



AES 18 Detection Identification and Monitoring Vehicles for the Communities and Local Government have entered service

Vehicles & Vehicle Equipment

AES DIM vehicles enter service

The Office of the Deputy Prime Minister (now Communities and Local Government (CLG)) awarded AES with the prestigious Detection Investigation and Monitoring (DIM) contract for 18 vehicles to be supplied to the greater fire and rescue service. Subsequent orders have been received from Wales and Northern Ireland. The value of the contract exceeded £2m and is part of the New Dimension Project, established and funded by central government to provide a national response to a disaster.

Feature



DIM equipment can be used to enhance the present FPS capability to detect, identify and monitor hazards and also to identify substances at CBRN or HazMat incidents.

Based on the Iveco Daily 50 C 17 5.2 extra high roof van platform the DIM vehicle enables the Detection, Identification and Monitoring Advisor to transport the suite of DIM equipment provided by the CLG to an emergency and carry out a detailed analysis of an unidentified substance in a suitable environment.

The primary functions of the DIM equipment are to enhance the present FPS capability to detect, identify and monitor hazards and also to identify substances at Chemical Biological Radiological Nuclear (CBRN) or hazardous materials (HazMat) incidents.

Detection and identification of hazardous substances

Timely, well organised detection and identification of hazardous substances at the scene of a CBRN or Haz Mat incident will not only assist in identifying appropriate containment of the incident and determine the necessary sub-systems of work (including the required levels of personal protection) but, inevitably, reduce the numbers of the public, emergency responders and the environment. It can also significantly reduce the time taken to successfully resolve such an incident thus mitigating societal and economic impacts and assist in re-establishing or maintaining business continuity.

Requirements

The vehicle layout was determined by the equipment carried. The driver's cab was fitted out with specialist and military communication systems as well as navigation systems to facilitate deployment. The control or laboratory area carried specially mounted analysis equipment in a climatically controlled environment, multiple battery packs and the IT infrastructure.

301 Jaws were provided a slide and seat, seating which permits work to start as soon as the vehicle leaves its cradle of operation. Power is supplied to the vehicle from both on board DC and AC sources managed by

a programmable logic controlled electrical system.

The rear equipment, predominantly consisting of personal decontamination systems, lighting and generator equipment, is moved in a custom designed carriage system allowing rapid deployment from the vehicle using a Heavy Hydraulics Step Lift.

The customer specification required full analysis and development through 3D graphical modelling, stress analysis and prototyping.

The significant risk identified early in the process was the human factors element due to the operational environment and physical properties of the personal decontamination equipment being deployed.



The DIM vehicle is based on the Iveco Daily 50 C 17 5.2 extra high roof van platform.

Special developments

With a crew of four riding and a significant equipment installation, weight was a key issue. AES's associated fabrication business AJES developed a new lightweight structure for this project which, using in house laser cutting equipment, allowed them to manufacture the furniture for the laboratory area in a consistent and prefabricated way, reducing weight and speeding up the production process.

A formal process of user trials based on the prototype vehicle identified the steps taken by the users in completing their assignment; these individual tasks were assessed to identify hazards. Having established these

protocols the risks were assessed and engineering solutions developed to mitigate them. Where it was not possible to design them out risks are controlled through procedures identified in the vehicle operator's manual and training needs analysis.

The vehicles, once finished, are sent to strategic FPS locations to guarantee quick deployment, ensuring the best possible response and intervention to the UK's major centres of population.

To provide the capability required, it was paramount to design suitable vehicles able to deploy at an appropriate and speed to satisfy the required incident attendance timescales. The vehicles had to be ergonomically designed and with a drivability focus to minimise the fatigue to the driver / operator. The vehicles also provide navigational information.

The design of the vehicles had to guarantee sufficient storage capacity for the equipment and facilities required to carry out the detection, identification, monitoring analysis. The equipment had to be stored securely and in a totally self sufficient and therefore the vehicle needed to provide storage facilities for respiratory and other prescribed personal protective equipment.

The vehicles provide sufficient IT provision to enable the DIM to analyse their findings and to send the results for further classification from an international company when appropriate.

Communication

The CLG was able to offer to provide an end to end communication system managed service, from design through to operational support. The department wanted a full project management service including design, quality and supply chain management integration as well as post production engineering services. The CLG, by working with AES, has also the advantage of a full offer mobile data system installation and integration with back office IT systems and wireless applications.

The Intelligent IDR from M-Flow

The CLG has procured, as part of the contract, a full M-Flow back office system receiving vehicle management and location information from the M-Flow FMS 306 data recorder. With this system the users can track and analyse the health of the vehicle continuously working to improve its use, availability and cost.

AES, strong of its past experience, and following the successful achievements of the DIM contract, has a promising 2007 ahead, working with new projects and contracts for the emergency services and the Government and government partners. The DIM contract has confirmed the ability of AES to work as a prime contractor direct for government, agencies and authorities. The company has now provided all New Dimension communication, electrical integration and IT systems and continues to work with its partners supporting these systems throughout the British Isles.

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