

**STATE OF FLORIDA AUDITOR GENERAL**

**Information Technology Operational Audit**

Report No. 2017-209  
June 2017

**NORTH EAST FLORIDA EDUCATIONAL  
CONSORTIUM**

Educational Technology Services



Sherrill F. Norman, CPA  
Auditor General

## North East Florida Educational Consortium Board of Directors and Executive Director

The North East Florida Educational Consortium (NEFEC) is governed by a Board of Director (Board) composed of representatives from its member districts. During the period July 2016 through February 2017, Dr. Patrick Wnek served as Executive Director and the following individuals served as members of the Board of Directors:

Representative	Member District
Sherrie Raulerson, Superintendent	Baker County District School Board
Stacey S. Creighton Superintendent*	Bradford County District School Board
Harold C. Farnsworth, Superintendent	
Alex L. Carswell, Jr., Superintendent*	Columbia County District School Board
Terry Huddleston, Superintendent	
Mike Thomas, Superintendent*	Dixie County District School Board
Mark A. Rains, Superintendent	
Jacob Oliva, Superintendent	Flagler County District School Board
Dr. Jeanne Prickett, President	Florida School for the Deaf and the Blind
Robert Rankin, Superintendent	Gilchrist County District School Board
Rex L. Mitchell, Superintendent*	Hamilton County District School Board
Thomas P. Moffses, Jr., Superintendent	
Robert Edwards, Superintendent	Lafayette County District School Board
Jeff Edison, Superintendent*	Levy County District School Board
Robert O. Hastings, Superintendent	
Dr. Kathy K. Burns, Superintendent*	Nassau County District School Board
Dr. John L. Ruis Superintendent	
Dr. Lynda Fender Hayes, Director	P. K. Yonge Developmental Research School
Dr. Richard M. Surrency, Sr., Superintendent*	Putnam County District School Board
Phyllis L. Criswell, Superintendent	
Ted L. Roush, Superintendent*	Suwannee County District School Board
Jerry A. Scarborough, Superintendent	
Carlton Faulk, Superintendent	Union County District School Board

\* Effective November 22, 2016.

The team leader was Vikki Mathews, CISA, and the audit was supervised by Heidi Burns, CPA, CISA.

Please address inquiries regarding this report to Arthur Hart, CPA, Audit Manager, by e-mail at [arthart@aud.state.fl.us](mailto:arthart@aud.state.fl.us) or by telephone at (850) 412-2923.

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# NORTH EAST FLORIDA EDUCATIONAL CONSORTIUM

## Educational Technology Services

### ***SUMMARY***

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The North East Florida Educational Consortium (NEFEC) is a regional, nonprofit, educational service agency established to provide cooperative services to its member districts including data center services (referred to as Educational Technology Services [ETS]).

This operational audit focused on evaluating selected information technology (IT) controls applicable to NEFEC ETS. As summarized below, the audit disclosed areas in which improvements in NEFEC ETS controls and operational processes were needed.

**Finding 1:** Change management controls related to systems software and network infrastructure changes need improvement to ensure that changes are appropriately documented, authorized, tested (where applicable), and approved prior to implementation into the production environment.

**Finding 2:** Certain NEFEC ETS security controls related to user authentication, user account management, data change control, and data loss prevention needed improvement to ensure the confidentiality, integrity, and availability of NEFEC-maintained data and related IT resources.

### ***BACKGROUND***

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The North East Florida Educational Consortium (NEFEC) is an auxiliary operation of the Putnam County District School Board and is a regional, nonprofit, educational service agency composed of 13 member school districts, the Florida School for the Deaf and the Blind, and the P. K. Yonge Developmental Research School (hereinafter collectively referred to as member districts). The NEFEC Board of Directors is composed of representatives from the member districts, including the superintendents of the 13 member school districts, the President of the Florida School for the Deaf and the Blind, and the Director of the P. K. Yonge Developmental Research School. NEFEC provides programs and services such as employee health benefits, online certifications, risk management programs, and data center services (referred to as Educational Technology Services [ETS]). NEFEC ETS provides a variety of data center services, including hardware and software hosting, application support, disaster recovery, and data and system backups. Application support provided by NEFEC includes the support of the member districts' Skyward school business suite software, including finance and human resources, and student management suite software. As shown in Table 1, 12 of the 15 NEFEC member districts utilize NEFEC ETS.

**Table 1  
Member Districts**

Baker County District School Board <sup>a</sup>	Lafayette County District School Board <sup>a</sup>
Bradford County District School Board	Levy County District School Board <sup>a</sup>
Columbia County District School Board <sup>a</sup>	Nassau County District School Board
Dixie County District School Board <sup>a</sup>	P. K. Yonge Developmental Research School <sup>a</sup>
Flagler County District School Board <sup>a</sup>	Putnam County District School Board <sup>a</sup>
Florida School for the Deaf and the Blind <sup>a</sup>	Suwannee County District School Board
Gilchrist County District School Board <sup>a</sup>	Union County District School Board <sup>a</sup>
Hamilton County District School Board <sup>a</sup>	

<sup>a</sup> District utilizes NEFEC ETS.

## ***FINDINGS AND RECOMMENDATIONS***

### **Finding 1: Change Management**

Effective change management controls over modifications to hardware and systems software ensure that only authorized, tested (where applicable), and approved changes are implemented into the production environment. Further, the effectiveness of change management controls is enhanced through the maintenance of documentation supporting changes made to the production environment.

Our audit procedures disclosed that NEFEC ETS management had not established procedures for managing changes to systems software and the network infrastructure, including network devices, servers, and operating systems, to ensure that changes are appropriately documented, authorized, tested, and approved prior to implementation into the production environment. In response to our inquiry in March 2017, NEFEC ETS staff indicated that changes determined by the staff to be major, such as an operating system upgrade, may be documented in the help desk management system, which would ensure that such changes are also authorized, tested, and approved by appropriate management. NEFEC ETS staff further indicated that changes made may or may not be documented, tested, and approved prior to implementation into the production environment.

Effective change management controls reduce the risk that erroneous or unauthorized hardware or systems software changes may be implemented into the production environment and ensure that documentation of all hardware and systems software changes evidences appropriate authorization, testing, and approval.

**Recommendation: We recommend that NEFEC ETS management establish change management control procedures to ensure that systems software and network infrastructure changes are appropriately documented, authorized, tested, and approved prior to implementation into the production environment.**

### **Finding 2: Security Controls – User Authentication, User Account Management, Data Change Control, and Data Loss Prevention**

Security controls are intended to protect the confidentiality, integrity, and availability of data and related information technology (IT) resources. Our audit procedures disclosed that certain security controls

related to user authentication, user account management, data change control, and data loss prevention need improvement. We are not disclosing the specific detail of the issues in this report to avoid the possibility of compromising the confidentiality of NEFEC ETS data and IT resources. However, we have notified appropriate NEFEC ETS management of the specific issues.

Without appropriate security controls related to user authentication, user account management, data change control, and data loss prevention the risk is increased that the confidentiality, integrity, and availability of NEFEC-maintained data and related IT resources may be compromised.

**Recommendation: We recommend that NEFEC ETS management improve certain security controls related to user authentication, user account management, data change control, and data loss prevention to ensure the confidentiality, integrity, and availability of data and IT resources.**

## **OBJECTIVES, SCOPE, AND METHODOLOGY**

The Auditor General conducts operational audits of governmental entities to provide the Legislature, Florida's citizens, public entity management, and other stakeholders unbiased, timely, and relevant information for use in promoting government accountability and stewardship and improving government operations.

We conducted this IT operational audit from November 2016 through February 2017 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 audit findings and our conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for the audit findings and our conclusions based on our audit objectives.

This IT operational audit focused on evaluating selected IT controls applicable to NEFEC ETS operations as related to the support of member districts' Skyward school business suite software and student management suite software during the period July 2016 through February 2017. The overall objectives of the audit were:

- To determine the effectiveness of selected IT controls in achieving management's control objectives in the categories of compliance with controlling laws, administrative rules, and other guidelines; the confidentiality, integrity, availability, relevance, and reliability of data; the safeguarding of IT resources.
- To identify statutory and fiscal changes that may be recommended to the Legislature pursuant to Section 11.45(7)(h), Florida Statutes.

This audit was designed to identify, for the IT systems and controls included within the scope of the audit, deficiencies in management's internal controls; instances of noncompliance with applicable governing laws, rules, or contracts; and instances of inefficient or ineffective operational policies, procedures, or practices. The focus of this audit was to identify problems so that they may be corrected in such a way as to improve government accountability and efficiency and the stewardship of management. Professional judgment has been used in determining significance and audit risk and in selecting the particular IT controls, legal compliance matters, and records considered.

As described in more detail below, for the IT systems and controls included within the scope of this audit, our audit work included, but was not limited to, communicating to management and those charged with

governance the scope, objectives, timing, overall methodology, and reporting of the audit; obtaining an understanding of the IT systems and controls; exercising professional judgment in considering significance and audit risk in the design and execution of the research, interviews, tests, analyses, and other procedures included in the audit methodology; obtaining reasonable assurance of the overall sufficiency and appropriateness of the evidence gathered in support of the audit findings and our conclusions; and reporting on the results of the audit as required by governing laws and auditing standards.

This audit included the selection and examination of IT system controls and records. Unless otherwise indicated in this report, these items were not selected with the intent of statistically projecting the results, although we have presented for perspective, where practicable, information concerning relevant population value or size and quantifications relative to the items selected for examination.

An audit by its nature does not include a review of all records and actions of NEFEC ETS management and staff and, as a consequence, cannot be relied upon to identify all instances of noncompliance, fraud, abuse, or inefficiency.

In conducting this audit, we:

- Interviewed NEFEC ETS personnel and reviewed operational documentation to obtain an understanding of:
  - IT infrastructure and network architecture for the platforms hosted by NEFEC ETS.
  - Authentication to the NEFEC ETS IT infrastructure, including selected hardware, operating systems, and database management systems as related to the member districts' Skyward school business suite software and student management suite software.
  - Logical design, administration, and periodic review procedures for logical access privileges granted for selected NEFEC ETS IT resources and the member districts' data.
  - NEFEC ETS processes related to the identification, monitoring, and documenting of vulnerabilities to the NEFEC ETS network and interconnected systems.
  - Systems software and network infrastructure component change control procedures and processes.
  - Organizational structure for management and administration of NEFEC ETS and IT resources including the services offered to customer entities by NEFEC ETS and the division of responsibilities between NEFEC ETS staff and the member districts' staff.
  - Change management controls related to the member districts' Skyward school business suite software and student management suite software and supporting databases.
  - Circumstances which necessitate the granting and use of Systemwide access to the member districts' Skyward school business suite software and student management suite software.
- Evaluated the effectiveness of NEFEC ETS change management controls related to the authorization, testing, and approval of Skyward application data changes prior to implementation into the production environment. Specifically, we examined 17 of the 92 data changes implemented into the production environment during the period July 1, 2016, through November 7, 2016.
- Examined and evaluated the appropriateness of administrative access privileges for the two network domains used for NEFEC ETS services and operations as of October 31, 2016.

- Examined and evaluated the appropriateness of administrative access privileges to 8 of the 25 production servers which support the member districts' Skyward school business suite software and student management suite software as of November 10, 2016.
- Evaluated the effectiveness of logical access controls, including periodic reviews for the servers, network domains, and databases that support the member districts' Skyward school business suite software and student management suite software.
- Evaluated authentication controls implemented to protect IT resources and member district data, including servers, databases, network domains, and remote access connectivity architecture supporting the member districts' Skyward school business suite software and student management suite software.
- Evaluated controls for vulnerability management as it relates to the NEFEC ETS network and interconnected systems, including logging and monitoring controls over security events, privileged administrator actions, and the connected critical infrastructure such as servers, network domains, and network components.
- Evaluated data loss prevention controls related to the identification, usage, and monitoring of confidential and sensitive data.
- Evaluated the logging and monitoring controls, including actions performed by privileged users, for the databases that support the member districts' Skyward school business suite software and student management suite software.
- Communicated on an interim basis with applicable officials to ensure the timely resolution of issues involving controls and noncompliance.
- Performed various other auditing procedures, including analytical procedures, as necessary, to accomplish the objectives of the audit.
- Prepared and submitted for management response the findings and recommendations that are included in this report and which describe the matters requiring corrective actions. Management's response is included in this report under the heading **MANAGEMENT'S RESPONSE**.

## **AUTHORITY**

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Section 11.45, Florida Statutes, provides that the Auditor General may conduct audits of the IT programs, activities, functions, or systems of any governmental entity created or established by law. Pursuant to the provisions of Section 11.45, Florida Statutes, I have directed that this report be prepared to present the results of our IT operational audit.



Sherrill F. Norman, CPA  
Auditor General

# MANAGEMENT'S RESPONSE



**NEFEC**

nefec.org



**BOARD OF DIRECTORS:**

Sherrie Raulerson  
*Baker*

Stacey S. Creighton  
*Bradford*

Alex L. Carswell, Jr.  
*Columbia*

Mike Thomas  
*Dixie*

James Tager  
*Flagler*

Dr. Jeanne Prickett  
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Dr. Richard M. Surrency, Sr.  
*Putnam*

Ted L. Roush  
*Suwannee*

Carlton Faulk  
*Union*

Dr. Patrick J. Wnek  
*Executive Director*

## NORTH EAST FLORIDA EDUCATIONAL CONSORTIUM

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June 1, 2017

Sherrill F. Norman, CPA  
Auditor General  
State of Florida  
Claude Denson Pepper Building, Suite G74  
111 West Madison Street  
Tallahassee, FL 32399-1450

Dear Ms. Norman,

We are pleased to respond to the preliminary and tentative audit findings and recommendations concerning the Office of the Auditor General's information technology operational audit of the North East Florida Education Consortium (NEFEC). Our response to the findings are listed below:

**Finding 1:** Change management

***Recommendation:*** We recommend that NEFEC ETS management establish change management control procedures to ensure that systems software and network infrastructure changes are appropriately documented, authorized, tested, and approved prior to implementation into the production environment.

***Response:*** NEFEC ETS management agrees and has taken corrective action to improve change management policies and procedures.

**Finding 2:** Security Controls

***Recommendation:*** We recommend that NEFEC ETS management improve certain security controls related to user authentication, user account management, data change control, and data loss prevention to ensure the confidentiality, integrity, and availability of data and IT resources.

***Response:*** NEFEC ETS management agrees and has taken corrective action to improve security controls. NEFEC ETS will continue to evaluate and employ additional measures to ensure the security and confidentiality of the data housed at NEFEC.

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If you have any questions regarding this information, please feel free to contact us at (386)-329-3800.

Sincerely,



Dr. Patrick Wnek  
Executive Director  
North East Florida Education Consortium

