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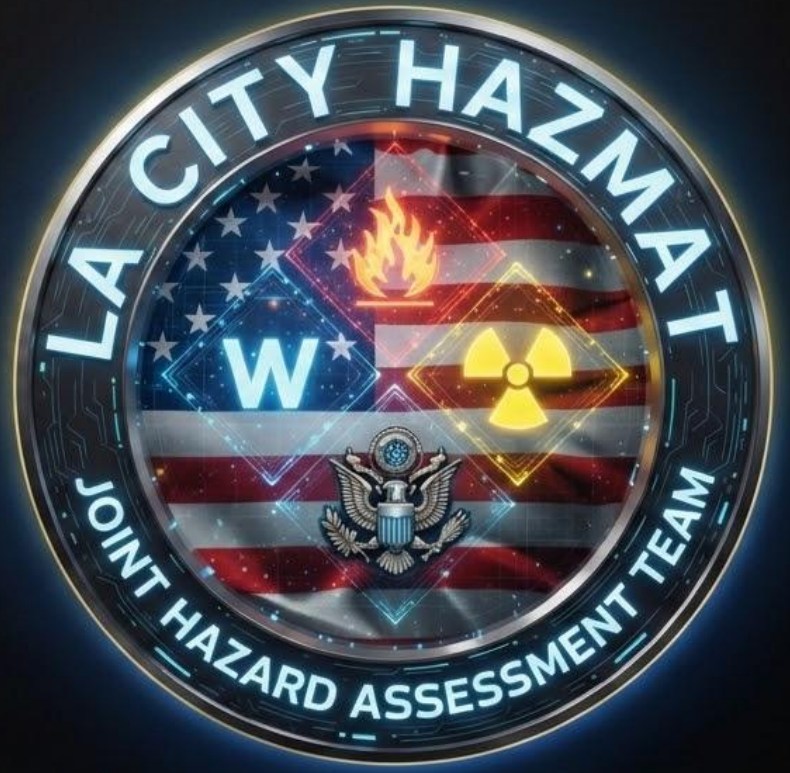
LAFD Hazardous Materials Response System

Regional Capability, Industrial Risk, and Emerging Threat Preparedness

Los Angeles Fire Department | HazMat / JHAT / UAS Programs



⚠ REGIONAL WARNING

The Garden Grove Incident: A Wake-Up Call for the Region

What This Incident Revealed

→ Increasing Frequency

Alternative Fuels and industrial hazmat incidents are growing in scale and complexity across California.

→ Complex Fire Behavior

Thermal runaway and toxic off-gassing challenge traditional fire suppression models and require specialized intervention.

→ Extended Operations

Long-duration operational periods spanning 12–48+ hours demand sustained resource deployment and unified command.

→ Public Health Impact

Environmental contamination and airborne toxins create cascading public health emergencies beyond the immediate incident perimeter.

"An incident of this nature within Wilmington, Harbor Gateway, or the Port of Los Angeles would require a large-scale, multi-agency hazardous materials response — one that only LAFD and its regional partners are positioned to deliver."

OPERATIONAL RESPONSE ARCHITECTURE

Large-Scale Industrial HazMat Response: What LAFD Deploys

Initial Response

- Engine Companies
- Truck Companies
- Battalion Command
- EMS Resources
- HazMat Squad

Escalated Response

- HazMat Task Force
- JHAT Deployment
- UAS Overwatch
- Air Monitoring Ops
- LE Coordination
- Public Health Notifications

Extended Operations

- Unified Command
- EPA / Cal OES
- CUPA Oversight
- Port Police
- Environmental Agencies
- Private Industry Specialists

Operations may extend **12–48+ hours** depending on product involvement, weather conditions, and ongoing exposure concerns. Sustained command and logistics are essential.

NATIONAL LEADERSHIP

Nationally Recognized HazMat Capability

Type I HazMat Response System

The highest classification of hazardous materials response capability — representing the most sophisticated resources and expertise.

24/7 Citywide Coverage

Four strategically positioned task forces provide continuous response across the City of Los Angeles at all times.

National HazMat Leadership

LAFD is a national leader in alternative fuels and hazardous materials response doctrine and training.

Integrated Federal Partnerships

Coordinated relationships with EPA, DOT, and Cal OES ensure seamless multi-agency operations.

2,400+
Annual Responses

4
HazMat Task Forces

48+
Regional Training

200+
Specialized Units

STRATEGIC POSITIONING

Hazardous Materials Task Force Network

FS 21 — Central Bureau

- Downtown LA
- Rail Corridors
- Civic Center
- High-Rise District

FS 48 — Port of LA

- Wilmington, Refineries, Maritime
- Shipping, Container, Container Terminals

FS 87 — SF Valley

- Industrial Manufacturing, Energy
- Infrastructure, Transportation
- Transportation
- Corridors

FS 95 — LAX Airport

- Aviation Incidents,
- Cargo Operations,
- Fuel Systems,
- International Hazards

Each task force is positioned to provide **rapid deployment** along critical industrial corridors, transportation infrastructure, and high-consequence facilities.

TASK FORCE SPOTLIGHT

FS 48 — Port HazMat Task Force: The Nation's Highest-Risk Industrial Corridor

Lithium-Ion Cargo Fires

Escalating volume of battery shipments through the port creates a high-consequence fire risk in densely stacked container environments.

Alternative Fuel Transport

Hydrogen and compressed natural gas shipments require specialized monitoring, containment, and emergency protocols.

Bulk HazMat Storage

Large-volume chemical storage near populated residential communities in Wilmington and San Pedro amplifies consequence severity.

Coverage Area: Port of LA, Refineries, Maritime Shipping & Industrial Corridors.

Specialized risk factors managed by **Type I HazMat** capabilities.

TASK FORCE SPOTLIGHT

FS 21 — Central Bureau: High-Density Urban Operations

High-Rise Incident Support

Advanced technical reference and operational support for hazardous materials incidents in dense vertical environments.

Chemical Monitoring

Provides sophisticated real-time chemical detection and atmospheric monitoring for large-scale public events and urban centers.

Technical Reference

Serves as a specialized hub for technical hazardous materials data during complex high-density urban emergencies.

Primary Jurisdiction: Downtown LA, Civic Center, and major metropolitan rail corridors.

Covers high-consequence **high-density** urban incidents.

TASK FORCE SPOTLIGHT

FS 87 — Valley: Regional Deployment & Industrial Support

Industrial Base Support

Directly serves the San Fernando Valley's massive industrial manufacturing base and critical energy infrastructure.

Corridor Response

Secures major transportation corridors, managing high-volume HazMat transit across the geographic span of the Valley.

Regional Deployment

Provides large geographic coverage and essential regional deployment capabilities for neighboring jurisdictions.

Operational Scope: Industrial manufacturing, energy infrastructure, and regional highway corridors.

Optimized for **large-scale geographic** industrial response.

TASK FORCE SPOTLIGHT

FS 95 — LAX Airport: International Aviation Response

Aviation Incident Support

Specialized response for aircraft cargo emergencies and fuel system failures within the complex airport environment.

Risk Mitigation

Addressing the growing risk associated with aviation lithium battery shipments inl transportation and unknown odors, or fuel spills.

Strategic International Positioning

Handles international transportation hazards of the highest consequence at one of the world's busiest logistics hubs.

Operational Focus: Aviation incidents, aircraft cargo emergencies, and high-consequence transport hazards.

Securing **global logistics** and critical aviation infrastructure.

JHAT PROGRAM

Joint Hazard Assessment Team: Regional Technical Partnership

The **Joint Hazard Assessment Team (JHAT)** represents one of LAFD's most powerful force-multiplication capabilities — a formal partnership with Cal OES that brings multi-disciplinary technical specialists to bear on complex hazardous materials incidents.

"JHAT provides specialized technical capability that extends well beyond traditional fire suppression operations — delivering scientific expertise and precision to the most complex incidents LAFD faces."

Advanced Chemical Monitoring Equipment

Latest advanced atmospheric monitoring and chemical detection equipment.

Regional and State Partnerships

JHAT maintains crucial partnerships with multiple assisting agencies and industrial experts.

Subject Matter Expertise

Cutting-edge technical knowledge for hazardous materials emergencies.

Robotic Integration

Remote sensing and drone-based and robotic-based hazard reconnaissance.

Regional Deployment: JHAT assets are available for deployment across Los Angeles County and can support mutual aid requests statewide.

TECHNOLOGY INTEGRATION

UAS and Technology-Driven Incident Management

Situational Awareness

UAS platforms provide real-time aerial reconnaissance, giving incident commanders a live operational picture of evolving hazmat scenes without exposing personnel.

Thermal Mapping

Thermal imaging capabilities identify hotspots, product involvement, and structural risks from safe standoff distances.

Remote Atmospheric Monitoring

Drone-mounted sensors collect air quality and chemical concentration data in hazardous zones — protecting personnel while informing protective action decisions.

Drone as First Responder (DFR)

Future integration of autonomous DFR capability will enable pre-arrival aerial reconnaissance, dramatically accelerating initial hazard assessment.

EMERGING THREATS

The Evolving Hazard Landscape Facing Los Angeles

Lithium-Ion ESS

Grid-scale energy storage systems are proliferating across LA — each representing a potential large-scale thermal runaway event.

EV Infrastructure

Rapid EV adoption and charging infrastructure expansion create new fire and hazmat risks in residential, commercial, and parking environments.

Hydrogen Systems

Hydrogen fueling stations and transportation corridors introduce high-pressure, high-consequence risks requiring specialized response protocols.

Rail Transportation

High-volume hazardous materials movement through LA rail corridors — including through dense urban areas — creates significant incident potential.

Battery Recycling

Emerging battery recycling facilities introduce complex chemical hazards and fire risks in industrial and mixed-use zones.

Port Cargo Risks

Expanding cargo volume through the Port of Los Angeles continues to increase the probability of a large-scale maritime hazmat event.

"Technology advancement is rapidly changing the hazardous materials risk profile within Los Angeles — demanding continuous investment in specialized capability."

OPERATIONAL READINESS

Regional Training and Operational Readiness Program

Training Disciplines

01
Lithium-Ion Battery Response

02
Alternative Fuel Systems

03
Industrial Chemical Emergencies

04
Rail Transportation Incidents

05
Radiation Detection & Response

06
Confined Space Hazards

07
Large Scale Event Standbys

How LAFD Maintains the Edge

Multi-Agency Coordination

Joint exercises with LAPD, LA County Fire, EPA, and Cal OES build interoperability before incidents demand it.

Regional Exercises

Large-scale functional drills simulate real-world industrial and port scenarios with full resource deployment.

National Conference Participation

LAFD personnel lead and attend national hazmat conferences, maintaining awareness of evolving doctrine and technology.

Operational Doctrine Development

LAFD actively contributes to state and national hazmat response standards and best practices.

THE CASE FOR INVESTMENT

Preparedness Requires Sustained Capability

Protecting Critical Infrastructure

The Port of Los Angeles, LAX, and major industrial corridors represent irreplaceable economic and logistical assets.

Maintaining Specialized Expertise

HazMat technician proficiency demands continuous training. Capability gaps create risks that cannot be rapidly reversed.

Preparing for Emerging Threats

The hazard landscape is evolving fast — sustained investment in specialized programs is the only credible response.

Strengthening Regional Coordination

LAFD's program anchors the regional network. Degrading this capability affects all of Southern California.

"Complex hazardous materials incidents require specialized personnel, advanced technology, and sustained regional coordination.

This is not a capability that can be improvised in the moment — it must be built, maintained, and continuously improved."

Questions & Discussion

Los Angeles Fire Department — Hazardous Materials Program

HazMat | JHAT | UAS Programs

Protecting Los Angeles Through Specialized Response, Regional Coordination, and Operational Readiness

FINAL SESSION