

Equipment Available

The Group first analyzed accident scenarios and the experience feedback from nuclear operators, then created an intervention reference system as well as a list of the human and material means necessary to carry out the various missions.

A corresponding stock of equipment was designed, including :

- Indoor robotic vehicles, capable of entering buildings and intervening inside,
- Outdoor vehicles for visual reconnaissance, environmental characterization and interventions outside the damaged unit,
- Remote-controlled civil engineering machines : a bulldozer, a digger and a dump-truck with a shielded control station that protects the operators from radiological risks,
- Aerial devices including a system for measuring radiation with Gamma-ray spectrometry attached beneath a helicopter (HELINUC) and drones that can make observations and take radiological measurements,
- A radiation monitoring system using gamma-ray probes which transmit data back to the control station,
- A stock of materials for logistical needs (electric generators, fuel, workshop, and other logistical supplies) to keep the INTRA Group mission control running,
- Communication equipment for transmitting information, measurements and videos to the nuclear operators' emergency organisations and to the IRSN (Institute of Radioprotection and Nuclear Safety).

Personnel

To implement the specialized equipment, employees from the three companies are separated into two groups :

- A permanent team of 20 employees from the three companies (EDF, CEA and AREVA), appointed to the INTRA Group and working at the Chinon site,
- A second team of about 25 employees, working on the various nuclear sites who are regularly trained in controlling the machines and prepared to be mobilized in case of a nuclear accident.



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In the aftermath of the nuclear accident in Ukraine at the Chernobyl power plant, the three major French nuclear power operators, EDF (producer of nuclear-powered electricity), CEA (nuclear research) and AREVA (fuel cycle processes and nuclear engineering), decided to pool their diverse resources which could rapidly be deployed in the case of a similar emergency in France. The aim was to have remote-controlled equipment readily available to intervene in the place of men. This decision gave birth to an Economic Interest Group in charge of a stock of equipment ready to intervene within 24 hours in the event of a large-scale nuclear accident.



The **INTRA Group** (**INT**ervention by **R**obotics in **A**ccidents) was created on the 12 July, 1988. Initially set up at the CEA Research Centre in Fontenay aux Roses (France), it was later transferred to the EDF site in Chinon, better adapted to the growing requirements of the INTRA Group in terms of space for its premises as well as for testing and practice zones.

Missions for the INTRA Group

The goals of the **INTRA Group** are to DESIGN, CREATE, OPERATE and MAINTAIN the fleet of robotic machines and equipment, rapidly available to any site on national territory in case of a major nuclear accident.

Three major missions have been assigned to the INTRA Group :

- To design, create and maintain intervention equipment specially adapted to environments which are hazardous for humans,
- To be able to intervene anywhere in the country within 24 hours and to implement this equipment according to the requests of the emergency organizations,
- To be ready to carry out missions with state-of-the-art technology and expert know-how in robotic intervention in a hostile environment.