



**Audit of Natural Disaster
Preparedness and Response**

**Report No. 23/24-02
November 2, 2023**



Date: November 2, 2023

To: Amy Aiken, Assistant Vice President, FIU Operations and Safety

From: Trevor L. Williams, Chief Audit Executive

Subject: Audit of Natural Disaster Preparedness and Response, Report No. 23/24-02

We have completed an audit of the Natural Disaster Preparedness and Response function for the period of July 1, 2022, through April 30, 2023, and also assessed the current practices the Department of Emergency Management (DEM) employed in managing the function through September 2023. The DEM has primary responsibility for overseeing and implementing the University's Comprehensive Emergency Management Plan (CEMP) and is supported by many different departments that have a role in the process, including, but not limited to, the Department of Environmental Health and Safety (EH&S) and Facilities Management, whose roles were specifically evaluated as part of this audit.

During the audit we reviewed the controls related to natural disaster preparedness and response at FIU, specifically related to hurricanes, tornadoes, and naturally caused fires. Our objectives were to ensure that controls are adequate and effective, conform to leading practices for disaster management, and are aligned with University policies and procedures, applicable laws, rules, and regulations.

In summary, we concluded that the DEM has established internal controls and processes for the areas in scope and has excelled in their management of most of these areas, including the creation and management of the CEMP, receiving full accreditation of their Emergency Management Accreditation Program, reviewing and testing of University-wide Continuity of Operations Plans, and training and awareness for natural disaster preparedness and response. Even so, we identified two areas for process improvement. Specifically, in EH&S, better documentation of fire extinguisher inspections and servicing is needed, and for the DEM, the timeliness of tornado alerts deserves consideration. We offered six recommendations to address the issues identified in the audit. Management has agreed to implement all recommendations offered.

We want to take this opportunity to express our appreciation to you and your staff for the cooperation and courtesies extended to us during the audit.

Attachment

C: FIU Board of Trustees

Kenneth A. Jessell, University President

Elizabeth M. Béjar, Provost, Executive Vice President, and Chief Operating Officer

Aime Martinez, Chief Financial Officer and SVP for Finance and Administration

Javier I. Marques, Vice President for Operations & Safety and Chief of Staff, Office of the President

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EXECUTIVE SUMMARY

Introduction

The Department of Emergency Management (DEM) has established a Comprehensive Emergency Management Plan (CEMP) which describes the strategies, assumptions, operational objectives, and mechanisms through which the University will mobilize resources and conduct activities to guide and support emergency management efforts.

What We Did

We performed this audit to determine if the University has processes in place for existing controls that are adequate and provide reasonable assurance that the University complies with institutional policies and applicable federal and state regulations, with regards to natural disaster preparedness and response.

fire extinguisher inspection management solution, which will facilitate the inspection process and improve record-keeping.

Timeliness of Tornado Alerts

- Tornado warning notifications to students and employees were delayed by an average of 4½ minutes. Management should update the AppArmor parameter to

What We Concluded

In summary, we concluded that in performing its oversight and coordination responsibilities of FIU's emergency management program, the DEM has established internal controls and processes for the areas in scope and has excelled in their management of the majority of these areas, including the creation and management of the CEMP, achieving full Emergency Management Accreditation Program (EMAP) accreditation, oversight of the University-wide Continuity of Operations Plan (COOP), and directing robust training and awareness activities for natural disaster preparedness and response. Our report also detailed specific activities, which are managed by the DEM and the Department of Environmental Health and Safety (EH&S), that we believe are elements of the areas in scope for which further opportunities for improvement exist. Specifically, controls could be strengthened by the following actions:

Fire Extinguishers

- Fire extinguisher inspections are not being timely conducted. Management should ensure that all required fire extinguisher inspections and servicing are timely completed. Also, consider augmenting resources, whether through hiring additional personnel or some other means, to meet the monthly inspection requirement.
- Fire extinguisher inspection records do not provide sufficient detail to document the satisfactory completion of inspections. Management should explore implementing a

pull Common Alerting Protocol (CAP) messages from the National Weather Service every minute.

- Tornado warnings were not delivered to those students and faculty residing in or engaging in official University business in the Broward County area. Management should evaluate expanding alerts to also include Broward County.
- University employees are not automatically registered to receive emergency notifications from FIU Alert. Management should automatically opt-in all employees to receive alerts, with the option to opt-out.

The reportable conditions found and the background giving rise to the foregoing recommendations are detailed in the Observations and Recommendations section beginning on page 9 of this report. We have also included the mitigation plans management has proposed in response to our observations and recommendations, along with their implementation dates and complexity ratings.



OBJECTIVES, SCOPE, AND METHODOLOGY

Pursuant to the Office of Internal Audit (OIA) approved annual plan for the 2023-2024 fiscal year, we completed an audit of Natural Disaster Preparedness and Response. The primary objectives of our audit were to determine whether the Department of Emergency Management's internal controls and processes related to natural disaster preparedness and response at Florida International University (FIU), specifically related to hurricanes, tornadoes, and naturally-caused fires are: (1) adequate and effective; (2) conforming to leading practices for disaster management; (3) aligned with University policies and procedures, applicable laws, rules, and regulations; and (4) being adhered to. As part of our audit, we also reviewed the design of controls related to the recovery phase and have concluded on their adequacy. However, without an actual incident occurring during our audit period, we were unable to test the operating effectiveness of those controls related to the recovery phase.

Our audit period was July 1, 2021, through April 30, 2023. Additionally, we assessed the current practices through September 2023.

We conducted our audit in conformance with the *International Standards for the Professional Practice of Internal Auditing* and included tests of the controls related to natural disaster preparedness and response and such other auditing procedures, as we considered necessary under the circumstances. Sample sizes selected for testing were determined on a judgmental basis applying a nonstatistical sampling methodology. Therefore, our test results are limited to our sample and might not be representative of the population from which the sample was selected. Audit planning and fieldwork were conducted from April 2023 to September 2023.

During the audit, we:

- Reviewed University policies and procedures, and applicable laws, rules, and regulations (federal and state, accordingly);
- Interviewed responsible personnel;
- Obtained an understanding of management's processes related to natural disaster preparedness and response;
- Inspected safety equipment;
- Observed a tabletop exercise;
- Evaluated documentary evidence; and
- Reviewed and evaluated in-scope controls.

We reviewed all internal and external audit reports issued during the last three years and found no reports with any applicable recommendation related to the scope and objectives of this audit, which otherwise would have required follow-up.

BACKGROUND

Florida International University's Department of Emergency Management is responsible for guiding all hazard preparedness, response, recovery, and mitigation efforts.



The DEM has established a CEMP, which describes the strategies, assumptions, operational objectives, and mechanisms through which the University will mobilize resources and conduct activities to guide and support emergency management efforts. The National Weather Service (NWS) has certified FIU as a StormReady University.¹ Every department at the University has a role in assisting with natural disaster preparedness, response, and/or mitigation efforts, including EH&S and Facilities Management, which we included in the scope of this audit.

Applicable Laws, Regulations, and Policies

The University must adhere to several laws, regulations, and policies relevant to natural disaster preparedness and response, including but not limited to the following:

Title	Description
Florida Statute Section 252.365(3), <i>Emergency Coordination Officers; Disaster Preparedness Plans</i>	Emergency coordination officers shall ensure that each state agency and facility, such as a prison, office building, or university, has a disaster preparedness plan that is coordinated with the applicable local emergency management agency and that it is approved by the division. The statute lists elements (e.g., identification of essential functions) that all disaster preparedness plans should include.
Florida Board of Governors' (BOG) Regulation 3.001, <i>Campus Emergency Management</i>	Each university shall develop policies covering the development and maintenance of an all-hazards based, comprehensive emergency management program including preparing for, mitigating, responding to, and recovering from emergencies. The regulation also requires that institutions develop and maintain a Comprehensive Emergency Management Plan as well as develop a Continuity of Operations Plan.
FIU Policy 180.105, <i>Emergency Management and Continuity of Operations</i>	The Director shall execute the emergency management program and maintain a Comprehensive Emergency Management Plan that outlines emergency procedures.

¹ A StormReady entity uses a grassroot approach to help communities develop plans to handle all types of extreme weather and to establish guidelines, protocols, and disseminate hazardous weather warnings in a timely manner.

Controls Over Preparedness

The Department of Emergency Management developed the University's CEMP, which the University President has approved. The CEMP was last revised on September 7, 2023, and is reviewed every two years. This document describes the roles and responsibilities of all University units and personnel during emergency situations, including natural hazards, such as hurricanes, tornadoes, and fires.

In 2019, the EMAP² accredited the University's DEM. EMAP applicants must meet all 66 standards, many of which have sub-standards, to be fully accredited. The University's DEM must apply for re-accreditation every five years.



In response to BOG Regulation 3.001, *Campus Emergency Management*, the University utilizes FIU Ready, a web-based continuity planning tool, which allows units to create and submit COOPs annually to the DEM. The DEM staff is responsible for reviewing COOPs and providing feedback to the units. There are 204 plans currently in the system. In 2023, the DEM began conducting unit tabletop exercises where individual COOPs are tested. The DEM selected units for tabletop exercises based on their operational duties within the University. It is the DEM's intent to review each unit's COOP each year and test the plan every three years.

As part of their controls over preparedness, the DEM maintains a robust training and exercise program that addresses natural disaster preparedness and response. The available trainings are hosted by the:

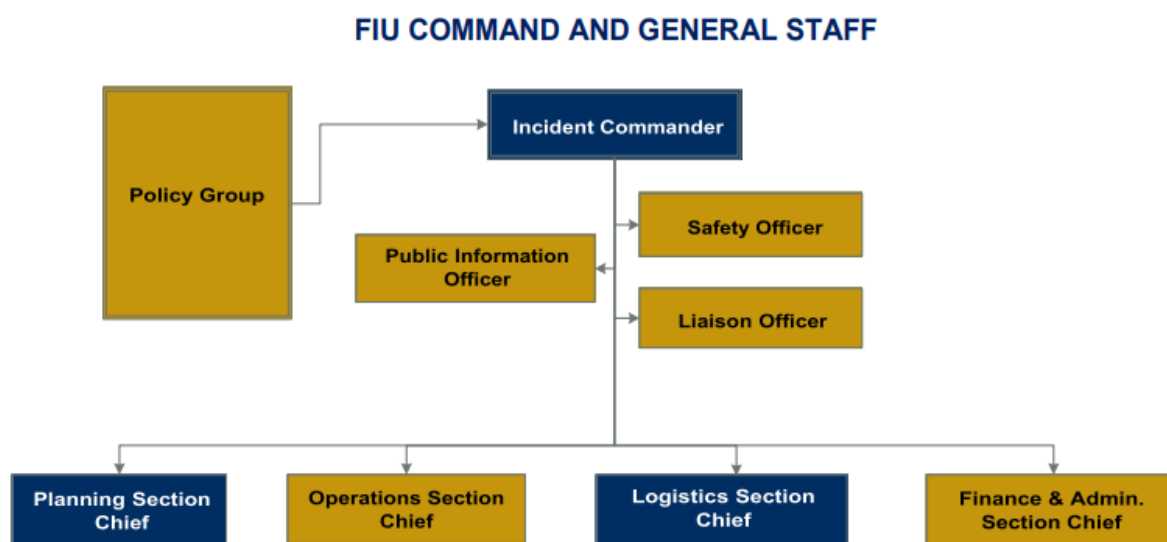
- Federal Emergency Management Agency (FEMA);
- Florida Division of Emergency Management; and
- University's Department of Environmental Health and Safety (EH&S)

² Emergency Management Accreditation Program is based on 66 standards that were developed by a consortium of emergency management stakeholders from government, business, and other sectors, which are assessed when seeking to become accredited.

Response

When an imminent or actual event threatens the University, the President of FIU will declare a state of emergency and the University's Emergency Operations Center (EOC) will be activated in response to the emergency. If the President is unavailable, the University has appointed successors who have the authority to close the University.

The incident commander leads the EOC staff who are divided into the five main Incident Command Structure (ICS) sections: Command, Planning, Operations, Logistics, and Finance & Administration.



The FIU EOC provides a central location from which the EOC staff and the Executive Policy Group³ can facilitate campus-wide coordination and executive decision-making in support of incident response.

Once the EOC is initiated, essential personnel are notified via voice calls, text messages, and/or e-mails. Upon receipt of notification, EOC staff is expected to arrive at the EOC for an initial briefing.

In the event of an emergency, FIU Alert notifications are sent to registered members of the University community.⁴

³ Executive Policy Group is the executive level oversight body who has the authority to make strategic policy decisions during an emergency and apprises the Board of Trustees of any actions taken.

⁴ FIU Alert is FIU's multiple communication platform for emergency notification. Platforms include text messages and voice calls to registered cell phones, emails, visual, and audio messages through the University's voice over internet protocol (VOIP) telephone system, indoor and outdoor speakers, FIU's main webpage, social media, cable TV, and indoor and outdoor electronic message boards.

Recovery

Each University unit is responsible for tracking and documenting all expenses related to the preparation, response, recovery, and mitigation of an emergency incurred by their unit. All purchases should follow the University Procurement Procedures, particularly when purchased in preparation for a potential event. If expenditures were made in preparation for a potential emergency and a State of Emergency is not declared by the Governor of Florida and/or President of the United States, expenses should still be tracked so that the University can monitor the costs. Funds expended in the absence of a State of Emergency declaration will be incurred by the individual University unit.

OVERALL ASSESSMENT OF INTERNAL CONTROLS

Our overall assessment of internal controls is presented in the table below.

INTERNAL CONTROLS ASSESSMENT			
CRITERIA	SATISFACTORY	OPPORTUNITIES TO IMPROVE	INADEQUATE
Process Controls	X		
Policy & Procedures Compliance	X		
Effect	X		
Information Risk	X		
External Risk	X		
INTERNAL CONTROLS LEGEND			
CRITERIA	SATISFACTORY	OPPORTUNITIES TO IMPROVE	INADEQUATE
Process Controls: Activities established mainly through policies and procedures to ensure that risks are mitigated, and objectives are achieved.	Effective	Opportunities exist to improve effectiveness	Do not exist or are not reliable
Policy & Procedures Compliance: The degree of compliance with process controls – policies and procedures.	Non-compliance issues are minor	Non-compliance issues may be systematic	Non-compliance issues are pervasive, significant, or have severe consequences
Effect: The potential negative impact to the operations- financial, reputational, social, etc.	Not likely to impact operations or program outcomes	Impact on outcomes contained	Negative impact on outcomes
Information Risk: The risk that information upon which a business decision is made is inaccurate.	Information systems are reliable	Data systems are mostly accurate but need to be improved	Systems produce incomplete or inaccurate data which may cause inappropriate financial and operational decisions
External Risk: Risks arising from events outside of the organization's control, e.g., political, legal, social, cybersecurity, economic, environment, etc.	None or low	Potential for damage	Severe risk of damage

OBSERVATIONS AND RECOMMENDATIONS

Areas Within the Scope of the Audit Tested Without Exception:

Comprehensive Emergency Management Plan

The University's CEMP is robust and addresses all criteria required by Florida Statutes, Section 252.365(3), *Emergency Management*. The University's CEMP reviewed for this audit was approved on September 13, 2021,⁵ and encompasses all campuses. We determined that the CEMP meets the minimum requirements pursuant to Sections 252.365(3)(a) and (3)(b), F.S. (see page 4). Additionally, the CEMP addresses all types of natural disasters that are in the scope of our audit (e.g., hurricanes, tornadoes, and naturally caused fires).

Emergency Management Accreditation Program

We validated that the University is fully EMAP accredited. The University met the Emergency Management Standard required to achieve full accreditation. The EMAP standards include:

- Program Management, Administration and Finance, and Laws and Authorities
- Hazard Identification, Risk Assessment, and Consequence Analysis
- Hazard Mitigation
- Prevention
- Operational Planning and Procedures
- Incident Management
- Resource Management, Mutual Aid, and Logistics
- Communications and Warning
- Facilities
- Training
- Exercises, Evaluations, and Corrective Action
- Emergency Public Education and Information

Roles and Responsibilities of Key Personnel

The CEMP includes clear roles and responsibilities for key personnel during natural disasters. During our review of University documents and our conversations with the DEM, we found that FIU has adopted ICS as its command structure in the EOC. ICS is a standardized, all-hazards incident management tool that allows for a coordinated response among various University units, jurisdictions, and agencies. It can be expanded or contracted depending upon the size of the incident, maintains a limited span of control, and

⁵ The CEMP was subsequently updated and approved on September 7, 2023.

follows a clear chain of command. The CEMP divides the roles and responsibilities of its members between command staff and general staff. Additionally, the plan provides a list of the supporting units and the roles and responsibilities for each.

Clear Communication Channels

Clear communication channels have been established. We reviewed the CEMP and found that during the activation of the EOC, the University issues a special group notification within the FIU Alert system that only notifies the Policy Group and the EOC staff to report to the EOC. The CEMP includes procedures for notifying employees and students of natural disasters.

Procedures to Coordinate with Authorities During Natural Disasters

The University has established procedures to coordinate with local, state, and federal authorities during natural disasters. We reviewed FIU's training and exercise program and found that the EOC staff conducts exercises with local, state, and federal partners, which include, but are not limited to, the Miami-Dade County Office of Emergency Management, Miami-Dade Fire Rescue, and Miami-Dade Police Department. We observed this coordination during a table-top exercise conducted on April 19, 2023.

Identification of Critical Infrastructure and Potential Hazards

The DEM has identified potential hazards and critical infrastructure. Upon our review of the University's CEMP, we found that a qualitative hazard identification was conducted as part of FIU's participation in the pilot Disaster Resistant University program funded by FEMA to increase universities' resilience to disasters. The analysis was based on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding expected hazard impacts. During the analysis, the DEM identified high risk potential hazards from natural disasters, such as hurricanes and other severe weather incidents (e.g., tornado, flooding, and lightning). Additionally, critical facilities were identified and sorted into three priority levels with the goal of consolidating existing resources for the assessment process while quickly restoring essential University functions to normal conditions after a natural disaster.

Natural Disaster Preparedness and Response Plan Benchmark

The University's natural disaster preparedness and response plan appears adequate when compared to other governmental agency plans. We compared the University's natural disaster preparedness and response plan to other plans from governmental agencies and other State University System institutions. The University has met the same EMAP accreditation as Miami-Dade County, the State of Florida, and other State University System institutions.

COOP Annual Testing

COOPs are timely reviewed by the DEM. We judgmentally selected three units (Facilities, Business Services, and Human Resources) based on their operational duties within the University and validated that the COOPs for all three units were updated before the start of hurricane season and had been reviewed.

Automatic Electronic Defibrillators and Bleeding Control Kits

Automatic electronic defibrillator (AED) units and Bleeding Control Kits are readily available. We selected five buildings (Primera Casa, Graham Center, Green Library, Ocean Bank Convocation Center (Arena), and Wellness and Recreation Center) to test the existence of AEDs and Bleeding Control Kits. In total, we identified 15 AED units and multiple Bleeding Control Kits among the five buildings. We were able to identify each of the AEDs from the list provided by the DEM and were able to determine that each building had at least one AED and one Bleeding Control Kit available in case of an emergency.

Adequate Backup Power

During the Audit of Facilities Assessments and Deferred Maintenance, Report No. 23/24-01, issued on August 7, 2023, we reported that preventive maintenance of generators was conducted in accordance with their recommended frequency (monthly). We relied on the work we performed during that audit to assess this audit objective.

Training and Awareness Program for Natural Disaster Preparedness

The EOC staff completed the required Natural Disaster Preparedness training courses per the Training and Exercise Plan (TEP). According to the TEP, EOC staff is expected to understand how the EOC operates and what their roles and responsibilities are during a disaster. The TEP requires that EOC staff complete FEMA's introductory courses regarding the National Incident Management System (NIMS) and the ICS. We sampled 10 EOC staff members and validated that all 10 completed the two courses required by the TEP related to natural disaster preparedness and response.

Insurance Coverage for Natural Disasters

The University is self-insured in the event of natural disasters, such as hurricanes, tornadoes, and fires. We obtained the *Certificate of Property Coverage* from the State Risk Management Trust Fund (State of Florida Department of Financial Services) that determines the rights, duties, and coverages. The *Certificate of Property Coverage* covers the following causes of loss:

- Fire
- Lightning
- Explosion
- Windstorm or Hail
- Smoke
- Aircraft and Vehicle
- Riot or Civil Commotion
- Sinkhole Collapse
- Flood

The coverage will pay for direct physical loss of or damage to covered property at the premises described in the Property Declaration. We obtained the list of all University buildings from Facilities Management and confirmed that all buildings (except for small storage sheds,⁶ buildings that are still under construction, and buildings we lease) were included.

University's Processes for Recovering Costs

The University has established adequate processes for managing and communicating protocols related to recovering costs emanating from natural disasters. The University did not suffer any natural disaster loss within the audit period, but we analyzed the University's process during Hurricane Irma. On August 27, 2017, Hurricane Irma was identified as a potential threat. In preparation for the upcoming threat, the former Associate Vice President of Business and Finance, timely sent an email informing all finance managers of the disaster related expenditure reimbursement process. The email contained detailed instructions on how to record expenses as well as a template for recording them. Additionally, the DEM's CEMP addresses how such expenses should be documented.

⁶ Small storage sheds with a value below \$2,500 are not included in the Property Declaration because the minimum deductible on the property program is \$2,500.

Areas Within the Scope of the Audit Tested with Exception:

1. Fire Extinguishers

Although safe escape is the primary element of a fire response plan, fire extinguishers are also an element of such plan, according to the National Fire Protection Association. As such, in the event of a fire to University property, fire extinguishers are relied upon by the University community to safely abate the fire until the fire department arrives on scene. Fire extinguishers are managed by the University's EH&S Department.

We conducted testing to determine whether the University has adequate controls related to fire extinguishers, specifically related to their inspections and record keeping. The results of our testing are detailed below.

Inspections

Fire extinguisher inspections are not being timely conducted. We inspected fire extinguishers to ensure that the University was conducting inspections in accordance with the established frequencies (monthly, annually, and six-year servicing) per the National Fire Protection Association (NFPA), as adopted by the Florida Administrative Code, Section 69A-3.012. During our testing, we selected five buildings [Primera Casa, Graham Center, Green Library, Ocean Bank Convocation Center (Arena), and Wellness and Recreation Center] to test for the existence of fire extinguishers. We then randomly selected four fire extinguishers per building (20 out of 4,920 active fire extinguishers) to verify inspections and noted:

- 14 instances in which the annual inspections were not conducted. NFPA Code 13.6.4.3.2.1, *Physical Condition*, requires fire extinguishers to be inspected annually.
- 10 instances in which the six-year servicing was not conducted. NFPA Code 13.6.4.3.6, *Six-Year Internal Examination of Certain Types of Extinguishers*, requires fire extinguishers to be inspected and serviced every six years.

According to Management, around 50% of the fire extinguishers still have their annual inspections and six-year servicing past due. These inspections are conducted by a contracted third-party. The delay started in January 2020, when the third-party supplier (Triangle Fire) notified the University that it was acquired by another company (Pye Barker). As a result, the University had to pause its annual inspections and six-year servicing, while Procurement and General Counsel reviewed the new supplier, which was subsequently approved in May 2020. Additionally, as a result of the COVID-19 pandemic, EH&S personnel shifted to other essential duties, while also losing two employees who were involved in the fire extinguisher inspection process. We did not observe that management had an alternate plan to ensure compliance.

We were unable to determine whether the monthly inspections were timely completed, as required per NFPA Code 13.6.4.2.1.2.1, *Inspection Frequency*, because detailed monthly inspection logs are not retained. According to Management, a monthly inspection averages 3½ minutes per fire extinguisher. As such, under these circumstances, it would take one full-time individual (working 40 hours a week exclusively on inspections) seven weeks to complete one month of inspections. During the audit testing period, the team in charge of inspecting fire extinguishers was composed of one full-time and one part-time employee. However, the number of working hours combined is not sufficient to timely inspect all fire extinguishers each month, resulting in a potential lag and non-compliance with the Code.

As of August 28, 2023, Management informed us that the part-time position was in the process of being transitioned into to a full-time position. Nonetheless, the two full-time positions will not exclusively be working on inspections. According to Management, “the biggest obstacle in resolving this issue is due to lack of personnel.”

Documentation

Fire extinguisher inspection records do not provide sufficient detail and existing inspection record logs are not timely updated. According to NFPA Code 13.6.4.2.4.1, *Manual Inspection Records*, records for manual inspections shall be kept on a tag or label attached to the fire extinguisher, on an inspection checklist maintained on file, or by electronic method along with the month and year the manual inspection was performed. Although the code does not explicitly state that logs should be itemized, we analyzed the University’s monthly inspection logs provided to us and believe that these logs lack sufficient detail to determine whether a manual inspection was conducted for any given fire extinguisher. The current method used by the University summarizes extinguishers by building but does not provide a record of each extinguisher, along with any non-conforming conditions observed, or required corrective action(s) taken. As a result, we were unable to determine whether the monthly inspections were conducted, as required by the NFPA Code.

Furthermore, we found 14 instances (of 20) from the 4,920 active fire extinguishers in which the inspection dates were not properly updated in the Fire Extinguisher Inventory report. The annual inspection date was not updated or was left blank.

Not ensuring fire extinguishers are inspected and serviced exposes the University to potential liability and places lives and property at risk.

Recommendations

Environmental Health and Safety should:	
1.1	Ensure that all required fire extinguisher inspections and servicing are timely completed.

1.2	Consider augmenting resources by hiring additional personnel or some other means to ensure the monthly inspection requirement is met. Additionally, management should consider the additional personnel hours required to inspect fire extinguishers for buildings that will be reaching substantial completion in the near future (e.g., the Trish and Dan Bell Chapel and the new FIU College of Engineering and Computing Center).
1.3	Explore implementing a fire extinguisher inspection management solution to facilitate the inspection process and improve record-keeping.

Management Response/Action Plan

- 1.1 COVID created staffing shortages with two staff members unable to get back to Miami because of travel restrictions, another one leaving, and EH&S staff assisting with a testing site for 18 months and then a vaccination site for another year. Further, a database crash in July 2020 combined with the fire extinguisher vendor being bought out by another company not registered in Florida necessitating time-consuming procurement and legal processes, all combined to delay inspections. EH&S has been working diligently to catch up and get back on track with a full-time position to focus on extinguishers.

Implementation date: April 15, 2024

Complexity rating: 2

- 1.2 As of September 16, 2023, the Department of Environmental Health and Safety has hired an additional full-time employee to help maintain portable fire extinguishers University wide. Recruitment is currently underway for a part-time position and Strategic Investment requests for additional staff will continue to be submitted.

Implementation date: September 16, 2023

Complexity rating: 1

- 1.3 The State of Florida has adopted the minimum standard for fire prevention, and itemization of monthly extinguisher inspections exceeds that minimum standard thereby classifying the itemization as a best-practice and not a requirement. NFPA 1: 1.2. This is why it is typical in society to see a simple initial and date (month/year) manually signed on the backside of the annual inspection tag. As such, most facilities throughout the State maintain portable fire extinguisher compliance by this non-electronic method with knowledge of extinguisher placement but not at the itemized level as desired in this audit. EH&S, along with the Office of Internal Audit are jointly piloting a software program to enhance the existing record-keeping process.

Implementation date: January 31, 2024

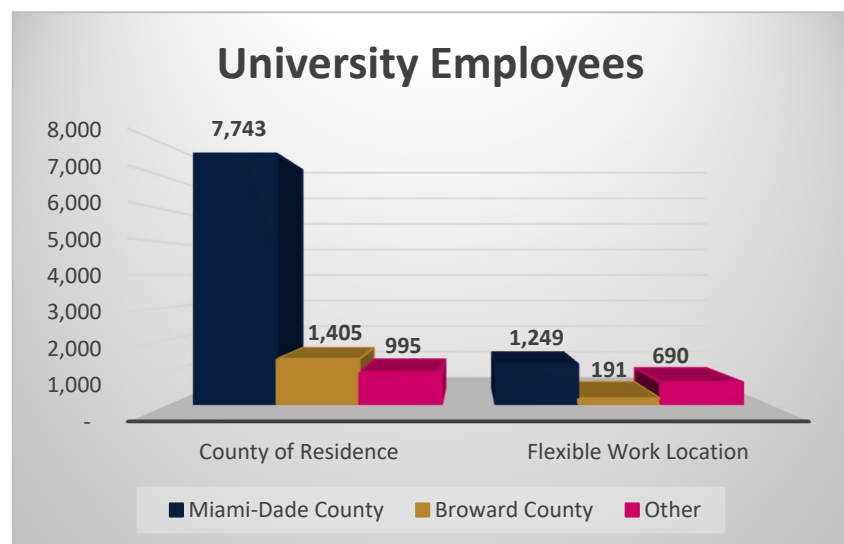
Complexity rating: 1

2. Timeliness of Tornado Alerts

Tornado warning notifications to students and employees were delayed by an average of 4½ minutes. Additionally, students and employees studying and/or working at FIU's facilities in Broward County, are not notified via FIU Alerts of tornado warnings in Broward County, as issued by the National Weather Service.

During the months of April and May 2023, there were eight tornado warnings issued by the NWS in Miami-Dade and Broward Counties. According to the NWS, a tornado warning is issued when a tornado has been sighted or indicated/confirmed by weather radar. We found five instances in which the notification to students and employees was delayed from three to six minutes after the NWS issued the warning. The messages were sent out by a third-party company (AppArmor) that delivers the message through FIU Alert. After contacting AppArmor, we were informed that the parameters within AppArmor were set up by the DEM to pull CAP messages from the NWS every five minutes.⁷ The AppArmor employee explained that the frequency could be reduced to check CAP messages every one minute without incurring additional fees or diminished performance. Management explained that the five minutes was suggested by AppArmor because it reduces the number of messages being sent out and because of the potential to lose subscribers due to the frequency of the messages, which occurred after a September 27, 2022, incident. However, for the event date reviewed (September 27, 2022), we determined that reducing the time delay from five to one minute would not have increased the number of warnings. The purpose of sending tornado warning messages is to alert the University community to take shelter and any delay may pose an increased risk to life safety.

Furthermore, we found that the three tornado warnings issued by the NWS for Broward County during the period, were not delivered to those students and employees studying and/or working in the Broward County area. There are 446 students registered at the I-75 campus located in Broward County. Furthermore, as of August 28, 2023, we identified 10,143 employees in the



HR system, of which 1,405 employees (14%) had a Broward County home address of record, and of which 191 had been approved for a Flexible Work Arrangement Schedule to work from home. These students and employees may be in harm's way if no notification is provided. Barring being able to issue warnings solely to those in the impacted area, we

⁷ Common Alerting Protocol (CAP) is an XML-based data format for exchanging public warnings and emergencies between alerting technologies.

understand the potential for the loss of subscribers. Subscribers who receive excessive warnings or warnings that may not necessarily impact their area tend to unsubscribe as they did on September 27, 2022, when nearly 1,100 unsubscribed from FIU Alerts and thereby chose to assume the related risk. The University must determine the risk-benefit of including Broward County in their FIU Alerts.

Alert Subscribers

As of September 19, 2023, FIU Alerts had 60,635 subscribers that included students, faculty, and staff. All students are automatically registered to receive FIU Alerts, whereas University employees need to manually register through PantherSoft. This additional step places the burden of subscription on the employee. Employees that are unaware of the process and do not register will miss critical notifications via text message and/or phone calls.

Recommendations

Department of Emergency Management should:	
2.1	Update the AppArmor parameter to pull Common Alerting Protocol messages from the National Weather Service every minute.
2.2	Evaluate expanding tornado alerts to include Broward County. Management should consider the risks and liability posed by not informing Broward County students and employees against the potential for the overall decrease in subscribers due to the increased number of alerts.
2.3	Automatically opt-in all employees to receive alerts, with the option to opt-out.

Management Response/Action Plan

2.1 This was done on September 12, 2023, and communicated to the auditors.

Implementation date: September 12, 2023

Complexity rating: 1

2.2 Individuals who reside in Broward County or anywhere else should not be relying on FIU to provide weather warnings when they are not at FIU. As far as notifying students and staff at the I-75 location, we contacted Broward College and students, faculty and staff have the ability to sign up for Broward College's emergency notification system. This information has been shared with students, faculty and staff at FIU's I-75 location.

Implementation date: September 22, 2023



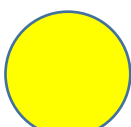



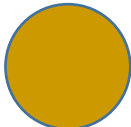
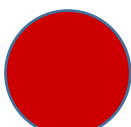

Complexity rating: 1

- 2.3 A meeting with key stakeholders was held. A communication to employees notifying them of automatic opt-in is being drafted to be distributed.

Implementation date: January 30, 2024

Complexity rating: 2

APPENDIX I – COMPLEXITY RATINGS LEGEND

Legend: Estimated Time of Completion		Legend: Complexity of Corrective Action	
	Estimated completion date of less than 30 days.		Routine: Corrective action is believed to be uncomplicated, requiring modest adjustment to a process or practice.
	Estimated completion date between 30 to 90 days.		Moderate: Corrective action is believed to be more than routine. Actions involved are more than normal and might involve the development of policies and procedures.
	Estimated completion date between 91 to 180 days.		Complex: Corrective action is believed to be intricate. The solution might require an involved, complicated, and interconnected process stretching across multiple units and/or functions; may necessitate building new infrastructures or materially modifying existing ones.
	Estimated completion date between 181 to 360 days.		
	Estimated completion date of more than 360 days.		Exceptional: Corrective action is believed to be complex, as well as having extraordinary budgetary and operational challenges.

*The first rating symbol reflects the initial assessment based on the implementation date reported by Management, while the second rating symbol reflects the current assessment based on existing conditions and auditor's judgment.

APPENDIX II – OIA CONTACT AND STAFF ACKNOWLEDGMENT

OIA contact:

Joan Lieuw 305-348-2107 or jliewu@fiu.edu

Contributors to the report:

In addition to the contact named above, the following staff contributed to this audit in the designated roles:

Dayan Borges (auditor in-charge);
Natalie San Martin (supervisor)
Manuel Sanchez (reviewer); and
Vivian Gonzalez (independent reviewer)

Definition of Internal Auditing

Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.