



**Audit of the Employes'
Retirement System (ERS) Data
Center Controls**

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Table of Contents

Transmittal Letter	1
Audit Report Highlights	2
I. Audit Scope, Objectives, and Methodology	3
II. Organization and Fiscal Impact	4
III. Audit Conclusions and Recommendations	4
Management Response from the ERS	6
Comptroller’s Acknowledgement of Receipt	7

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Office of the Comptroller

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Special Deputy Comptroller

December 18, 2020

Honorable Tom Barrett, Mayor
The Members of the Common Council
City of Milwaukee
Milwaukee, WI 53202

Dear Mayor and Council Members:

The attached report summarizes the results of the Audit of the Employees' Retirement System (ERS) Data Center Controls. The scope of the audit included the Employees' Retirement System (ERS) data center's physical security, environmental, and backup control activities at 789 North Water Street.

The primary focus of the audit was to evaluate whether the internal controls in place over the data center are designed adequately and operating effectively. The audit objectives were as follows:

1. Assess whether the data center physical and IT environmental controls are compliant with department policy, best practice criteria, and standards outlined by the Information Systems Auditing and Control Association (ISACA), Federal Information System Controls Audit Manual (FISCAM), and the National Institute of Standards and Technology (NIST); and,
2. Assess whether the data center controls over data backup, offsite storage, and system restoration procedures are performed in accordance with department policy, best practice criteria, and standards outlined by ISACA, FISCAM, and NIST.

The audit concluded that controls over the data center are adequately designed and operating effectively with opportunities for improvement in the area of environmental controls. This report identifies two recommendations to address these opportunities.

Audit findings are discussed in the Audit Conclusions and Recommendations section of this report and are followed by management's response.

Appreciation is expressed for the cooperation extended to the auditors by the personnel of the Employees' Retirement System.

Sincerely

Charles Roedel, CPA, CIA
Audit Manager

CR:bjk



Why We Did This Audit

City data centers were identified as a high risk area in the Citywide IT Risk Assessment. The **ERS data centers are a foundation for ERS operations.** Business continuity is essential to ensuring ongoing services to City of Milwaukee employees. Continuity involves the ability to restore lost data easily and to minimize or eliminate system downtime from a business disruption event that can lead to lost productivity, costly data recovery, and severe service interruptions.

Objectives

The objectives of the audit were to assess whether the data center physical and IT environmental controls and controls over data backup, offsite storage, and system restoration were in compliance with department policy and best practice criteria.

Background

The Employees' Retirement System mission statement says "Our mission is to... [a]dminister the Plan as provided under the City Charter, maintain member records, pay the benefits to which members are entitled, and invest and manage the funds of the Trust in a prudent and vigilant manner."

Audit Report Highlights

Audit of the Employees' Retirement System Data Center Controls

Overview

The audit concluded that **controls over the data center are adequately designed and operating effectively** with opportunities for improvement in the area of environmental controls.

Opportunities for Improvement

A fire extinguisher in the data center has not been serviced since October 2019. A functioning fire extinguisher could preempt the need for the automated fire suppression system deploying, as well as serve as a backup in the event the automated fire suppression system fails. The fire extinguisher should be serviced on a regular basis.

Cardboard boxes were in the data center, which could be a fire hazard and could create dust that could get into electronic equipment. The cardboard boxes should be removed from the data center.

I. Audit Scope, Objectives, and Methodology

Scope

The scope of the audit included the Employees' Retirement System (ERS) data center's physical security, environmental, and backup control activities at 789 North Water Street.

Objectives

The objectives of the audit were as follows:

1. Assess whether the data center physical and IT environmental controls are compliant with department policy, best practice criteria, and standards outlined by the Information Systems Auditing and Control Association (ISACA), Federal Information System Controls Audit Manual (FISCAM), and the National Institute of Standards and Technology (NIST); and,
2. Assess whether the data center controls over data backup, offsite storage, and system restoration procedures are performed in accordance with department policy, best practice criteria, and standards outlined by ISACA, FISCAM, and NIST.

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 the findings and conclusions based on the audit objectives. Internal Audit believes that the evidence obtained provides a reasonable basis for the audit's findings and conclusions based on the audit objectives.

Methodology

Audit methodology included developing an understanding of the processes and controls over the ERS data center. To establish appropriate evaluation criteria for this audit, controls and procedures specific to the ERS data center were compared to a best practice based controls testing program. The audit program was developed using criteria outlined by ISACA, FISCAM, and NIST. These best practice standards present a methodology for performing information system control audits of federal and other governmental entities in accordance with professional standards as presented in Government Auditing Standards (also known as the "Yellow Book"), which was used as a reference and program development guide for the planning of this audit. The audit program and procedures also included elements from best practice criteria Control Objectives for Information and Related

Technology (COBIT), Committee of Sponsoring Organizations of the Treadway Commission -2013 (COSO), and NIST 800-14, 800-53 (Revision 4), 800-84.

The audit procedures developed to evaluate the processes and controls to meet the audit objectives included process walk-throughs, inspection of relevant control documentation, and the testing of controls as follows:

- Review of internal policies, procedures, and guidelines;
- Review of physical access controls to the 789 N Water Street data center based on the principle of least privilege;
- Assessment of environmental controls to protect against the risk of damage from fire, water, and unauthorized persons;
- Assessment of data backup, offsite storage, and system restoration procedures; and
- Evaluation of disaster recovery and business continuity plans to recover from a service outage.

II. Organization and Fiscal Impact

Employes' Retirement System Mission¹

The Employes' Retirement System mission statement says "Our mission is to... [a]dminister the Plan as provided under the City Charter, maintain member records, pay the benefits to which members are entitled, and invest and manage the funds of the Trust in a prudent and vigilant manner." ERS is dependent upon a well maintained and functioning data center to carry out its mission.

III. Audit Conclusions and Recommendations

The audit concluded that controls over the data center are adequately designed and operating effectively with opportunities for improvement in the area of environmental controls.

Environmental controls prevent or mitigate potential damage to facilities and interruptions in service. Environmental controls can diminish the losses from some interruptions such as fires or prevent

¹ <https://www.cmers.com/>

incidents by detecting potential problems early, such as water leaks or smoke, so that they can be remedied.²

Fire Prevention - Risk Rating: Low

The fire extinguisher inside the data center has not been serviced since October 2019. A working fire extinguisher could be used in lieu of the automated suppression system deploying, which would prevent a potentially costly recharge. Additionally, the fire extinguisher would provide a backup option in the event of an automated suppression system failure.

Recommendation 1: Ensure that the fire extinguishers are serviced on a regular basis.

Room Capacity & Space Efficiency: Extraneous Objects - Risk Rating: Low

Environmental controls for room capacity and space efficiency can diminish the losses from accidents and injury, reduce fire risk, optimize cooling resources, and ensure an optimal clean environment to protect high dollar investments in technology equipment.

The 789 N Water data center had cardboard boxes, which could be a fire hazard and risks that particles may end up inside of a server and damage connections to hard drives, network cards, or memory.

“A good strategy is to have a staging area outside of the data center where all boxes are removed from equipment before it is loaded on racks and carried into the data center. In addition to boxes, any plastic, foam, cardboard and whatever else there might be beyond the actual piece of equipment, should be removed in the staging area.”³

Recommendation 2: Remove boxes, surplus equipment, and other extraneous objects from the data center.

² US Government Accountability Office, *Federal Information Systems Controls Audit Manual (FISCAM)*, 2009, CP-2.2

³ <https://www.facilitiesnet.com/firesafety/tip/Data-Center-Fire-Safety--22029>



Bernard J. Allen
Executive Director

David M. Silber, CFA, CAIA
Chief Investment Officer

Melody Johnson
Deputy Director

December 18, 2020

Charles Roedel
Audit Manager, Office of the Comptroller
200 E. Well Street, Room 404
Milwaukee, WI 53202

Re.: Audit of ERS Data Center Controls

Dear Mr. Roedel:

The ERS would like to thank you and your team for the audit of the ERS's data center controls that you recently completed. We appreciate how your team worked collaboratively with our IT team to complete the audit in a very professional manner. Below please find our responses to the two recommendations resulting from the review.

Recommendation 1: Ensure that the fire extinguishers are serviced on a regular basis.

Response: Fire extinguishers are generally inspected once a year by the building management. This year, due to COVID, and a change in management, the 2020 inspection that would have been scheduled for Q4 of 2020 did not occur. ERS has been informed that the inspection of all fire extinguishers in the building will be conducted within the next few months.

Anticipated Completion Date: March 2021

Recommendation 2: Remove boxes, surplus equipment, and other extraneous objects from the data center.

Response: Most of the equipment that is stored in the data center is part of an on-going upgrade project. That project was slightly delayed due to COVID. For security purposes the new equipment was placed in the server room. Based upon the recommendations, the equipment will be unboxed and the cardboard boxes stored outside the data center. The boxes are not being recycled at this time, in the event we need to return any equipment to the vendor.

Estimated Completion Date: January 2021

If you have any questions, or need to discuss this further, please contact Jeffery Shober, Chief Technology Officer at extension 2431.

Sincerely,

Bernard J. Allen
Executive Director

Aycha Sawa, CPA, CIA
Comptroller

Joshua Benson
Deputy Comptroller



Office of the Comptroller

Toni Biscobing
Special Deputy Comptroller

December 18, 2020

Honorable Tom Barrett, Mayor
The Members of the Common Council
City of Milwaukee
Milwaukee, WI 53202

Dear Mayor and Council Members:

With this letter, the Office of the City Comptroller acknowledges receipt of the preceding report, which communicates the results of the Employees' Retirement System (ERS) Data Center Controls audit. I have read the report and support its conclusions. Implementation of the stated recommendations will help improve City processes.

As the City Comptroller, I was not involved in any portion of the work conducted in connection with the audit. At all times, the Internal Audit Division worked autonomously in order to maintain the integrity, objectivity, and independence of the audit, both in fact and in appearance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Aycha Sawa'.

Aycha Sawa, CPA, CIA
Comptroller