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# Water Operations and Maintenance Bulletin

Conveyance



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## Mission Statement

This *Water Operations and Maintenance Bulletin* is published quarterly through the Asset Management Division of the Dam Safety and Infrastructure Directorate. It serves as a medium to connect personnel who operate and maintain Bureau of Reclamation water supply systems.

## History

The *Water Operations and Maintenance Bulletin* has been published quarterly since 1952. Past issues may be read and downloaded at [Water Operations and Maintenance Bulletins](#), where you can also search the entire *Bulletin* database by subject.

## Contact

We welcome suggestions for future issue topics, contributing authors, and comments on the *Bulletin*. Please direct all inquiries to [drowateroandm@usbr.gov](mailto:drowateroandm@usbr.gov).

Front cover: Construction on the Arkansas Valley Conduit, Colorado (October 2023).

## Editor's Note

The Bureau of Reclamation (Reclamation) is known for dams and hydropower, but its conveyance facilities – particularly canals and pipelines – move water from reservoirs and rivers across land for irrigation, municipal and industrial uses, and to honor treaties, obligations, and agreements. We're excited to highlight the innovative work Reclamation is doing in water conveyance, both to support existing deliveries and new state-of-the-art projects.

As always, we are incredibly grateful to our contributing authors and support staff who made this spring *Bulletin* possible. Nicholas Casamatta wrote two articles for this issue that review recent conveyance studies: "Prestressed Concrete Cylinder Pipe Inspection Project" and "Tier 2 Urban Canal Risk Analyses Project." Gary Pitzer contributed "Despite adversity, Friant-Kern Canal Middle Reach Capacity Correction Project edges to completion." And Andy Marner and Matthew Shaw updated "Go Slow and Start up Safely," which describes spring seasonal operations and maintenance (O&M) best practices.

For our Q&A, we were fortunate to meet with Bob Wolf, former Director of Program and Budget for Reclamation, a couple of weeks after his retirement in January 2024. Bob discussed shepherding historic legislation, his role's unique responsibilities, and the many offices and programs that work together to support responsible budget planning and safe operations. Thanks for reading!

**Darion Mayhorn, P.E.**

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Dam Safety and Infrastructure

## Around O&M

The Water Management Workshop (WMW) is a three-day workshop held annually since 1961 and sponsored by Reclamation's Asset Management Division (AMD). It is tailored for supervisors, managers, watermasters, and others responsible for the O&M of water systems. The 2024 WMW was held February 13-15 at the Denver Federal Center and had 72 registered participants.

This year's WMW included classroom training, networking, laboratory tours, and Technical Service Center-sponsored hands-on training. The post-workshop evaluation survey results highlighted the benefits of the following presentations:

- Wapato Diversion Dam Scour Hole Repair
- Partnering: a View from the Flip Side
- Olympus Dam – 2013 Front Range Floods
- Concrete Hands-on Workshop
- Unmanned Aerial Systems
- Fundamentals of Earthwork – Construction Practices
- Hydraulic Investigation/Lab Services
- Geotechnical Lab and Field Support



Concrete hands-on demonstration and training at the 2024 WMW.

AMD takes these survey responses seriously and will attempt to address all suggestions. Some recommendations were:

- Divide up each workshop day evenly between the classroom and labs
- Coordinate an opportunity to see live unmanned aerial system (i.e., drone) exercises
- Make classroom presentations as applicable to field operations as possible
- Address and share technologies available to irrigation organizations

Thank you to all who provided feedback for future workshops!



PipeWalker removal, Towaoc Canal Reach 1  
– Dolores Project, Cortez, Colorado.

## Prestressed Concrete Cylinder Pipe Inspection Project

**Nicholas Casamatta, P.E.**

Program Manager, Conveyance Operations and Maintenance, Asset Management Division

In Fiscal Year 2018, the Asset Management Division (AMD) funded the inspection of several prestressed concrete cylinder pipe (PCCP) installations. The objective was to perform electromagnetic (EM) inspections on all remaining PCCP in the Bureau of Reclamation's (Reclamation) inventory that had never had an EM inspection. This effort took 5 years to complete and included 21 miles of pipe and 7 mobilizations in both wet and dry conditions, ultimately representing approximately 25 percent of Reclamation-owned PCCP.

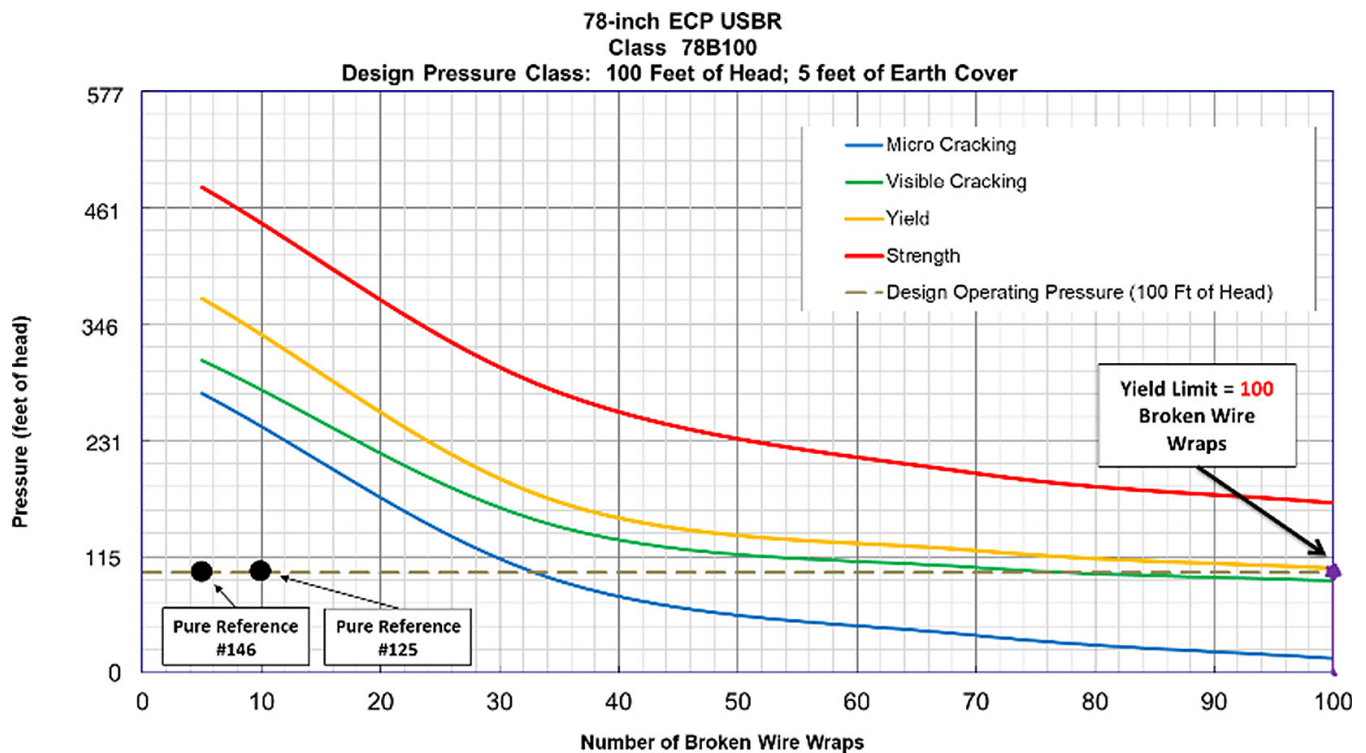
PCCP is susceptible to sudden and catastrophic failure primarily due to corrosion of prestressing wires and loss of confining pressure. Reclamation has experienced multiple failures as well as significant deterioration as soon as 10 years after construction. Many of these pipelines are large diameter and high pressure, which contribute to a high consequence of failure and potential risk to public safety. Given their large size, up to 21 feet in diameter, they are also difficult and expensive to repair. As part of managing this risk, Reclamation has established

a PCCP inventory and has begun funding and conducting EM inspections to assess conditions and plan for repairs.

### Results

Reclamation area offices, the Technical Service Center, and partner operating entities worked together with Stantec and Pure Technologies to make these technical and potentially dangerous inspections successful. The results are reported as the number of wire breaks per pipe segment. Structural analysis is also essential to determine the probability of failure.

Performance curves are developed to identify the current and future stress state of pipe segments as wires continue to corrode. Internal pressure, soil overburden, and confining pressure provided by prestressing strands are all considered. Together, they determine the level of strain within the pipe, the corresponding degree of cracking, proximity to yield, and reserve capacity. This information can be used to plan future inspections, when repairs are prudent, and which segments of a pipeline to address.



Example Class 78B100 ECP Performance Curve for Towaoc and Dolores Canal Siphons.

### Pleasant Valley Discharge Line Central Valley Project, California

- Inspected in the dry on January 16, 2019
- 156" diameter and 1.2 miles long
- 15 of 364 pipe segments, 4%, had 5-15 broken wires
- No pipes in the Pleasant Valley Discharge Line are recommended for additional monitoring or rehabilitation prior to the next assessment in 2028

### Wahluke Branch Canal Laterals WB-44 Siphon Columbia River Project, Washington

- Inspected in the dry on February 20, 2019
- 90" diameter and 1.1 miles long
- 13 of the 302 segments, 4%, have 5-20 broken wires
- No pipes in the WB-44 Siphon are recommended for additional monitoring or rehabilitation prior to the next assessment in 2025

### **Towaoc Canal Siphons Dolores Project, Colorado**

- Inspected in the dry March 12-13, 2019
- 5 siphons ranging from 78” to 108” diameter, total length 1 mile
- Of the 257 segments, no pipes were observed to have broken wires
- None of the Towaoc Canal siphons covered in this report are recommended for additional monitoring or rehabilitation prior to the next assessment in 2028

### **Towaoc & Dolores Canal Siphons Dolores Project, Colorado**

- Inspected in the wet September 17-19, 2019
- 2 siphons ranging from 78” to 96” diameter, total length 1.9 miles
- 5 of the 443 segments, 1%, have 5-10 broken wires
  - Approximately 15% of pipe segments had inconclusive data because flow rates created turbulent and partially full pipe flow
- Neither of the siphons covered in this report are recommended for additional monitoring or rehabilitation prior to the next assessment in 2028

### **Casitas Gravity Main & Oakview Main Ventura River Project, California**

- Inspected in the dry on February 25, 2020
- Inspected in the wet June 3-5, 2020
- 3 Pipelines ranging from 42” to 52” diameter, total length 4.7 miles
- 6 of the 1,569 segments, 0.4%, were observed to have 5 broken wires
- None of the pipes in the Casitas/Oakview system are recommended for additional monitoring or rehabilitation prior to the next assessment in 2029

### **Santa Clara Conduit & Calaveras Fault Crossing Central Valley Project, California**

- Inspected in the dry November 17-19, 2022
- 3 Pipelines ranging from 66” to 96” diameter, total length 10.2 miles

- Of the 2,465 segments, 1.5%, 37 pipes were observed to have 5-20 broken wires
- Recommendation was made to repair one pipe joint at the Santa Clara Tunnel interface and to monitor three joints at the Calaveras Fault Crossing nearing full extension
- No pipes in the Santa Clara Conduit and Calaveras Fault Crossing are recommended for rehabilitation prior to the next assessment in 2028

### **Recommendations and Next Steps**

This project accomplished the objective of inspecting all Reclamation-owned PCCP at least once with EM technology, but the need for condition assessment continues. Effectively planning for and conducting the next round of assessments requires coordination and an accurate inventory. To facilitate this process, AMD is migrating the PCCP inventory into the Enterprise Asset Registry (Asset Registry).

The current PCCP inventory is not actively managed or widely accessible. Incorporation into the Asset Registry will expand the existing data model, improving condition and inspection information for agency-wide awareness and planning. It will also enable shared access and active management. Validation and verification of data by field staff will be especially important. Since the beginning of this project, there have been repairs, installation of monitoring systems, and EM inspections conducted by operating entities. Incorporating these data into the Asset Registry will require review of past reports and outreach to operating entities. AMD will request participation from area and regional offices to manage key data as part of the Review of Operation and Maintenance Program. The objective is to prevent failures by ensuring the knowledge, resources, and funding necessary are available to support risk-based decision-making. Upon completion of the inventory review, AMD will engage with managing offices to review the data and make recommendations for the next round of condition assessments.



**PCCP wrapping operations at Centennial Wash Siphon, Maricopa County, Arizona.**



Putah South Canal – Solano Project, Fairfield, California.

## Tier 2 Urban Canal Risk Analyses

### **Nicholas Casamatta, P.E.**

Program Manager, Conveyance Operations and Maintenance, Asset Management Division

In Fiscal Year (FY) 2018, the Asset Management Division (AMD) funded five Tier 2 Urban Canal Risk Analyses. The objective was to perform data collection and a comprehensive review of canals with the highest risk rating from a screening level analysis. The work was conducted primarily by the Technical Service Center (TSC) with area and field office support from 2018 through 2023.

Since the first Canals of Concern inventory was established in 1999, the Bureau of Reclamation (Reclamation) has conducted a range of risk analysis activities including screening level, comprehensive, and reviews of specific loading conditions and failure modes. Current requirements for the inventory include a canal reach where failure would result in an estimated population at risk greater than 100 or estimated property damage of greater than \$5,000,000 ([FAC 01-12, Canal Hazard Program](#)).

AMD funded the TSC to develop and test a screening level risk analysis (SLRA) tool. The SLRA, also referred to as Tier 1, created a risk rating for each canal reach. The SLRA was applied to all 231 urban canal reaches within the inventory. The results were used to prioritize in-depth risk analysis, Tier 2, of the portfolio. AMD and TSC determined that 68 reaches, 29 percent of the inventory, fell into the Tier 1A category, having both relatively high consequence potential and probability of failure. The TSC and AMD proposed all canals with a 1A-1, 1A-2, or 1A-3 rating be considered for in-depth evaluation. The two canals in the highest zone, 1A-1, already had existing risk analyses complete or ongoing. TSC prioritized the remaining 1A-2 and 1A-3 canals for Tier 2 Risk Analysis.

### **Tier 2 In-Depth Risk Analysis**

A Tier 2 study is an in-depth risk analysis, which involves dividing a canal into sub-reaches; developing potential failure modes (PFM) under



static, seismic, and hydrologic loadings conditions; and estimating the consequence levels and likelihoods for each of the sub-reaches. The objective of the Tier 2 risk analysis studies is to identify canal sub-reaches that pose the highest risk and help prioritize risk reduction activities. Only the top five canals prioritized in the SLRA Report of Findings were to be studied initially. As resources allowed, the remaining eight studies would be pursued.

## Results

The five canals studied were:

- Putah South Canal
- Friant-Kern Canal
- All-American Canal
- Roza Canal
- West Canal

None of the canals were recommended for major structural modification or operational changes to reduce risk. There were, however, common themes among the studies that affect the broader canal inventory:

- Lack of timely completion of basic operations and maintenance (O&M) work accepts avoidable risk. Vegetation, erosion, animal burrows, and encroachments all contribute to the probability of failure. Correcting these deficiencies is generally not extraordinary maintenance, yet many deficiencies persist. As of FY 2023, 95 percent of urban canal O&M recommendations are estimated to cost less than \$100,000, and yet 35 percent of them are at least 7 years old.
- There are limitations in the confidence of any risk estimate, especially related to canals that have variable conditions along their length. Lack of embankment and foundation information reduces confidence relating to seismic response and resistance to internal erosion. Similarly, there are challenges estimating hydrologic loading and hydraulic response. Increasing estimate certainty may require multiple iterations of analysis and data collection.
- People often enter canals both intentionally and inadvertently. Exclusionary features like vehicle barriers, fencing, and signs, as well as egress measures, can mitigate much of this risk. All five of the studies identified areas for improvement to reduce accident exposure.

- There is high variability in consequence levels along each canal alignment. Any PFM that has a high or very high likelihood may warrant action regardless of consequence levels. Any outage may cause significant impacts to irrigators.

### Putah South Canal – Solano Project, California

A full Tier 2 Risk Analysis was not performed on Putah South Canal. A comprehensive condition assessment was performed including geotechnical, seismic, hydrologic, and hydraulic analysis. Assigning probability and consequence values to individual PFMs was forgone based on the canal assessment team's recommendation. No major corrective actions or O&M changes were recommended.

### Friant-Kern Canal – Central Valley Project, California

The risk evaluation team found four PFMs to contribute the greatest risk. Overtopping from flood inflow was the only failure mode assigned a high probability, and it assumed a full flowing canal and no response measures taken. Three internal erosion PFMs were assigned a moderate probability. No major corrective actions or O&M changes were recommended. Ensuring cross-drainage structures are not obstructed to maintain full capacity was recommended to reduce or prevent storm runoff from entering the canal.

### All-American Canal – Boulder Canyon Project, California

Five PFMs were evaluated for their contribution to the facility's risk. They are all related to seismic loading and/or seepage. Failure probabilities range from moderate to very high. No major corrective actions or O&M changes were recommended. Although consequence levels were moderate to low, the very high likelihood of seismic-related failure may warrant further study and action.

## Roza Canal – Yakima Project, Washington

Nine PFMs were assigned risk ratings. They are associated with internal erosion and the slope stability of adjacent hillside. There are many abandoned turnouts in unlined sections of the canal, and many original corrugated metal pipe turnouts are still in place. Condition assessment was recommended for these features. Canal blockage due to a hillside slope failure was assigned a very high likelihood. Even though consequences are low in this area, flattening the left cut slope between Sta. 1508+00 and Sta. 1525+00 was recommended to reduce the risk.

## West Canal – Columbia Basin Project, Washington

Seven PFMs were assigned risk ratings, the highest of which was internal erosion related to a seismic event. Visual inspection of conduits under the canal and through its embankments was recommended. Seismic-induced cracking leading to internal erosion with liquefaction was assigned a very high likelihood. Consequence in these areas was moderate to low but could still result in a loss of water deliveries. No major corrective actions or O&M changes were recommended.

## Other Proposed Tier 2 Risk Analyses

- Folsom South Canal – Central Valley Project, California
- West Main Canal – Yuma Project, California
- Potholes Canal – Columbia Basin Project, Washington

## Tier 2 Study Not Recommended

- S-Line Canal – Newlands Project, Nevada
- Madera Lateral 6.2 – Central Valley Project, California
- A-3 Lateral – Klamath Project, Oregon
- Hermiston Maxwell Canal – Umatilla Basin Project, Idaho
- Ashland Canal – Rogue River Basin Project, Oregon

## Recommendations

No recommendations for major corrective actions resulted from this project. Each of the five reports produced should be used by managing offices and operating entities to inform their condition assessment, maintenance, and capital planning efforts. Reviewing the PFMs with the highest risk and their associated response measures can help prioritize resources. Additional studies should be done on a case-by-case basis with close coordination between the affected Reclamation offices and the potential risk assessment team. A cursory review of relevant data is recommended to assess merit and define the scope before conducting additional analysis. There may be benefit in more limited studies to evaluate specific failure modes and loading conditions. Consequence potential and reducing uncertainty should be driving factors when determining what analyses and studies to perform moving forward.

All-American Canal downstream of Imperial Diversion Dam, California.



A background image showing bright sunlight reflecting off the surface of blue water, creating a shimmering effect.

# Despite adversity, Friant-Kern Canal Middle Reach Capacity Correction Project edges to completion

**Gary Pitzer**

Public Affairs Specialist, California-Great Basin Region

Builders of the first phase of the Friant-Kern Canal Middle Reach Capacity Correction Project had enough on their hands with merely constructing a new canal adjacent to the existing, 73-year-old conduit.

Work on the project was moving along when a series of storms walloped the southern San Joaquin Valley in early 2023, flooding the construction area and associated borrow pit. The flooding was an unforeseen calamity, leaving workers a muddy mess that took months to clean.

“It wasn’t an insignificant event that we went through,” said Josh Yurkanin, a civil engineer with the Bureau of Reclamation (Reclamation). “It did create some challenges.”

Epic flooding aside, the first phase of the project is concluding – a testament to the perseverance and skill of everyone involved.

Awarded in October 2021, the first phase of the project, budgeted at \$326 million, has the important mission of restoring the carrying capacity of one of the Central Valley Project’s (CVP) most important pieces of infrastructure. It’s been a herculean undertaking – building a new canal from the valley soil in a manner that minimizes disruptions to farmers and nearby communities and keeps to a tight construction schedule.

The importance of the project can’t be overstated. The original canal was built to move water through gravity conveyance, with a constant fall of 6 inches per mile through its 152-mile length. But decades of land subsidence have caused a key section of the canal to sag, taking more than 50% of the carrying capacity.

The new Friant-Kern Canal, left, and the existing canal.



The limitation of the original design, increased roughness in the canal, vegetation, land subsidence, and other issues have all lead to a reduction in capacity, said Reclamation project manager Suzanne Fiori.

For one of California’s most productive agricultural regions, the loss of reliable water delivery had to be rectified. The canal, part of the CVP’s Friant Division, is owned by the Federal government, with the [Friant Water Authority](#) responsible for operations and maintenance.

“When the project started, we had observed about that well over 13 feet of subsidence in that area so as you can imagine on a 150-mile, gravity-fed canal, we had at about halfway down, a belly roll that was impacting our ability to push water through that region,” said Johnny Amaral, Friant’s Chief of External Affairs.

The first phase of the project is an impressive feat of public works design and engineering: 10 miles of new canal, seven new roadway crossing siphons, a check structure and siphon at Deer Creek, and nine turnouts.

Incorporated into the design is the estimated future subsidence, which is accounted for through increased canal embankment height, road crossing siphons, turnouts, and check structures. Meanwhile, the rate of existing subsidence during the construction cycle presented an additional challenge to the contractor and project team.

“It’s been likened to building on a sinking ship and has presented additional challenges with surveying and potholing for utility tie-in points,” said Scott Wolfert, former Reclamation field engineer.

The project is designed to account for further subsidence in the immediate area, said Yurkanin, the Reclamation engineer. “We put in siphons rather than bridges so that the water’s not at risk of overtopping them and going onto a road,” he said, noting that aggressive management is necessary to not allow subsidence “to go gangbusters.”

For Friant Division contractors, completion of Phase 1 is a kind of restoration. “The value of the water that we will realize as a result of the increased capacity is enormous,” said Amaral. “You just can’t put a price on that, but it still takes hard dollars to make this all work.”

And what of the existing canal? For the immediate future, it will serve as a regulating forebay for the existing pump stations that will eventually be replaced, said Amaral. Long-term, he said, maybe it’s perforated to facilitate groundwater recharge.

Then there are the more esoteric possibilities. A large, concrete structure with tantalizingly sloped walls in the middle of San Joaquin Valley sunshine? Perhaps follow the suggestion of a commenter at a public meeting about turning the canal into a giant skate park.

It is California, after all.

Top: Flood waters cover a portion of the Friant-Kern Canal Middle Reach Capacity Correction Project. Middle: The Friant-Kern Canal Middle Reach Capacity Correction Project includes 10 miles of new canal. Bottom: Friant-Kern Canal Phase 1 construction, Friant Division, Central Valley Project, California.





Lind Coulee Siphon, Washington.

## Go Slow and Start Up Safely

### **Andy Marner, P.E.**

Civil Engineer, Water Conveyance Group 2, Technical Service Center

### **Matthew Shaw, P.E.**

Mechanical Engineer, Estimating Services Group, Technical Service Center

The arrival of spring brings watering up and irrigation deliveries for the Bureau of Reclamation and its managing partners. It can be an abrupt shift from a period of reduced activity to preparations and procedures that are more laborious and present greater risk. After taking care to follow winter operations and maintenance (O&M) best practices like those outlined in last [December's Water Operations and Maintenance Bulletin](#), it is essential to start the spring season with a deliberate focus on ensuring safe and efficient O&M. The following guidelines highlight how going slowly and starting up safely during early season activities can help prevent unexpected issues and enable successful springtime water deliveries.

### **Go Slow**

Remember, slow but steady will win the race every time. Both pipelines and canals need to be filled and drained slowly. Filling slowly will help you ensure new features are performing as intended. Avoiding sudden changes in velocity will generally avoid serious water hammer surges. To avoid creating a vacuum leading to pipe collapses, ensure air valves are open when filling or draining. Find out what the maximum acceptable filling and draining rate is for each pipeline, canal, and lateral. If you do not know, work with your supervisor or watermaster to ensure that these are defined.

## Pipelines and Valves

Rapid filling can trap air in pipelines as air vents cannot let air out of the pipeline fast enough. To prevent damage, it is absolutely necessary to closely observe air valves during filling and to adhere to the Design Operating Criteria when operating valves, pumps, and control facilities.

Surges occur when flow rates change and hydraulic transients or sudden upsurges or downsurges change the total pressure in a piping system. Extreme transient pressures can result from rapidly opening or closing valves – or even just changing the valve settings (accidentally or planned), starting or stopping pumps, or unstable pump turbine characteristics.

## Canals and Gates

Canal protective structures are designed to accommodate turbulence from changing water velocity, depth, or flow paths. Always open headwork gates slowly so that turbulence does not sweep beyond the check structure. Open all gates slowly to control the filling and minimize waves in each canal reach.

The general rule of thumb is no more than a foot per day or six inches per hour. Filling the canal too fast can cause large waves that can cause scour damage to the canal prism.

Consult your documentation for specific operations. Check to ensure that the turbulence downstream from the check gate structure does not extend past the length of the concrete transition, as this scours unprotected canal sidewalls. If the water is too turbulent, lower the gates until a backwater is developed. After the flow has stabilized and any turbulence has disappeared, set the gate at the desired position and continue to open gates.

### Remember:

- Fill *slowly*
- Operate valves *slowly*
- Shut down *slowly*

Opening and closing valves too rapidly can build pressure, which can literally blow pipe out of the ground or collapse the pipe, causing extensive damage.



"C" Canal in Klamath Falls, Oregon.



Irrigation canal near Blythe, California.

### Start Up Safely

As the system starts up, watch for issues carefully. If a problem occurs, immediately stop changing the water level and address the problem.

### Pipelines and Valves

The initial filling and testing is the most critical period during the life of the pipeline. Normally, fill at a lower rate than the maximum pumping capacity of the system (a generally safe procedure is to keep velocity under 0.25 feet per second). However, this is a general rule, and you need to consult your system's documentation to avoid exceeding the air vents' capacity.

Use extreme caution during this time and carefully follow guidelines and manufacturers' instructions. Closely observe air valves and listen to the air valves to make sure they are allowing enough air into the pipes. This is usually a whistling or high-pitch tone, but get to know your system's normal noise so that you can hear a difference if something changes.

Use pressure gauges to monitor where the water is in the pipeline to determine when the water level is high enough to close the air valve. If you know how high the water is in your line, then you will know when the air valve should close. You should have an idea of how long it should take for water to reach portions of the pipe. Any levels below this may indicate problems, such as closed valves or other constrictions or leaks. Use the sectionalizing valves, bypass valves, or other equipment to control flow and prevent cavitation. When refilling a large pipeline, use the bypass piping and valves to equalize the head (pressure in the pipe) on both sides of the valve.

Ensure there are no wet spots or depressions on the ground, as these could indicate pipeline problems.

### Canals and Gates

Before watering up, go through the canal system to ensure that all channels and wasteways are ready to receive water.

Before watering up any canal, lateral, or sub-lateral, remove debris and other obstructions in canals and larger laterals. For example, farmers may have placed fences in dewatered canals to contain livestock. Inspect and clean out canal underdrains yearly or following heavy precipitation events. Underdrains (typically round or box concrete culverts that pass under fill sections of a canal where the canal crosses a natural drainage feature) are often filled with sediment or not maintained, which can lead to seepage or other problems.

As you dewater canals, look for:

- Seepage
- Cracks
- Displacement of concrete lining

If you see these symptoms under normal dewatering conditions, immediately stop dropping the water level and address the problem.

### Pumping Plants

Use the special dedicated filling pump as noted for each facility. These pumps are designed to ensure that water enters the system at the correct rate when filling.





Bob Wolf, former Director,  
Program and Budget.

## Q&A

# Robert (Bob) Wolf

Former Director, Program and Budget, Commissioner’s Office

Bob Wolf retired in January 2024 after over 29 years as Director of Program and Budget for the Bureau of Reclamation (Reclamation). He graciously sat down with us a couple weeks after his retirement to share some of his institutional knowledge and reflect upon the changes and advancements he has helped steward in his time at Reclamation. Please read on to learn more about Bob’s work to shepherd historic legislation, his responsibilities as Director of Program and Budget, and the many offices and programs that work together to support responsible budget planning and safe operations.

**Can you describe your background and career prior to joining Reclamation?**

After completing undergraduate studies at the University of Michigan, I worked for the State of Michigan in the Department of Social Services and the State Housing Development Authority. Both provided extensive opportunities to work directly with the public – many of whom were facing difficult times and uncertainty. This experience has

proved invaluable throughout my career. I became interested in the policies underlying the programs and the flexibility or lack thereof in serving the public. I returned to the University of Michigan full time to complete dual degrees – a Master of Public Policy and an MBA in Finance. Following graduation, I was hired by the Water Resources Branch at the Office of Management and Budget (OMB) in D.C.

**What specifically made you want to work for Reclamation?**

The Water Resources Branch oversees budgets and programs of the U.S. Army Corps of Engineers, Bureau of Reclamation, and Department of Energy’s Power Marketing Administrations. For the majority of my eight years at OMB, I was responsible for examining the Reclamation budget and program. It was an exciting time. I interacted with the Department of the Interior (Department)/ Reclamation, Congressional authorization committees, stakeholders, and OMB political



Hallway outside of Interior Museum (downstairs from Wolf's former office) in the Stewart Lee Udall Department of the Interior Building in Washington, D.C.

leadership to shepherd historic legislation. These included the Reclamation States Emergency Drought Relief Act of 1991, the Yakima River Basin Water Enhancement Project, various rural water projects' legislation, and most significantly P.L. 102-575 signed on October 30, 1992, days before the Presidential election. This 40-title bill included the Central Valley Project Improvement Act, Central Utah Project Completion Act, Grand Canyon Protection Act, Title 28 (Recreation), and Title XVI Water Reclamation and Reuse. I also engaged in a series of bills authorizing Indian Water Rights Settlements for which the Water Resources Branch was the lead.

The Administration's Reinventing Government Initiative, which delegated more responsibility to agencies, provided an opportunity to join the Reclamation team to support funding and implementation of these new programs and projects.

### **How would you describe the Director of Program and Budget's responsibilities, both big picture and day-to-day?**

At a high level, recruit, develop, support, and retain a talented staff; provide input for and understand mission priorities; plan for and secure needed Federal funding; use funds wisely and appropriately; and consult and adjust to emerging needs and issues as necessary to further the mission.

On a day-to-day basis, it involves constantly looking for opportunities and different strategies for improvement. This includes movements of funds within a fiscal year, including supplemental appropriations and reprogramming of funds, and

development of spend plans for additional funds provided by Congress. All of these responsibilities require maintaining fiscal controls and managing the Reclamation program with integrity.

Reclamation is overseen by a different branch at OMB and the Congressional Appropriations Subcommittee (Energy and Water Development) than the rest of the Department. Therefore, we manage the day-to-day relationships with both OMB and the Appropriations Subcommittee. This direct communication is a tremendous benefit.

### **Can you share a success story of a project or program that you've been involved with?**

I hesitate to single out a project or program as it seems disingenuous. Instead, I would like to recognize the Program and Budget staff and the many others in Reclamation for their contributions. Achieving success is a collaborative process. I'm also proud that over a half-dozen individuals have moved on from Program and Budget to Senior Executive positions both within Reclamation and other agencies.

### **What has been the greatest challenge you've faced in your role?**

Water has traditionally been perceived as pork barrel politics, so the Administration and the Department tend to cut budgets and expect Congress to "fix" it by adding funds in the annual appropriations process. This complicates the formulation of a responsible President's Budget to transmit to Congress.

Reclamation's current annual budget is about \$1.4 billion with Congress adding about \$500 million in recent years.

**Much of Reclamation’s infrastructure was constructed a half-century or longer ago. Can you give us insight into how Reclamation budgets for both the operations and maintenance (O&M) of existing structures and invests in new technology and development?**

Public and employee safety is always a top priority. Program and Budget works closely with the Dam Safety Office to ensure funds are obtained for a robust program. Dam safety funding was doubled in 2022 based on documented current and future requirements. The Budget Review Committee process provides a great forum for the organization to formulate and prioritize routine and major maintenance funding. Reclamation’s Research and Development Office, Value Engineering, and other processes assist Reclamation in modernizing our facilities and operations. The Facilities O&M Team provides valuable information exchange and process improvements that support major advances in infrastructure.

**With the Bipartisan Infrastructure Law and Inflation Reduction Act passed and work having begun to improve the nation’s infrastructure, what are important future milestones for measuring the impacts of these investments?**

The \$8.3 billion in Bipartisan Infrastructure Law and \$6.4 billion Inflation Reduction Act funding provide a generational opportunity to modernize infrastructure, balance water supply and needs, and set Reclamation up for the future. It is critical that we are strategic in implementing these statutes. Reclamation must focus on the end game. What are the most important priorities? What is the best alignment of these resources? What can we accomplish quickly to provide public benefits and demonstrate competence and ensure tangible results that do not require future – perhaps unavailable – funding to complete by the end of 2026? We are able to use lessons from the overwhelming success of the \$1 billion in American Recovery and Reinvestment Act of 2009 funding in implementing this unprecedented funding boost.

**What is something about the budget of a Federal bureau like Reclamation that you wish could be better understood?**

Hopefully everyone already understands that money does not grow on trees. When we work with the public, integrity, consistency, and accountability are critical. With cost sharing and repayment of certain costs, stakeholders are partners. I recently received feedback from an unexpected source that they appreciated that I was always honest and told them what they needed to know rather than what they wanted to hear.

**Can you share some advice for those just starting careers in Reclamation?**

Be curious. When detail or training opportunities are available, consider learning about budget and Congressional processes. Accept what you can’t change or control and make a difference where you can. Use your own and others’ experience and expertise to think strategically many steps ahead about how to achieve the desired outcome. Relationships matter.

**Congratulations on your retirement! What are you looking forward to?**

I will greatly miss the people and the important and stimulating challenges facing the nation in the area of natural and water resources.

But I look forward to greater flexibility in enjoying music and concerts, sporting events, travel, and reading. I will also have greater opportunity to visit family and friends. Budget was a year-round activity for me with short and unpredictable deadlines.



Bob Wolf with United States Secretary of the Interior Deb Haaland (January 2024).



## Updates & Due Dates

### 2024 Review of Operation and Maintenance (RO&M) Workshop

The RO&M Workshop is a three-day seminar tailored to Bureau of Reclamation (Reclamation) operations and maintenance personnel and inspectors. The workshop focuses on how to inspect and review high- and significant-hazard potential dams and associated facilities such as low-hazard potential dams, canals, pumping plants, levees, bridges, roads, etc. Program updates and recent case studies will also be provided. Participants will bolster the skills and knowledge used to operate and assess Reclamation infrastructure. Planned topics include inaccessible features guidance, tunnel inspection, and reservoir sedimentation, as well as tours of Nimbus Dam and the Folsom South Canal embankment.

#### Registration

The 2024 RO&M Workshop will be held in Sacramento, California, from Tuesday, April 9, through Thursday, April 11, 2024. There will be two days of classroom training and one day consisting of a field site visit. There is no cost for this training. Reclamation employees must register in DOI Talent. Please email Ginger Dill at [gdill@usbr.gov](mailto:gdill@usbr.gov) for more information.

### 2024 Land Resources Recreation Training

The 2024 Land Resources Recreation Training covers a variety of topics. Sessions include direct- and partner-managed recreation, concessions, accessibility, and the Enterprise Asset Registry and connected asset management tools. In addition, a one-day field visit will tour a recreation area. This training is an opportunity to network and collaborate with peers from across Reclamation. Participants gain tools, knowledge, and examples to help identify, develop, and manage successful recreation programs and partnerships that meet Reclamation Manual Policy and Directives and Standards.

#### Registration

The Land Resources Recreation Training will be held in Sacramento, California, from Tuesday, May 21, through Thursday, May 23, 2024. There is no cost for this training. Reclamation employees must register in DOI Talent. Please contact Ronnie Baca at [rbaca@usbr.gov](mailto:rbaca@usbr.gov) for more information.