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District of Columbia Water and Sewer Authority

Board of Directors

Audit and Risk Committee July 23, 2026 / 11:00am

Microsoft Teams meeting
Click here to join the meeting
Meeting ID: 256 987 397 171 035
Passcode: CQ6jM67f
Call in (audio only) 202-753-6714, 263056512#
Phone Conference ID: 263 056 512#

1. **Call to Order** ______________________ Samuel Moki, Chairperson
2. **Roll Call** ______________________ Debra Mathis, Acting Board Secretary
3. **Enterprise Risk Management Briefing** __________ Francis Cooper, Director, EPMO
4. **Non-Revenue Water Update** __________ Chris Collier, Vice-President, Water Operations
5. **Internal Audit Update** ______________________ Cherry Bekaert, Internal Audit
   A. FY 2026 Internal Audit Plan Status Update
   B. Status Update on Prior Audit Findings
   C. Hotline Update
6. **Executive Session*** ______________________ Samuel Moki
   A. To discuss a facility security matter under D.C. Official Code § 2-575(b)(8); and
   B. To discuss investigative reports concerning alleged misconduct or violations of law or regulations under D.C. Official Code *§ 2-575(b)(14).*
7. **Adjournment** ______________________ Samuel Moki

This meeting is governed by the Open Meetings Act. Please address any questions or complaints arising under this meeting to the Office of Open Government at opengovoffice@dc.gov.

1The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss certain matters, including but not limited to: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); terms for negotiating a contract, including an employment contract, under D.C. Official Code § 2-575(b)(2); obtain legal advice and preserve attorney-client privilege or settlement terms under D.C. Official Code § 2-575(b)(4)(A); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security matters under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); third-party proprietary matters under D.C. Official Code § 2-575(b)(11); train and develop Board members and staff under D.C. Official Codes § 2- 575(b)(12); adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters or violations of laws or regulations where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14); and other matters provided under the Act.

Enterprise Risk Management (ERM)

Francis Cooper, Director | EPMO

ERM FY 26 Annual Report Timeline

The ERM Annual Report highlights key risk management activities, progress, and strategic alignment across the enterprise.

FEBRUARY 2026

ERM Annual Report project is initiated

MARCH 2026

Annual Report socialized to the Program Leadership Team

APRIL 2026

Meetings with Directors of Department of Safety and Health, Office of Security, Office of Emergency Management, and Office of Risk Management to secure their participation

MAY 2026

Letter of the CEO is drafted

Office of Security draft is submitted

JUNE 2026

Department of Safety and Health draft submitted

JULY 2026

Draft of letter supporting ERM's role in strategic planning is submitted

ERM FY 26 Annual Report Completion

Section	Completion
Letter from the CEO	Draft completed – awaiting approval
Letter from the CFO	Draft to be developed
DC Water ERM Program Framework	Completed
Supporting DC Water’s Core Values and Strategic Plan	Draft currently in progress
Department of Safety and Health	Draft completed-waiting for review and signature
Department of Security	Draft completed – under review
Office of Emergency Management	Draft currently in progress
Department of Information Technology (Cybersecurity)	New CIO onboarded in July
FY 2026 Action Priorities	Draft completed- waiting for review
Risk Registry	Completed
ERMC Membership	Completed

3

Enterprise Risk Management Training

Self-Guided Learning
ERM 201 and ERM 202 have been converted into self-guided Oracle learning modules to improve accessibility and scalability.

Enterprise Tracking
Course completion and participation will be tracked through Oracle, providing centralized reporting and compliance visibility.

Management Engagement
Partnering with Learning & Development to transition ERM training to a required learning curriculum for management.

ERM 201 Training
The Enterprise Risk Management (ERM) Process

FOCUS AREAS
- ERM Framework
- Risk Management Process
- Risk Governance

ERM 202 Training
The Enterprise Risk Management (ERM) Process

FOCUS AREAS
- Risk Management Process
- Origami Risk Module
- Risk Identification

EXPECTED BENEFITS
- Consistent ERM knowledge across the organization
- Centralized Oracle reporting and compliance visibility
- Increased management participation and accountability

4

Enterprise Risk Assessment (ERA) Overview

DC Water will conduct an annual enterprise risk assessment to identify and prioritize the top risks facing the organization.

1. **Risk Identification Interviews**
   Enhancing the FY2027 Enterprise Risk Assessment by implementing separate Management Enterprise Risk Assessments (MERA) and Director/VP assessments to capture enterprise-wide perspectives on risk management practices and emerging risks across all clusters. Both surveys will be administered throughout August, followed by targeted interviews in September 2026.
2. **Leadership Risk Identification Interviews**
   Leveraging the results of management discussions, interviews will be conducted with DC Water Senior Executive Team (SET) and select Board Members to further understand potential risks and identify those that require additional management attention and resources.
3. **Develop List of Potential Top Enterprise Risks**
   The interview results will be synthesized and shaped into a preliminary set of potential top enterprise risks. These risks will be documented and shared as a pre-read for the Risk Prioritization Workshop.
4. **Risk Prioritization Workshop with ERMC**
   A risk prioritization workshop will be conducted with a group of DC Water leadership to discuss, align, and prioritize DC Water's top enterprise risks.
5. **Enterprise Risk Assessment Results and Executive Summary**

Non-Revenue Water (NRW) Water Loss Reduction Program

Chris M. Collier (and team)
Vice-President | Water & Sewer Operations

Non-Revenue Water (NRW) – Presentation Purpose

Purpose

Provide a clear, standardized understanding of Non-Revenue Water and the path to improving measurement and reduction at DC Water

Understand
Quantify and Account for Non-Revenue Water

Measure
Improve data quality and visibility to move from estimates to actuals

Reduce
Implement targeted mitigations to reduce water loss

Deliver Value
Protect our resources, control costs, and provide reliable service to our community

NRW – Presentation Agenda

- Non-Revenue Water (NRW) – Summary of Approach
  - Audit Strategy
  - Industry Standards – AWWA M36 Manual of Water Supply Practice *(Water Audits and Loss Control Programs)*
  - Audit Tools Used – AWWA Free Water Audit Software
- DC Water – FY24 & FY25 NRW Audit Results
- AWWA NRW Benchmarking
- NRW Enterprise Mitigation Strategies
- NRW Enterprise Mitigation Focus – Top 5
- NRW Mitigations – Progress to Date
- NRW Mitigations – Required Next Steps
- Enterprise NRW Strategy – Next Steps
- Questions
- Appendix (supporting information)

NRW – Summary of Approach

Comprehensive Audit Strategy

Dual Methodology

- Robust, two-pronged approach, integrating a macro-level, top-down water audit with a granular, bottom-up assessment.

Complete Discovery

- Holistic strategy ensured no blind spots, bridging system-wide water balance data with ground-level operational realities to accurately locate inefficiencies.

Extensive Roadmapping

- Thorough investigative process successfully yielded a pipeline of 42 distinct mitigation strategies across DC Water that supports bottom-up approach.

Strategic Focus

- The following details the DC Water NRW Audit, and the 5 priority mitigations selected for active implementation to drive immediate revenue recovery and improved data validity.

NRW – Summary of Approach

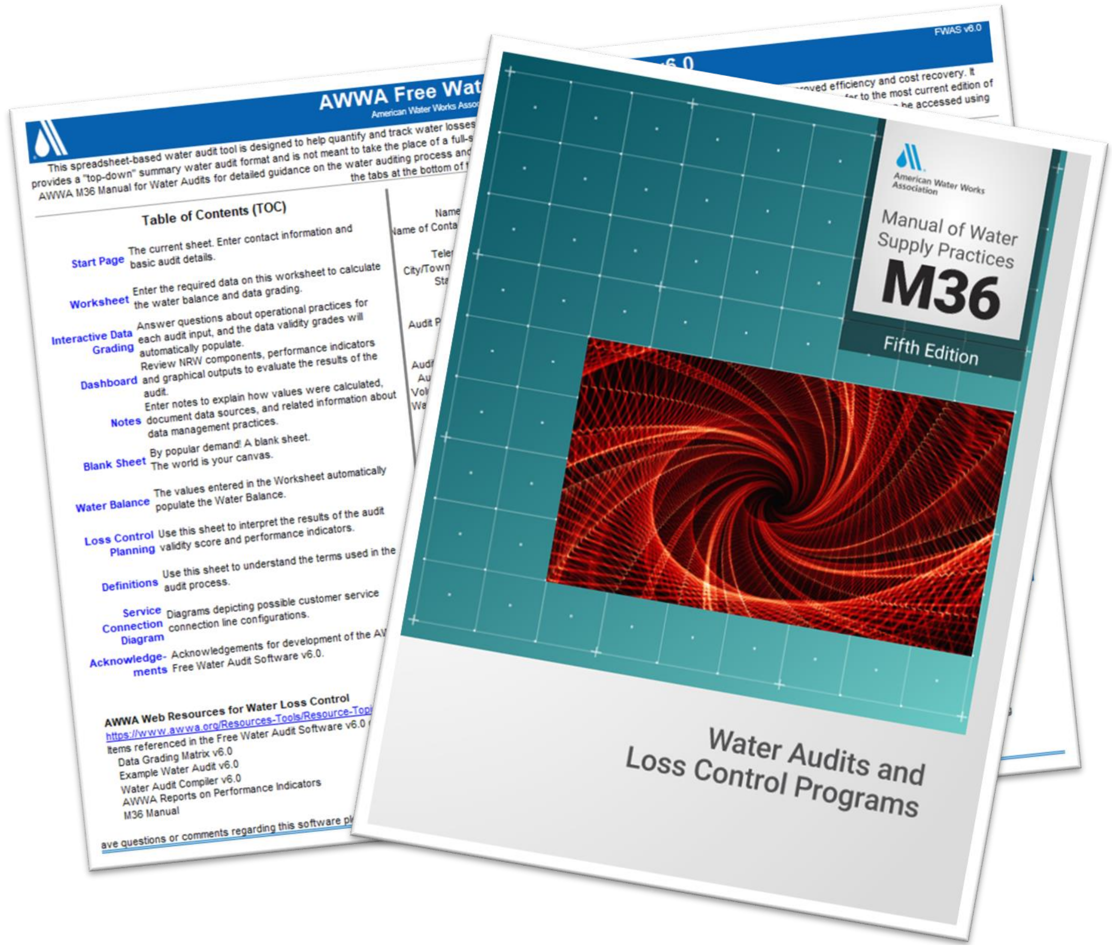
Industry Standards

AWWA M36 – Manual of Water Supply Practices – Fifth Edition

- Establishes the industry-standard "water balance" methodology
- Guides utilities in classifying system inefficiencies, enabling data-driven investments that recover lost revenue and reduce operating costs

AWWA Free Water Audit Software (v6.0, 2020)

- Translates the M36 methodology into a practical, interactive application that automatically calculates water balance and generates key performance indicators
- Advanced data-grading matrix that assesses the accuracy of inputs, yielding trustworthy, standardized metrics used for regulatory compliance, industry benchmarking, and prioritizing capital investments.

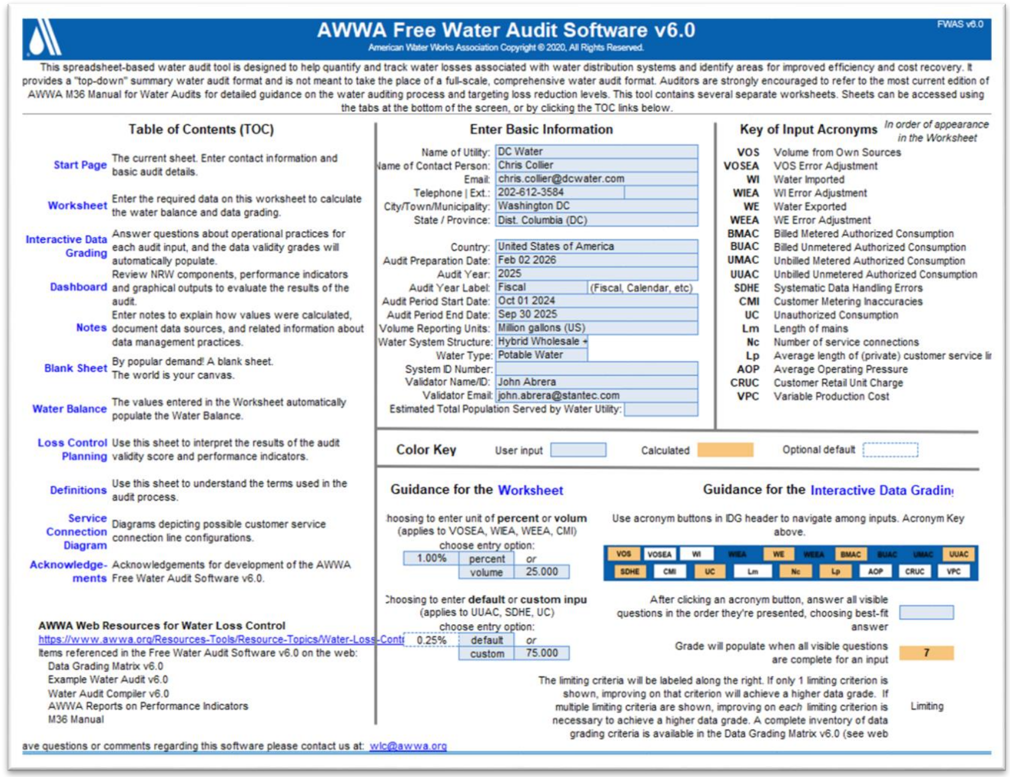


NRW – Summary of Approach

AWWA Free Water Audit Software v6.0 Tasks Inputs

- Task 1 – Quantify the Volume of Water Supplied to the Distribution System
- Task 2 – Quantify Authorized Consumption
- Task 3 – Calculate Water Losses and Quantify Apparent and Real Losses
- Task 4 – Calculate NRW
- Task 5 – Collect Distribution System and Cost Data
- Task 6 – Determine System Attributes
- Task 7 – Performance Indicators
- Task 8 – Compile the Water Balance
- Task 9 – Assess the Data Validity Score

"Comparing a single-month water supplied volume to a single-month billed authorized-consumption volume is unreliable and misleading" – AWWA Manual M36 Fifth Edition



DC Water – FY24 & FY25 NRW Audit Results

Unbilled Authorized Consumption

- Hydrant Maintenance
- Fire Flow Testing
- Pipe Disinfection
- Flushing
- Sewer Cleaning
- Street Sweeping, etc.

Apparent Losses

- Meter inaccuracy
- Unauthorized Use
- Unmetered Connections
- Unbilled Accounts
- Inaccurate Estimates
- Billing Adjustments

Real Losses

- Water Main Breaks
- Service Line Leaks
- Meter Leaks
- Hydrant Leaks
- Valve Leaks
- Tank Leaks

AWWA Water Balance

<table>
<tr><td rowspan="9">Volume From Own Sources (corrected for known errors)</td><td rowspan="11">System Input Volume</td><td>Water Exported (corrected for known errors)</td><td colspan="3">Billed Water Exported</td><td>Revenue Water</td></tr>
<tr><td rowspan="10">Water Supplied</td><td rowspan="4">Authorized Consumption</td><td rowspan="2">Billed Authorized Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr>
<tr><td>Billed Unmetered Consumption</td></tr>
<tr><td rowspan="2">Unbilled Authorized Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="8">Non-Revenue Water</td></tr>
<tr><td>Unbilled Unmetered Consumption</td></tr>
<tr><td rowspan="6">Water Losses</td><td rowspan="3">Apparent Losses</td><td>Systematic Data-Handling Errors</td></tr>
<tr><td>Customer Metering Inaccuracies</td></tr>
<tr><td>Unauthorized Consumption</td></tr>
<tr><td rowspan="3">Real Losses</td><td>Leakage on Transmission and Distribution Mains</td></tr>
<tr><td rowspan="2">Water Imported (corrected for known errors)</td><td>Leakage and Overflows at Utility's Storage Tanks</td></tr>
<tr><td>Leakage on Service Connections up to the Point of Customer Metering</td></tr>
</table>

NOTE: All components of the water balance are expressed as volumes of water (not to scale) for the period of reference, typically one year.

AWWA NRW Trends

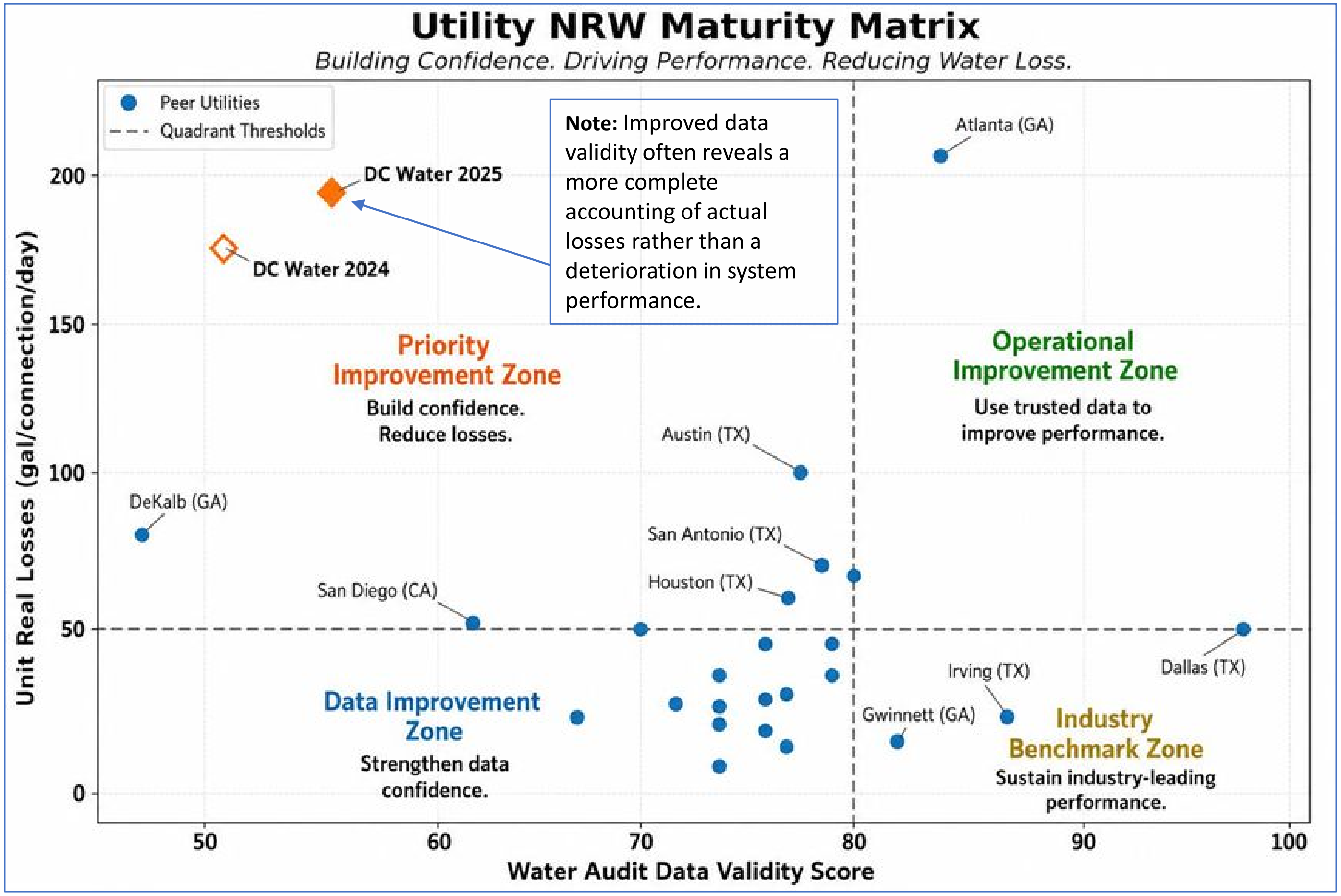
Fiscal Year	2024	2025
Non-Revenue Water %	27%	30%
Data Validity Score	51 (Tier III)	54 (Tier III)
Cost of Non-Revenue Water $	$35,545,680	$43,050,733
Water Supplied (MG)	36781	36758
Billed Metered (MG)	26119	24821
NRW (MG)	9879	11168
Unit Total Losses (G/C/D)	198	221
Unit Apparent Losses (G/C/D)	23	26
Unit Real Losses (G/C/D)	175	195
Infrastructure Leakage Index (ILI)	12	14

Water Supplied went down in FY 2025 - 0.06%
Billed Metered went down in FY 2025 - 4.97%

AWWA NRW Benchmarking – 2024 Validated Results

Key Points

- **The Maturity Matrix evaluates utilities using two dimensions:** confidence in water audit data (Data Validity Score) and operational performance (Unit Real Losses).
- **The goal is to progress from the upper left to the lower right**, first improving confidence in the data, then using that confidence to reduce real water losses.
- **Benchmark comparisons are based on 2024 AWWA M36 Level 1–Validated Water Audits** from large utilities (100,000+ service connections) in California, Texas, and Georgia.
- **This framework supports data-driven decision making** by distinguishing between data quality challenges and operational performance challenges.



NRW Enterprise Mitigation Strategies

DC Water Identified Mitigations

Grounded in Field Reality (Bottom-Up Approach)

- Developed directly by operational, engineering, permitting, and metering teams to target root causes, ensuring each mitigation is technically viable and operationally sound

Balanced Portfolio of Mitigation Alternatives

- Addresses Real Losses, Apparent Losses, and Unbilled unauthorized consumption to maximize revenue recovery and data validity

Phased Data-Driven Prioritization

- The initial 42 mitigations are being ranked by ease of implementation and impacts, allowing us to capture "low-hanging fruit" while scoping long term projects

Code	Intervention Title	Owner	Department	NRW Component	Water Balance Component
1.1	Test and Calibrate Water Import Meters	Robert Simpkins	Pumping Operations	Apparent Losses	Volume Supplied
1.2	Test and Calibrate Water Export Meters	Robert Simpkins	Pumping Operations	Apparent Losses	Volume Supplied
1.3	Install DC Water-Owned Meters at All Import/Export Locations	Robert Simpkins	Pumping Operations	Apparent Losses	Volume Supplied
1.4	Improve Data Sharing of Water Import and Export Flows with Washington Aqueduct	Robert Simpkins	Pumping Operations	Apparent Losses	Volume Supplied
1.5	Develop a Specialized Meter Calibration Test Team	Robert Simpkins	Pumping Operations	Apparent Losses	Systematic Data Handling Errors
1.6	Test and Calibrate DC Water Pump Meters	Robert Simpkins	Pumping Operations	Apparent Losses	Systematic Data Handling Errors
1.7	Install Meters at WSSC Interconnection Points	Jumoke Awosolu	Engineering	Real Losses	Volume Supplied
2.1	Catalog Unbilled Unmetered Activities for Water Operations	Chris Coit	Operations	Unbilled Authorized Cons	Unbilled Authorized Cons
2.2	Catalog Unbilled Unmetered Activities for Engineering and Construction	Jumoke Awosolu	Engineering	Unbilled Authorized Cons	Unbilled Authorized Cons
2.3	Catalog Unbilled Unmetered Activities for External Stakeholders	Andrés Villarraga	Operations	Unbilled Authorized Cons	Unbilled Authorized Cons
2.4	Update AWOL for Unbilled Unmetered Consumption	Aref Erfani	IT	Unbilled Authorized Cons	Unbilled Authorized Cons
3.1	Develop a Process to Document Theft	Erika White	Customer Care	Apparent Losses	Unauthorized Consumption
3.2	Review and Update the Certificate of Occupancy (CO) Process	Ogechi Okpechi	Permit Operations	Apparent Losses	Unauthorized Consumption
3.3	Investigate Unmetered Locations	Ogechi Okpechi	Permit Operations	Apparent Losses	Unauthorized Consumption
3.4	Install Meters at Unmetered Locations	Sheena Robinson	Metering	Apparent Losses	Unauthorized Consumption
3.5	Install Meters on Fire Service Lines	Sheena Robinson	Metering	Apparent Losses	Unauthorized Consumption
3.6	Install Meters for Large Customers with Bypass Issues	Sheena Robinson	Metering	Apparent Losses	Unauthorized Consumption
4.1	Reinstate the Large Meter In-Situ Flow Testing Program	Sheena Robinson	Metering	Apparent Losses	Apparent Losses
4.2	Improve the Large Meter Replacement Program	Sheena Robinson	Metering	Apparent Losses	Apparent Losses
4.3	Reinstate the Small Meter Bench Testing Program	Sheena Robinson	Metering	Apparent Losses	Apparent Losses
4.4	Improve the Small Meter Replacement Program	Sheena Robinson	Metering	Apparent Losses	Apparent Losses
4.5	Update Specifications for Small Meters	Pierre Constant	Water Quality	Apparent Losses	Apparent Losses
4.6	Create a Fire Hydrant Meter Testing Program	Sheena Robinson	Metering	Apparent Losses	Apparent Losses
4.7	Maintain AMI Infrastructure	Chris Coit	Operations	Apparent Losses	Apparent Losses
5.1	Review and Update the Work Order Form to Track Leak Repairs	Chris Coit	Operations	Real Losses	Real Losses
5.2	Perform Real Loss Component Analysis	Jumoke Awosolu	Engineering	Real Losses	Real Losses
5.3	Replace Water Mains	Sylvia Okogi	Operations	Real Losses	Real Losses
5.4	Calibrate Pressure Zones and Improve Boundary Integrity	Alireza Parhami	Operations	Real Losses	Real Losses
5.5	Implement Pressure Management Initiatives	Jumoke Awosolu	Engineering	Real Losses	Real Losses
5.6	Develop Sub-Pressure Zones	Sylvia Okogi	Operations	Real Losses	Real Losses
5.7	Develop a Proactive Leak Detection Program	Chris Coit	Operations	Real Losses	Real Losses
5.8	Improve Leak Find and Repair Times	Alireza Parhami	Operations	Real Losses	Real Losses
5.9	Perform Surge Analysis	Marcus McKenzie	Customer Care	Real Losses	Real Losses
6.1	Audit the Customer Billing Database	Marcus McKenzie	Customer Care	Apparent Losses	Systematic Data Handling Errors
6.2	Review and Update the Process for Estimating Water Bills	Sheena Robinson	Metering	Apparent Losses	Systematic Data Handling Errors
6.3	Perform Manual Meter Reads for Non-Reporting AMI Meters	Marcus McKenzie	Customer Care	Apparent Losses	Systematic Data Handling Errors
6.4	Develop a Process to Report Water Volume Associated with Billing Adjustments	Marcus McKenzie	Customer Care	Apparent Losses	Systematic Data Handling Errors
6.5	Review and Update the Process for Activating and Inactivating Accounts	Marcus McKenzie	Customer Care	Apparent Losses	Systematic Data Handling Errors
6.6	Review and Update the Process for Documenting the Number of Connections	Aref Erfani	IT	Apparent Losses	Systematic Data Handling Errors
6.7	Develop Policies and Procedures for Data Collection	Pierre Constant	Water Quality	Apparent Losses	Systematic Data Handling Errors
6.8	Develop an Inventory of Fire Service Lines	Chris Coit	Operations	Apparent Losses	Systematic Data Handling Errors
5.11	Repair Reported Leaks			Real Losses	Real Losses

Derived from AMI Evaluation and NRW Reduction Workshops

NRW Enterprise Mitigations Focus – Top 5

Mitigation	NRW Category	Complete To Date	To-Do/Next Steps	AWWA FY Audit Realization
Imported Water	Real Losses	Met with Washington Aqueduct, Metering Review	Conduct Flow Accuracy Tests Import Meters	~FY27 Water Audit
Exported Water	Real Losses	Met with Washington Aqueduct	Conduct Flow Accuracy Tests on Arlington & Fairfax Meters	~FY27 Water Audit
Unauthorized Consumption (UC)	Apparent Losses	Surveyed over 1000 Property Locations	Customer Care and Meter Operations Reviewing >400 Accounts identified	~FY28 Water Audit
Customer Metering Inaccuracies (CMI)	Apparent Losses	17k Customer meters needing repair identified	Investigate 17k failing meters	~FY28 Water Audit
Systematic Data Handling (SMDHE)	Apparent Losses	12k pulled end points sorted and tested	Procure 3rd party to investigate / replace failing equipment	~FY28 Water Audit

NRW Mitigations – Progress to Date

Purchase Agreement Study: Reviewed Washington Aqueduct/DC Water purchase agreement and analyzed pumping reports (including Fairfax and Arlington)

Network Metering Study: Identified 11 meters at Bryant Street and 18 meters in network at change of ownership

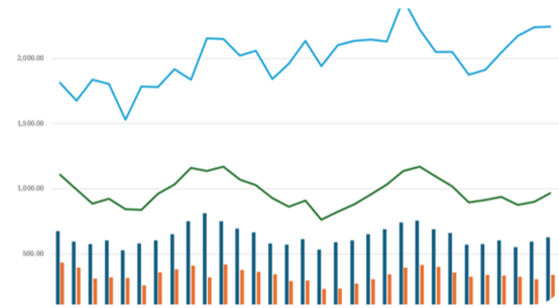
Washington Aqueduct Alignment: Met with Washington Aqueduct in May 2026 (introduced meter calibration needs and approach)

Performed Analysis in March 2025: Identified ~6,000 points of interest systemwide. Performed ~1,150 site surveys. Identified 860 potential unmetered connections. Confirmed >400 potential locations with Customer Care (premise verification underway)

Meter Registration Improvement Project: Identified ~18,000 customer meters/MTUs needing repair or replacement (contractor RFQ – July 2026)

Meter Testing Program: Reactivated MARS meter test bench and purchased four portable large meter test units to support reinstatement of large meter testing program

AMI End Point Assessment: ~13,000 pulled endpoints sorted and tested. ~2,600 returned under warranty. Identified chronic access issues. Identified premature failures across system.



NRW Mitigations – Required Next Steps

Flow Accuracy Testing (apparent loss): Benchmark Washington Aqueduct's transmission meters and DC Water's distribution meters.

Calibration Alignments (apparent loss): Confirm, standardize, and conduct meter testing and calibration methodologies for DC Water, Fairfax, Arlington, and Washington Aqueduct.

Boundary Metering (apparent loss): Install new, dedicated DC Water owned meters at strategic import locations. ***Task Order approval underway***

Leak Detection (real loss): Investigate Washington Aqueduct's downstream water mains to identify physical leakage and establish comprehensive proactive leak detection strategies within DC Water's distribution system.

Collate Premise Investigations (apparent loss): Corroborate unmetered survey connection results with Customer Service & Permit Operations.

Install/Calibrate/Replace Meters (apparent loss): 1) Install meters where unauthorized consumption is confirmed, 2) Calibrate large meters, 3) Replace large meters that cannot be calibrated or repaired.

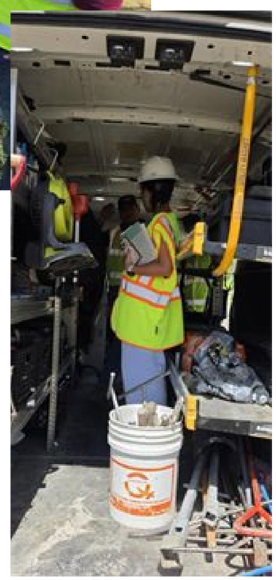
Improve AMI Meter System Performance (apparent loss): Procure 3rd party to investigate/replace ~18,000 failing meters/MTUs (Meter Transmission Units). ***RFQ will be advertised July 2026***

Meter Testing Program (apparent loss): Re-establish routine meter testing for small and large meters. ***Testing will resume July/August 2026***

Data Validity Improvements (apparent loss): 1) Develop a process to estimate loss due to SMDHE, and 2) Review estimated bill adjustments and include in Water Audit.

Strategic NRW Benchmarking & Knowledge Exchange

Site visit with San Antonio Water System (SAWS) to exchange leading practices in non-revenue water management, leak detection, and operational performance. **July 8 – 9, 2026**



Enterprise NRW Strategy - Next Steps

Continue Routine Water Auditing

- Continue current cadence of a conducting AWWA M36 Water Audits every six months
- Maintain strict data integrity using AWWA standards to track trends

Advance the Mitigation Portfolio

- Actively drive the 42 current mitigations identified as part of bottom up.
- Continuously monitor system performance to identify, prioritize, and integrate new mitigation strategies

Refine Capital & Resource Planning

- Develop and mature project scopes to establish baseline timelines and budget requirements for future review

Thank You!
Questions?

Chris M. Collier (and team)

Vice-President | Water & Sewer Operations

Non-Revenue Water (NRW) Water Loss Reduction Program

Appendices

Appendices

Appendix A: Non-Revenue Water – Why it matters?
Appendix B: AWWA – FY25 NRW Audit Dashboard
Appendix C: AWWA – FY25 NRW Audit Data Validity Score
Appendix D: AWWA NRW Benchmarking – Background Data

Appendix A: NRW – What it is and why it matters?

Understanding Where We Are

Establish a trusted baseline using the AWWA M36 methodology.

Aligning Enterprise Stakeholders

Coordinate Operations, Engineering, Customer Care, Meter Operations, Finance, IT, and our consultant partners under one enterprise strategy.

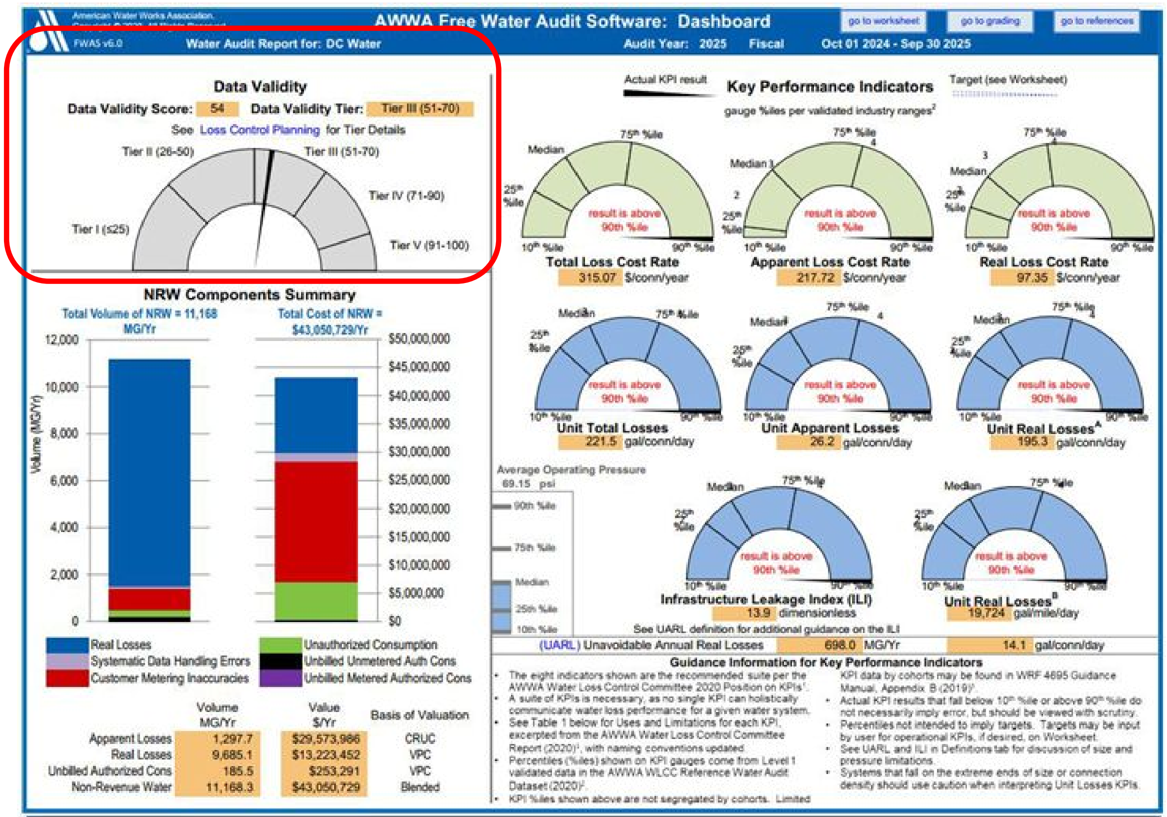
Improving Infrastructure Investment Strategies

Prioritize investments that improve data confidence, recover revenue, reduce water loss, and strengthen system reliability.

Stewarding Every Gallon

Protect our water resources, maximize the value of every gallon purchased, and deliver reliable service to our community.

Appendix B: AWWA – FY25 NRW Audit Dashboard



	Volume MG/Yr	Value $/Yr	Basis of Valuation
Apparent Losses	1,297.7	$29,573,986	CRUC
Real Losses	9,685.1	$13,223,452	VPC
Unbilled Authorized Cons	185.5	$253,291	VPC
Non-Revenue Water	11,168.3	$43,050,729	Blended

Dashboard Overview

Data Validity Score:

- A composite metric (0-100) reflecting the reliability and accuracy of the underlying data inputs used for the audit. Higher score achieved through robust measurement rather than estimates.

Key Performance Indicators:

- Standardized metrics, such as Infrastructure Leakage Index (ILI) that benchmark efficiency.

NRW Components Summary:

- A high-level visual breakdown categorizing total supplied water into Revenue and Non-Revenue streams

Appendix C: AWWA – FY25 NRW Audit Data Validity Score

Audit Data Collection
- Data Collection
- Business Processes
- Policies/Procedures

Short- Term Loss Control
- Meter Testing
- Leak Detection
- Leakage Control

Long- Term Loss Control
- Water Main Replacement
- Meter Replacement
- AMI Upgrades

Target Setting
- Establish NRW Reduction Goals
- Long-Term + 10-Year for Tier III
- Short-Term 5-Year for Tier IV

Benchmarking
- Preliminary Comparisons for Tier III
- Performance Benchmarking for Tier IV
- Typical to compare Real Losses

Individual Data Grading
Each data input is assigned a unique grade based on industry-best-practice validation criteria.

Automated Calculation
The audit software automatically aggregates individual inputs to calculate an Overall Data Validity Score.

Five-Tier Classification
The final score places the utility into one of five distinct performance and data-confidence tiers.

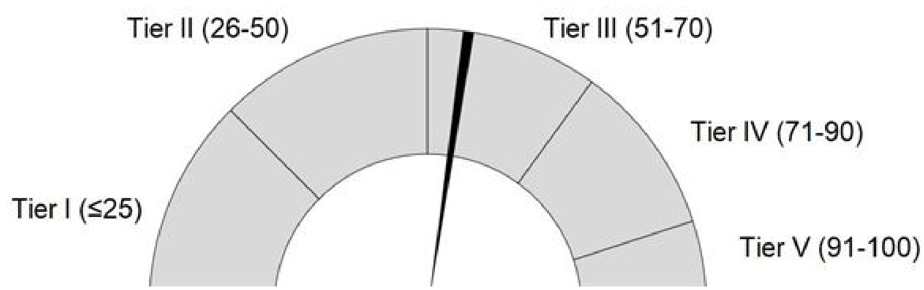
Tier I	Tier II	Tier III	Tier IV	Tier V
1 – 25	26 – 50	51 – 70	71 – 90	91 – 100

FWAS v6.0
Water Audit Report for: DC Water

Data Validity

Data Validity Score: 54 **Data Validity Tier:** Tier III (51-70)

See Loss Control Planning for Tier Details



Appendix D: AWWA NRW Benchmarking – Background Data

Name of Utility	State	Audit Year	Water Supplied (MG)	Non Revenue Water (MG)	Length of Mains	Number of Service Connections	Unit Losses gal/conn/day	Unit Apparent Losses gal/conn/day	Unit Real Losses gal/conn/day	Water Audit Data Validity Score
City Of Sacramento	California	2024	26,589.600	1,269.150	1,728.7	143,767	21.68	12.19	9.48	74
Irvine Ranch Water District	California	2024	17,225.364	3,313.303	1,973.1	125,867	20.09	4.98	15.11	77
Cobb County Water System / Cobb County-Marietta Water Authority	Georgia	2024	22,285.582	2,167.582	3,271.6	255,845	21.95	2.16	19.78	76
Gwinnett County	Georgia	2024	29,655.468	2,984.184	4,086.3	293,913	27.70	5.89	21.81	82
San Jose Water Company	California	2024	33,947.462	2,630.762	2,487.5	236,388	29.01	6.72	22.29	74
El Paso Water Utilities Public Service B	Texas	2024	35,232.109	3,443.459	2,900.0	226,366	40.26	17.66	22.6	68
East Bay Municipal Utility District	California	2024	56,123.801	5,085.801	4,282.0	380,501	34.76	8.41	26.35	74
City of Corpus Christi	Texas	2024	24,284.068	2,425.445	1,841.0	119,338	54.43	27.67	26.76	72
City of Irving	Texas	2024	13,974.280	1,515.576	735.4	110,338	30.30	2.79	27.51	87
Los Angeles City Department Of Water And Power	California	2024	142,622.752	34,244.825	7,400.4	754,001	35.98	7.88	28.10	76
Eastern Municipal Water District	California	2024	25,385.224	7,276.492	2,451.6	171,747	37.69	7.81	29.89	77
City of Arlington	Texas	2024	19,233.118	2,319.224	1,455.3	114,632	54.31	18.86	35.45	74
San Francisco Public Utilities Commission	California	2024	20,895.486	3,079.993	1,281.7	180,637	41.95	6.44	35.51	79
City Of Fresno	California	2024	37,888.169	10,045.348	1,913.0	141,623	61.74	17.02	44.72	76
City of Garland	Texas	2024	11,797.550	2,263.874	1,017.7	116,563	49.99	4.60	45.39	79
City of Fort Worth	Texas	2024	55,195.196	8,800.330	4,040.4	323,368	51.67	1.97	49.7	71
DALLAS WATER UTILITY	Texas	2024	84,371.304	16,620.364	5,077.3	341,941	64.05	13.79	50.26	98
City Of San Diego	California	2024	142,622.752	26,747.126	3,719.0	372,378	63.20	10.09	53.11	62
City of Houston	Texas	2024	115,717.771	34,838.658	7,221.0	1,035,389	60.24	1.07	59.17	77
Coachella Valley Water District	California	2024	30,026.660	3,755.590	2,012.8	112,724	83.26	16.96	66.30	80
San Antonio Water System	Texas	2024	88,554.591	19,634.395	7,844.2	691,564	76.22	6.94	69.28	79
DeKalb County	Georgia	2024	23,580.353	6,548.303	3,090.0	192,605	88.08	2.20	85.88	47
City of Austin Water & Wastewater	Texas	2024	54,289.392	10,741.972	4,018.0	255,049	110.97	11.14	99.83	78
DC Water	D.C.	2024	36,781.230	9,878.611	1,308.0	133,506	198.00	23.00	175.00	51
City of Atlanta	Georgia	2024	43,334.995	17,740.584	2,835.0	210,498	226.21	20.11	206.10	84

FY 2026 Internal Audit Plan

Internal Audit Committee Report July 23, 2026

1

Internal Audit Plan FY 2026 Timeline & Status

Legend	
Cycle Audits	Management Assessment
Ad Hoc Audits	Ongoing Procedures

2

FY 2026 Internal Audit Plan – Q3 In Progress

Customer Billing and Collections Audit

Emergency Management Policy Gap Analysis

Legal Operations Audit

Legend			
(green)	Cycle Audits	(purple)	Management Assessment
(orange)	Ad Hoc Audits	(blue)	Ongoing Procedures

FY 2026 Internal Audit Plan – Q3 In Progress

Recruitment, Performance Evaluation, Compensation Analysis & Training/LMS Assessment

Operational Technology Resiliency Audit

WOM – Pumping Operations Audit

Legend			
(green)	Cycle Audits	(purple)	Management Assessment
(orange)	Ad Hoc Audits	(blue)	Ongoing Procedures

FY 2026 Internal Audit Plan – Q3 In Progress

Physical Security – Blue Plains

FY 2027 Risk Assessment

Procurement, Contracting, & Contract Compliance Audit

Legend			
	Cycle Audits		Management Assessment
	Ad Hoc Audits		Ongoing Procedures

FY 2026 Internal Audit Plan – Q3 Completed

FY26 Cloud Security Audit

Legend			
(green)	Cycle Audits	(purple)	Management Assessment
(orange)	Ad Hoc Audits	(blue)	Ongoing Procedures

PRIOR AUDIT FINDINGS - FOLLOW UP STATUS

Quarterly Progress Highlights

Six prior audit findings were closed during the quarter.

High Risk
- FY25 Contract Compliance Finding

Moderate Risk
- FY25 Third-Party Vendor Management Finding
- FY25 WOM-Facilities Finding
- FY25 Budget Monitoring Finding

Low Risk
- FY25 Third-Party Vendor Management Finding
- FY25 Contract Compliance Finding

All findings for FY25 Budget Monitoring Audit have been closed.

Open High Risk Prior Audit Findings

There are a total of 13 open findings, which include three high-risk findings across two audits, detailed below.

Audit FY	Issue Date	Audit Report and Open Finding	Target Completion Date
2025	4/15/2025	**Work Order Management-Facilities Audit** • ***Lack of Current Asset Retirement and Disposal Standard Operating Procedures (SOPs)***	8/31/2026
2025	12/16/2025	**Contract Compliance Audit** • ***Deficient Risk Management Process Finding*** • ***Lack of COTR Designation and Training Completion Finding***	TBD* 7/31/2026**

*Management is currently evaluating remediation actions and will provide a target completion date upon completion of implementation planning. Internal Audit is awaiting a status as of 7/15/26.

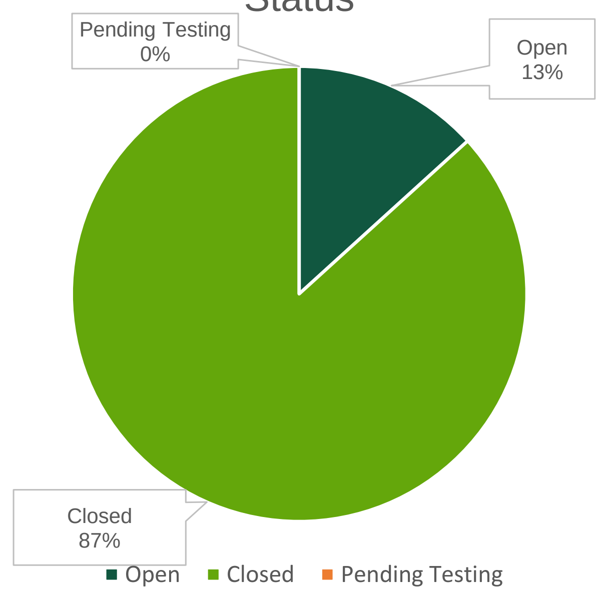
** Internal Audit is awaiting a status to determine whether the target date is accurate as of 7/15/26.

Legend	
	Target date has not yet come due
	Target date has passed

Status Update on FY23-FY25 Prior Audit Findings

Audit Report/Subject	Report Issue Date	Corrective Actions			
		Total	Open	Closed	Pending Testing
FY2023 to FY2025 Audit Findings*					
Work Order Management Audit-DWO	7/23/2023	3	1	2	0
Fleet Management Audit	10/27/2023	6	1	5	0
Work Order Management-Facilities Audit	4/11/2025	13	5	8	0
Safety Audit	6/18/2025	8	0	8	0
Strategic Plan Monitoring Audit	9/29/2025	3	3	0	0
SCADA Penetration Testing	10/6/2025	4	0	4	0
Third-Party Vendor Management Audit	11/6/2025	3	1	2	0
Budget Monitoring Audit	11/12/2025	2	0	2	0
Contract Compliance Audit	12/16/2025	4	2	2	0
Total Closed Audit Findings		52	0	52	0
	Total	98	13	85	0

FY2023 to FY2025 Audit Findings Status

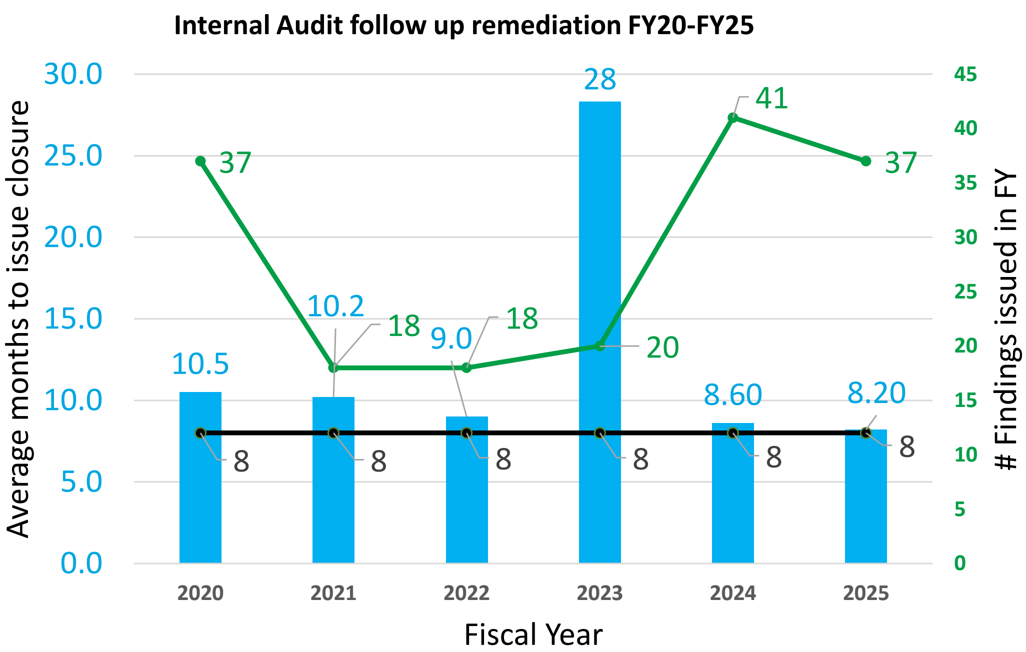


- The Work Order Management Audit-DWO finding has a 9/30/2028 target completion date because there is a 6-year fire hydrant flow test cycle.
- Two FY25 prior audit findings are past their target completion date-Strategic Plan Monitoring – Timely Submission of 5-15 Reports Finding, Facilities WOM – Lack of Maximo Training.
- Fleet Management Audit finding has been extended to 7/31/26 due to further Union review.

Note: All FY24 Audit Findings have been closed.

Time to closure by fiscal year

The below graph illustrates the average number of months from audit finding issuance to audit finding closure year-over year as of July 2026. Management has made significant improvements to achieve timelier audit finding closure as illustrated by the decline from FY23 to FY24. Management's target time to closure is 8 months.



**Data before FY2023 was provided by RSM*

Allegations Update

Allegations Update

Below is a summary of the cases received in FY26 as of July 15, 2026. There are eight open FY26 cases.

FY 26 Allegation Summary	
FY 26 Allegations Received	24
FY 26 Cases Closed	16
FY 25 Allegations Open	4
FY 26 Allegations Open	8

FY 26 Open Allegation Breakdown

Four FY25 cases are being investigated (one case logged as two calls.)

Eight FY26 cases are being reviewed and/or investigated.

Three of the open case reports were issued to Legal on 4/17/26 and another three were issued on 7/16/26 for review prior to issuing to management. Cases will be reflected as open until issued to management.

Allegation Source			
Hotline	20	Employee Email	1
Management Alert	3	Personal Conversation	0

FY 26 Closed Allegation Breakdown	
Theft of Time	0
Theft or Misuse of Company Assets	1
Policy Issues	4
Employee Relations	8
Sexual Harassment	0
Substance Abuse	0
Wage/Hour Issues	0
Workplace Violence/Threats	1
Closed Due to Lack of Information	2

Total Allegations by Fiscal Year:

Year	FY 21	FY 22	FY 23	FY 24	FY 25
# of Cases	7	18	15	25	19
Action Taken	0	2	2	1	8

FY26 Allegations by Quarter:

Year	Q1	Q2	Q3	Q4	Total
# of Cases	6	4	14	0	24
Action Taken	1	2	5	0	8

*Calls that do not pertain to fraud, waste, or abuse are automatically referred to the appropriate department head and closed by Internal Audit. These calls will never result in corrective action by Internal Audit and are not included in the FY26 Closed Allegation Breakdown

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