying out the road and will help operation and maintenance.

C. New Rockford Canal Extra Ordinary Maintenance

1. Dewatering

The dewatering outlet for the New Rockford Canal is a separate channel located at the east end of the canal. It does not connect directly to the canal. There is a one-half mile unexcavated stretch between the canal and the dewatering outlet. The outlet was designed as a temporary structure to dewater the New Rockford Canal to the James River during construction. Water from the canal flows by gravity into a manhole and buried pipe across the one-half mile unexcavated stretch to the dewatering outlet. The dewatering outlet, however, does not dewater the canal entirely. Dewatering the canal entirely may be desirable in that it may save maintenance costs. It is recommended that options for dewatering the canal entirely and the potential for cost savings be evaluated.

D. Oakes Extra Ordinary Maintenance

For this plan, it is anticipated that no O&M transfer agreement will be executed but will continue to work with DSID to complete a transfer agreement. O&M will continue at a minimum level necessary to provide contracted water deliveries.

Garrison Diversion continues to work with DSID to secure water supplies for the OTA. Having a firm water supply is a vital part of a successful O&M transfer and continued operations of the OTA. DSID has requested Reclamation to provide certain improvements to the operations of the OTA. Reclamation has agreed, in concept, to funding certain improvements; however, proceeding with any improvements may only occur after DSID provides a firm commitment to accept long term O&M responsibilities and to have secured and started construction on a water supply. Reclamation is continuing to work with Garrison Diversion and DSID on the process to complete an O&M transfer agreement. Any agreed upon improvements to the OTA will be covered under the O&M transfer agreement.

VI. PAST EXPENDITURES

Past expenditures for the OM&R program are shown in the following table.

Garrison Diversion Conservancy District
O&M 2012 - 2016

O&M Expenses	2012 Actuals	2013 Actuals	2014 Actuals	2015 Actuals	2016 Actuals
Employee Salaries	$1,279,174	$1,282,735	$1,225,867	$1,261,608	$1,375,469
Benefits	509,743	552,723	5247,13	580,500	658,709
Travel	38,947	28,848	35,269	23,816	22,880
Training	720	2,599	830	3,585	4,777
Utilities	64,910	77,029	73,955	81,939	80,977
Contracted Services	151,871	106,183	246,603	553,885	285,570
Supplies	506,370	460,357	378,064	311,851	283,301
Equipment Maint.	110,769	133,444	127,698	165,803	120,244
Safety	31,127	34,470	26,560	32,760	31,357
Miscellaneous	13,152	13,958	6,926	7,780	11,170
Equipment Purchase/Rent	324,642	304,068	244,980	340,135	429,082
Materials	943,776	373,065	152,553	53,599	80,895
Indirect Cost	503,261	915,863	548,560	691,795	539,147
Total Expenses	$4,478,436	$4,285,342	$3,592,578	$4,109,058	$3,923,577

Major Work

2012 Geotex material, Field Rock, Headworks Building, Rip Rap Beach Belt Materials, Cardtrol System

2013 Completion of Headworks Building, Rip Rap at Lake Audubon, 962 Loads Field Rock

2014 Lonetree Shop Modifications, 3,594 Loads of Field Rock, Geotex Material, Concrete at Jamestown Dam

2015 Slide Work from MM 21.5-23, 2,651 Loads of Field Rock, Rip Rap From MM 24-28

2016 Slide Work from MM 21.5-23, 2,469 Loads of Field Rock, Reshaped Dike at MM 28, Safety Improvements at Painted Woods Weir

VII. PROPOSED OUT YEAR BUDGETS

Following is a proposed Budget that reflects the funding needs to maintain the facilities and repair the slide area from 2016 to 2022.

Garrison Diversion Conservancy District

Operations & Maintenance Budget
FY 2018 to 2022

Budget Item Description	2018	2019	2020	2021	2022	Total
Salaries and Wages	$ 884,685.50	$ 902,379	$ 920,427	$ 938,835	$ 957,612	$ 4,603,939
Fringe Benefits	$ 457,689	$ 466,843	$ 476,180	$ 485,704	$ 495,418	$ 2,381,834
Travel	$ 10,000	$ 10,200	$ 10,404	$ 10,612	$ 10,824	$ 52,040
Equipment Purch/Lease	$ 305,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 1,905,000
Supplies/Materials	$ 363,200	$ 370,464	$ 377,873	$ 385,431	$ 393,139	$ 1,890,107
Professional Services	$ 52,020	$ 53,060	$ 54,122	$ 55,204	$ 56,308	$ 270,714
Other	$ 196,463	$ 200,392	$ 204,400	$ 208,488	$ 212,658	$ 1,022,402
Total Direct Costs	$ 2,269,058	$ 2,403,339	$ 2,443,406	$ 2,484,274	$ 2,525,960	$ 12,126,038
Indirect Costs-25.86%	$ 509,198	$ 518,064	$ 528,425	$ 538,993	$ 549,773	$ 2,644,453
Total Project Cost	$ 2,778,256	$ 2,921,403	$ 2,971,831	$ 3,023,268	$ 3,075,733	$ 14,770,491

Major Slides Budget
FY 2017 to 2021

Budget Item Description	2017	2018	2019	2020	2021	Total
Salaries and Wages	$ 431,019	$ 439,639	$ 448,432	$ 457,401	$ 466,549	$ 2,243,040
Fringe Benefits	$ 336,195	$ 342,919	$ 349,777	$ 356,773	$ 363,908	$ 1,749,572
Travel	$ 1,050	$ 1,071	$ 1,092	$ 1,114	$ 1,137	$ 5,464
Equipment Rental	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 500,000
Supplies/Materials	$ 807,541	$ 761,395	$ 736,036	$ 959,374	$ 956,032	$ 4,220,378
Professional Services	$ 197,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 285,000
Contracted Services	$ 205,671	$ 340,158	$ 211,608	$ 267,426	$ 773,817	$ 1,798,680
Other	$ 149,733	$ 147,228	$ 150,173	$ 153,176	$ 156,240	$ 756,549
Total Direct Costs	$ 2,228,209	$ 2,154,410	$ 2,019,118	$ 2,317,264	$ 2,839,682	$ 11,558,683
Indirect Costs-25.86%	$ 529,493	$ 475,631	$ 473,887	$ 536,553	$ 540,698	$ 2,556,262
Incidental Costs	$ 547,977	$ 558,937	$ 570,115	$ 581,518	$ 593,148	$ 2,851,694
Total Project Cost	$ 3,305,679	$ 3,188,978	$ 3,063,120	$ 3,435,334	$ 3,973,528	$ 16,966,640

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June 30, 2017

Michael J. Ryan, Regional Director
Great Plains Regional Office
P.O. Box 36900
Billings, MT 59107-6900

Dear Mr. Ryan:

The Garrison Diversion Unit (GDU) facilities are owned by the federal government and maintained by Garrison Diversion Conservancy District (Garrison Diversion) Operations and Maintenance (O&M) staff.

To help keep the facilities in top condition, the Bureau of Reclamation (Bureau) and Garrison Diversion first entered into a Cooperative Agreement for operations and maintenance (O&M) service for the Garrison Diversion Unit facilities in the early 1990s.

Originally, the federal government used a quarterly advance payment methodology to pay for expenses up front. More recently, the O&M Cooperative Agreement moved to a system in which Garrison Diversion draws a cash advance and holds it for no more than three days before disbursement. In order to be approved to draw the cash advance, a work plan and budget must be approved by the Bureau.

Garrison Diversion submitted the 2017 O&M Work Plan and Budget to Reclamation on January 10, 2017, for approval. As of today, June 30, 2017, the work plan and budget has not been approved. **Mind you, the 2017 O&M Work Plan and Budget maintains the status quo set over the years and includes regular maintenance, with no new work requested.**

Due to the delay of approval, all federal funds have been requested and a $0.00 balance remains. Furthermore, Garrison Diversion has had to use $300,000 of general fund money to pay for maintenance of the federal GDU facilities. An additional transfer of general fund money is expected in two weeks if the 2017 Work Plan and Budget is not yet approved.

We are in unchartered territory with the Operation and Maintenance Division, as Garrison Diversion has now used general fund money to cover costs associated with maintaining GDU facilities, which are owned by the federal government. Withdrawing general fund money to pay for

federal responsibilities has never been done and isn't a sound business practice. In theory, Garrison Diversion may not get reimbursed.

There's a flaw in your approval system which has led to a serious delay in approving the 2017 O&M Work Plan and Budget. We request that the approval process for the 2017 O&M Work Plan and Budget is expedited and hope the delays are not as significant in the future. Using Garrison Diversion general funds to cover federal responsibilities is not a sound business practice.

Sincerely,

Duane DeKrey
General Manager

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