



October 20, 2022

Water Storage Tank Rehabilitation Program Regulatory Compliance Audit



*Source: Camp Springs Elevated Water Storage Tank
prepared by WORLD INTERNATIONAL TESTING, INC.*

Project #20-SDWA-01

A Report to:

Commissioners:

Chair, Fausto R. Bayonet
Vice Chair, Regina Y. Speed-Bost
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**Washington Suburban
Sanitary Commission**

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Quick Look



Why the OIG did this audit

In accordance with the Fiscal Year (FY) 2021 Risk-Based Work Plan and the authority granted to it pursuant to Public Utilities Article, § 17-605 (a)(6) of the Annotated Code of Maryland, the Office of the Inspector General (OIG) conducted a compliance audit of Washington Suburban Sanitary Commission's (WSSC's) operations relating to requirements included in the Safe Drinking Water Act (SDWA) as enforced by the Maryland Department of the Environment (MDE). The OIG conducted the audit in accordance with Generally Accepted Government Auditing Standards (GAGAS), except for the peer review requirement.

During the review period, the WSSC Production Department and the Engineering and Construction Department were responsible for complying with the regulatory requirements related to coating water storage facilities (tanks).

Strategic Priority

This report addresses WSSC Strategic Priority: **Optimize Infrastructure**

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WATER STORAGE TANK REHABILITATION PROGRAM REGULATORY COMPLIANCE AUDIT

What the OIG found

The OIG assessed whether WSSC operations relating to coating tanks located in residential areas comply with the SDWA requirements as enforced by the MDE and set forth in WSSC policies, procedures, and signed agreements. The OIG auditors reviewed various source documents regarding the tanks rehabilitated by WSSC from 2016 through 2019.

The audit results disclosed that the WSSC operations relating to the coating of tanks under the rehabilitation program warrant improvement. The improvements are meant to assure compliance and consistency with the requirements under the SDWA, as enforced by the MDE and outlined in WSSC signed agreements, policies, and procedures. The WSSC records showed the following:

- Four tanks were coated without MDE's prior approval as required by the State of Maryland regulations.
- Documentation of a tank's placement into service was inadequate, and recordation of related activities for the rehabilitated tank was untimely.

The OIG presented the following recommendations intended to enhance WSSC's departmental procedures and processes:

- Comply with MDE regulatory requirements.
- Follow a consistent practice to meet regulatory requirements.
- Develop departmental operating standard procedures.

Management addressed each OIG's recommendation and presented operational improvements or provided action plans with anticipated implementation due dates, where applicable.

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Interoffice Memorandum

OG -20210121-020976

TO: JAMES (JC) LANGLEY, DIRECTOR
PRODUCTION DEPARTMENT

MICHAEL HARMER, CHIEF ENGINEER
ENGINEERING AND CONSTRUCTION DEPARTMENT

THRU: JON T. RYMER, INSPECTOR GENERAL
OFFICE OF THE INSPECTOR GENERAL

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THRU: MAXENE M. BARDWELL, ASSISTANT INSPECTOR GENERAL FOR AUDIT
OFFICE OF THE INSPECTOR GENERAL

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FROM: JANE N. LEWIS, SUPERVISORY AUDITOR
DIGDEM TOK, AUDITOR
OFFICE OF THE INSPECTOR GENERAL

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DATE: OCTOBER 20, 2022

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**SUBJECT: OFFICE OF THE INSPECTOR GENERAL
WATER STORAGE TANK REHABILITATION PROGRAM
REGULATORY COMPLIANCE AUDIT**

EXECUTIVE SUMMARY

Background

In accordance with the Washington Suburban Sanitary Commission’s (WSSC) Office of the Inspector General’s (OIG) Fiscal Year (FY) 2021 Risk-Based Work Plan and the authority granted to it pursuant to Public Utilities Article (“PUA”), § 17-605 (a)(6) of the Annotated Code of Maryland, the OIG conducted a compliance audit of WSSC’s operations relating to requirements included in the Safe Drinking Water Act (SDWA) as enforced by the Maryland Department of the Environment (MDE).¹ The OIG conducted the audit in accordance with Generally Accepted Government Auditing Standards (GAGAS), except for the peer review requirement.

¹ The Environmental Protection Agency (EPA) regulates public water systems and the contaminants found in water through the implementation of the SDWA. The SDWA sets regulations and guidelines for how public water systems operate and establishes monitoring frequencies and limitations. The Maryland Department of the Environment (MDE) is the state regulatory agency responsible for enforcing SDWA standards and ensuring the safe, dependable operations of water systems and high-quality drinking water.

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During the review period, the WSSC Production Department (PD) and the Engineering and Construction Department (ECD) were responsible for complying with the regulatory requirements related to coating water storage facilities (tanks). Prior to July 3, 2017, coating of new constructed and replacement tanks was the responsibility of the ECD, whereas the PD was responsible for rehabilitated tanks. Pursuant to the former Internal Audit Office's² findings, the WSSC executive management transferred the tank rehabilitation program from the PD to the ECD on July 3, 2017.

The PD continued to coat four tanks undergoing rehabilitation during this period before transferring the program to the ECD. The WSSC's financial records showed that it spent \$9.2 million on four projects during the four years reviewed under this audit. In the same period, the ECD started designing tank specifications to rehabilitate a tank with an estimated completion date of August 2028.

Objective

The audit objective is to ascertain whether WSSC operations relating to coating tanks located in residential areas comply with the SDWA requirements as enforced by the MDE and set forth in WSSC policies, procedures, and signed agreements.

Scope and Methodology

The OIG auditors reviewed various source documents regarding the tanks rehabilitated by WSSC from 2016 through 2019. Additionally, the OIG narrowed the audit scope to the following regulatory requirements set forth in the Code of Maryland Regulations (COMAR), Title 26, Chapters 26.04.01, Quality of Drinking Water in Maryland, and 26.03.12, Construction Permits and Certain Related Requirements for Major Water Supply and Major Sewerage Systems:

- Section 26.04.01.33, Direct and Indirect Additives, amended effective December 21, 1992; and
- Section 26.03.12.04, Application for Permit, effective October 4, 1999.

Additionally, OIG auditors conducted interviews with personnel in PD and ECD to understand WSSC's process for maintaining water storage tanks and interviewed MDE officials regarding applicable state requirements. Therefore, the evidence obtained provides a reasonable basis for our findings and recommendations.

² In 2018, the Internal Audit Office became the Office of the Inspector General pursuant to Title 17, Subtitle 6 of the Maryland Annotated Code, Public Utilities Article.

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Conclusion

The audit results disclosed the following:

- Four tanks were coated without MDE's prior approval as required by COMAR; and
- Inconsistent documentation of tank placement into service and untimely recordation of related activities for a rehabilitated tank.

The WSSC's operations relating to the coating of tanks under the rehabilitation program warrant improvement to assure compliance and consistency with the requirements under the SDWA as enforced by the MDE and outlined in WSSC policies, procedures, and signed agreements.

FINDINGS, MANAGEMENT RESPONSES, AND ACTION PLANS

Finding 1: Four Tanks Coated without prior MDE's Approval

Risk Rating: High

Four rehabilitated tanks were coated without prior MDE's approval as required under COMAR. Based on the information provided by WSSC and confirmation from MDE, required approvals were not obtained before applying the coating to tanks and other water contact surfaces. Specifically, the required permits from Maryland's approving authority, MDE, were not applied for or received before coating the inside and outside water storage facilities identified below:

- Camp Springs Elevated Water Tank Rehabilitation;
- Damascus Elevated Tank Rehabilitation;
- Alta Vista Tank and Vault Rehabilitation; and
- Hill Road Reservoir-3 Rehabilitation.

Under COMAR 26.04.01.33 (B), "suppliers of water to the community water systems [WSSC] shall receive approval from the Approving Authority before application of coatings and coatings systems to water storage facilities [tanks] or other water contact surfaces." Accordingly, COMAR 26.04.01(1)(B) defines the Approving Authority as the Secretary of the Environment or his designee [MDE].

While COMAR does not define "approval," MDE, the regulatory agency that has oversight for enforcing water quality standards in Maryland, expressly defines "approval" as referring to "permits, registrations, certifications, licenses, and similar issuances granted by it, after a complete evaluation and review to implement the requirements of the Maryland Regulations."³ Further, the Deputy Director of MDE's Water and Science Administration, verified that COMAR 26.04.01.33 (B) was applicable by stating that "suppliers of water are required to notify the Department (the Water Supply Program) when they are going to take a storage out of service for maintenance and rehabilitation."

³ See *The Approval Process*, Maryland Department of the Environment, <https://mde.maryland.gov/programs/permits/pages/approvalprocess.aspx> (last visited Jan. 24, 2022).

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Consistent with Md. Annotated Code, Environment Art., § 9-204⁴, COMAR 26.03.12.03(A) requires the issuance of a permit issued by the Maryland Department of Environment before the person installs, materially alters, or materially extends a major water supply system or major sewerage system within the State. In addition to citing the regulatory references of COMAR 26.04.01 and 26.03.12, the MDE Deputy Director also verified that “they [WSSC] are also required to apply for a construction permit if it requires working on the interior and exterior of the tank’s paint.” An MDE Program Manager further explained that “if the project is for construction, rehabilitation and painting of inside the tank, then yes, WSSC Water should have applied for an MDE Construction permit.” According to the Program Manager, the exception to the permit requirement is “if they [WSSC] painted only the outside and not inside the tanks, as there is no contact with water.” The Program Manager reasoned that although “no permit is required for [exterior] painting, MDE has some concerns regarding paint removal which could contain lead, as lead particles are airborne, as part of paint removal could have a public health impact on the community residents living near the tank's location.”

The WSSC management responsible for rehabilitating the four tanks explained that they were unaware of MDE's approval requirement. Management further expressed that historically, WSSC has not applied for construction permits or notified MDE before rehabilitating tanks. Therefore, management was unaware of MDE's requirement to seek approval before coating the tanks or other water contact surfaces.

The OIG identified the following consequences that may result if WSSC coats water storage facilities without obtaining approval from MDE:

- WSSC may coat tanks with substandard products containing chemicals already deemed by MDE as harmful to humans, animals, and plants;
- The substandard products may weaken the tank structure and shorten the tank’s useful life; and
- WSSC may not adhere to regulatory requirements related to lead-free material in the public water system.

Recommendation 1: Comply with MDE Regulatory Requirements

The OIG recommends that in addition to complying with MDE requirements set forth under COMAR 26.04.01, and as enforced by MDE's Water Supply Program, WSSC must also comply with COMAR 26.03.12 as enforced by the MDE's Engineering and Capital Projects Program. To meet the requirements set forth under COMAR 26.03.12, WSSC must submit design plans to MDE for approval before applying coatings and coatings systems to water storage facilities or other water contact surfaces.

⁴ See Md. Annotated Code, Environment Art., § 9-204 (d), states that “a person shall have a permit issued by the Secretary under this section before the person installs, materially alters, or materially extends a water supply system, sewerage system, or refuse disposal system.”

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Management Response and Action Plan (including anticipated due date):

The PD Agrees with OIG's recommendation regarding complying with MDE requirements set forth under COMAR 26.04.01.33 (B) and will submit and seek approval from the MDE Water Science Administration's Water Supply Group prior to beginning work on all future tank paintings. This change went into effect on December 15, 2021 when the Commissioners approved Contract 17071 for the recoating of Wildlife Tanks A, B, and C at the December 15, 2021 Commission meeting.

The PD Disagrees with OIG's recommendation that the PD must also comply with COMAR 26.03.12, which requires the PD to submit design plans to MDE for approval before applying any coatings and coating systems to water storage facilities or other water contact surfaces. The PD also contends that a permit to apply coatings and coating systems to water storage facilities or other water surfaces is not required under COMAR 26.03.12.03 (A) as this work does not meet the definition of "materially alters, or materially extends a major water supply system or major sewerage system within the State." COMAR 26.03.12.02 (B) (8), which defines "Materially alters" as any alteration other than; (a) Normal maintenance and repair; (b) The addition of a minor building connection; or (c) The installation of a meter, valve, or hydrant or similar minor alterations. MDE has always contended that applying coatings and coating systems is defined as a normal maintenance activity.

Comment from the Office of the Inspector General

The OIG accepts management's response and will verify the approval obtained from MDE as it relates to Contract 17071 for the recoating of Wildlife Tanks A, B, and C. The OIG notes that management accepts the risks related to management's determination that coatings and coating systems to water storage facilities are "normal maintenance and repair" pursuant to COMAR 26.03.12.02 (B) (8) and does not require submission of design plans to MDE for approval.

Additionally, OIG reconfirmed with MDE the current regulatory interpretations for COMAR 26.04.01 and COMAR 26.03.12., on August 23, 2022. for those responses.

Finding 2: Inconsistent Documentation of Tank Placement into Service and Untimely Recordation of Related Activities

Risk Rating: Medium

There were no documents provided for this audit to adequately confirm that the Camp Springs Elevated Tank was placed into service on or around April 20, 2018, pursuant to MDE requirements.⁵ Additionally, the examined supporting documents were not completed in a timely manner, for the tank was rehabilitated and coated in 2017. For example, the Certificate of Final Acceptance form, the document evidencing the approval of the tank, was completed on June 1, 2018, and approved on March 1, 2021, demonstrating the occurrence of actions after the tank

⁵ Under COMAR 26.04.01.33 (B), Direct and Indirect Additives, "suppliers of water [WSSC] shall also submit the analytical results of water that have been collected from newly coated tanks and obtain approval; from the Approving Authority [MDE] before placing these tanks in service."

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had been placed in service and after the commencement of this audit. The documents provided and reviewed during the audit disclosed the information summarized in the chart below and it was inconsistent with Management's prior practices.

Compliance Related Activity	Source Document	Email/Activity Date, Time	Approval Date
Payment records disclose that the WSSC contractor completed coating the interior and exterior of the tank.	Payment Records	October 4, 2017, No Time Stamp	Not Applicable
The WSSC Laboratory submitted water quality analytical results for three tanks ⁶ to the Production manager via email.	Email	April 19, 2018, 1:42 PM	Email Date
The Production manager assured the operational staff of the MDE's verbal approval via email.	Email	April 19, 2018, 3:27 PM	Email Date
The Production manager submitted the water quality analytical results to MDE via email.	Email	Apr 20, 2018, 9:45 AM	Email Date
The Production Director emailed OIG a copy of an email showing MDE's approval to place the tank into service.	Email	Apr 20, 2018, 9:56 AM	Email Date
The Production manager approved the tank's Certificate of Substantial Completion form on June 25, 2020.	Certificate of Substantial Completion Form	April 20, 2018	June 25, 2020
The Production Director forwarded to OIG a photo bearing a handwritten note signed by the Production manager on January 10, 2022 as proof of the in-service date for the tank.	Photo reported being of the SCADA System data	April 20, 2018, Handwritten Date, No Time Stamp	January 10, 2022
The Production Project/Contract manager approved the Certificate of Final Acceptance form on March 1, 2021.	Certificate of Final Acceptance Form	June 1, 2018, No Time Stamp	March 1, 2021

⁶ The three tanks were Camp Springs Elevated Tank, Collington#1 Elevated Tank, and Collington#2 Elevated Tank.

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The documents provided demonstrate inconsistency in documenting activities and the process related to placing the Camp Springs Elevated Tank into service on April 20, 2018. MDE allegedly communicated its approval verbally and prior to WSSC forwarding of water quality results. Pursuant to documents reviewed for other tank-related projects, written approval from MDE is received after the submission of test results and before a tank is placed into service. Thus, the actions here are contrary to MDE's approval process and inconsistent with WSSC's normal practice.

Additionally, there was a deviation from WSSC's practice of generating internal work orders to place tanks into service after coating. As a result, the Camp Springs Elevated Tank was placed into service without a WSSC work order. Lastly, the approval dates of both the Substantial and Final Completion Forms were presented in an untimely manner.

WSSC does not have written procedures related to documenting or recordation of the process related to tank rehabilitation and compliance with MDE regulations. The Government Accountability Office's *Standards for Internal Control in the Federal Government*, Principle 10.03; however, provides the following internal control recommendations:

- Management clearly documents internal control and all transactions and other significant events in a manner that allows documentation to be readily available for examination; and
- Transactions are promptly recorded to maintain their relevance and value to management in controlling operations and making decisions.

This audit did not identify why this tank's project process differed from the others reviewed during this audit. However, according to WSSC management, MDE's verbal approval to put a newly coated tank into service is standard practice at the Commission, there are no documented procedures, and WSSC staff has an excellent working relationship with MDE officials.

MDE officials described the risk of airborne particles containing lead from the paint removal, potentially impacting the community residents living near the tank. Additionally, the lack of documented standard procedures may contribute to inconsistent and untimely practices and increase the risk of errors and non-compliance with governing MDE regulations. Lastly, informal practices may unintentionally lead the public to conclude that WSSC placed the tank in service before receiving MDE's approval or addressing any concerns presented by MDE.

Recommendation 2A: Follow a Consistent Practice to Meet Regulatory Requirements

The OIG recommends that WSSC consistently comply, document compliance with MDE regulatory requirements, and have records readily available for examination. For example, the records should clearly show when a tank is taken out of service; commencement and completion of the coating of the tank; submission and approval of the water sample qualities submitted to MDE; approval from MDE to place the tank in service; resolution of any concerns presented by MDE, if any; and WSSC's placement of the tank into service.

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Recommendation 2B: Develop Departmental Operating Standard Procedures

OIG recommends management develop and implement written procedures that encompass its current practice, including submitting water quality results to MDE and obtaining MDE's approval before placing coated tanks and other water appurtenances⁷ into service. If WSSC decides to incorporate current practices, it should incorporate them into the WSSC Code of Regulations and standard departmental operating procedures. Documented procedures enhance regulatory compliance and may promote consistency in practices.

Auditors identified the following potential benefits of standardized procedures:

- Achieving consistency and conformance to regulations;
- Defining responsibilities to meet the regulatory requirements; and
- Recording MDE's required written approval.

Management Response and Action Plan (including anticipated due date):

The PD Agrees with OIG's Recommendation 2A: Follow a Consistent Practice to Meet Regulatory Requirements. The PD implemented several changes effect on December 15, 2021 when the Commissioners approved Contract 17071 for the recoating of Wildlife Tanks A, B, and C. All future tank recoating projects will be managed by PD Project Managers in PD's Facility Maintenance Division, who will ensure that the items listed are consistently followed.

The PD Agrees with OIG's Recommendation 2B: Develop Departmental Operating Standard Procedures. The PD is developing written procedures for all tank recoating projects and will implement them for the recoating of Wildlife Tanks A, B, and C. These procedures will be compiled, reviewed, and finalized by September 30, 2022. The PD Disagrees, however, with the OIG statement that "If WSSC decides to incorporate current practices, it should incorporate them into the WSSC Code of Regulations and standard departmental operating procedures." The PD Agrees to incorporate the written procedures into the WSSC Manual of Standard Procedures instead.

Comment from the Office of the Inspector General

The OIG accepts management's response, and once management provides evidence that addresses the recommendations, as a part of its follow-up process, the OIG will review and determine if it is responsive to the recommendation.

cc: General Manager/CEO, (C. Reid)
DGM, Operations, (J. Price)
Chief Strategy and Innovation Officer, (T. Allen)
Division Manager, Facility Design & Construction, (T. Grojean)
Division Manager, Systems Control, (K. Wright)

⁷ According to COMAR 26.04.01.33, Direct and Indirect Additives, water appurtenance includes pipe, storage tank, valve, fixture, or other materials which come in contact with water intended for use in public water supply.