

Audit Report

Maryland Department of the Environment

May 2018



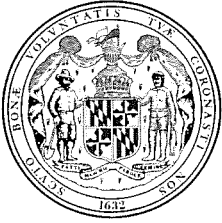
OFFICE OF LEGISLATIVE AUDITS
DEPARTMENT OF LEGISLATIVE SERVICES
MARYLAND GENERAL ASSEMBLY

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DEPARTMENT OF LEGISLATIVE SERVICES
OFFICE OF LEGISLATIVE AUDITS
MARYLAND GENERAL ASSEMBLY

Victoria L. Gruber
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Thomas J. Barnickel III, CPA
Legislative Auditor

May 14, 2018

Senator Craig J. Zucker, Co-Chair, Joint Audit Committee
Delegate C. William Frick, Co-Chair, Joint Audit Committee
Members of Joint Audit Committee
Annapolis, Maryland

Ladies and Gentlemen:

We have conducted a fiscal compliance audit of the Maryland Department of the Environment (MDE) for the period beginning July 30, 2013 and ending December 19, 2016. MDE is responsible for protecting and restoring the quality of the State's land, air, and water resources, and safeguarding the public from health risks associated with pollution.

Our audit disclosed that MDE used interagency agreements with a college to augment its staff, rather than using a competitive procurement process for required services or using budgeted positions. For example, at various times between June 2014 and October 2017, one MDE unit obtained and directed the services of 40 college employees through interagency agreements for which expenditures totaled approximately \$3.1 million during the period between July 2013 and February 2018, including an estimated \$996,000 in administrative fees.

MDE lacked an adequate process to ensure that independent inspections had been performed, when required, of affected properties under its Lead Poisoning Prevention Program. We noted more than 10,000 registered properties without inspection certificates on file, warranting further investigation by MDE. Our audit also disclosed that MDE had not performed inspections of certain construction sites for compliance with approved erosion and sediment control plans as required by State regulations, and MDE's determinations of any monetary penalties resulting from inspections that were performed were not always documented or approved.

Finally, we noted certain information system security and control deficiencies, such as insufficient database and server controls and a lack of sufficient protection against malware.

MDE's response to this audit is included as an appendix to this report. We wish to acknowledge the cooperation extended to us during the course of this audit by MDE.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "TJ Barnickel III". The signature is written in a cursive style with a large initial "TJ" and a stylized "Barnickel III".

Thomas J. Barnickel III, CPA
Legislative Auditor

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Background Information

Agency Responsibilities

The Maryland Department of the Environment (MDE) was created to protect and restore the quality of the State's land, air, and water resources, and to safeguard the public from health risks associated with pollution. MDE's duties and responsibilities include enforcing applicable laws and regulations, conducting long-term planning and research, and assisting industries and communities in their efforts to handle pollution, waste disposal, and emergency spills of waste or oil. MDE consists of the following units:

- Office of the Secretary
- Budget and Financing (including the Maryland Water Quality Financing Administration)
- Operational Services Administration
- Water and Science Administration
- Land and Materials Administration
- Air and Radiation Administration

The Maryland Water Quality Financing Administration administers the Water Quality and Drinking Water Revolving Loan Funds and the Bay Restoration Fund.

According to the State's records, during fiscal year 2017, MDE's operating and capital expenditures totaled approximately \$410.2 million. These expenditures were funded by general funds totaling approximately \$29.9 million, special funds totaling approximately \$292.8 million, federal funds totaling approximately \$74.2 million, and reimbursable funds totaling approximately \$13.3 million. MDE's capital expenditures primarily related to its Water Quality and Drinking Water Revolving Loan Funds and the Bay Restoration Fund; these capital expenditures totaled approximately \$153.2 million and \$94.0 million, respectively.

Financial Statement Audits – Maryland Water Quality Financing Administration

MDE engaged an independent accounting firm to perform audits of the Maryland Water Quality Financing Administration's financial statements for the Water Quality and Drinking Water Revolving Loan Funds and the Bay Restoration Fund for the fiscal years ended June 30, 2014, 2015, 2016, and 2017. In the related audit reports, the firm stated that the Administration's financial statements

presented fairly, in all material respects, the financial position of the Administration and its changes in financial position and its cash flows for the years then ended in accordance with the accounting principles generally accepted in the United States of America. According to the financial statements, as of June 30, 2017, the Maryland Water Quality Financing Administration's net position totaled approximately \$1.37 billion.

The Maryland Water Quality Financing Administration provides a combination of federal and State funds for low-interest loans to local jurisdictions and private entities throughout the State for drinking water and water quality capital projects. These projects include upgrades and expansions to wastewater treatment plants and pump stations, and creation of storm water management facilities. Additionally, the Administration provides Bay Restoration Fund grants for enhanced nutrient removal upgrades to existing wastewater facilities, for sewer infrastructure rehabilitation, and for septic system upgrades.

Status of Findings From Preceding Audit Report

Our audit included a review to determine the status of the six findings contained in our preceding audit report dated January 6, 2015. We determined that MDE satisfactorily addressed four of the six findings. The remaining two findings are repeated in this report.

Findings and Recommendations

Interagency Agreements

Background

Interagency agreements are used by State agencies to obtain services, such as technical assistance and training, from another State agency, including institutions of higher education. Interagency agreements are exempt from State procurement laws, including the requirements for competitive procurement, publication of solicitations and awards, and Board of Public Works' approval.

Prior to our audit, the Maryland Department of the Environment (MDE) entered into four interagency agreements with a college valued collectively at \$12 million. The first of these agreements began in August 2009 and the agreements are scheduled to terminate in June 2018. After our audit period, MDE entered into another agreement with the college for \$3 million beginning February 17, 2017 and ending June 30, 2021. Although the college is not a State agency, we were advised by the executive secretary of the Board of Public Works that a State agency's agreement with a college should be considered an interagency agreement and, accordingly, would also be exempt from State procurement regulations.

The college includes an entity which, according to its website, frequently provides environmental, safety, and health training, as well as certain regulatory compliance assistance. We were advised that MDE has a longstanding partnership with this entity to provide training and technical assistance to water and environmental operators in Maryland.

State budget law places requirements on State agencies to report certain interagency agreement activity to the State's Department of Budget and Management (DBM) for its review and reporting to the General Assembly's budget committees. DBM's written instructions to agencies for reporting such activity stipulate that agreements with certain types of colleges are not subject to these reporting requirements. Accordingly, there was no review of these agreements by DBM.

Finding 1

MDE used interagency agreements with the college to augment its staff, allowing it to avoid using competitive procurement processes for these services or using budgeted positions as necessary. Certain staffing services provided through these agreements did not appear to be within the college's mission. MDE also did not ensure the rates charged for these services were reasonable.

Analysis

MDE used interagency agreements with a college to provide staff for certain MDE services which allowed MDE to avoid using competitive procurement processes for these services or filling or seeking additional budgeted positions, as necessary. In addition, some of the services provided were administrative in nature, and were not specific to the mission of the college or the entity under which these arrangements took place. Finally, MDE did not verify the reasonableness of the rates charged by the college, including administrative fees. Assurance was lacking, therefore, that these services were obtained by MDE at the most advantageous cost to the State.

Based on a referral to our fraud, waste, and abuse hotline, we reviewed four interagency agreements that MDE had with the college and the related expenditures. According to State records, disbursements to the college during our audit period totaled approximately \$4.5 million. Our review focused on the expenditures of one of MDE's Administrations, which accounted for the majority of the expenditures under these agreements. According to the State's records, this Administration's expenditures for these four agreements totaled approximately \$3.1 million between July 2013 and February 2018, which included an estimated \$996,000 in administrative fees.

Interagency Agreements Were Used to Augment Budgeted Staff

MDE's use of interagency agreements with the college to provide staffing services allowed certain MDE administrations to augment their staff without using competitive procurement processes or filling or seeking additional budgeted positions, as necessary. For example, under these four agreements, the MDE Administration entered into at least 43 task orders with the college, which covered specific timeframes and provided for a specific number of employee positions. For example, based on MDE's representation, these task orders provided the Administration with approximately 40 college employees that had employment start dates ranging from June 2014 to October 2017, to provide the services as described in the task orders.

For example, staffing services provided included natural resource planners and regulatory and compliance engineers. In most cases, these individuals were not existing college employees, but were hired by the college on behalf of MDE to fulfill the task order requirements. We were advised by MDE management that these agreements were often used because their use required less administrative effort by MDE and provided for faster and more flexible hiring and firing processes for required staff.

The college posted required job listings on its website, on behalf of MDE, reviewed applications received, interviewed candidates with MDE input, and hired successful candidates as college employees. MDE directly assigned and supervised the work of these employees, including verifying their timesheets. The college billed MDE for reimbursement of salaries paid as specified in the applicable task orders. According to MDE's records for these 40 employees, the employees sometimes remained in these positions for extended periods. For example, under the related task orders, 6 of these 40 employees worked at MDE for over two years.

Certain Services Did Not Appear to be Within the Mission of the College

Certain staffing services provided through these interagency agreements were administrative in nature and, therefore, did not appear to be within the mission of the college in general, or the entity in particular. Specifically, 11 of the 40 aforementioned employees were hired for administrative or clerical positions, such as office secretaries and administrative assistants. One job posting for a Senior Administrative Assistant for MDE stated that responsibilities would include, for example, coordinating office staff activities, ensuring filing systems are maintained and current, and monitoring the inventory of office supplies. The remaining 29 employees were filling technical positions within MDE.

MDE Lacked Assurance that Rates Charged Were Reasonable

Task orders (scope of work) prepared by the college specified the general services to be provided, the required staff positions to complete those services, and the rates to be charged MDE. However, MDE did not evaluate and review the reasonableness of these rates, and our review of four task orders disclosed the rates were generally higher than those of a comparable State employee. For example, for one task order we reviewed, which covered the period from March 2015 to February 2016, MDE's total cost for a certain technical position ranged from \$69,600 to \$92,000. In contrast, we estimated the State employee cost (salary and benefits) for the same position to be \$53,000 to \$83,800. Of the 29 employees noted above, 15 were classified as being within this technical position.

Because MDE did not review these costs, it was not aware that, in addition to salary and benefits, these rates included administrative fees. Furthermore, task orders and related invoices did not specify the rate used for the administrative fees, and we were advised by MDE management that it was unaware of the administrative rates charged by the college.

We contacted entity management who informed us that, for all task orders, MDE was charged an administrative fee for direct costs, which was 15 percent of each applicable employee's salary (including benefits), as well as an administrative fee for indirect costs equal to 15 percent of total costs. For example, in one agreement, the entity's annual direct salary costs (including benefits) for a certain technical position was \$52,967 and, with the 15 percent fee increased to \$60,912. The entity then added an additional 15 percent fee to bring the total employee cost to \$70,049. This resulted in an effective administrative fee rate of 32 percent based on the direct salary cost. For the aforementioned 43 task orders for the MDE Administration, for example, we estimated MDE paid approximately \$996,000 in administrative fees between July 2013 and February 2018.

Assurance was lacking, therefore, that the services MDE obtained through interagency agreements with the college were the most advantageous to the State.

Recommendation 1

We recommend that MDE

- a. discontinue using interagency agreements to avoid using competitive procurement processes for required services or seeking additional budgeted positions as necessary; and**
- b. when it is determined appropriate to use interagency agreements, ensure that agreements contain provisions to enable an evaluation of the reasonableness of the costs and that the related invoices contain sufficient details, including overhead and administrative fees charged, to enable a verification of billings.**

Lead Poisoning Prevention Program

Background

The Lead Poisoning Prevention Program was established to oversee activities designated to reduce the incidence of childhood lead poisoning and is funded through various fees as required by State law and collected by MDE. Prior to January 1, 2015, State law required that owners of properties that were constructed prior to 1950 to register their properties annually with MDE, meet specific lead paint reduction standards as determined through independent

inspections, and pay an annual \$30 fee for each rental dwelling unit. Effective January 1, 2015, the registration and renewal requirements were extended to include properties constructed prior to 1978.

MDE's Online Lead Rental Registration system (OLRR) includes all registration and renewal information, such as property and payment information, for each owner. This information is recorded by property owners through online registrations and by MDE through paper registrations. According to MDE's records, as of June 30, 2016, there were 153,383 rental dwelling units constructed before 1978 that were recorded in OLRR as registered properties. MDE also maintains a separate inspection certification database. The inspection certification database is updated by MDE staff based on documentation submitted by the inspectors after the completion of the related property inspections. During fiscal year 2016, registration and renewal fee revenue totaled approximately \$4.3 million.

In our preceding audit report, we recommended that MDE develop a process to ensure that registered properties affected by lead paint received the required inspection certificate, and investigate 9,967 property owners identified as not having an inspection certificate on file. In response to our preceding report, MDE researched the 9,967 property owners and, as of May 2017, identified 1,763 rental units without the required inspection certificate.

Finding 2

MDE did not establish a sufficient process to ensure that owners of affected lead paint properties had required inspection certificates. We identified 10,832 registered rental units without inspection certificates that MDE had not investigated.

Analysis

MDE lacked an adequate process to ensure that all owners who have registered properties had the required inspection certificate. Specifically, MDE did not compare all registered properties in its OLRR to its inspection certification database to identify missing certificates and then determine whether those properties without an inspection certificate were required to obtain one.

MDE implemented a process during fiscal year 2014 in an effort to ensure, on a test basis, that required properties were registered and had a valid inspection certificate; however, the process was generally ineffective. Specifically, MDE randomly selected 10 newly registered properties each month and verified that they had a valid certificate on file; however, previously registered properties were excluded from this monthly review process. Furthermore, the percentage of

newly registered properties being examined was minimal. For example, only 50 of the 3,081 properties (less than two percent) registered during the period from May through September 2016 were verified.

We obtained a report from OLRR, as of May 23, 2017, that included all active rental units newly registered in calendar years 2014 through 2016. This report included 98,295 registered rental units. We compared this report to a report of certificates recorded in the certification database. Our comparison disclosed that 10,832 units in the OLRR did not have any inspection certificates recorded in the certification database. While not all registered rental units require an owner to have an inspection certificate (for example, unoccupied properties), the certification database does not designate which properties require a certificate. Therefore, MDE should investigate all registered owners without a certificate to determine if one should be obtained. A similar condition was commented upon in our preceding audit report.

State law requires that an owner of an affected property (based on year of construction) initially satisfy the risk reduction standard established by passing a test for lead-contaminated dust. The owner is also required to have the property inspected at each change in occupancy to verify that the risk reduction standard has been satisfied. State regulations require that registered rental properties affected by lead paint have an inspection certificate. State law further allows for penalties, not to exceed \$500 per day, for violations of these provisions and procedures.

Recommendation 2

We recommend that MDE

- a. establish adequate procedures to ensure that owners with affected properties have an inspection certificate when required (repeat), and**
- b. investigate the aforementioned 10,832 properties without any recorded inspection certificates and take appropriate action.**

Erosion and Sediment Control Plan Inspections

Background

MDE is responsible for the review and approval of erosion and sediment control plans for certain construction activity, as well as for the subsequent inspection of construction sites for the implementation and maintenance of the approved plans. The purpose of these plans is to lessen the impact of sediment leaving construction sites. These plans are necessary to protect the water resources of the State from the adverse impact of soil erosion, sediment deposition, and increased

storm water runoff. Through the plan review and approval process and the related inspection process, MDE ensures that all applicable development, redevelopment, and restoration projects provide for erosion and sediment control measures in accordance with State regulations.

For every active erosion and sediment control plan, State regulations require an on-site inspection for compliance with the approved plan. MDE either conducts these inspections itself or, as permitted by State regulations, delegates inspection and enforcement authority for certain construction sites to the applicable local jurisdiction. According to its records, MDE was responsible for inspecting 5,942 active construction sites (that is, had not been delegated) as of June 30, 2016.

State regulations permit certain enforcement actions be taken as a result of inspections, such as the issuance of a corrective action or a stop work order, as well as the issuance of a penalty or fine. For example, MDE is allowed to assess contractors penalties of up to \$10,000 a day for violations of their approved plan. According to MDE's records, it assessed 179 penalties totaling approximately \$658,000 for violations detected during site inspections performed in fiscal years 2015 and 2016.

Finding 3

Inspections of certain construction sites were not performed as required by State regulations, and MDE lacked a formal plan for inspecting all sites. Only 1,033 of 5,942 sites were inspected during fiscal year 2016.

Analysis

Inspections of certain construction sites were not performed as required and MDE lacked a formal plan for inspecting all sites. MDE's records indicate that, during fiscal year 2016, inspections had not been conducted for 4,909 of the 5,942 active construction sites that had not been delegated as of June 30, 2016. During that year, MDE performed 2,591 inspections at 1,033 unique sites, which resulted in 32 new violations deemed significant. A similar condition was commented upon in our two preceding audit reports.

Prior to April 2017, State regulations provided that inspections were required of each site on average of once every two weeks. Subsequently, the revised regulations still require inspections be performed, but the timing and frequency of these inspections is not specified.

MDE management advised us that these inspections should be frequent because of the continuously evolving land conditions of active construction sites. However, MDE also stated that it does not have a sufficient number of inspectors

to inspect more sites each year, and that it prioritizes site inspections based on citizen complaints and size of the construction sites. Current regulations do not provide for a risk-based inspection process. Furthermore, MDE had no formal written plan for inspecting all sites or selected sites based on its prioritized approach.

Recommendation 3

We recommend that MDE establish a formal written plan to comply with State regulations regarding inspections of the aforementioned construction sites. If MDE determines that the inspection requirement cannot be achieved with current resources, MDE should either seek additional resources through the budget process or pursue modifying State regulations to allow a risk-based approach (repeat).

Finding 4

MDE did not always retain documentation to support penalties assessed against construction contractors and to evidence supervisory approval.

Analysis

MDE did not always retain documentation to support penalty amounts that were assessed against construction contractors as a result of noncompliance with erosion and sediment control plans that were detected during site inspections. Additionally, evidence of required supervisory approvals of penalties assessed was frequently lacking.

Our test of 10 penalties assessed during our audit period, totaling \$200,333, disclosed that 5 penalties totaling \$106,200 did not have sufficient documentation on file to support the basis for the amount of penalties assessed. In addition, for 8 of the 10 penalties reviewed (including 4 of the 5 without sufficient documentation) there was no documentation that evidenced supervisory personnel had approved the penalty amount prior to its assessment as required by MDE policy. Criteria that may be considered when determining the amount of any penalty to be assessed include the seriousness of the violation, the likelihood of the violation affecting the waterways, and the length of time the violation was occurring. Consequently, there was a lack of assurance that penalty amounts assessed were appropriate.

MDE's policy required that penalty calculations be retained for only one year. Accordingly, the supporting calculations for many of the penalties we tested had been destroyed. State law prohibits an agency from destroying any record that relates to the financial operation of a unit of State government until the audit

requirements established in the law for the Office of Legislative Audits have been met with regard to that agency.

Recommendation 4

We recommend that MDE

- a. retain documentation in support of penalty amounts assessed, and**
- b. ensure that penalty calculations are approved by appropriate management personnel as required by its policy.**

Information Systems Security and Control

Background

MDE's Office of Information Management and Technology was solely responsible for MDE's information technology (IT) support. However, beginning in August 2016, MDE began a conversion to use the State of Maryland Department of Information Technology's (DoIT) IT support services, which ultimately would include the following functions:

- Network and IT Security Services (including firewall and intrusion detection prevention systems operations and maintenance and malware protection)
- IT Service Desk
- Hardware Support
- Software Support
- Web and Geographic Information Services
- IT Procurement Services

As part of the conversion to DoIT IT support services, DoIT personnel assumed control of and began to operate and maintain the separate MDE network which connected MDE's branch offices and the MDE headquarters. The MDE branch and headquarters network provides MDE users access to various information technology applications, network and email services and Internet access. MDE personnel operated several computer applications and related databases on servers for which DoIT maintained the related servers' operating systems software. MDE operated a critical application for a comprehensive data management system, which utilizes a unified approach to data collection and reporting. The system encompasses numerous business applications and their related data such as hazardous waste and air quality monitoring and control.

Finding 5

Eleven contractors had unnecessary network-level access to the entire MDE internal network.

Analysis

Eleven contractors had unnecessary network-level access to the entire MDE internal network. Specifically, we identified 11 contractors working for IT vendors, who were provided remote access via a virtual private network connection to the MDE network to perform various IT project support activities. However, this access was not properly restricted, and these 11 contractors had improper network-level access to the entire MDE internal network. These contractors could access servers holding various applications' information, employee workstations, and other network resources, rather than being limited to accessing only those network resources related to their respective responsibilities.

The State of Maryland *Information Security Policy* require that entities' networks must ensure that only authorized individuals have access to confidential information and that such access is strictly controlled, audited, and that it supports the concepts of least possible privilege and need to know.

Recommendation 5

We recommend that MDE, in conjunction with DoIT, properly secure its network resources from third parties. Specifically, we recommend that each contractor's network-level access be restricted to only those servers and workstations that each contractor needs to access for support purposes.

Finding 6

Malware protection was not sufficient to provide MDE with adequate assurance that its computers were properly protected.

Analysis

Malware protection was not sufficient to provide MDE with adequate assurance that its computers were properly protected. Using two separate management consoles, DoIT managed the malware protection software installed on MDE computers, the assignment of workstation administrator rights, and the control of software products having significant security-related vulnerabilities.

- Our September 2017 testing of DoIT's automated malware protection console information identified 1,152 MDE computers which were not operating a current malware protection software version and 148 of these computers also did not have current malware signatures. We noted that the outdated malware

protection software versions had been released from 6 to 13 months earlier. The outdated malware signatures (which are used to identify malware) were from seven days to up to 8 months older than the current signatures. The malware protection software vendor updates the software version regularly and signatures at least daily. These malware protection software versions should generally be installed promptly after being released and signature updates within a week of release.

- We identified over 1,000 workstations that had not been updated with the latest releases for two software products that are known to have significant security-related vulnerabilities. Although the vendors for these software products frequently provide software patches to address these vulnerabilities, DoIT had not updated the MDE workstations for these patches. For example, at the time of our review in August 2017, many of these workstations were running one of these software products with a version that was released in February 2013.
- We determined that users of 102 workstations were assigned local administrative rights on their workstations, even though these users were not system/network administrators and, documentation was not maintained that authorized and supported the necessity of the assigned administrative rights. Consequently, if the above workstations were infected with malware, the malware would run with administrative rights and expose these workstations to a greater risk of compromise than if the workstations' user accounts operated with only user rights.

The State of Maryland *Information Security Policy*, states that agencies, at a minimum, must protect against malicious code (viruses, worms, Trojan horses) by implementing protections (anti-virus, anti-malware) that, to the extent possible, include a capability for automatic updates.

Recommendation 6

We recommend that MDE, in conjunction with DoIT,

- a. ensure that the computers are running current versions of the malware protection software and that the malware signatures provided by the malware protection software vendor are installed immediately upon release;**
- b. promptly install all critical security-related software updates for known vulnerable applications on all MDE workstations; and**
- c. limit the assignment of administrative rights on workstations to only system/network administrators and any other exception users, with any**

such exception assignments being justified, approved, documented, and regularly reviewed to determine whether they are still needed.

Finding 7

A critical database and numerous servers were running on outdated software.

Analysis

A critical database and numerous servers were running on software versions that had been out-of-date for many years.

- The database was running a software version that was no longer supported by the database vendor. Specifically, the system database software version in use as of May 2017 had not been supported by the vendor since July 2013. As a result, the database vendor was no longer monitoring or issuing patches for newly discovered security vulnerabilities for the database version in use. This out-of-date database software may expose MDE to security vulnerabilities discovered since the end-of-support date, which could create security and control issues.
- The server supporting the database as well as 14 other servers were running an outdated operating system software version which was no longer supported by the operating system developer. Developer support for this operating system ended by 2015 and since then updates for this software to address newly discovered vulnerabilities have not been provided.

The State of Maryland *Information Security Policy* states that system hardening procedures shall be created and maintained to ensure up-to-date security best practices are deployed at all levels of IT systems (operating systems, applications, databases and network devices).

Recommendation 7

We recommend that MDE, in conjunction with DoIT, ensure that

- a. all databases are fully supported by the database vendors and kept current for all critical security related updates, and**
- b. all servers operate with current vendor supported versions of operating system software.**

Audit Scope, Objectives, and Methodology

We have conducted a fiscal compliance audit of the Maryland Department of the Environment (MDE) for the period beginning July 30, 2013 and ending December 19, 2016. The audit was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

As prescribed by the State Government Article, Section 2-1221 of the Annotated Code of Maryland, the objectives of this audit were to examine MDE's financial transactions, records, and internal control, and to evaluate its compliance with applicable State laws, rules, and regulations.

In planning and conducting our audit, we focused on the major financial-related areas of operations based on assessments of significance and risk. The areas addressed by the audit included certain special funded programs (such as the Bay Restoration Fund Septic System grants); federal fund recoveries; permitting, inspections, and violation assessments; procurements and disbursements; critical information technology systems; accounts receivable; and payroll. Furthermore, we reviewed certain interagency agreements that MDE had with a college, and the related expenditures, based on a referral to our fraud, waste, and abuse hotline. We also determined the status of the findings contained in our preceding audit report.

MDE engages an independent accounting firm to perform audits of the Maryland Water Quality Financing Administration's financial statements. In the related audit reports for the fiscal years ended June 30, 2014, 2015, 2016, and 2017 the firm stated that the Administration's financial statements presented fairly, in all material respects, the financial position of the Administration and its changes in financial position and its cash flows for the years then ended in accordance with the accounting principles generally accepted in the United States of America. We have relied on the work of the independent accounting firm to provide audit coverage of certain aspects of the Maryland Water Quality Financing Administration's operations (internal controls and testing for the water quality and drinking water revolving loan fund programs). Our audit procedures in these areas were generally limited, therefore, to obtaining a sufficient basis for that reliance.

Our audit did not include an evaluation of internal controls over compliance with federal laws and regulations for federal financial assistance programs and an assessment of MDE's compliance with those laws and regulations because the State of Maryland engages an independent accounting firm to annually audit such programs administered by State agencies, including MDE.

To accomplish our audit objectives, our audit procedures included inquiries of appropriate personnel, inspections of documents and records, observations of MDE's operations, and tests of transactions. Generally, transactions were selected for testing based on auditor judgment, which primarily considers risk. Unless otherwise specifically indicated, neither statistical nor non-statistical audit sampling was used to select the transactions tested. Therefore, the results of the tests cannot be used to project those results to the entire population from which the test items were selected.

We performed various data extracts of pertinent information from the State's Financial Management Information System (such as revenue and expenditure data) and the State's Central Payroll Bureau (payroll data). These extracts are performed as part of ongoing internal processes established by the Office of Legislative Audits and were subject to various tests to determine data reliability. We determined that the data extracted from these sources were sufficiently reliable for the purposes the data were used during this audit.

We also extracted data from MDE's permit, registration, and enforcement systems, and from the Statewide Personnel System (SPS) for the purpose of testing related payroll transactions, including the conversion of employee payroll data to SPS. We performed various tests of the relevant data and determined that the data were sufficiently reliable for the purposes the data were used during the audit. Finally, we performed other auditing procedures that we considered necessary to achieve our audit objectives. The reliability of data used in this report for background or informational purposes was not assessed.

MDE's management is responsible for establishing and maintaining effective internal control. Internal control is a process designed to provide reasonable assurance that objectives pertaining to the reliability of financial records, effectiveness and efficiency of operations including safeguarding of assets, and compliance with applicable laws, rules, and regulations are achieved.

Because of inherent limitations in internal control, errors or fraud may nevertheless occur and not be detected. Also, projections of any evaluation of internal control to future periods are subject to the risk that conditions may change or compliance with policies and procedures may deteriorate.

Our reports are designed to assist the Maryland General Assembly in exercising its legislative oversight function and to provide constructive recommendations for improving State operations. As a result, our reports generally do not address activities we reviewed that are functioning properly.

This report includes findings relating to conditions that we consider to be significant deficiencies in the design or operation of internal control that could adversely affect MDE's ability to maintain reliable financial records, operate effectively and efficiently, and/or comply with applicable laws, rules, and regulations. Our report also includes findings regarding significant instances of noncompliance with applicable laws, rules, or regulations. Other less significant findings were communicated to MDE that did not warrant inclusion in this report.

MDE's response to our findings and recommendations is included as an appendix to this report. As prescribed in the State Government Article, Section 2-1224 of the Annotated Code of Maryland, we will advise MDE regarding the results of our review of its response.

APPENDIX



Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

April 24, 2018

Mr. Thomas J. Barnickel III, CPA
Legislative Auditor
Maryland Office of Legislative Audits
State Office Building, Room 1202
301 West Preston Street
Baltimore, MD 21201

Dear Mr. Barnickel:

Please find enclosed the Maryland Department of the Environment's (MDE) response to the draft audit report dated April 2018. As requested, an electronic version of this document has also been sent to your office (response@ola.state.md.us) via email.

I would like to thank you and your staff for reviewing MDE's business practices and providing constructive recommendations as a result of this audit. Please note that MDE will take the necessary steps to resolve the findings identified in this audit report. These efforts reflect MDE's unwavering commitment to serve our citizens and safeguard Maryland's outstanding environmental resources.

If you and your staff have any questions or need additional information, please contact me at 410-537-3084 or Mr. Wayne Nelms, MDE's Internal Audit Manager, at 410-537-3429.

Sincerely,

A handwritten signature in black ink, appearing to read "Ben Grumbles".

Ben Grumbles
Secretary

Enclosure

cc: The Honorable Craig J. Zucker, Senate Chair, Joint Audit Committee
The Honorable C. William Frick, House Chair, Joint Audit Committee
Victoria L. Gruber, Executive Director, Department of Legislative Services
Horacio Tablada, Deputy Secretary, MDE
Wayne S. Nelms, Manager, Office of Internal Audit, MDE

Finding 1

MDE used interagency agreements with the college to augment its staff, allowing it to avoid using competitive procurement processes for these services or using budgeted positions as necessary. Certain staffing services provided through these agreements did not appear to be within the college's mission. MDE also did not ensure the rates charged for these services were reasonable.

MDE's Response:

MDE does not concur with Finding 1.

The agreement between the college and the Maryland Department of the Environment was established to "facilitate the assessment, review, enhancement and creation of technical services that will allow MDE to meet its goals and objectives for restoring the quality of Maryland's air, water and land resources." The Office of Legislative Audits and the Board of Public Works acknowledged that this arrangement is considered a legal mechanism not subject to procurement regulations.

The personnel hired by the college to assist MDE in meeting its goals and objectives were hired through an advertised and competitive process. In cases where MDE used this agreement to augment its work capabilities, it did so utilizing available Special or Federal Funds included in the State budget to complete tasks mandated by State or federal law. Currently, the college provides 21 staff to perform services, which is 2.2% of MDE's workforce.

These contractual services are critical to the essential and effective operations of existing regulatory programs. As we stated to OLA, these agreements provided MDE with faster and more flexible hiring and firing processes for staff augmentation.

The MOU was reviewed and approved by the Board of Trustees for the college, which strongly suggests that the Board believed that the services provided to MDE were within the school's mission.

Recommendation 1

We recommend that MDE

- a. discontinue using interagency agreements to avoid using competitive procurement processes for required services or seeking additional budgeted positions as necessary; and**
- b. when it is determined appropriate to use interagency agreements, ensure that agreements contain provisions to enable an evaluation of the reasonableness of the costs and that the related invoices contain sufficient details, including overhead and administrative fees charged, to enable a verification of billings.**

MDE's Response:

MDE does not concur with recommendation "a" but does concur with recommendation "b".

a. MDE intends to implement a policy which will define the conditions when this type of service agreement is warranted and seek approval from MDE's senior management team.

b. The new policy will take effect January 01, 2018 and will contain provisions such as evaluating existing internal resources beforehand, and MDE will obtain detailed and itemized invoices for the contracted services to better track administrative and overhead charges.

Auditor's Comment: While MDE indicates that it does not concur with the Finding, it does indicate that it intends to implement a policy which will define when an interagency agreement is warranted. MDE's response emphasizes its need to hire essential personnel with faster and more flexible hiring and firing processes and, accordingly, places greater emphasis on the convenience available by using the college, which was not selected based on a competitive process, to perform MDE's hiring responsibilities. Therefore, it lacks assurance that services were obtained at the most advantageous cost to the State. Any policy adopted by MDE should limit the use of interagency agreements to the procurement of services for which the college can provide particular expertise and should prohibit the use of these agreements for the purpose of hiring staff for MDE.

Finding 2

MDE did not establish a sufficient process to ensure that owners of affected lead paint properties had required inspection certificates. We identified 10,832 registered rental units without inspection certificates that MDE had not investigated.

MDE's Response:

MDE does not concur with Finding 2.

As noted in OLA assessment, MDE has established a process to review 10 random properties registered each month to ensure they have valid certificates on file, if required. This is the process that MDE committed to during the last audit. The current review of 10 random properties per month is compliant with MDE's commitments during the last audit and based on MDE's limited resources. In addition to the random sample of 10 properties per month, MDE reviews each disputed Notice of Violation account to ensure valid certificates are in place. MDE is currently working to standardize data collection to demonstrate actual accounts reviewed, beyond the 10 random properties per month.

Recommendation 2

We recommend that MDE

- a. establish adequate procedures to ensure that owners with affected properties have an inspection certificate when required (repeat), and**
- b. investigate the aforementioned 10,832 properties without any recorded inspection certificates and take appropriate action.**

MDE's Response:

MDE concurs with recommendation "a" but does not with recommendation "b".

a. MDE is currently working with the Department of Information Technology (DoIT) to develop a new database that will link the certificate database to the registration database and compare certificates to registrations. A Task Order Request for Proposals is currently being finalized under an interagency agreement with Towson University and we expect the work to begin late 2018. Until this database is complete, MDE will continue to follow its written established procedures to randomly select 10 properties per month and verify required inspection certificates as committed to during the 2015 Legislative Audit. As discussed above, certificates are also reviewed as accounts are reviewed for registration compliance whenever a Notice of Violation is disputed by a property owner.

b. The aforementioned 10,832 properties include properties mostly built between 1950 and 1978. Per Environment Article, §§ 6-815(b) and 6-817, a property built between 1950 and 1978 is not required to obtain a certificate until a triggering event occurs, such as change of occupancy or notice of defect. Of the 10,832 properties cited above, 2,099 properties were built prior to 1950 and therefore are required by law to have valid certificates. The 2,099 properties were reviewed and found that 837 have certificates or are no longer affected properties leaving 1,262 to be investigated.

In order to determine whether a certificate is required for a property built between 1950 and 1978, the Department would need to determine whether a change in occupancy has occurred since 1950-1978 properties became subject to the law effective January 1, 2015. Practically, the Department has only two options for determining whether and when a change in occupancy has occurred in a manner sufficient to support a legal action for noncompliance: (1) The Department can request information from a property owner about changes in occupancy, essentially asking the owner to self-disclose the need for a certificate; and (2) If the property owner fails to respond, the other option is to speak to a tenant to obtain his or her move-in date. Typically, this involves visiting the property in person, knocking on the door, and interviewing the tenant. In addition to being very labor-intensive, this method is not always successful. Tenants may refuse to answer the door or may not be home when the inspector visits. A tenant is not subject to the requirements of the Reduction of Lead Risk in Housing Act and has no obligation to provide his or her move-in information to the Department. The property owner and tenant are the only sources of information on changes in occupancy. As a result, it is not practicable to investigate each of the estimated 8,733 units (of the 10,832 that OLA identified) that were built between 1950 and 1978 to determine whether a certificate was required.

Auditor's Comment: MDE did not concur with the finding and disagreed with our recommendation to investigate the 10,832 properties without any recorded inspection certificates, stating that it was not practicable to investigate each of the 8,732 units built between 1950 and 1978 to determine whether a certificate was required. Similar to its response to our 2015 report finding, MDE again asserts that it is working to develop a database to link the registration and certificate databases. Until that database is operational, MDE stated it would continue to review 10 properties registered each month to determine compliance as committed to during its preceding audit. (In follow up to the prior audit, we encouraged MDE to increase its inspection verification efforts over lead paint affected properties, pending MDE's planned development of an integrated registration and certifications database system.) It is not apparent as to why that database will make the follow-up efforts more practical since potentially noncompliant properties are readily identifiable now and each of those properties will still need to be individually addressed as recommended in the report. In this regard, MDE does not address whether it will follow up on all registered properties identified through this database for which inspection certificates are not on file to evidence compliance with risk reduction standards.

Finding 3

Inspections of certain construction sites were not performed as required by State regulations, and MDE lacked a formal plan for inspecting all sites. Only 1,033 of 5,942 sites were inspected during fiscal year 2016.

MDE's Response:

MDE partially concurs with Finding 3, but does not believe it should be classified as a repeat.

MDE revised the regulations effective May 8, 2017 to eliminate the language requiring inspections an average of every two weeks. The operating procedures adopted by MDE in 2013 include a risk-based approach to prioritizing inspection sites. The Department believes it has sufficient inspection resources to meet the requirements of the new regulations.

Recommendation 3

We recommend that MDE establish a formal written plan to comply with State regulations regarding inspections of the aforementioned construction sites. If MDE determines that the inspection requirement cannot be achieved with current resources, MDE should either seek additional resources through the budget process or pursue modifying State regulations to allow a risk-based approach (repeat).

MDE's Response:

MDE partially concurs with the recommendation, but does not believe a formal written plan is needed due to the revision in the regulations.

As noted above, the operating procedures adopted by MDE in 2013 include a risk-based approach to prioritizing inspection sites. The Department believes it has sufficient inspection resources to meet the requirements of the new regulations.

Also, MDE revised the regulations effective May 8, 2017 that eliminates the language requiring inspections an average of every two weeks. In addition, the Department has taken the actions listed below to further address sediment control activities.

All construction projects that disturb more than 1 acre of land are required to obtain a federal Clean Water Act Permit from MDE that mandates weekly erosion and sediment control inspections by the projects' contractors who are required to keep a logbook describing inspections and provide the logbook for review by the MDE inspector. If the inspections and logbook documentation are not provided, the contractor is subject to formal enforcement action and significant penalties.

MDE has also delegated enforcement authority for erosion and sediment control to Anne Arundel County, Baltimore City, Baltimore County, Calvert County, Carroll County, Charles County, Dorchester County, Frederick County, Harford County, Howard County, Kent County, Montgomery County, Prince George's County, and Worcester County. The following municipalities also have delegated enforcement authority, Annapolis, Bel Air, Aberdeen, Gaithersburg, Rockville, Bowie, Greenbelt, and Laurel. The Washington Suburban Sanitary Commission (WSSC) also has delegated authority. MDE has also entered in to a Memorandum of Understanding (MOU) with State Highway Administration (SHA) regarding erosion and sediment control inspections for that agency's construction projects.

Finding 4

MDE did not always retain documentation to support penalties assessed against construction contractors and to evidence supervisory approval.

MDE's Response:

MDE concurs with Finding 4.

Recommendation 4

We recommend that MDE

- a. retain documentation in support of penalty amounts assessed, and**
- b. ensure that penalty calculations are approved by appropriate management personnel as required by its policy.**

MDE's Response

MDE concurs with both recommendations.

a. MDE immediately implemented an internal policy change to keep the penalty documentation for a minimum of three years based on discussions during the audit. Note that the program's one year retention policy was reviewed and approved by Department of General Services (DGS) and State Archives as required. The program will revise the retention policy for these documents to three years and submit for proper approval.

b. MDE also implemented a new procedure during the period covered by this audit requiring all proposed penalties to be sent to the Director's office for review and approval. Stipulated penalties specified in executed enforcement agreements may still be assessed directly by MDE's Compliance Program. Penalty requests and supporting documentation are routed through appropriate levels of Program supervision before they are submitted to the Director's office for approval.

Finding 5

Eleven contractors had unnecessary network-level access to the entire MDE internal network.

MDE's Response:

MDE and DoIT concur with Finding 5.

Recommendation 5

We recommend that MDE, in conjunction with DoIT, properly secure its network resources from third parties. Specifically, we recommend that each contractor's network-level access be restricted to only those servers and workstations that each contractor needs to access for support purposes.

MDE's Response:

MDE and DoIT concur with the recommendation.

Through the use of compensating controls, at no time did the contractors have any inappropriate access to any actual data however, DoIT ardently agrees with the practice of "least privilege access." It is

universally applied to both employees and vendors alike (both are subject to the same background checks as regular employees). DoIT has perform a review and will take corrective action by end of April 2018.

Finding 6

Malware protection was not sufficient to provide MDE with adequate assurance that its computers were properly protected.

MDE's Response:

MDE and DoIT concur with Finding 6.

Recommendation 6

We recommend that MDE, in conjunction with DoIT,

- a. ensure that the computers are running current versions of the malware protection software and that the malware signatures provided by the malware protection software vendor are installed immediately upon release;**
- b. promptly install all critical security-related software updates for known vulnerable applications on all MDE workstations; and**
- c. limit the assignment of administrative rights on workstations to only system/network administrators and any other exception users, with any such exception assignments being justified, approved, documented, and regularly reviewed to determine whether they are still needed.**

MDE's Response:

MDE and DoIT concur with the recommendations.

DoIT has taken action to correct this issue. DoIT security scans show MDE patching compliance at 97% for servers and 98% for Workstations as well as a combined 98% compliance for malware protection. Important Note: Due to moves, adds, changes, reporting schedules, and timing issues the compliance percentages are typically higher than what is reflected in the reports. Local admin access was also restricted to only DoIT support staff and a few key MDE staff in March 2018.

Finding 7

A critical database and numerous servers were running on outdated software.

MDE's Response:

MDE and DoIT concur with Finding 7.

DoIT has taken actions to upgrade OS versions where possible, however funding is required to update the applications before DoIT can update the OS.

Recommendation 7

We recommend that MDE, in conjunction with DoIT, ensure that

- a. all databases are fully supported by the database vendors and kept current for all critical security related updates, and**
- b. all servers operate with current vendor supported versions of operating system software.**

MDE's Response:

MDE and DoIT concur with these recommendations.

a. Actions have been taken to ensure MDE databases are fully supported by the vendor and are maintained for critical security updates.

b. Actions are being taken to upgrade all servers to vendor supported operating system software. Currently only 2 servers remain to be upgraded. The first server is scheduled to be upgraded on April 27, 2018. The other remaining server will be decommissioned after all applications are moved to a newer vendor supported file server. This is scheduled to be completed by the end of June 2018.

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