



White Paper

Event Security & Emergency Management

The Airborne Threat Screening Cannot See

FIFA Fan Festival™ 2026 | Philadelphia, PA
In Collaboration with Redrock Entertainment



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EXECUTIVE SUMMARY

Event security and emergency management providers compete on the same core offering: trained personnel, screening equipment, and coordination with local authorities. As venues, cities, and event organizers face rising expectations around large public gatherings, that offering is starting to look incomplete. Physical screening stops weapons at the gate. It does not detect an airborne chemical release, a toxic industrial leak, or a radiological source moving through a crowd — and it says nothing about the heat, smoke, and air-quality conditions that disrupt far more events than attacks ever do.

The 2026 FIFA World Cup™ made that gap visible at national scale. The federal government invested more than \$1.1 billion in tournament security through two new FEMA grant programs, designated all 78 U.S. matches as Special Event Assessment Rating (SEAR) 1 or 2 events, and established roughly 250 temporary flight restrictions over match venues, fan festivals, team hotels, and training sites. Almost none of that investment was directed at continuous airborne chemical or radiological monitoring in the fan zones — the open, high-density, publicly accessible spaces that security analysts repeatedly identified as the tournament’s softest targets.

From July 2–5, 2026, N5 Sensors deployed its chemical and radiological detection platform at the official FIFA Fan Festival™ in Philadelphia, working alongside Redrock Safety. The deployment window covered the single most concentrated four days of public gathering in the city’s modern history: a World Cup Round of 16 match, the culmination of Wawa Welcome America, the Semiquincentennial parade, the America250 time capsule ceremony, and the 250th anniversary of the Declaration of Independence — all in the city where it was signed, and all under a regional heat advisory.

This paper sets out the capability gap that deployment addressed and the business case for event security firms and emergency management agencies to add this layer to their own service offering — not as a replacement for what they already do, but as the capability that differentiates them, and as an asset that earns its keep on ordinary days as well as extraordinary ones.

575,304	~55,000	15,000	4 Days
Total attendance at FIFA Fan Festival™ Philadelphia across 39 days — second-highest of any U.S. host city	Largest single-day fan festival crowd recorded in any U.S. host city (June 19, 2026)	Instantaneous site capacity — a crowd turned over three to four times on peak days	Instantaneous site capacity — a crowd turned over three to four times on peak days



THE GAP STANDARD EVENT SECURITY DOESN'T COVER

Screening technology has advanced quickly. Event organizers now deploy AI-assisted threat detection, crowd analytics, biometric access control, and increasingly sophisticated counter-drone systems. But almost all of that investment is aimed at the same three categories of risk: weapons, unauthorized entry, and crowd behavior.

Airborne chemical and radiological hazards sit outside that investment pattern. They are invisible. They move with wind and airflow rather than through a checkpoint. They cannot be caught by a magnetometer, a bag search, or a camera. And unlike a weapon, they do not need to be brought through a gate at all — a release upwind of a perimeter reaches the crowd without ever entering the venue.

What the World Cup demonstrated

The 2026 tournament is the clearest available case study in how federal and private security investment is allocated at mass gatherings — and where it stops.

- **Matches were treated as nationally significant.** DHS designated all 78 U.S. matches as SEAR 1 or SEAR 2 events, a 240% increase in similarly rated events over an average year. The final at MetLife Stadium was designated a National Special Security Event — the highest federal tier.
- **Funding was historic, and narrowly channeled.** FEMA awarded \$625 million through the new FIFA World Cup Grant Program and \$250 million through the new Counter-UAS Grant Program. FEMA projected that roughly 94% of FWCGP funds would go to operational overtime.
- **Airspace received a dedicated program.** The FAA established nearly 250 temporary flight restrictions covering match venues, fan festivals, team hotels, and training sites. FBI and DHS seized more than 700 drones and mitigated close to 1,600 drone incidents across the 11 U.S. host cities.
- **The airborne chemical vector received no equivalent.** There was no dedicated federal grant line, no standing detection architecture, and no national program comparable to counter-UAS aimed at continuous chemical or radiological monitoring in fan zones.

The asymmetry is the point. Roughly half a billion dollars was mobilized in under a year to detect and mitigate objects moving through the air above fan festivals. The hazards moving through the air within them were left to whatever each host city and private security provider chose to bring on its own.

Where the analysts pointed

This was not an unrecognized risk. In a May 2026 brief, the Center for Strategic and International Studies assessed that fan zones would draw large crowds "often with looser security than the stadiums themselves," and noted that this profile of high-density, lightly secured space is precisely what attracts attackers. CSIS also observed that fan zones concentrate supporters of particular nations in one place, raising the risk of grievance-directed attacks. Notably, San Francisco and New Jersey canceled planned outdoor fan festivals — reportedly in significant part because of security costs.

Federal agencies reached the same conclusion. Earlier in 2026, the Joint Counterterrorism Assessment Team — a collaboration of the National Counterterrorism Center, FBI, DHS, and state and local personnel — published four unclassified intelligence products for the tournament, one of which addressed fan-zone security specifically. CBRN analysts writing for the specialist press characterized the chemical threat at fan zones as situational rather than abstract: low-tech dissemination of toxic industrial chemicals or irritants in open-air fan zones, transit corridors, and HVAC-adjacent spaces, often aimed at panic and disruption rather than mass casualties.

Why federal capability does not close the gap

Federal CBRN detection at mass gatherings is real, but it is a surge capability, not a standing one. DHS's Mobile Detection Deployment Program conducted 132 operations across 43 states and territories in calendar year 2025 — a meaningful figure, and a small one relative to the number of mass gatherings held in the United States in a year. The Securing the Cities program provides equipment, training, and planning support to 14 designated high-risk urban areas, and is focused on radiological and nuclear detection rather than chemical. Federal detection assets go to the highest-tier events on the calendar; the thousands of festivals, marathons, conventions, civic celebrations, and regular-season games below that tier are on their own.

That structural picture tightened further in 2026. The FY 2026 budget request transferred DHS's Countering Weapons of Mass Destruction Office functions to other components, and a 76-day DHS funding lapse in spring 2026 delayed host-city grant funding, with CISA losing roughly a third of its staff and TSA nearly 8% of its workforce during the shutdown. Whatever the long-term merits of that reorganization, the near-term operational consequence for event organizers is the same: less federal margin, and more of the burden falling on state, local, and private partners.

The result: the venues and events most security firms are contracted to protect are also the ones least likely to have any dedicated chemical or radiological monitoring in place today.

PROOF IN THE FIELD: FIFA FAN FESTIVAL, PHILADELPHIA



N5 chemical/radiological sensor on-site at the FIFA Fan Festival grounds, Philadelphia.



Sensor deployed alongside security presence.

Philadelphia's FIFA Fan Festival™ was the longest-running fan zone in the United States: free, open to the public, and operating every one of the tournament's 39 days at Lemon Hill in East Fairmount Park, from June 11 through July 19, 2026. Entry was managed through advance online registration with a secured entry point at Kelly and Sedgley Drives, where all guests passed through magnetometers and bag checks.

The site drew 575,304 visitors across the tournament — the second-highest total of any U.S. host city — and set the record for the largest single-day fan festival crowd in the country, with nearly 55,000 attendees on June 19 for Brazil–Haiti. Site capacity was managed at roughly 15,000 at any one time, meaning peak days turned the crowd over three to four times. The perimeter had strong physical screening. It had no dedicated airborne hazard monitoring of its own.

The July 2–5 window

N5 Sensors deployed from July 2 through July 5, 2026 — deliberately, into the most demanding four-day window on the city's calendar. Converging in the same footprint:

- The FIFA World Cup Round of 16 match at Philadelphia Stadium (Lincoln Financial Field) on Saturday, July 4, kicking off at 5:00 p.m.

- The 250th anniversary of the signing of the Declaration of Independence, observed in the city where it was signed, with Philadelphia serving as the national focal point for America250.
- The Salute to Independence Semiquincentennial Parade on July 3, billed by organizers as the largest professionally produced Semiquincentennial parade in the country.
- The America250 time capsule burial ceremony at Independence National Historical Park.
- The culmination of the Wawa Welcome America festival, with a Benjamin Franklin Parkway concert and fireworks over the Philadelphia Museum of Art.
- A regional heat wave, on the back of a tournament in which severe thunderstorms, damaging winds, and tornado warnings had already forced the Fan Festival to close early or entirely on multiple occasions.

City hotel occupancy reached 90% over that weekend. Local reporting described it as potentially one of the largest weekends in Philadelphia's history.

What was deployed

N5 added a layer of environmental intelligence on top of the existing security posture: continuous ambient chemical and radiological sensing across the festival grounds, with crowd-level wind, temperature, and humidity data feeding live into the N5 Dashboard for the on-site safety team. The deployment ran alongside — and changed no part of — the security plan Redrock Safety already had in place.

The operational significance of crowd-level meteorology is easy to underestimate. Regional weather feeds can show one wind direction while the crowd area experiences another, because venue geometry, stage structures, barriers, and terrain reshape local airflow. If a release occurs near a stage, a regional feed may suggest a plume is moving toward an open perimeter while on-site data shows it pushing toward a credential tent, a VIP area, or a crowd path. That difference determines whether the right call is evacuation, shelter-in-place, or a targeted sweep.

The pattern across two deployments

Philadelphia was the second live-event validation of this model. In April 2026, at the invitation of Redrock Entertainment, N5 deployed five fixed ChemNode™ units at the Sick New World Festival in Las Vegas across entry, perimeter, and crowd-adjacent zones. That deployment stood up in approximately 45 minutes, maintained stable connectivity through an RF-dense live-event environment, supported a controlled handheld detection and Chemical ID demonstration, and decommissioned in roughly 30 minutes.

“The Sick New World deployment demonstrated how fixed sensing, handheld confirmation, and command-room visibility can support faster, more informed event safety decisions. Having this vital information readily available to the event commander improves situational awareness and allows for well-informed tactical decision-making.”

— Bryan Frieders, Director of Safety, Redrock Safety

Taken together, the two deployments establish what event security buyers actually need to know before they will procure a capability: that it can be stood up quickly at a live public event, run reliably alongside existing security infrastructure without disrupting it, operate for multiple consecutive days at a high-attendance venue, and be removed cleanly afterward.

WHY THIS BECOMES YOUR DIFFERENTIATOR

For event security companies and emergency management agencies, adding a chemical and radiological intelligence layer is not just a technology upgrade. It changes how the business competes and what it can credibly offer clients.

For event security firms

- A distinct capability that most competitors bidding on the same contracts do not offer — and one that is difficult to claim credibly without a documented field deployment behind it.
- Positioning to win larger, higher-profile events — championships, festivals, conventions, government and dignitary events — where clients increasingly ask about CBRN awareness, not just guard counts.
- A concrete answer to RFP language that is beginning to reference chemical, radiological, or “CBRN-aware” preparedness, particularly around the 2026–2028 slate of sporting and civic mega-events.
- A demonstrable line item to present to clients, brokers, and insurers as part of a documented layered security plan.

For emergency management agencies

- Situational awareness that extends beyond radios, cameras, and foot patrols — a live, centralized view of airborne hazard and micro-meteorological conditions across a venue or district.
- Faster, better-informed decisions during an incident, without adding headcount or restructuring existing command protocols.
- A capability that integrates into, rather than competes with, existing emergency operations centers and ICS/NIMS incident command structures.

- Logged readings, alerts, and timestamps that support after-action review, AHJ reporting, and the documentation trail that follows any significant event.

For both

N5’s managed deployment model means neither an event security firm nor an emergency management agency needs in-house chemical or radiological expertise to offer this capability. N5 provides the hardware, the edge and cloud analytics, the dashboard, and the deployment support. The partner organization presents the finished capability as part of its own offering.

Capability	Standard Event Security	With N5's Public Safety Layer
Weapons & prohibited items	Magnetometers, bag checks	Unchanged — layer adds to this, doesn't replace it
Airborne chemical hazards	Typically no dedicated monitoring	Continuous ambient detection with real time AI-enabled alerting
Radiological awareness	Typically no dedicated monitoring	Fixed and wearable radiological sensing
Micro-meteorology	Regional weather feed	Crowd-level wind, temperature, and humidity at the sensor
Situational visibility	Radios, cameras, foot patrols	Adds a live cloud dashboard with wind-aware hazard context
After-action record	Incident logs and narrative	Time-stamped environmental data supporting AHJ and insurer review
Client-facing differentiation	Comparable to other providers	A high-value, demonstrable intelligence capability competitors may not offer

THE EVERYDAY CASE: VALUE BETWEEN INCIDENTS

The strongest objection to any detection capability is utilization. A chemical attack at a fan festival is a low-probability event, and buyers are reasonably skeptical of paying for a system that may never alarm. That objection is answerable — but only if the capability is scoped honestly.

The same sensor package that watches for a chemical release also measures particulate matter, crowd-level wind, temperature, and humidity, continuously, at the point where the crowd actually stands. Those are not incidental readings. They are the inputs to the decisions event operators make most often:

- **Heat.** Heat illness is the most common medical driver at large outdoor summer events. Philadelphia stood up hospitality hubs with shade and water along the walking routes to the Fan Festival and ran a public heat-health guidance channel throughout the tournament. Sensor-

level temperature and humidity at multiple points across a site give medical and operations leads a far better picture than a single airport reading miles away.

- **Smoke and air quality.** Pyrotechnics, food-vendor operations, nearby fires, and regional wildfire smoke all change crowd-level air quality. Particulate data supports decisions about vulnerable attendees, staff rotation, and public messaging.
- **Severe weather.** Philadelphia’s Fan Festival closed early or entirely on multiple occasions during the tournament because of thunderstorms, damaging winds, and tornado warnings. On-site wind data complements regional warnings with what is happening at the venue right now.
- **Odor and exposure complaints.** Every large venue fields them. Without instrumentation, each one is a judgment call that consumes staff time and carries liability. With it, a complaint can be validated or cleared in minutes.

Reframe the purchase. This is not an insurance policy that sits idle waiting for a rare attack. It is a daily operational instrument that also happens to detect the rare attack. That distinction is what moves a chemical detection layer from the "nice to have" column into the operating budget.

HOW THE LAYER WORKS

N5’s platform is built on a single semiconductor-grade sensing core — the patented Semiconductor Photocatalytic Hybrid (SPH™) array, developed from University of Maryland research and supported by DHS Science and Technology Directorate and Department of Defense SBIR investment. The array generates a chemical fingerprint across a broad range of hazards; edge AI classifies chemical events on-device in real time; alerts and analytics stream to the N5 Dashboard. Detection coverage expands through over-the-air updates without hardware changes, and the sensing core requires no field calibration.

One core supports three purpose-built platforms:

Platform	Form Factor	Role at a Live Event
ChemNode™	Fixed / portable node	Continuous site-wide chemical, particulate, and radiological monitoring with integrated crowd-level wind, temperature, and humidity. Solar-rechargeable; operates up to five days without sun. BLE, GPS, and LTE-M / NB-IoT connectivity.
ChemBadge™ MX	Handheld / wearable	Mobile confirmation and targeted sweeps. 1.1 lb, 25-ft drop tested, AA-powered with up to 12 hours of operation, BLE and USB/Ethernet.
ChemShield	Rapidly deployable mesh	Solar-powered mesh network for fast-standing coverage where fixed infrastructure is unavailable.

N5 Dashboard	Cloud platform	Aggregates all platforms into one operating picture; AI-assisted analysis, alert routing via SMS, email, and API; API-first design for integration into existing command systems.
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Together, these components support faster awareness of airborne hazards and provide an additional detection layer for teams already running physical security, video surveillance, and crowd management. N5 is positioned as a supplemental intelligence layer — it strengthens an existing safety program rather than replacing any part of it.

FUNDING AND PROCUREMENT PATHWAYS

For public-sector partners in particular, the practical question is not whether the capability is valuable but how it gets paid for. Several pathways are available, and partners should scope them early — grant cycles, not procurement cycles, tend to be the binding constraint.

Pathway	Relevance
Homeland Security Grant Program (UASI / SHSP)	The recurring backbone for state and local preparedness investment. CBRNE detection equipment is a long-established allowable category; alignment with the FEMA Authorized Equipment List should be confirmed for any specific configuration, with advance FEMA approval sought where an item is not listed.
Securing the Cities (STC)	Provides equipment, training, and planning support in 14 designated high-risk urban areas. Radiological/nuclear focused, and a natural coordination point for partners already inside an STC region.
Event-specific appropriations	The FIFA World Cup Grant Program (\$625M) and Counter-UAS Grant Program (\$500M across FY26–FY27) demonstrate that Congress will stand up dedicated funding lines for named mega-events. The 2028 Olympic and Paralympic Games and continuing America250 programming are the obvious next candidates.
DHS SAFETY Act	Designation or certification of qualified anti-terrorism technologies can provide liability protections that materially improve procurement confidence for both the seller and the deploying partner. Worth evaluating early in any partnership.
Commercial and insurance-driven	Venue operators, promoters, and their insurers increasingly treat documented detection capability as a risk-management asset. For private events, this is often the faster path than any grant.

THE 2026 – 2028 PIPELINE

The World Cup was not a one-off. It was the opening of a multi-year run of U.S.-hosted mass gatherings that Congress is already treating as a distinct oversight category — the House Committee on Homeland Security established a Task Force on Enhancing Security for Special Events in the United States in May 2025 specifically to oversee this slate.

- America250 programming continues across all fifty states through 2026 and into 2027, with sustained public celebrations well beyond the July 4 peak.
- The 2028 Olympic and Paralympic Games in Los Angeles, where World Cup operations at SoFi Stadium were openly described by officials as a dress rehearsal.
- The 2034 Winter Games in Salt Lake City, for which the architecture being built now will be the foundation.
- The ordinary annual calendar underneath all of it: NFL, NBA, NHL, MLB and MLS seasons, college football, motorsports, marathons, conventions, state fairs, and civic celebrations — the events where most security firms operate, and where federal detection assets do not go.

Buyers in this market are making decisions now about what their 2027 and 2028 offerings will include. The organizations that can point to a documented multi-day deployment at a national-profile public event will be having a different conversation than those that cannot.

WHAT PARTNERING WITH N5 LOOKS LIKE

N5 works with event security firms, emergency management agencies, venue operators, and government partners to scope a deployment around the specific event or facility — fan zones, stadiums, transit hubs, critical infrastructure sites, and other high-traffic public or industrial locations. Engagements typically include:

- **Site assessment.** Walkthrough, risk profile review, coverage zones, sensor count, wind exposure, AHJ coordination needs, and command-room integration requirements.
- **Pre-event planning.** Final placement, alert thresholds and protocols, escalation procedures, and stakeholder coordination with fire marshal, emergency management, and public safety leads.
- **Deployment and monitoring.** Network stood up and validated ahead of the event window; monitored throughout, with on-site or remote managed support so the partner's team can operate the system without prior CBRN detection experience.
- **Decommission and reporting.** Clean removal, data preservation, and a post-event operational report suitable for after-action review and client delivery.

Three ways to start: a no-obligation site assessment and event profile review; a managed pilot deployment at your next event with a post-event report; or an emergency management integration review covering ICS/NIMS alignment, AHJ coordination, and interoperability options.

CONCLUSION

Event security and emergency management providers are judged on the same visible measures — screening, staffing, and coordination — while the hazards their clients are most concerned about are increasingly the ones that never reach a checkpoint. The 2026 World Cup showed both how much capability the United States can mobilize for a named mega-event and how narrowly that capability is scoped: a billion dollars for overtime, screening, and airspace, and no comparable program for the air the crowd is breathing.

Adding chemical and radiological intelligence is how these organizations close that gap for their clients and separate themselves from every competitor still offering the same guard-and-magnetometer package. N5 Sensors' deployment at the FIFA Fan Festival™ in Philadelphia shows what that layer looks like in practice: a real, multi-day public event at the convergence of a World Cup knockout match and the nation's 250th birthday, an existing security team, and an added layer of airborne hazard awareness running quietly alongside it.

N5 Sensors is not a replacement for the security and emergency management work event providers already do well. It is the layer that helps them do more of it, for a wider range of clients, at a higher level of readiness.

FOR FURTHER INFORMATION

To learn more about the technologies and capabilities presented in this white paper, or to explore deployment opportunities, operational applications, and strategic partnerships, please contact our teams.



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