City of Richmond Department of Public Utilities

Lead Free Water Program

April 2025 Update to Council's Government Operations Standing Committee



Agenda

Refresher on Lead Regulatory Drivers and Challenges Lead Free Water Program Lookahead and Collaboration Acknowledgements and Q&A **Audit Status**



Refresher on Lead



Why is lead a health concern?

Pathways

Paint/renovation dust, soil, and plumbing can increase risk of lead exposure

Health Problems

Lead can cause serious health problems in the brain, kidneys, and red blood cells

High Risk Individuals

Infants, young children, the elderly, and pregnant women are most at risk

PSA

Showering is not a pathway

Boiling water does not help

Flush lines before drinking, use cold water, and use a water pitcher with filter certified to remove lead





Richmond's drinking water is lead free when it leaves the Water Treatment Plant





Importance of Corrosion Control

The Need

The service lines to properties and interior plumbing could be made of lead or galvanized pipe with lead solder.

Corrosion Control

DPU treats the drinking water at the Plant to reduce the likelihood of lead leaching into the water from pipes and solder containing lead.

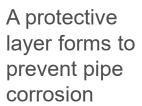
Verification

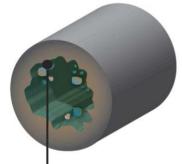
DPU samples at the tap in homes to confirm the corrosion control is working, as reflected in our consumer confidence report.





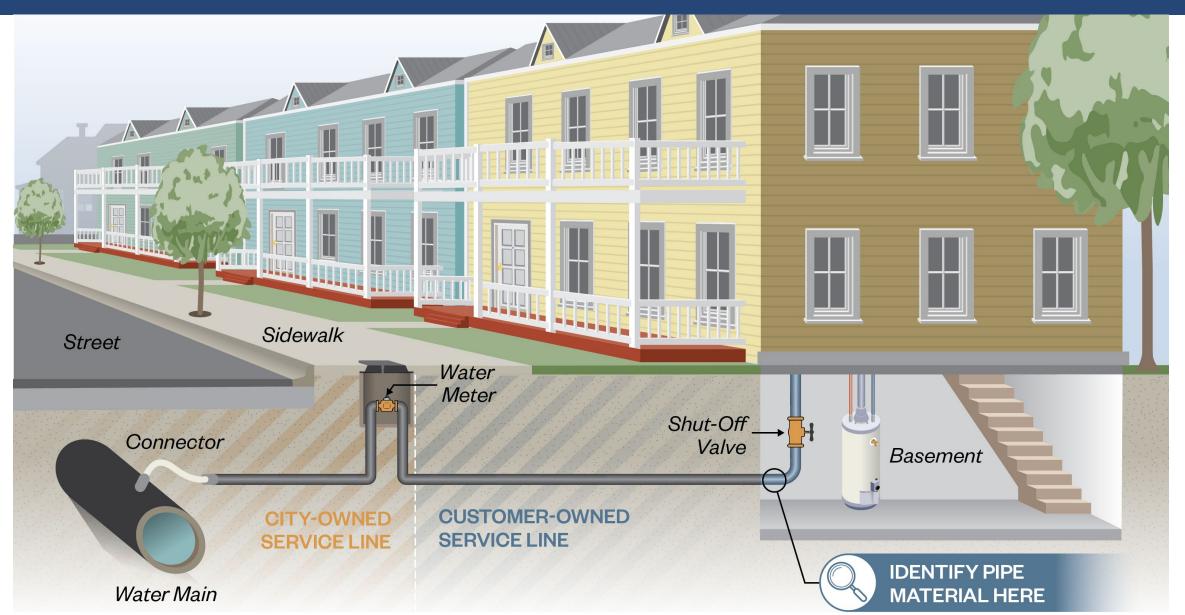






Lack of corrosion control allows lead to leach from pipes into water

Major Components of a Service Line



Regulatory Drivers and Challenges



Federal Drivers

Lead Ban in Plumbing

Safe Drinking Water Act amended in 1986 to ban lead pipe and solder.

Lead and Copper Rule

EPA's 1991 Lead and Copper Rule (LCR) regulated lead and copper in drinking water through tap sampling, treatment, and other requirements.

Major Updates

LCRR (2021)

- All waterworks with more than 3,000 customers must develop a public water service line inventory.
- Annual notifications and notifications at the time of service must be sent to those with lead, galvanized, or unknown service line material.



LCRI (2027)

- Find and remove all lead service lines "within the waterwork's control" (legally and physically) by 2037.
- Expand lead sampling for daycares and schools.
- Provide water pitchers with filters for disturbances.
- Max threshold limit of 10 ppb vs. 15

The hardest part of LCRI is finding and removing lead on private property

Magnitude:

There are ~66,000 service lines on private property with unknown material that we have to ID before we can replace.

Authorizations:

To do the lead service line replacement, we need individual property authorizations, and need to document a minimum of 4 attempts to obtain authorization per property. If a property declines, but later changes ownership, need to reach out another 4 times.

Funding:

We cannot use rate payer funds for private property improvements, so work on the customer side is entirely funded with grants DPU applies for. There are new restrictions on how grant funds from VDH can be used starting in Phase 5. For instance, 95% of construction material must be certified as Build America, Buy America (BABA) compliant.



Lead Free Water Program



DPU has been addressing lead before EPA required it

- ✓ DPU began applying corrosion inhibitor to reduce potential for lead to leech into drinking water before required to by EPA's 1991 Lead and Copper Rule regulations
- ✓ DPU began replacing lead piping materials when found in the public right-of-way in the early 1990s and has been actively replacing since then
- ✓ Per VDH we have been applying for and receiving grant funding for lead longer than any other VA municipality.
- ✓ DPU was awarded EPA's DWSRF Aquarius Recognition for Creative Solutions in 2023 for the customer-initiated LSLR grant program



Program Funding

City Grant Cycle	Status	Award Value	% grant vs loan	Funding Source	Focus
LSLR Ph 1 (FY18)	Closed	\$500k	100% grant	State Funds	146 LSLRs through customer-initiated prog.
LSLR Ph 2 (FY19)	Closed	\$500k	100% grant	EPA DWSRF Base Grant	176 LSLRs through customer-initiated prog.
LSLR Ph 3 (FY22)	Closed	\$1.5M	100% grant	EPA DWSRF Base Grant + ARPA	275 LSLRs through customer-initiated prog.
LSLR/SLI Ph 4	*~\$424k in disbursement requested	\$750k*	100% grant	EPA DWSRF Base Grant	LSLR and SLI customer-initiated prog.
LSLR Ph 5	Spend plan in development (new req.)	\$5M	52.4% loan 47.6% grant	BIL Funds; FY22	SLI grant program Block by block program Test pits
LSLR Ph 6	VDH to provide final funding offer	\$20M	62.8% loan 37.2% grant	BIL Funds; FY23	Full ramp up of program
Currently applying for Ph 7 funding		\$20M?			Maintain program



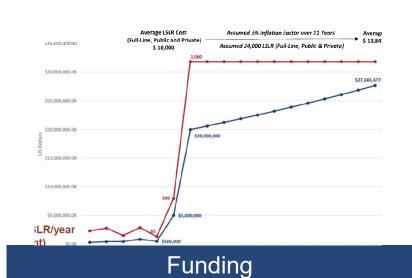
DPU is Pushing Forward and Finding Solutions



Corrosion Control & Water Pitchers



Public Outreach & Education





Service Line Inventory



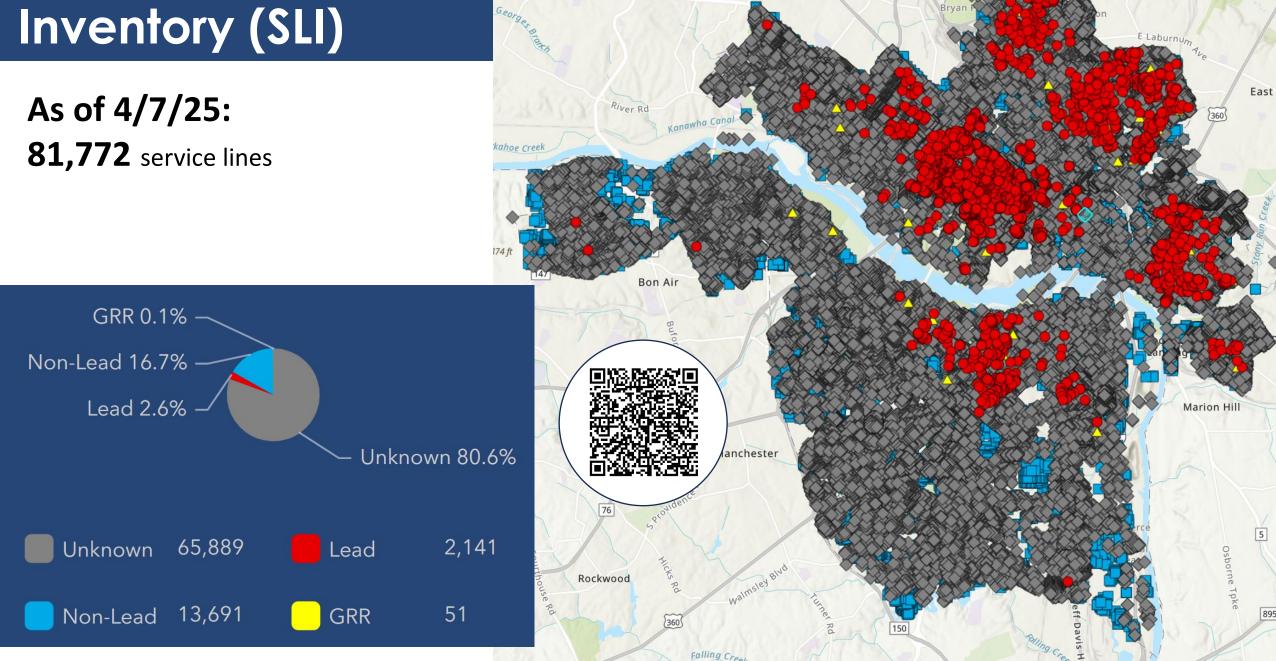
Service Line Replacements



Sampling & Monitoring



Service Line



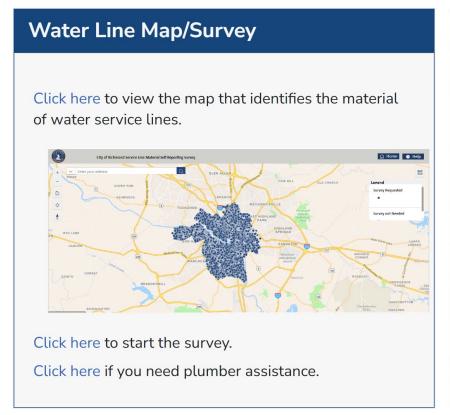
Tuckahoe

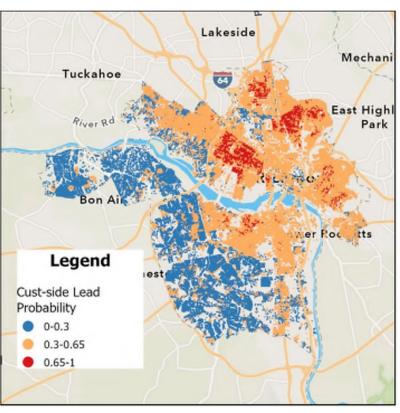
Dumbarton Rd

Horse Swamp Creek

How are we filling in the unknowns?

- Customer survey in SLI with instructions
- SLI Plumber Program
- Predictive model (working through outliers, requires VDH review)
- DPU field app for crews
- DPU inspections
- Block by block inspections or test pitting (planned)





Customer-Side LSL Predictions



Lead Service Line Replacements

LSLR customer-initiated grant program

- EPA and VDH have indicated that BABA requirements prevent the program from moving forward without substantial changes. For now, the program is on hold while we find alternative solutions and funding.
- Applying for a \$250k (~50 replacements) small project grant (exempt from BABA), available in 1-2 years. Selection would include income restrictions.

Pilot block-by-block approach (subject to VDH plan acceptance)

- After test pitting, we plan to do outreach to get property authorizations. We anticipate moving ~250 properties on blocks with the highest authorization rates to move forward to construction.
- Pilot neighborhood selection factors: likely presence of lead, income considerations, and roadway condition.



Lookahead and Collaboration



What to expect throughout 2025

- Submission of 2 VDH funding applications. Finalization of Ph 5 spending plan and execution of funding agreements.
- Rollout of the block by block program, starting with identification of service line material, followed by outreach to get authorizations.
- Release of 2 IFBs, one for labor to perform block-by-block replacements and the other for material procurement.
- Lead sampling event June Sept with 50-100 properties.
- Updated predictive model
- Annual notifications in October
- Related the water meter replacement program has started and customers are encouraged to submit inventory surveys ahead of water meter replacement. Water pitchers will be provided to customers with confirmed lead or galvanized if submitted a week prior to meter replacement.



Opportunities for Collaboration between City Council and DPU

- Please inform constituents about the SLI Plumber program or encourage them to complete the survey themselves. We are happy to present at civic associations and council district meetings.
- Please reinforce that DPU cannot pay for private side replacements using rate payer dollars and is reliant on grant funding. Please inform constituents that there is limited grant funding and DPU is actively seeking sources.
- Residents can move forward with a replacement themselves. Please reinforce that the property owner or their plumber should call 804-646-8600 to inform DPU so DPU can address the City side.



Acknowledgements



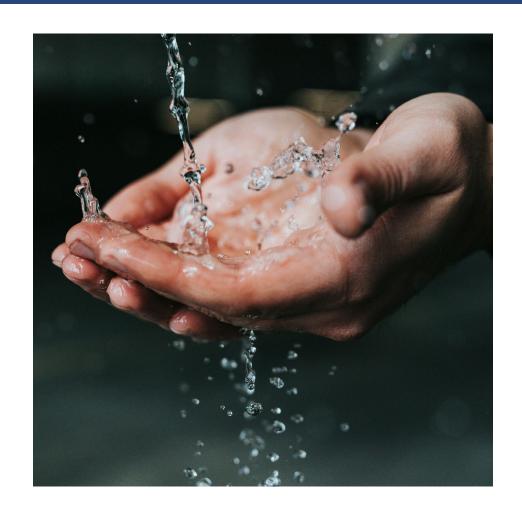
DPU is seen as a national leader for lead mitigation

- DPU began applying corrosion inhibitor to reduce potential for lead to leech into drinking water before required to by EPA's 1991 Lead and Copper Rule regulations
- DPU began replacing lead piping materials when found in the public right-of-way in the early 1990s and has been actively replacing since then
- Per VDH we have been applying for and receiving grant funding for lead longer than any other VA municipality.
- DPU was awarded EPA's DWSRF Aquarius Recognition for Creative Solutions in 2023 for the customer-initiated LSLR grant program
- DPU's block by block program would be one of the first in VA.

We will continue to work towards creative solutions in a dynamic and complex regulatory, stakeholder, and funding environment.



Thank you to Council for your continued support



Protecting public health and safety

Providing safe and reliable utility service

Getting the lead out



City of Richmond Lead Free Water Program

RVA.gov/public-utilities/leadfreewater leadfreewater@RVA.gov (804) 646-8600



Audit Status





Priority: High

DPU Contract Compliance

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director develop and implement processes and procedures to properly administer the hydrant repairs and replacements to ensure that the hydrants are put back into service timely including:
 - Establishing a formal goal for hydrant repairs/replacements when utility markings are required; and
 - Documenting any encountered delays.





Priority: High

- Audit Number: 2025-03
- Comment: We recommend that the Director of Public Utilities follow through with demolishing Building 20 and ensure precautions are taken for any employees entering the building.



Priority: High

Information
Submitted to
OCA Additional
Information
Requested

DPU Billings

- Audit Number: 2023-09, Rec. 7
- Comment: We recommend the Director of the Department of Public Utilities establish a reconciliation process that includes ensuring bad debt accounts are returned to the City and/or collected accurately and in their entirety.
- Status: DPU has reinstated the full collections process, and has partnered with PromisePay, a digital platform to help customers avoid disconnection with as little as \$10.00 down and up to 36 months of repayment.
 - 04/14/25: OCA needs to see support that there is a reconciliation process that includes ensuring bad debt accounts are returned to the City and collected accurately and in their entirety.



Priority: High

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03, Rec. 1
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor develop and implement a process to ensure that the inventory data is accurate and complete, including at a minimum:
 - Reconciling the system quantities to physical on-hand quantities,
 - Capturing material costs, where appropriate, and
 - Updating inventory locations as needed.
- Status: 04/09/25, response submitted to OCA.



Priority: High

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03, Rec. 3
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor develop and implement a process to ensure materials and supplies delivered directly to job sites are immediately requisitioned/issued out of the inventory system.
- Status: 04/09/25, response submitted to OCA.



Priority: High

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03, Rec. 5
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor develop, document, and implement an inventory count process. At a minimum, this process should ensure an appropriate amount of inventory is counted, assess which inventory items should be counted, and assess the frequency of the counts required.
- Status: 04/09/25, response submitted to OCA.



Citywide Warehousing & Inventory Management: DPU Wastewater Treatment Plant Warehouse (Phase 2)

- Audit Number: 2025-05
- Comment: We recommend that the DPU Senior Director establish a process to define, document, and communicate what items should be classified as stock and non-stock items in the WWTP Warehouse. Further, assess the feasibility of centralizing the process of ordering and receiving stock and non-stock items through the WWTP Warehouse.
- Status: In review by DPU



Citywide Warehousing & Inventory Management: DPU Wastewater Treatment Plant Warehouse (Phase 2)

- Audit Number: 2025-05
- Comment: We recommend that the DPU Senior Deputy Director over the WWTP Warehouse establish a process to ensure all materials are tracked and documented on work orders to include the following:
 - The description and quantity of the material used.
 - The asset being serviced if not otherwise noted on the work order.
- Status: In review by DPU



Citywide Warehousing & Inventory Management: DPU Wastewater Treatment Plant Warehouse (Phase 2)

- Audit Number: 2025-05
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor conduct a full inventory count to establish a baseline for quantities on hand.

Once a baseline is established, develop and implement a process to ensure that the inventory data is accurate and complete, including at a minimum:

- Reconciling the system quantities to physical on-hand quantities,
- Capturing costs, where appropriate,
- Updating inventory locations as needed,
- Reconciling the quantity of inventory received in and issued from the warehouse to the inventory system to ensure they are accurately keyed, and
- Reviewing the system conversion factors for accuracy.
- Status: In review by DPU



Citywide Warehousing & Inventory Management: DPU Wastewater Treatment Plant Warehouse (Phase 2)

- Audit Number: 2025-03
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor develop, document, and implement a formal inventory count process. At a minimum, this process should ensure an appropriate amount of inventory is counted, assess which inventory items should be counted, and assess the frequency of the counts required.
- Status: In review by DPU



Citywide Warehousing & Inventory Management: DPU Wastewater Treatment Plant Warehouse (Phase 2)

- Audit Number: 2025-05
- Comment: We recommend the WWTP Warehouse and Materials Supervisor develop and implement a process to:
 - establish minimum and maximum levels and re-order points,
 - periodically reviewing the inventory data to assess existing minimum and maximum levels and make changes as needed; and
 - optimize the level of inventory maintained and document justification for when maximum levels are exceeded.
- Status: In review by DPU



- Audit Number: 2025-05
- Comment: We recommend that the DPU Senior Deputy Director over the WWTP Warehouse establish a formalized process to review Mainsaver user access and ensure appropriate access levels are granted based on job duties and responsibilities, including removing any unnecessary access to the warehouse inventory data.
- Status: In review by DPU





Priority: Medium

Wholesale Water Contracts

- Audit Number: 2021-08
- Comment: We recommend the Director of the Department of Public Utilities further research the billing variances and prior balances noted in the Auditors' testing.
- Status: Investigation complete, billing variance corrected, and finalizing procedures to prevent recurrence.



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

Continuous Auditing

- Audit Number: 2022-12; Rec. 3
- Comment: We recommend the Director of Public Utilities ensure that all paid overtime noted within RAPIDS is adequately documented and approved.
- Status: 4/11/25; Additional Information Requested. Draft policy executed, complete training, and submit completed forms to demonstrate implementation.





Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director ensure that the lateral valves are exercised during the hydrant inspections and observations are documented.
- Status: Additional Request: Completed Hydrant Inspection Form.



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director establish and implement a payment process that includes a defined billing time frame for completed work and a reconciliation process to ensure the billed quantities agree to the Inspector's pay sheets and contract rates prior to payment.
- Status: Additional Request: Additional information on the reconciliation process needed.



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director develop and implement a plan to address the Water Distribution Division's needs that are currently being fulfilled by the Contractor's staff.
- Status: Additional Request: Memo outlining plan.



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-02
- Comment: We recommend the DPU Director automate the inspection documentation process and centralize the tracking for non-hydrant work.
- Status: Additional Request: OCA requests to walkthrough system and completed inspection forms.



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director develop and implement a transition plan, to retain knowledge during staffing turnover.
- Status: Additional Request: Memo outlining plan.



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director continue to develop and implement a process to track and reconcile the materials issued to and used by the Contractor.
- Status: Status: Additional Request: OCA requests additional information on material tracking, a memo will be provided.



Priority: Low

Information
Submitted to
OCA

- Audit Number: 2023-02
- Comment: We recommend that the DPU Director develop and implement written inspection policies and procedures for the Water Distribution Division.
- Status: Procedure provided to OCA, under review.





- Audit Number: 2023-09
- Comment: We recommend the Department of Public Utilities
 Deputy Director review and update all outdated billing and
 collections policies and procedures to reflect the current work
 environment.



Priority: Medium

Information
Submitted to
OCA

- Audit Number: 2023-09
- Comment: We recommend the Director of the Department of Public Utilities formalize and implement a process to review the exceptions worked by staff.
- Status: Submitted for review by Audit.



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-09
- Comment: We recommend the Department of Public Utilities
 Deputy Director develop a formal review process to ensure all
 required utility accounts are being reviewed for the following:
 - Deposit determinations
 - Deposit calculations when necessary
 - Supporting notes and documentation
- Status: In review by DPU



Priority: Medium

Information
Submitted to
OCA

- Audit Number: 2023-09
- Comment: We recommend the Department of Public Utilities Deputy Director develop a process to ensure that supporting documents related to utility deposits are retained according to VA Records Retention and Disposition Schedule GS-07.
- Status: Submitted for review by Audit.



Priority: Medium

- Audit Number: 2023-09
- Comment: We recommend the Department of Public Utilities
 Deputy Director add all commercial reset meters for new
 accounts to the EWQ Referral Report for commercial turn-ons
 to be reviewed for deposits.
- Status: In review by DPU



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2023-09
- Comment: We recommend the Director of the Department of Public Utilities ensure the FY22 MetroCare entries made in error are corrected.
- Status: In review by DPU



Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor develop and implement a process to validate the quantity and existence of items delivered to job sites. For example, obtain packing slips and bills of lading.
- Status: in review by DPU



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor implement adequate segregation of duties or mitigating controls in the inventory count process.
- Additional request: clarification on roles



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor develop and implement criteria identifying which count variances need to be researched to identify root causes and ensure the cause is documented to support the inventory adjustments.
- Additional request: adjustment documentation



Priority: Medium

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend that the DPU Main Warehouse Program and Operations Supervisor develop and implement a process to:
 - establish minimum and maximum levels and re-order quantities,
 - periodically reviewing the inventory data to assess existing minimum and maximum levels and make changes as needed; and
 - optimize the level of inventory maintained.
- Additional request: process clarification



Priority: Medium

- Audit Number: 2025-03
- Comment: We recommend the DPU Senior Deputy Director over Finance work with the Finance Department to determine if any additional actions are needed to correct inventory discrepancies.
- Status: In review by DPU



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend the DPU Senior Director develop performance measures for the inventory count process and ensure the performance goals are met. Examples of performance goals include dollar value of adjustments, quantity of adjustments, number of accurate accounts, and percent of accurate inventory records.
- Additional request: performance measures



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend the DPU Senior Director develop and implement a process for disposing of obsolete inventory.
- Additional request: disposal report



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend that the Director of Public Utilities properly safeguard the inventory items currently stored in Building 20.
- Additional request: inventory report



Priority: Low

Information
Submitted to
OCA Additional
Information
Requested

- Audit Number: 2025-03
- Comment: We recommend that the DPU Main Warehouse Manager develop and implement written policies and procedures to govern and guide warehouse operations and inventory management. At a minimum, these policies and procedures should address all recommendations in this report, including processes for ordering, receiving, storing, distributing, disposing, tracking, counting, and reconciling inventory. They should also define employees' roles and responsibilities and establish accountability.
- Additional request: additional documentation



Priority: Medium

- Audit Number: 2025-05
- Comment: We recommend that the DPU Senior Deputy Director over the WWTP Warehouse ensure the CAN-AM chains referenced throughout this report be set up as a stock item in the inventory system.
- Status: In review by DPU



Priority: Medium

- Audit Number: 2025-05
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor continue to research the unidentified items stored in the warehouse and add applicable items to inventory or dispose of them where appropriate in accordance with the City's Surplus Property policy.
- Status: In review by DPU



Priority: Medium

- Audit Number: 2025-05
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor work with the Mainsaver representative to assess the feasibility of using the inventory count feature.
- Status: In review by DPU



Priority: Medium

- Audit Number: 2025-05
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor implement adequate segregation of duties or mitigating controls in the inventory count process.
- Status: In review by DPU



Priority: Medium

- Audit Number: 2025-05
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor develop and implement criteria identifying which count variances need to be researched to identify root causes and ensure the cause is documented to support the inventory adjustments.
- Status: In review by DPU



Priority: Medium

- Audit Number: 2025-05
- Comment: We recommend the WWTP Warehouse and Materials Supervisor develop and implement a process to identify idle inventory and follow up with the trades supervisors to determine if the items are obsolete or need to be deactivated in the inventory system.
- Status: In review by DPU



Priority: Low

- Audit Number: 2025-05
- Comment: We recommend that the DPU Senior Director develop performance measures for the inventory count process and ensure the performance goals are met. Examples of performance goals include dollar value of adjustments, quantity of adjustments, number of accurate accounts, and percent of accurate inventory records.
- Status: In review by DPU



Priority: Low

- Audit Number: 2025-05
- Comment: We recommend the DPU Senior Director develop and implement a process for disposing of obsolete inventory in accordance with the City's Surplus Property policy.
- Status: In review by DPU



Priority: Low

- Audit Number: 2025-05
- Comment: We recommend that the WWTP Warehouse and Materials Supervisor develop and implement written policies and procedures to govern and guide warehouse operations and inventory management functions. At a minimum, the policies and procedures should address all recommendations in this report, including the process for ordering, receiving, storing, distributing, disposing, tracking, counting, and reconciling inventory. Policies and procedures should also include employees' roles and responsibilities and establish accountability.
- Status: In review by DPU

