



Monitoring for chemical, biological, radiological and nuclear threats

3D interactive planning, reporting, remediation and simulation solution

Chemical, biological, radiological and nuclear (CBRN) threats create serious and unique challenges for governments and industry. Whether combating terrorism or responding to hazardous materials incidents, organizations need early threat detection, early warnings and effective monitoring of CBRN releases.

Visualizing CBRN events

Hexagon's CBRN solution brings together real-time and historical data from multiple sources into a 3D common operational picture (COP) to better understand risks. It provides a powerful platform to visualize threats, plan for and simulate scenarios, predict outcomes and make more informed decisions to ultimately save lives.

Multiple sources of data, including maps, wearables, environmental sensors and live weather feeds are shared in a browser-based, real-time interactive 3D COP of a CBRN event. The data is tightly integrated with a state-of-the-art data analytics engine for advanced rapid detection and early warning of threats, predictions of threat evolution and, ultimately, more effective monitoring, response, mitigation and management of CBRN release events.



This example is similar to a CBRN plume release of mustard gas or smoke from a fire in an urban environment. This models the dispersion of the smoke over time and indicates the density of the gas at elevation and on the ground.

Planning

Sensor placement is critical. Hexagon uses AI and machine learning (ML) capabilities from Larus Technologies to determine optimal location, coverage, overlap and integration of static and mobile sensors

based on their characteristics in a 3D environment. This environment is created by overlaying real-time data sources with many geospatial data sources, including:

- Satellite imagery
- Elevation data
- Sensor characteristics
- LiDAR data
- Raster and vector data
- SAR data

Early warning and reporting

The speed and accuracy of reporting is key to mitigating CBRN threats. Hexagon leverages an integrated, CBRN solution to:

- Determine the initial area of detection and dispersion
- Identify the area of contamination and population immediately affected
- Quickly provide that information so alerts may be sent to those in initial contamination areas

Responding and monitoring

Following the initial threat, it is critical to determine future areas that will be affected. Hexagon uses the CBRN solution, advanced analytics and integrated predictive plume cloud modelling analytics from Lakes Environmental to identify the geography and population

to be impacted. Potential spread by affected population is also monitored using key data sources to determine contaminated population movement, including:

- Weather
- Transportation hub locations
- Hospitals and first responders
- Real-time transportation network information

Remediation and management

The CBRN solution provides:

- Real-time view of chemical dispersion
- Remediation activities within the affected area
- Regional and municipal data tracking of infected people within hospitals and other facilities

Training and simulation

For training and planning purposes, operators can simulate real-time incidents. These simulations can use real scenarios from historical incidents to train operators for future responses. The CBRN solution helps organizations and governments perform the following:

- Optimize sensor distribution
- Create emergency response plans
- Simulate evacuation plans

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Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications. Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government.