French response against nuclear/radiological threat and risks

1st of April 2009

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Operation and exercises manager

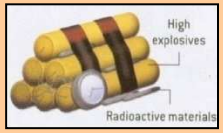
Fight against N/R risks and threats

Advice and support to the civilian or military authorities (local and national)

Prevention	Detection	Response	
		Threat	Post-accidental

R&D Studies

Threat assessment



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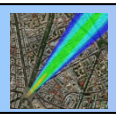


Evaluation and expertise

Mission of the DCI

Decree (legal text)

In case of terrorist threat involving Nuclear, Radiological, Biological or Chemical materials

or

When finding a device suspected of containing C B R N materials.

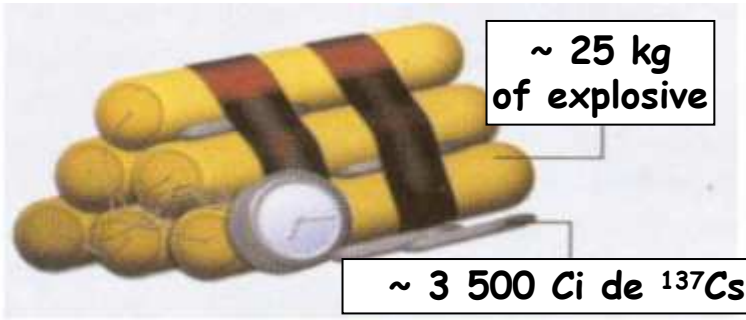
After assessing the credibility of the threat, the Director General of the National Police (DGPN) requests the Interministerial Central Detachment for technical response (DCI) to support the authority in charge of the crisis, namely the Prefect of Zone, Prefect of Department or military authority.

Organization of DCI

- DCI creation on 6th March 1995.
- Interministerial structure comprising staff from :
  - Interior Ministry.
  - Ministry of Economy, Finance and Industry.
  - Ministry of Defense.
  - Health Ministry (February 1998).
- Placed under the authority of the chief of the RAID (special taskforce).
- Operational deputies from the various ministries making up the DCI.

Different threats

1. Radiological Dispersal Device (RDD)



3 TBq de ^{60}Co (82 Ci)
with 5 kg of explosive

2. Improvised Nuclear Devices (IND)

3. Radiological Exposure Device (RED)

4. Stolen nuclear weapons

Various phases of response on RN devices

Assessment of the threat credibility

Decision from authority in charge of the crisis
Advise from Chief of DCI and Nuclear Deputy

Crisis cell of CEA-DAM

Fall out

Device assessment

Expert assessment cells

Early neutralization

Search of device

Approach of device (pyro. & radio. risks)

Pre-diagnostic, diagnostic & assessment

Containment of device

Disablement of device

Search of device

Tasks of search teams :

- Carry out inventory of any abnormal radiation levels in order to locate N/R materials or suspicious devices.
- Secure access to the device to prepare further diagnostic (EODs).
- Ensure radiation protection measures around the device (CEA).
- Identify nature of radioactive or nuclear materials.

- Operational teams on duty 24x7 (1st July 1996).
- Continuous upgrading of the teams :
  - Training,
  - Exercises,
  - Provide assistance to major public events.

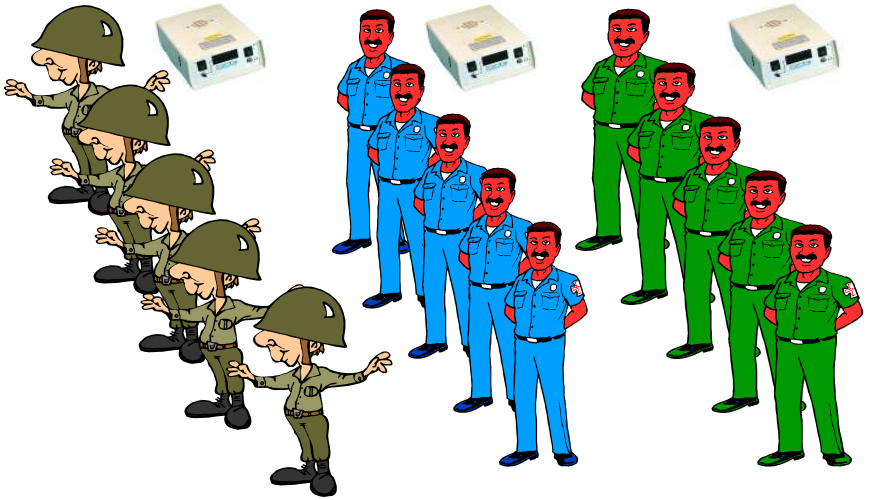
Operational Search Team

Supervision (CEA Engineer)

EOD (x2)

Pedestrian search (several teams)

- Technician CEA — Military x5
- Technician CEA — Police x5
- Technician CEA — Civil Defense x5



Gamma Search Vehicle (several VLG)

- Technician CEA x2
- Local driver

Real time transmission : Trajectory and car position, alarm levels, spectrums, pictures

Aerial component (Hélinuc - Sentinuc)

- Technician CEA x2
- Pilot

Results within 2 hours of landing

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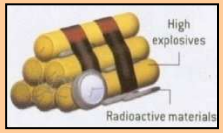

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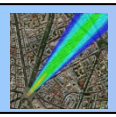


Evaluation and expertise

Uranium illegal traffic, Paris, July 2001

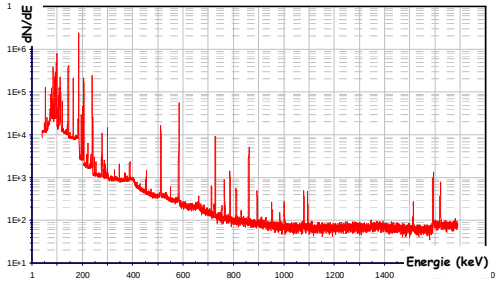
- **Detection in a vehicle (suspects nearby).**

Place de
la Nation

- **First technical actions :**

  Irradiation, contamination.

- **Pre-identification by gamma spectrometry.**



- **Police expertise (combine PTS and radioactivity).**

- **Technical expertise (nuclear forensics) ➔ Origin**

Le Journal du Dimanche

Uranium 235
Trafic en
plein Paris

Stéphane Jaubert

Une première ! Arrêté à Paris, un trio de malfrats cherchait à écouler de l'uranium suffisamment enrichi pour entrer dans la fabrication d'armes nucléaires

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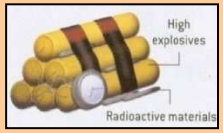

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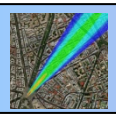
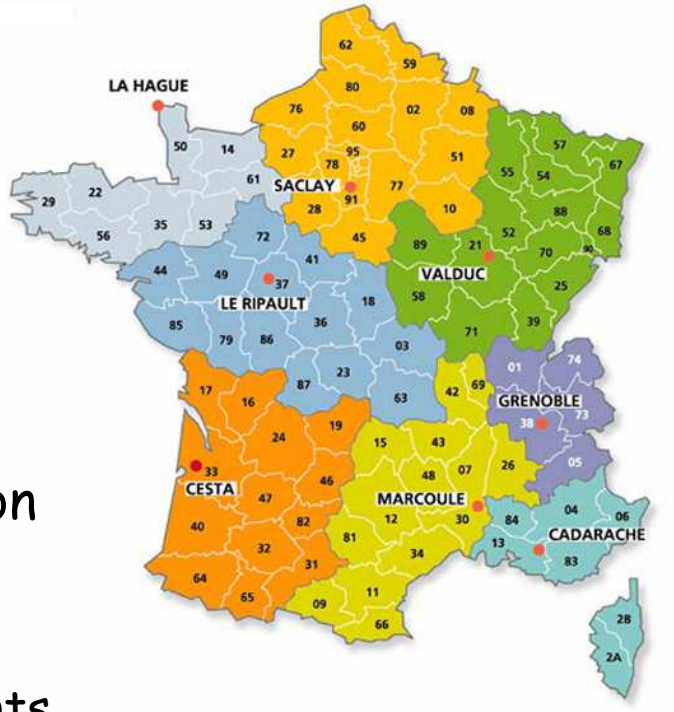


Evaluation and expertise

Response for local public authorities

- **Written requisition from authorities.**
- **Advice and intervention from the CEA under the government's authority.**
- **Different situations :** Discovery of a radioactive package on the road, in a landfill, a freight zone, radiological incident or accident, …
- **Seven ZIPE Teams (First Response intervention zone)** made of radioprotection specialists from the CEA (and AREVA).
- **Means / equipments :**
  - Irradiation and contamination measurements.
  - Primary identification (NaI spectrometry).
  - Sampling materials.
  - Protection equipment : masks, overalls …
  - Marking and signalization equipment.
- **Potential evolution of the mission**

The ZIPE plan



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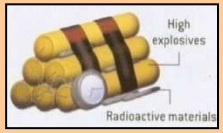

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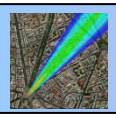


Evaluation and expertise

NRBC Safety of important events

Initial radiological background noise

Search for radioactive anomalies (detection)

VLG

Pedestrian avec DG5

Control Post-Search

Hélinuc

Set up of radiological monitoring beacons.

Protection during the event

Fixed detection systems (portals) at MPE

Real time « detection + analysis + tracking »

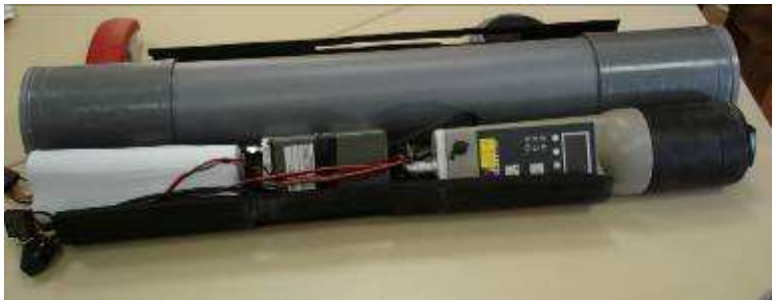
Gamma and neutron

2 beacons developed by French Atomic Energy Commission

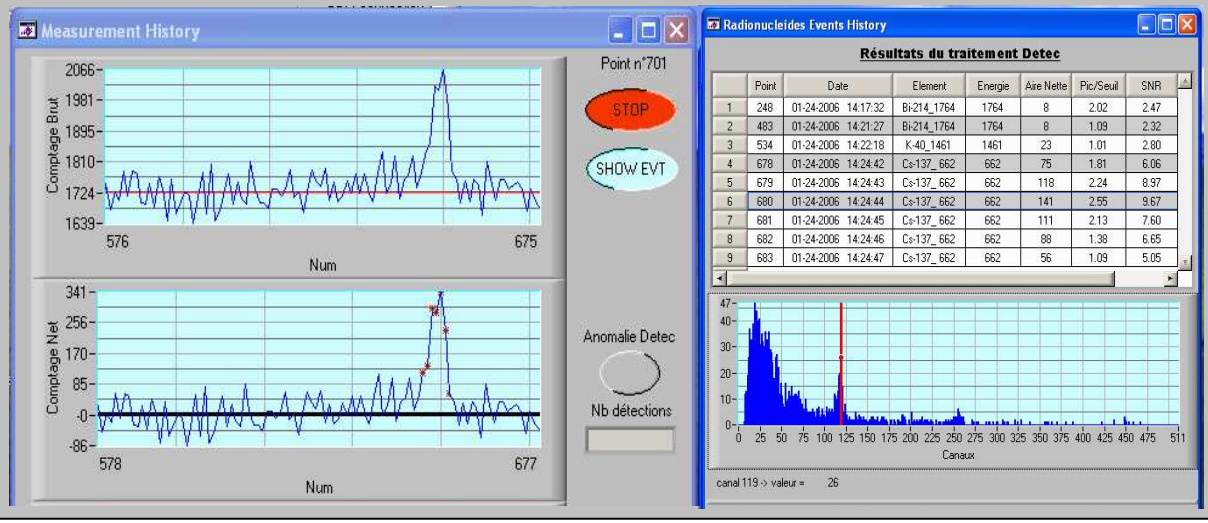
1- Equipment

Detector NaI

Datas acquisition system



2- Real time detection and identification of γ anomalous signals



Some examples of CBRN assistance at major public events

- Ceremonies of the 60th anniversary of the D-Days landings in Normandy, June 2004.
- Visit of the Pope, Lourdes, 15 August 2004.
- Ceremonies of the 60th anniversary of the D-Days landings in Provence, 15 August 2004.
- Inauguration of Airbus A380,Toulouse, 18 January 2005.
- NATO informal summit of the Ministries of Defense, Nice, 7-11 February 2005.
- Funeral of Prince Rainier, Monaco, 14-15 April 2005.
- G5 Interior Summit, Evian, 3-5 July 2005.
- Rugby world cup, Paris, September-October 2007.
- French Presidency of European Union (around ten summits), July – December 2008.

Rugby World Cup, France, sept.-oct. 2007

North-east vehicle access to the "Stade de France"

Securing a monitoring perimeter through defined entry points …

… with radiological beacons UMD and DIRAD

UMD: During some games

DIRAD: Over the whole event of the World Cup (7 weeks):

- Remains in area (discrete).
- Works 24/7.

⇒ **Continuous monitoring of all traffic in and out of the "Stade de France".**

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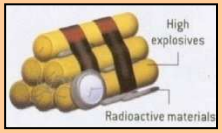

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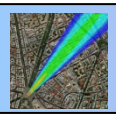

Evaluation and expertise

Why an initial radiological status of cities ?

- Discovery of potential orphan sources.
- In case of an emergency (threat or following an accident) :
  - ⇒ This facilitate the analysis of new measures.
  - ⇒ This allows:
    - To detect and localize variations in radioactivity that could stem from a terrorist threat.
    - To define the consequences of a radiological dispersion.
- Definition of the natural radioactivity of the town: potential radon emissions, radioactive cesium…

International context

- ✓ **Request from the UK for London.**
- ✓ **Urban mapping plan in Switzerland.**
- ✓ **Plans in the US (New-York,…).**


GAO

COMBATING NUCLEAR TERRORISM

Federal Efforts to Respond to Nuclear and Radiological Threats and to Protect Emergency Response Capabilities Could Be Strengthened

GAO

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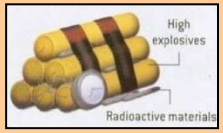

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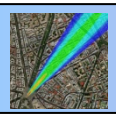
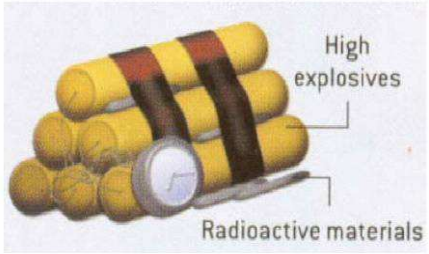


Evaluation and expertise

Objectives of a RN detection & surveillance network

- Prevent trafficking of nuclear or radioactive material.

- Detect, as early as possible, the possibility of a malicious action of nuclear or radiological nature.



- Ensure the security of critical and sensitive infrastructures.

- Protect and secure sensitive materials in nuclear, industrial or medical facilities.

- Ensure the nuclear security at major sporting or political events.

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IRB RUGBY COUPE DU MONDE 2007

- Deter terrorists from using nuclear or radiological material.

National detection architecture

Ports

Tube/Train Stations

Nuclear power stations

Sensitive/critical infrastructures

International Airport

Major public events (punctual)

Access roads to the Capital

Border crossing

Road Network (punctual)

RN surveillance: an accessible concept

PC 24h/24

CNERP

Local post

- Detection network at local or national level (fixed or mobile)
- National center of expertise
- Specialist intervention team

CEA/DAM emergency response capabilities

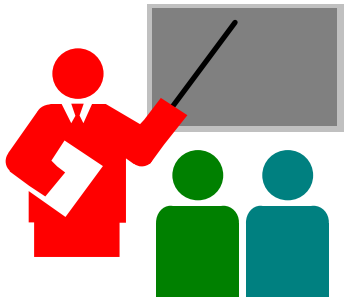
- ✓ **The project provides emergency teams with deployable capabilities, configured for a rapid response :**
  - 50 people on call.
  - 300 people available :
    - Radioactive material detection
    - Device assessment
    - Environmental science
    - Radioprotection and safety
  - Deployment by vehicles, planes, helicopters.
  - Ready on site within appropriate time.
- ✓ **On-call support from CEA HQ to assess the threat and to analyze nuclear-radiological data and others.**

Phone : + 33 2 47 34 45 55 (24-hour watch office)

Conclusions

- IND : serious threat, with large consequences, but low probability …
- French response :

1. Organization, ready to operate



2. Training, exercises

3. Reliable equipment (permanent upgrades)

Thank you --- Questions ?

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