



Date: October 14, 2025

To: Sheryl M.M. Long, City Manager

From: Lauren Sundararajan, CFE, Internal Audit Manager *L S*

Copies to: Internal Audit Committee
William Weber, Assistant City Manager
Diana R. Christy, Executive Director, Metropolitan Sewer District

Subject: **MSD Sewer Backup Program Audit**

Attached is the Metropolitan Sewer District (MSD) Sewer Backup (SBU) Program audit. The primary objective of this performance audit was to determine whether the process for identifying and rectifying sewer backups is timely and efficient, and the program is adhering to applicable laws and regulatory guidelines.

We would like to thank the management and staff of MSD for their assistance and cooperation during this audit.

If you need any further information, please contact me.

Attachment

MSD Sewer Backup Program Audit

October 2025



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Executive Summary

Internal Audit (IA) conducted a performance audit of the Metropolitan Sewer District (MSD's) Sewer Backup (SBU) Program. The primary objective of this audit was to determine whether the process for identifying and rectifying sewer backups is timely and efficient, and the program is adhering to applicable laws and regulatory guidelines.

The SBU Program is managed by the Wastewater Collection (WWC) Division and is tasked with mitigating the impact of sewer backups caused by MSD public sewers. Additionally, they help educate the community about the prevention and protection of their property from sewer backups. The SBU Program was established in January of 2004 and is administered in accordance with a federal Consent Decree (Decree)¹, which is a multi-billion dollar federal mandate to overhaul the region's sewer system to address pollution and overflows.

The audit revealed opportunities for improvement over the internal controls of the SBU Program. For example, IA found the WWC Division's goals and expectations needs to be updated and expanded to include SBU polices and procedures. The manual has not been updated since 2022 and since then, program management has changed, new positions have been created, and job responsibilities have been reassigned. Additionally, incorporating SBU policies and procedures into the manual is necessary for an effective and efficient workforce operation. Updating and centralizing this information into a manual will provide clarity to program operations and expectations.

IA also found succession planning is incomplete. Succession planning is the process of identifying alternative personnel who have the skills to fulfill the duties of the organization's primary positions. Although efforts have begun to cross train employees, additional work is needed including the documentation of a step-by-step procedural manual that can be shared with the appropriate staff to allow for the completion of specific tasks in the case of a team member's absence.

Further, IA found contract monitoring needs improvement. IA reviewed four SBU contracts that require an annual performance evaluation and found none had been conducted, and contract managers were unfamiliar with contract terms. Also, IA examined 16 invoices submitted by SBU contractors and found two (13%) contained incomplete documentation. As such, improper monitoring of contracts may lead to unclear contract expectations, project failures, or disputes with the contractors.

Overall, IA found that MSD is meeting the objectives of the SBU Program; however, to strengthen the internal controls over program operations, IA recommends the following: update and expand the WWC manual to include SBU policies and procedures, complete succession planning for key SBU positions, and ensure employees have the knowledge and resources to enforce contract terms.

¹Consent Decree on Combined Sewer Overflows, Wastewater Treatment Plants and Implementation of Capacity Assurance Program Plan for Sanitary Sewer Overflows as entered in the United States District Court for the Southern District of Ohio, No. C-1-02-107.

I. Introduction

Background

MSD's WWC Division is responsible for operating and maintaining 3,000 miles of public sewers. This is done by responding to customer service calls about sewer backups, sewage surfacing, cave-ins (sinkholes) and odors.² The SBU Program is managed by the WWC Division and is tasked with mitigating the impact of sewer backups caused by MSD public sewers. Additionally, they help educate the community about the prevention and protection of their property from sewer backups.³

The SBU Program has been in existence since January of 2004 and was the first of its kind. Previously known as the Water-in-Basement or WIB Program, it is administered in accordance with a federal Consent Decree.⁴ The Decree is a multi-billion dollar federal mandate to overhaul the region's sewer system to address pollution and overflows.

Sewer backups can be reported 24 hours per day, seven days per week by contacting MSD or 311 Cincy. MSD investigates every sewer backup to determine whether it is eligible for assistance through the program. Once reported, an SBU investigation (or parent work order) is created in WWC's database Cityworks, a work order system utilized to create service requests.⁵ Also, a customer service crew (crew) is dispatched, having four hours to arrive, per the Decree.⁶

The crew documents their initial investigation findings in the app Flowfinity, which interfaces with Cityworks. At the conclusion of the investigation, the crew provides the customer a field form and a "Guide to Sewers" booklet.⁷ Then, SBU management will determine whether additional action is warranted.⁸ Depending upon the preliminary findings, the next steps in the process for MSD may entail additional work, which is scheduled in Cityworks through the creation of child work orders. When child work orders are created and subsequently additional child work orders, the work may be assigned to different MSD divisions to oversee the completion of the project.

Per the Decree, the SBU Program offers cleanup services, a prevention program and a claims process, and eligibility requirements into each program or service is required.⁹ Additionally, the SBU Program utilizes various contractors to assist.

² <https://msdgc.org/contact-us/msd-facilities/>

³ <https://msdgc.org/programs/sewer-backup-program/about-the-program/>

⁴ Ibid.

⁵ Lifecycle of a Sewer Backup Investigation document.

⁶ Exhibit 7, Section IV. Initial Site Visit and Assessment, p. 2.

⁷ Lifecycle of a Sewer Backup Investigation document.

⁸ <https://msdgc.org/programs/sewer-backup-program/sewer-backup-investigation/>

⁹ Exhibits 6 – 8 of the Decree.

Audit Selection

IA conducted this audit in accordance with the Audit Work Plan.

Audit Objective

The primary objective of this audit was to determine whether the process for identifying and rectifying sewer backups is timely and efficient, and the program is adhering to applicable laws and regulatory guidelines.

Audit Scope and Methodology

To accomplish the audit objective, IA reviewed SBU work orders, current contracts, pertinent policies and procedures, the 2004 Decree and its amendments, interviewed appropriate staff, and examined invoices. Records reviewed included data from calendar year (CY) 2020 through present.

Statement of Auditing Standards

As required by the Cincinnati Administrative Code Article II §15, this audit was conducted in accordance with the Generally Accepted Government Auditing Standards (GAGAS), except for standard 5.60 pertaining to external peer review requirements. This exception did not have a material effect on the audit.

IA continues to conduct internal quality reviews to assure conformance with applicable GAGAS. IA performed the fieldwork between May and September of 2025.

Commendations

IA commends the staff of MSD for their cooperation throughout the audit.

II. Audit Findings and Recommendations

The Wastewater Collection Division's Goals and Expectations needs to be updated and expanded to include SBU policies and procedures.

In order for a program to run efficiently and effectively, policy and procedure documents delineating job functions, program goals, and expectations must be created and updated regularly. IA received a copy of the Wastewater Collection Division's Goals and Expectations and it had not been updated since 2022. Since then, program management has changed, new positions have been created, job responsibilities have been reassigned, and the organization chart has been restructured. Updating and centralizing this information into a manual will provide clarity to program operations and expectations.

Additionally, incorporating SBU policies and procedures into the manual is necessary for an effective and efficient workforce operation. This includes clearly defining terms commonly used in the SBU process and consolidating pre-existing standard operating procedures (SOPs). SBU policies and procedures are instrumental in providing the framework for how the program functions, interacts with customers, and coordinates with other department sections and contractors to achieve positive outcomes.

Recommendation 1: Update and expand the WWC manual to include SBU policies and procedures.

Department Response: MSD agrees. The Division Manual outlines expectations by classification and work group. It will be updated to include current SBU information. The WWC Manual will be housed electronically and made available in print for staff.

Responsible Party: SBU Managers

Implementation Timeline: Draft manual in progress; final publication and staff access targeted for March 2026.

The dispatchers manual needs to be updated, and communicated to section leaders.

WWC dispatchers handle all incoming customer service requests. These requests can vary and are not limited to SBU operations. It was brought to IA's attention that the dispatcher's manual has not been updated since 2019. Updating the manual is necessary to include all current policies, procedures, and directives to ensure consistency and accuracy throughout the entire call-taking process. Once updated, the manual should be communicated to MSD section leaders that support SBU operations to ensure everyone has a shared understanding of duties.

Recommendation 2: Update the dispatcher's manual and communicate it to section leaders.

Department Response: MSD agrees. The Dispatcher's Manual is currently being revised to include both SBU and non-SBU procedures and has been migrated to OneNote, allowing for dynamic updates in real time. Training will be provided to ensure consistent application across divisions.

Responsible Party: Customer Service Supervisor

Implementation Timeline: Ongoing updates; full section leader review and training to be completed by January 2026.

Succession planning is incomplete.

Succession planning is the process of identifying alternative personnel who have the skills to fulfill the duties of the organization's primary positions. This entails documenting current processes and job responsibilities to allow for a seamless transition of personnel in the case of one's departure. Although efforts have begun to cross train employees and document job responsibilities, IA found additional work is needed.

For example, when new management began overseeing the SBU Program in 2023, there were no training manuals for SBU employees as job responsibilities shifted and changes were made in the organization's reporting structure. As such, some employees had to learn on the job to where their job duties expanded over time. Creating a step-by-step procedure manual to be shared with appropriate staff is essential to ensure all staff members are aware of their responsibilities and can take actionable steps toward completing their tasks in absence of a team member.

Recommendation 3: Complete succession planning for key SBU positions.

Department Response: MSD agrees. Cross-training and documentation of key job functions began in 2023 to support continuity of operations. Step-by-step procedure manuals are being developed, and MSD will formalize a succession planning framework for critical SBU roles.

Responsible Party: SBU Management, in coordination with MSD Human Resources

Implementation Timeline: Framework finalized and manuals completed by June 2026.

Contract monitoring needs improvement.

Contract monitoring is the ongoing process of reviewing a contract's execution to ensure all parties meet their obligations, and that contract terms are followed. IA found contract managers were unfamiliar with contract terms. IA reviewed seven current SBU contracts and determined that contract monitoring needs improvement. For example, four contracts require an annual performance evaluation and IA was informed that they had not been conducted. Although MSD management began to take action after IA inquired, improper monitoring of contracts may lead to unclear contractor expectations and operational inefficiencies.

Further, to determine if the SBU contractor's invoices adhered to contract terms, IA reviewed 16 invoices submitted and found 2 (13%) contained incomplete documentation. When brought to the attention of the contract manager, IA was informed that the documentation would be obtained. Ensuring invoices adhere to contract terms is necessary for good governance and stewardship over public funds.

Recommendation 4: Management should ensure employees have the knowledge and resources to enforce contract terms.

Department Response: MSD agrees. Training has been expanded for contract managers on contract enforcement, performance monitoring, and invoice review. MSD will also conduct annual performance evaluations for all RFQ-based SBU contractors to strengthen oversight and transparency.

Responsible Party: SBU Management in conjunction with Business Services

Implementation Timeline: Training and checklist rollout underway; full implementation by December 2025.

Additional management review and oversight should be strengthened.

Management review and oversight is necessary to ensure processes are functioning as intended, errors are detected, and program objectives are accomplished. IA found management review and oversight should be strengthened. For example, IA sampled 30 SBU parent work orders and found 2 child work orders needed corrective action. This included a work order that was not properly updated and one work order with an erroneous priority code, which prevented the work from being scheduled. These errors impact SBU operations because the integrity of the data could be compromised and jobs could be delayed from being scheduled in a timely manner.

Recommendation 5: Ensure additional management review and oversight is provided.

Department Response: MSD agrees. Monthly management meetings are held with section leaders to review process improvements. Beginning July 2025, SBU established monthly audit meetings with Asset Management to review Cityworks parent and child work orders. Findings are documented and integrated into ongoing training to improve data accuracy and efficiency.

Responsible Party: WWC Superintendent, Asset Management Managers, and SBU Managers

Implementation Timeline: Practice initiated July 2025; monthly oversight ongoing.

A third-party cannot independently verify the accuracy of legal fees.

MSD has contracted with a law firm to assist with SBU claims since 2019. The firm bills monthly for their legal services, and per contract terms, offers a 20% discount. IA reviewed two months of invoices and found a third-party cannot independently verify the 20% discount due to hourly rates omitted. When IA brought this to MSD management's attention, they worked with the law firm to rectify the situation immediately.

Recommendation 6: Ensure proper billing measures are established and maintained with the law firm to allow for transparency of legal fees.

Department Response: MSD agrees. Beginning September 2025, all invoices from the contracted law firm include hourly rate schedules.

Responsible Party: MSD Legal Counsel

Implementation Timeline: New billing measures effective September 2025; ongoing quarterly reviews thereafter.

III. Conclusion

The SBU Program is responsible for mitigating the impact of sewer backups caused by public sewers, and educating the community about the prevention and protection from sewer backups (caused by private sewers) or overland flooding. The audit revealed opportunities to strengthen the internal controls over program operations.

IA recommends the following: update and expand the WWC manual to include SBU policies and procedures, complete succession planning for key SBU positions, and ensure employees have the knowledge and resources to enforce contract terms. Implementing these recommendations will ensure the program maintains its strong internal control structure and continue to meet its program objectives.

IV. Metropolitan Sewer District Response

Date: October 14, 2025

To: Lauren Sundararajan, CFE, Internal Audit Manager

From: Diana Christy, Executive Director, Metropolitan Sewer District

Subject: MSD Response to Sewer Backup Program Audit 2025

MSD appreciates the Internal Audit Division's review of the Sewer Backup Prevention Program (SBU). The audit process is a valuable tool that helps us evaluate our work with fresh perspective. We are pleased that many of the recommendations align with initiatives already underway, reflecting MSD's strong foundation of operational accountability and service. At the same time, we welcome the opportunity to complete the work in progress, address remaining gaps, and explore areas where we can improve further.

Recommendation 1

Update and expand the WWC manual to include SBU policies and procedures.

MSD Response:

MSD agrees. The Division Manual outlines expectations by classification and work group. It will be updated to include current SBU information. The WWC Manual will be housed electronically and made available in print for staff.

Responsible Party: SBU Managers

Implementation Timeline: Draft manual in progress; final publication and staff access targeted for March 2026.

Recommendation 2

Update the dispatcher's manual and communicate it to section leaders.

MSD Response:

MSD agrees. The Dispatcher's Manual is currently being revised to include both SBU and non-SBU procedures and has been migrated to OneNote, allowing for dynamic updates in real time. Training will be provided to ensure consistent application across divisions.

Responsible Party: Customer Service Supervisor

Implementation Timeline: Ongoing updates; full section leader review and training to be completed by January 2026.

Recommendation 3

Complete succession planning for key SBU positions.

MSD Response:

MSD agrees. Cross-training and documentation of key job functions began in 2023 to support continuity of operations. Step-by-step procedure manuals are being developed, and MSD will formalize a succession planning framework for critical SBU roles.

Responsible Party: SBU Management, in coordination with MSD Human Resources

Implementation Timeline: Framework finalized and manuals completed by June 2026.

Recommendation 4

Ensure employees have the knowledge and resources to enforce contract terms.

MSD Response:

MSD agrees. Training has been expanded for contract managers on contract enforcement, performance monitoring, and invoice review. MSD will also conduct annual performance evaluations for all RFQ-based SBU contractors to strengthen oversight and transparency.

Responsible Party: SBU Management in conjunction with Business Services

Implementation Timeline: Training and checklist rollout underway; full implementation by December 2025.

Recommendation 5

Ensure additional management review and oversight is provided.

MSD Response:

MSD agrees. Monthly management meetings are held with section leaders to review process improvements. Beginning July 2025, SBU established monthly audit meetings with Asset Management to review Cityworks parent and child work orders. Findings are documented and integrated into ongoing training to improve data accuracy and efficiency.

Responsible Party: WWC Superintendent, Asset Management Managers, and SBU Managers.

Implementation Timeline: Practice initiated July 2025; monthly oversight ongoing.

Recommendation 6

Ensure proper billing measures are established and maintained with the law firm to allow for transparency of legal fees.

MSD Response:

MSD agrees. Beginning September 2025, all invoices from the contracted law firm include hourly rate schedules.

Responsible Party: MSD Legal Counsel

Implementation Timeline: New billing measures effective **September 2025**; ongoing quarterly reviews thereafter.

MSD concurs with the audit's overall recommendations and values the constructive review. Most of the actions identified in the report are already in progress, and we are committed to completing them while also taking a deeper look at how we can strengthen the program further. The audit has given us an opportunity to confirm areas where MSD already demonstrates strong practices and to focus our efforts where improvements are most needed. Our response reflect both our appreciation for the feedback and our dedication to continuous improvement, operational accountability, and delivering excellent service to the public.