AAPA Lighthouse Award-Excellence in Security Practices & Technology Solutions

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Port Pascagoula

Eyes in the Sky: Advancing Port Security Through Real-Time Drone Detection

PORT PASCAGOULA

AeroDefense

SCALABLE DRONE DETECTION

Eyes in the Sky: Advancing Port Security Through Real-Time Drone Detection

Background, Purpose, and Goals

As Mississippi's largest seaport and responsible for nearly 20% of the state's GDP, the Port of Pascagoula plays a vital role in supporting international trade, industrial activity, and regional economic development along the Gulf Coast. The Port's operational footprint includes multiple terminals, industrial partners, and federally regulated facilities, all of which require a comprehensive and adaptive approach to safeguarding personnel, cargo, infrastructure, and the surrounding environment.

The Port operates within a complex and dynamic maritime security environment where threats are continuously evolving. Historically, security efforts have focused on landside and waterside risks, including unauthorized access, cargo theft, and vessel-related threats. However, the rapid proliferation of unmanned aerial systems (UAS), commonly referred to as drones, has introduced a new and increasingly significant threat vector.

Drones are widely accessible, relatively inexpensive, and capable of conducting surveillance and reconnaissance, as well as potentially interfering with port operations. More importantly, they operate within low-altitude airspace, an area that has traditionally remained outside the coverage of conventional port security systems. This creates a critical vulnerability, particularly in environments with sensitive industrial operations and critical infrastructure.

Before implementing a drone detection capability, the Port of Pascagoula had limited ability to detect, track, or identify unauthorized drone activity within its operational footprint. This lack of visibility created a gap in situational awareness and limited the Port's ability to respond proactively to aerial threats.

This vulnerability became a documented operational concern on March 27, 2026, when a drone was observed operating over the Bollinger Shipyard facility. The drone remained in the airspace for approximately six minutes before departing along the facility perimeter. The incident prompted immediate coordination with Pascagoula Police, the National Response Center, U.S. Coast Guard Sector Mobile, and multiple federal agencies.

While the Port and its partners were able to respond effectively, the incident highlighted a key limitation: drone activity was identified visually and reactively rather than proactively detected and managed. This reinforced the need for a dedicated system capable of providing real-time airspace awareness and actionable intelligence.

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Purpose

The purpose of this initiative was to establish a proactive, technology-driven airspace security capability by implementing the AeroDefense AirWarden Essentials system. As drone technology continues to evolve and become more accessible, the Port recognized the need to extend its security posture beyond traditional landside and waterside operations and into the increasingly vulnerable low-altitude air domain.

The AirWarden Essentials system enables the Port to:

- Detect drone activity in real time
- Identify drones and their operators using Remote ID technology
- Track flight paths, behavior, and patterns
- Provide actionable intelligence to security personnel and partner agencies

By implementing this capability, the Port sought to transform drone activity from an unknown, reactive threat into a monitored, manageable security domain, thereby strengthening overall situational awareness and response effectiveness.

More importantly, the initiative was designed to establish a **layered, intelligence-driven security approach that enhances the Port's ability to proactively identify and respond to emerging aerial threats before they affect** operations, personnel, or critical infrastructure. Before implementation, unauthorized drone activity could only be identified through visual observation or after-the-fact reporting, limiting the Port's ability to respond quickly and effectively. AirWarden changed that dynamic by providing real-time visibility into previously unmonitored airspace.

The system's use of **Remote ID technology**, often described as a digital license plate for drones, allows security personnel to identify not only the drone itself but also the operator's location. This capability transforms drone detection from a passive awareness tool into an operational intelligence platform that supports coordinated response actions, investigative efforts, and enhanced decision-making.

Additionally, the Port sought to strengthen coordination with local, state, and federal partners by ensuring that drone-related incidents could be supported with credible, real-time data. The ability to share actionable intelligence with agencies such as the U.S. Coast Guard, Pascagoula Police Department, and federal response partners significantly improves collaborative security operations and regional threat awareness.

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The initiative also supports the Port's long-term commitment to operational resilience and adaptability. As drone usage and associated risks continue to expand, the implementation of AirWarden establishes a scalable foundation that can evolve alongside emerging technologies, regulatory requirements, and security threats.

Ultimately, the purpose of this initiative is not only to detect drones but to ensure that the Port of Pascagoula maintains a proactive and comprehensive security posture capable of protecting personnel, infrastructure, cargo operations, and surrounding communities in an increasingly complex threat environment.

Goals and Objectives

Establish real-time airspace awareness across all port facilities.

The primary objective of this initiative was to extend the Port's security posture into the air domain by establishing continuous, real-time visibility of drone activity across operational areas. Before implementation, low-altitude airspace remained a significant blind spot in the Port's layered security framework, limiting its ability to identify aerial threats proactively. Through the implementation of AirWarden Essentials, security personnel can now monitor drone activity in real time, track flight behavior, and identify areas of concern before they escalate into operational or security incidents.

This capability enhances overall situational awareness by providing visibility into activity occurring above critical infrastructure, terminals, and restricted operational areas. The ability to continuously monitor airspace ensures that security personnel can rapidly assess developing situations, identify potential threats, and initiate response actions with greater speed and accuracy.

Enhance response capability to unauthorized drone activity

A key objective was to strengthen the Port's ability to respond quickly and effectively to unauthorized drone activity. Before implementation, drone-related incidents relied heavily on visual observation, delayed reporting, or third-party notification, limiting response effectiveness and reducing the ability to coordinate timely action.

By enabling real-time drone detection and operator identification, AirWarden Essentials provides actionable intelligence that supports faster decision-making and improved response coordination. Security personnel can now identify the location, movement, and behavior of drones operating

within or near port facilities, enabling more effective communication with responding agencies and more informed operational decisions.

This capability significantly reduces risk to personnel, infrastructure, cargo operations, and surrounding facilities by enabling the Port to transition from a reactive posture to a proactive response model.

Close a critical gap in low-altitude airspace monitoring

The March 2026 drone intrusion incident highlighted the absence of a dedicated capability for monitoring low-altitude airspace within the Port environment. While existing security systems provided extensive landside and waterside coverage, aerial activity remained largely undetected unless visually observed.

This initiative directly addressed that vulnerability by introducing a dedicated drone detection platform capable of identifying and monitoring unauthorized aerial activity in real time. The implementation of AirWarden Essentials ensures that drones operating near sensitive facilities, operational areas, or restricted infrastructure are no longer undetected or unmanaged.

By extending security awareness into the air domain, the Port established a more comprehensive and layered security approach that aligns with the evolving threat landscape facing critical maritime infrastructure.

Strengthen coordination with federal and local partners

Another major objective was to improve coordination and information sharing with law enforcement, the U.S. Coast Guard, and federal security partners. Drone detection data provides credible, actionable intelligence that can support joint response efforts and improve regional situational awareness during security incidents.

The ability to identify drone activity in real time enables the Port to provide responding agencies with valuable information, including the drone's location, flight path, operator's position, and operational behavior. This significantly enhances the effectiveness of coordinated response actions and supports broader maritime security operations.

Additionally, the system strengthens collaboration between the Port and its partners by creating a shared operational picture that improves communication, threat assessment, and response planning across multiple jurisdictions and agencies.

Implement a scalable and cost-effective solution.

The Port sought to implement a solution that provided advanced security capabilities while remaining financially sustainable and operationally practical for a small-port environment. AirWarden Essentials was selected because it delivers robust drone-detection capabilities without requiring major infrastructure investment or extensive hardware deployment.

The system's subscription-based model, minimal hardware requirements, and flexible deployment options enabled the Port to establish airspace monitoring capability while maximizing resource efficiency rapidly. This approach ensured that advanced drone detection technology could be integrated into existing operations without creating significant financial or operational burdens.

The system's scalability also ensures that additional coverage, users, and operational areas can be incorporated as future needs evolve, supporting long-term sustainability and growth.

Support long-term security resilience.

Beyond immediate operational improvements, the initiative was designed to support the Port's long-term resilience and adaptability in an increasingly complex security environment. Drone technology, operational tactics, and regulatory requirements continue to evolve rapidly, requiring security systems that can adapt alongside emerging threats.

AirWarden Essentials establishes a strong foundation for future capability expansion and integration with evolving technologies and security strategies. The system supports continuous improvement by allowing the Port to adapt operational procedures, expand monitoring coverage, and strengthen coordination protocols as new challenges emerge.

Ultimately, this initiative ensures that the Port of Pascagoula remains proactive, prepared, and resilient in protecting critical infrastructure, personnel, and maritime operations against both current and future aerial threats.

Implementation & Resources (Enhanced Opening)

The Port of Pascagoula implemented the AeroDefense AirWarden Essentials system through a structured and phased deployment strategy focused on rapid capability development, operational integration, and long-term sustainability. The implementation process was driven by the need to quickly address a documented security vulnerability while ensuring the system could be seamlessly incorporated into the Port's existing operational and security framework.

Rather than approaching drone detection as a standalone technology project, the Port treated the initiative as a strategic enhancement to its overall layered security posture. This required careful coordination between security personnel, operational leadership, technology providers, and external response partners to ensure the system was both operationally effective and sustainable over the long term.

The phased implementation strategy prioritized immediate deployment of core detection capabilities while simultaneously developing supporting procedures, response protocols, and training programs. This approach allowed the Port to rapidly establish real-time airspace awareness without disrupting ongoing operations or requiring extensive infrastructure modifications.

In addition to technology deployment, implementation efforts focused heavily on integrating AirWarden Essentials into existing security operations, incident response workflows, and interagency communication procedures. By embedding the system into daily operations, the Port ensured that drone detection became an active and continuous component of overall security management rather than a reactive or isolated capability.

System Deployment

AirWarden Essentials was selected for its ability to leverage Remote ID detection, allowing security personnel to identify both drones and their operators. The system captures key data points, including location, altitude, speed, and flight trajectory, providing a comprehensive view of drone activity.

The deployment required minimal infrastructure, allowing the Port to rapidly establish monitoring capabilities without disrupting ongoing operations. The system was positioned to provide coverage across critical operational areas, ensuring maximum visibility within the Port's footprint.

Operational Integration

A key focus of implementation was ensuring that the system became an active component of daily security operations. AirWarden was integrated into:

- Port security monitoring workflows
- Incident response protocols
- Communication procedures with law enforcement and federal partners

This ensured that drone detection was not treated as a standalone function, but as part of a layered and coordinated security strategy.

Training and Readiness

Security personnel received targeted training on:

- System operation and monitoring interface
- Identification and interpretation of drone activity
- Response and escalation procedures

Training emphasized real-time decision-making and coordination, ensuring personnel were prepared to respond effectively to detected activity.

To maintain readiness and validate system performance, the Port incorporated AirWarden into ongoing security exercises and operational testing. Scenario-based drills were conducted to reinforce familiarity with the platform and ensure effective coordination during real-world incidents.

Resource Optimization

The Port implemented the system using a cost-efficient model, leveraging:

- Subscription-based deployment
- Minimal hardware requirements
- Internal personnel for administration and monitoring

This approach allowed the Port to achieve advanced detection capability without significant capital expenditure while maintaining scalability for future growth.

Interagency Coordination

The system enhances coordination with:

- Pascagoula Police Department
- U.S. Coast Guard Sector Mobile
- Federal agencies and fusion centers
- Ingalls Shipbuilding
- Chevron Refining

Drone detection data supports real-time communication and coordinated response during incidents, strengthening regional situational awareness and improving overall security effectiveness.

Innovation & Relevance

The implementation of AirWarden Essentials represents a highly targeted and forward-thinking innovation in port security, addressing one of the most rapidly emerging threats to critical infrastructure: unauthorized drone activity.

The Port's approach extends beyond simply deploying technology—it integrates drone detection into operational strategy, policy, and interagency coordination. By extending security coverage into the air domain, the Port has established a layered security framework encompassing land, water, and airspace.

A key innovation is the system's use of Remote ID technology to identify both drones and their operators in real time. This capability transforms drone activity from an unknown threat into actionable intelligence, enabling faster decision-making and more coordinated response actions.

The system's ability to provide centralized monitoring and historical flight tracking further enhances its operational value. Security personnel can identify repeat activity, monitor flight behavior, and assess potential threats based on patterns and trends.

This initiative directly addresses current maritime security challenges, including unauthorized surveillance, operational disruption, and emerging aerial threats. It demonstrates how targeted technology can provide meaningful security enhancements without requiring significant infrastructure investment.

Importantly, the solution is scalable and adaptable, making it applicable to ports of varying size and complexity. The Port of Pascagoula's implementation provides a practical model for other maritime facilities seeking to enhance airspace awareness and strengthen security resilience.

Results, Evidence & Impact

The implementation of AirWarden Essentials has significantly enhanced the Port's ability to detect, assess, and respond to aerial threats, resulting in measurable improvements in situational awareness and overall security posture. By extending security monitoring into the low-altitude air domain, the Port has transformed a previously unmonitored vulnerability into an active and manageable component of its layered security framework.

Prior to implementation, drone-related incidents relied primarily on visual observation, delayed reporting, or notification from external parties. This reactive approach limited the Port's ability to rapidly assess threats, identify operators, and coordinate response actions. With AirWarden Essentials now in place, the Port has established a real-time detection capability that provides immediate awareness of drone activity occurring within and around critical operational areas.

One of the most significant impacts has been the Port's ability to transition from a **reactive security posture to a proactive threat detection model**. Security personnel can now identify drone activity as it occurs, monitor flight paths and behavior, and assess potential risks in real time. This capability significantly improves response speed, operational coordination, and overall decision-making during security events.

The system has also strengthened the Port's ability to coordinate with local, state, and federal partners during incidents involving unauthorized drone activity. Real-time drone detection data—including location, altitude, flight movement, and operator position—provides actionable intelligence that supports more effective communication and joint response efforts with agencies such as:

- Pascagoula Police Department
- U.S. Coast Guard Sector Mobile
- National Response Center
- Federal security and intelligence partners

The March 27, 2026, drone intrusion incident served as clear evidence of the operational need for enhanced airspace security capability. The incident demonstrated that unauthorized drone activity posed a legitimate threat to critical maritime infrastructure and highlighted the limitations of relying solely on traditional security measures. The implementation of AirWarden Essentials directly addressed these vulnerabilities by providing the Port with continuous airspace monitoring and real-time detection capability.

In addition to improving response effectiveness, the system has significantly enhanced overall situational awareness across port operations. Security personnel now maintain visibility into aerial activity occurring near terminals, restricted areas, industrial facilities, and navigational corridors. This expanded awareness supports more informed operational decisions and improves the Port's ability to identify suspicious or abnormal activity before it escalates into a larger security concern.

The implementation has also produced long-term operational and strategic benefits. By incorporating drone detection into daily security operations, the Port has established a

sustainable and scalable framework for addressing evolving aerial threats. The system's tracking and reporting capabilities allow personnel to analyze patterns of drone activity, identify recurring behaviors, and support future threat assessments and investigative efforts.

Operational testing and routine monitoring activities have further validated system effectiveness. The Port conducts regular system checks and operational evaluations to ensure reliability, maintain personnel familiarity, and confirm readiness under real-world conditions. These ongoing validation efforts reinforce the system's role as a live operational capability rather than a passive monitoring tool.

Beyond the technical and operational improvements, the initiative has strengthened confidence among stakeholders, tenants, and partner agencies by demonstrating the Port's commitment to proactive security and continuous improvement. The implementation of AirWarden Essentials reflects a forward-looking approach to maritime security that recognizes the growing importance of airspace awareness in protecting critical infrastructure.

Ultimately, the results of this initiative extend beyond drone detection alone. The system has enhanced the Port's overall resilience, improved interagency coordination, strengthened operational preparedness, and established a new layer of defense within the Port's comprehensive security strategy.

Operational Improvements

The Port has transitioned from a reactive security posture to a proactive detection-and-response model. Previously, drone activity relied heavily on visual observation and external reporting. With AirWarden in place, security personnel now have real-time visibility into drone operations occurring within and around port facilities.

The system has improved:

- Detection capability
- Response coordination
- Airspace awareness
- Information sharing with partner agencies

Security personnel can now identify drone activity more quickly and coordinate response actions with greater efficiency and accuracy.

Enhanced Situational Awareness

A major benefit of the system is its ability to continuously monitor low-altitude airspace across the Port's operational footprint. This capability significantly improves operational awareness by enabling security personnel to identify, assess, and monitor drone activity in real time that might otherwise go unnoticed. By extending visibility into the air domain, the Port has strengthened its layered security posture and improved its ability to respond proactively to emerging threats near critical infrastructure and operational areas.

The system's tracking and reporting capabilities also provide valuable intelligence to assess activity patterns, monitor recurring drone operations, and support investigative efforts when necessary. Real-time and historical flight data enhance coordination with law enforcement and federal partners while providing security personnel with actionable information to support operational decision-making, threat assessment, and incident response. This capability allows the Port to move beyond simple detection and establish a more intelligence-driven approach to airspace security.

Evidence-Based Impact

The March 27, 2026, drone intrusion incident was a defining operational event that underscored the need for enhanced airspace security capabilities at the Port of Pascagoula. During the incident, an unauthorized drone operated over the Bollinger Shipyard facility for several minutes before departing the area, prompting coordination with local law enforcement, the National Response Center, U.S. Coast Guard Sector Mobile, and multiple federal agencies.

The incident highlighted several critical vulnerabilities within the Port's existing security posture. Most notably, it demonstrated that unauthorized drone activity represented a legitimate and evolving operational threat capable of impacting critical infrastructure, maritime operations, and overall port security. It also revealed the limitations of relying solely on visual observation and reactive reporting methods to identify and assess aerial threats.

This event became the catalyst for the Port's decision to implement a dedicated drone detection capability. The implementation of AeroDefense AirWarden Essentials directly addressed these vulnerabilities by providing the Port with continuous, real-time airspace awareness and actionable intelligence regarding drone activity occurring within and around operational areas.

With AirWarden in place, security personnel now have the ability to:

- Detect unauthorized drone activity immediately
- Identify drone operators through Remote ID technology
- Track flight paths and operational behavior in real time
- Coordinate more effectively with responding agencies and security partners

This enhanced capability significantly improves the Port's preparedness and response effectiveness by reducing uncertainty, accelerating decision-making, and strengthening overall situational awareness during potential security events.

In addition, the implementation of AirWarden has strengthened the Port's ability to support investigative and intelligence-gathering efforts. Historical tracking and reporting capabilities enable personnel to identify recurring activity patterns, monitor operational trends, and provide documented information to partner agencies as needed.

Most importantly, the incident reinforced the importance of proactively addressing emerging threats before they escalate into larger operational or security concerns. Rather than waiting for future incidents, the Port took immediate action to close a critical security gap and establish a more comprehensive and resilient security posture.

Long-Term Security Benefits

Beyond immediate operational improvements, the implementation of AirWarden Essentials establishes a long-term framework for adapting to evolving drone threats, emerging technologies, and changing regulatory requirements within the maritime security environment.

As drone capabilities continue to advance and become more accessible, ports and critical infrastructure facilities face increasing pressure to enhance airspace awareness and response capabilities. The Port of Pascagoula's implementation of AirWarden positions the organization to remain proactive and adaptable in addressing these evolving challenges.

The system provides a scalable foundation for future growth and integration, allowing the Port to expand monitoring coverage, enhance operational procedures, and incorporate additional technologies as security needs evolve. This flexibility ensures that the Port can continue strengthening its layered security approach without requiring major infrastructure overhauls or significant additional investment.

The initiative also enhances the Port's overall resilience by supporting continuity of operations during potential security incidents. By maintaining real-time awareness of aerial activity and improving coordination with partner agencies, the Port is better equipped to respond to disruptive events while minimizing operational impact.

Additionally, the implementation of AirWarden reinforces a culture of proactive security and continuous improvement across the Port's operations. Security personnel now operate with increased awareness of aerial threats and maintain a higher level of readiness when responding to emerging risks.

The long-term value of this initiative extends beyond drone detection alone. It establishes the Port of Pascagoula as a forward-thinking maritime organization that recognizes the importance of integrating emerging technologies into modern security strategy. By proactively addressing a rapidly evolving threat landscape, the Port has strengthened its ability to protect personnel, infrastructure, cargo operations, and surrounding communities while providing a scalable model for other ports facing similar challenges.

Integration, Adaptability & Scalability

AirWarden Essentials has been fully integrated into the Port's operational framework, ensuring seamless alignment with existing security procedures and workflows.

The system supports daily monitoring operations and can be used during both routine security activities and elevated-threat conditions. This integration ensures that drone detection functions as a core component of the Port's overall security strategy.

The platform is highly adaptable and capable of supporting evolving operational needs. As drone technology and regulatory requirements continue to change, the system can be updated and expanded without requiring major infrastructure modifications.

Additionally, the platform's scalability allows the Port to expand monitoring coverage across additional facilities and operational areas as needed. This flexibility makes the solution sustainable for long-term use and replicable for other ports seeking to improve airspace security.

Stakeholder Engagement & Collaboration

The success of the AirWarden Essentials implementation is rooted in strong collaboration between the Port and its security partners.

Internally, security personnel were trained in system functionality, response procedures, and coordination protocols to ensure effective adoption and operational use.

Externally, the Port coordinated closely with local law enforcement, the U.S. Coast Guard, and federal agencies to support information sharing and response coordination. This collaborative approach strengthens regional security awareness and enhances the Port's ability to respond effectively to emerging threats.

The initiative has also increased awareness among tenants and stakeholders regarding drone-related risks and the importance of layered security practices within the maritime environment.

Conclusion

The implementation of the AeroDefense AirWarden Essentials system represents a critical advancement in the Port of Pascagoula's security capabilities.

By extending situational awareness into the air domain, the Port has strengthened its ability to detect and respond to emerging drone threats while enhancing overall operational resilience. The system provides real-time intelligence, improves coordination with partner agencies, and closes a previously unprotected security gap.

This initiative demonstrates how a small port can leverage innovative, scalable technology to address evolving security challenges in a practical, cost-effective manner. Through the successful integration of AirWarden Essentials, the Port of Pascagoula has established a proactive model for modern maritime security that can be replicated across the industry.

Beacon of Excellence Statement

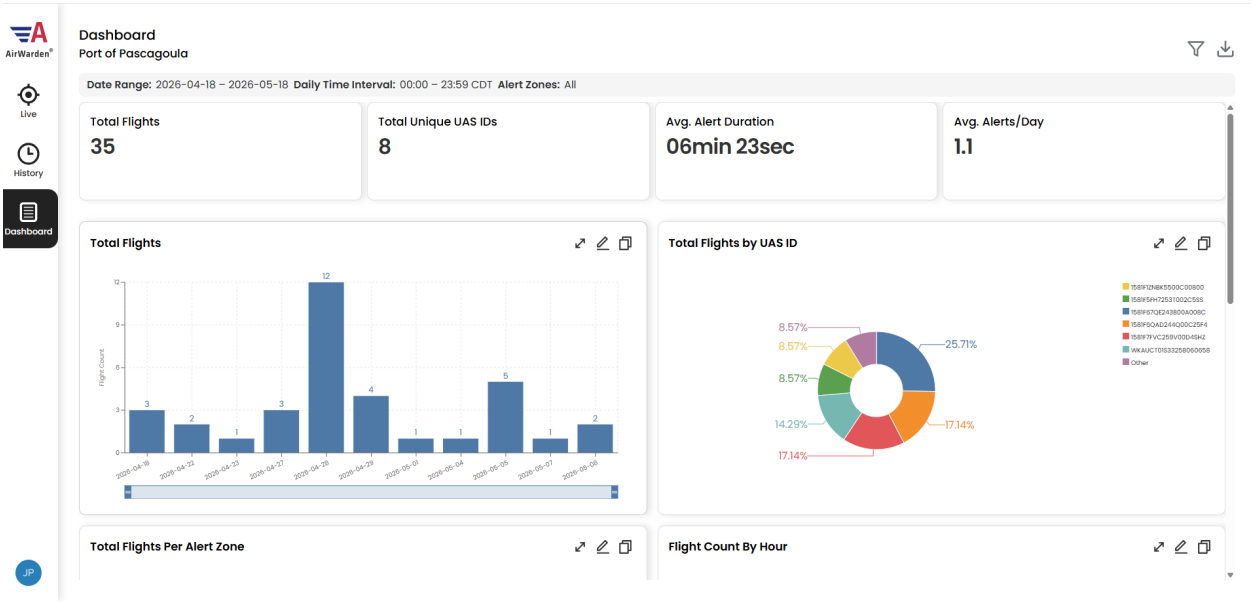
The Port of Pascagoula's "Eyes in the Sky" initiative demonstrates excellence in security practices by extending its protective capabilities into the previously unmonitored air domain. Through the implementation of the AeroDefense AirWarden Essentials system, the Port has enhanced its ability to detect, identify, and respond to emerging drone threats in real time, significantly improving situational awareness and operational security. By integrating advanced technology with established security procedures and multi-agency coordination, the Port has strengthened its overall resilience while addressing a critical and evolving risk. This initiative provides a practical, scalable model for ports seeking to enhance security through innovation and proactive threat detection.

PORT PASCAGOULA

Dashboard



History



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UAS / Drone Flight Request & FAA Compliance Authorization Form

Request Information

Request Date: _____
Requested By (Name/Organization): _____
Point of Contact: _____
Phone Number: _____
Email Address: _____

Date(s) of Operation

Start Date: _____
End Date: _____

Time of Operation

Start Time: _____
End Time: _____

Pilot Information

Remote Pilot in Command (RPIC): _____
FAA Remote Pilot Certificate Number: _____
Certificate Expiration Date: _____

Aircraft Information

Drone Manufacturer: _____
Model: _____
FAA Registration Number: _____
Remote ID Serial Number: _____
Flight Location: Physical Address/Coordinates:

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Approval Section

Operational Review

Reviewed By: _____
Title: _____

☐ Approved
☐ Approved with Restrictions
☐ Denied

Restrictions / Comments

_____

_____

_____

Approval Signature: _____

Date: _____

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