

DEFENSIE
LA DÉFENSE



VOORRANG AAN VREDE
PRIORITÉ À LA PAIX



DEFENSIE
LA DÉFENSE



VOORRANG AAN VREDE
PRIORITÉ À LA PAIX

Belgian EOD Group

SitRep

Briefing GECE

LtCol GS MOERMAN Luc



04 May 2011

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**DEFENSIE
LA DÉFENSE**

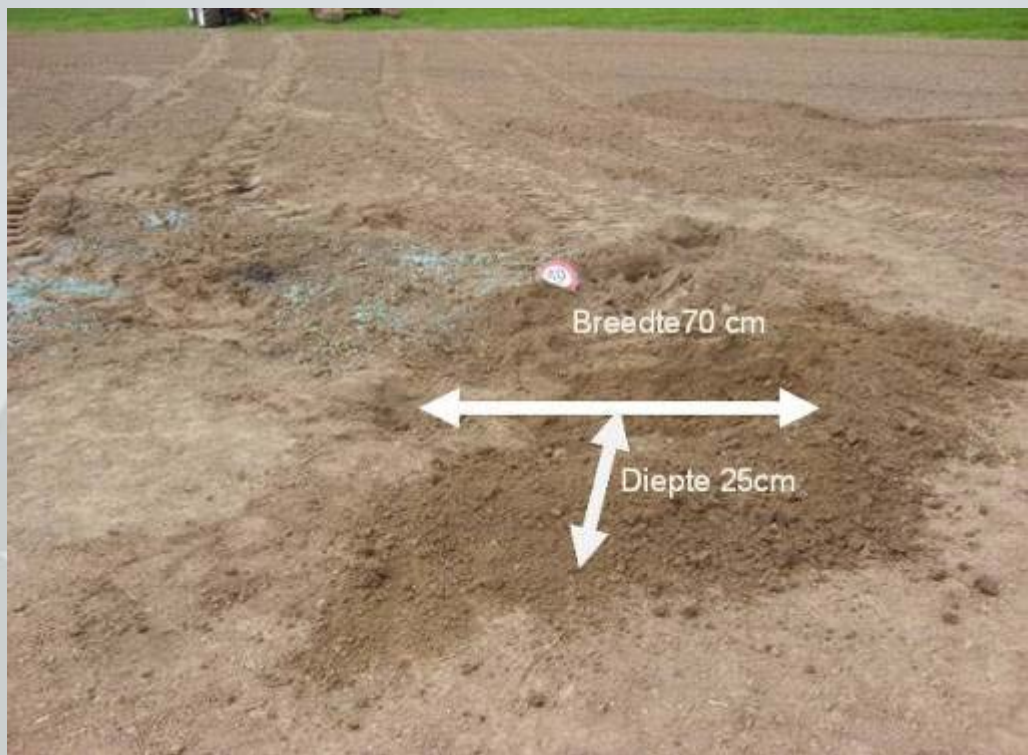


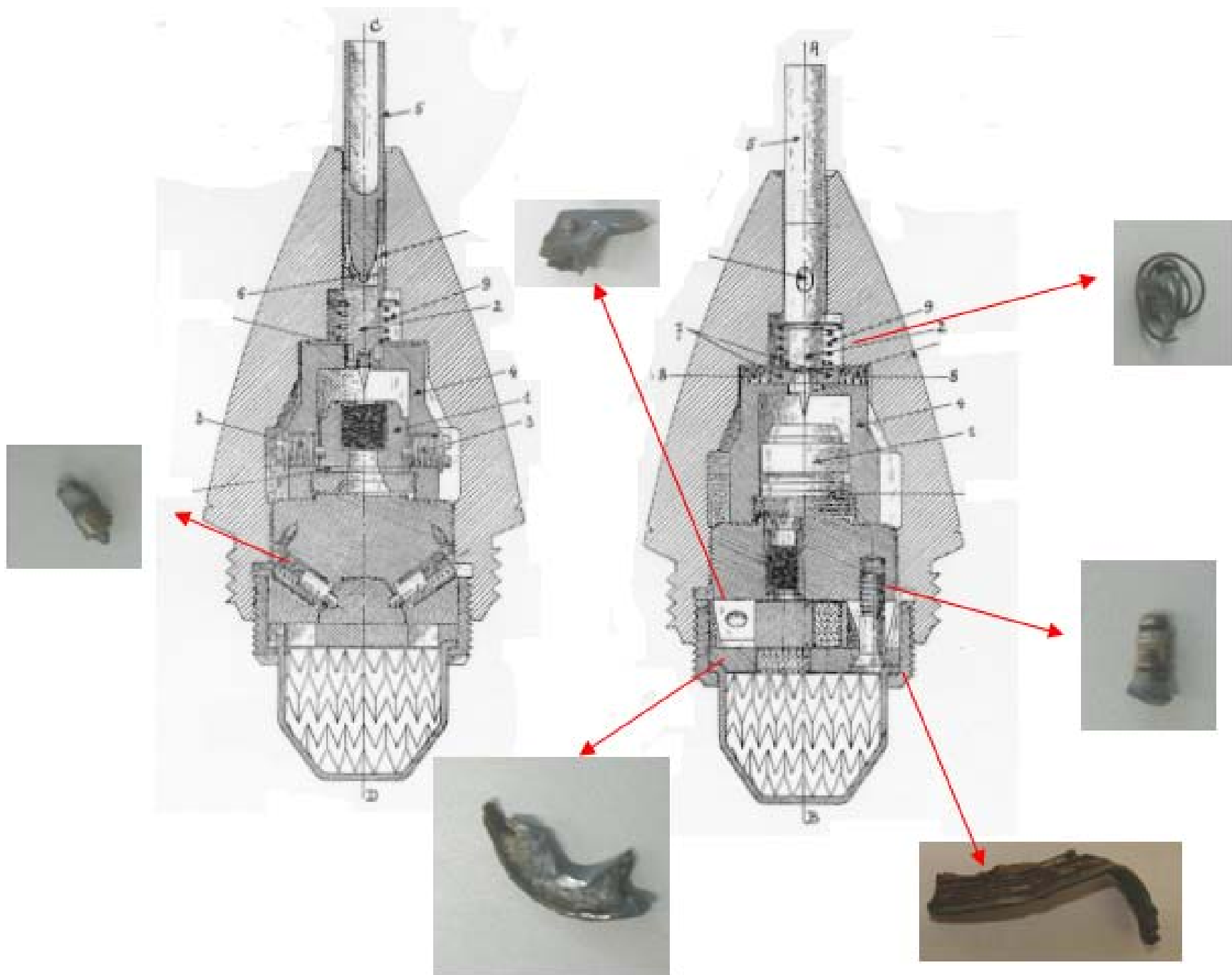
**VOORRANG AAN VREDE
PRIORITÉ À LA PAIX**

324

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AGENDA

- **Organisation**
- **Main tasks**
 - Disposal of conventional munition
 - OCW program
 - Disposal of IEDs
 - Instruction and training
 - EOD support abroad
- **Defeat the network**
- **Industry/Material related issues**



CHOD

ACOS Ops & Trg

COMOPSAIR

COMOPSLAND

COMOPSNAV

COMOPSMED

COL 2D

4 Engr Bn

11 Engr Bn



EOD Gp

MEERDAAL

POELKAPELLE

ZEEBRUGGE

171
(130)
Army
Air
Navy

128
(115)
Army
Air
Navy

42
(39)
Navy
Army

Personnel

Total OT : 26 - 182 - 133 (341)

Sit Jan 11 : 23 - 139 - 122 (284)



OT : 18 - 128 - 62 (208)

Sit Jan 11 : 17 - 95 - 63 (167)



ZEEBRUGGE

POELKAPELLE

BRUSSELS

MEERDAAL

210 mi

 **EOD Gp**

- Ops Branch
- EOD-Ti2
- EODSC

Meerdaal

- • •
- EOD**
- • •
- IEDD**
- • •
- EOD School**

Poelkapelle

- • •
- EOD**
- • •
- Tox**

Zeebrugge

- • •
- EOD**
- • •
- Diving School**



MAIN TASKS

- Disposal of ammunition WW I & WW II and obsolete Ammunition (*CMD*)
- Dismantling Toxic ammunition WW I (*OCW*)
- Disposal of IEDs (*IEDD*)
(*technical assistance to Juridical Authorities*)
- Instruction and training
- EOD support abroad



CMD

On land (responsive, initiated by Police)





CMD

DIVING TASKS in territorial sea (*RDS : Ready Duty Ships*) and inland waterways





CMD

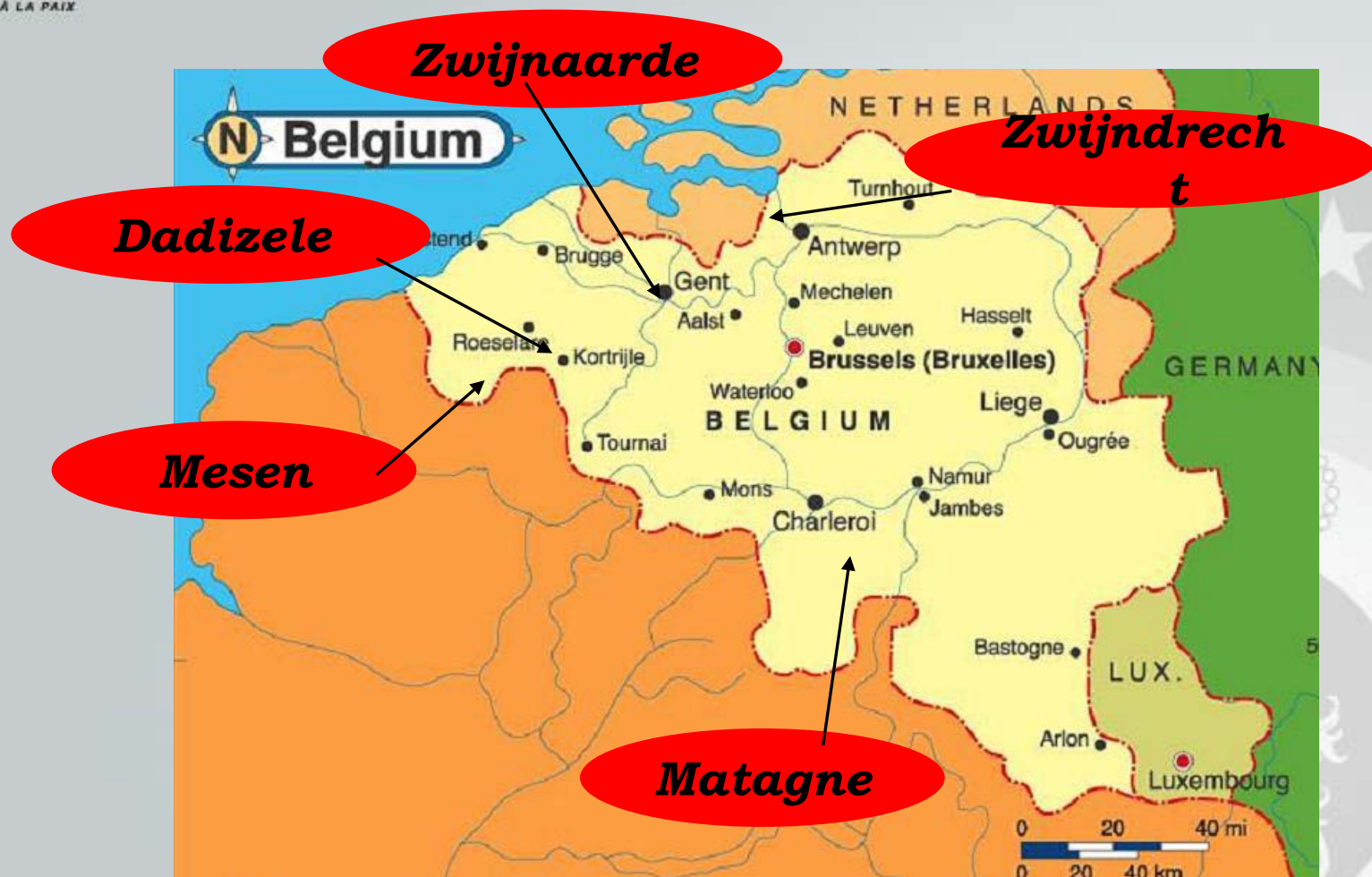
AIRCRAFT CRASH



Crash F16
SOMAL -FAILON 2004



Sites (known)





Sites (known)

SITE	HISTORY	QTY	EXECUTION
DADIZELE 2	Dump WW I	?	No permission by owner
ZWIJNAARDE 2	Explosion GE Mun Dep WW II	20 t	PLANNED
MATAGNE	Dump GE WW I/ II + PRB	?	NOT PLANNED
MESEN	2 mine chambers WW I	50 - 90 t	NOT PLANNED (15 to 25 m depth)
Fortress ZWIJNDRECHT	Mun UK/BE/FR/GE WW I / II	2000 - 4000 t	Until 2008: 40t 2009: 98t 2010: 30 t



ZWIJNDRECHT



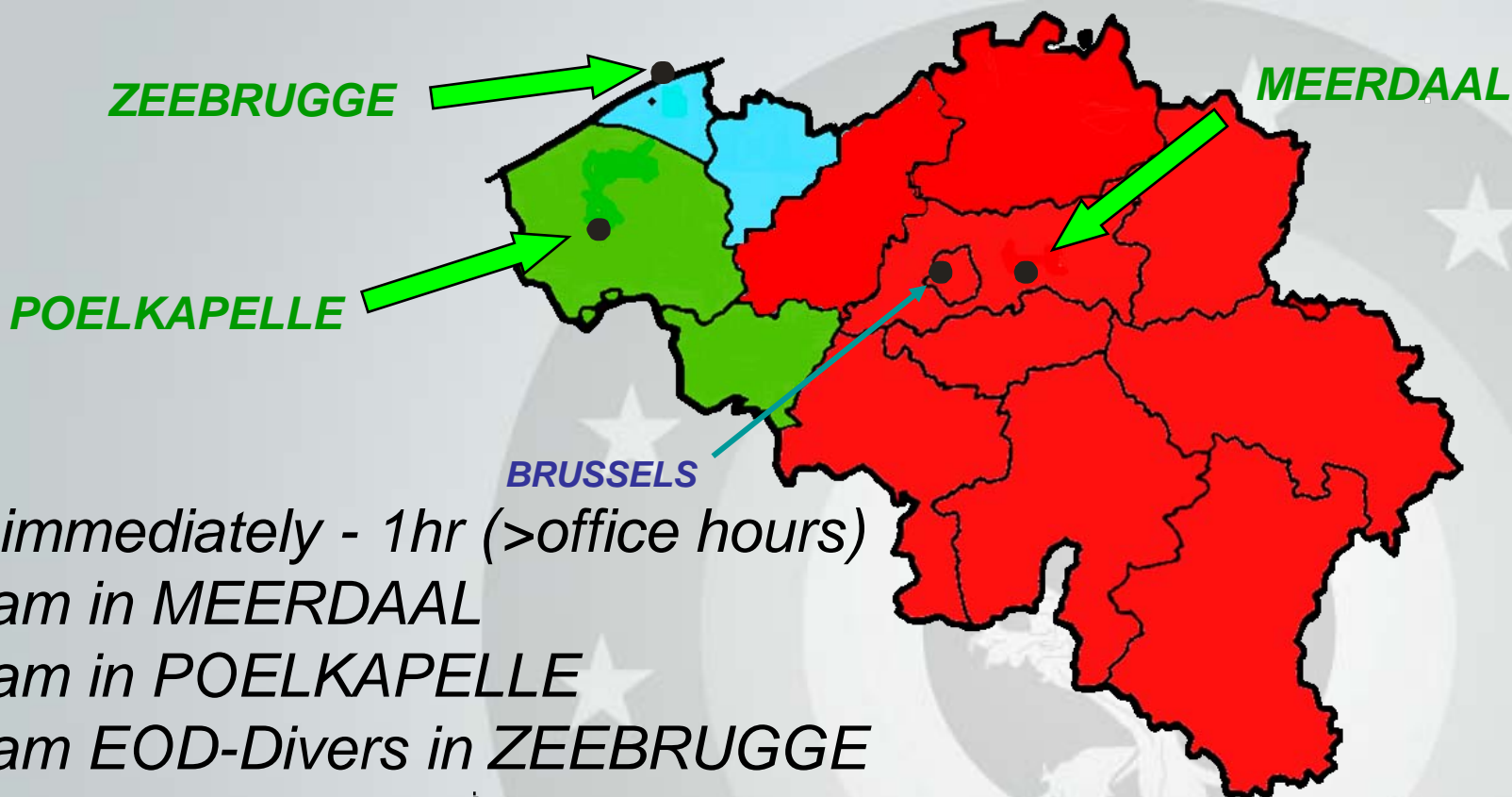
LONCIN 2007





CMD

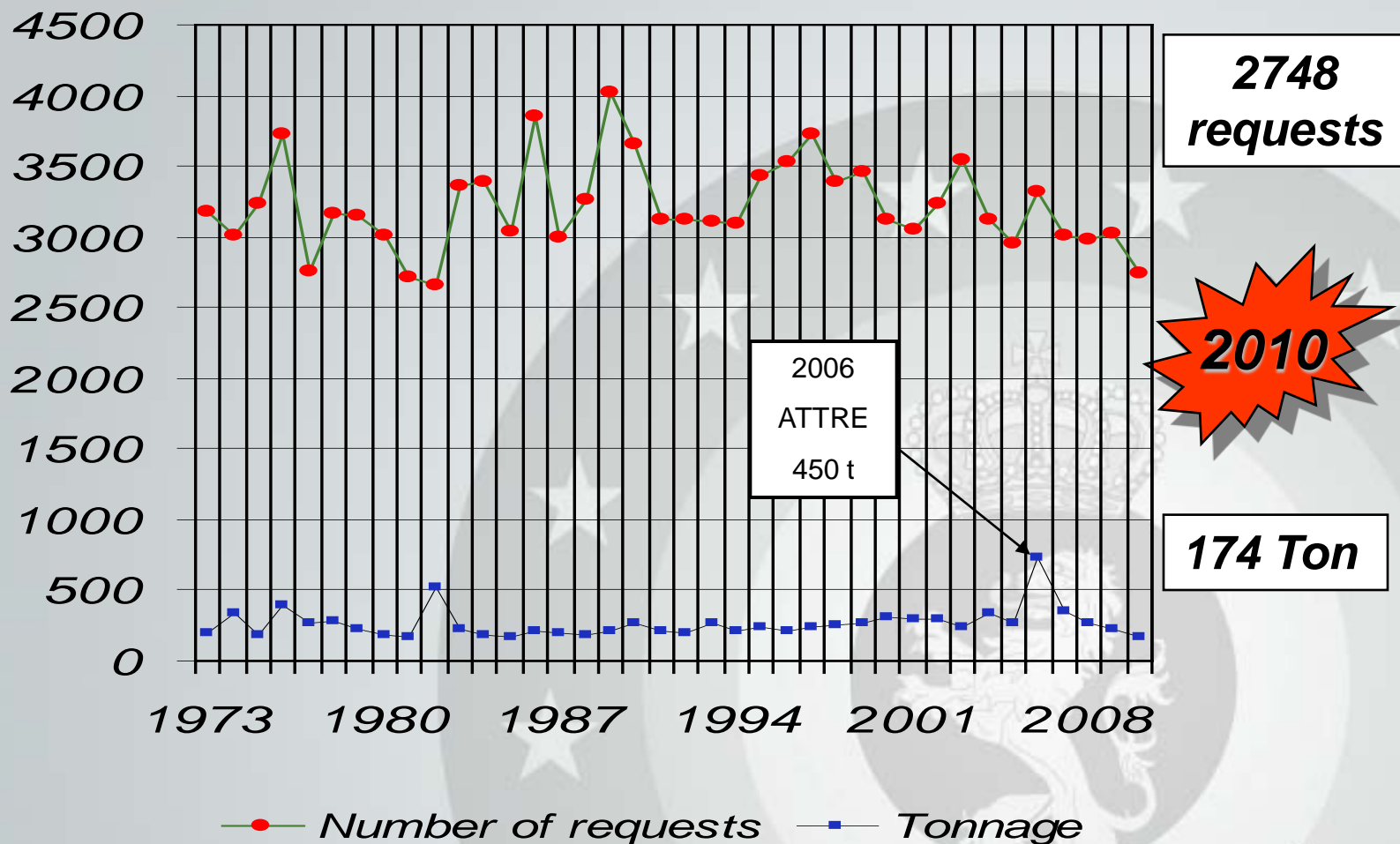
NATIONAL STAND-BY



- *NTM : immediately - 1hr (>office hours)*
- *one team in MEERDAAL*
- *one team in POELKAPELLE*
- *one team EOD-Divers in ZEEBRUGGE*
- *at home with mobile phone and ASTRID*



CMD





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THE 'POELKAPELLE' PROBLEM

COUNTRY	Tox Mun		Conv. Mun		TOTAL	
	Number (millions)	%	Number (millions)	%	Number (millions)	%
GERMANY	33	6,4	485	93,6	518	35,6
FRANCE	16	4,6	334	95,4	350	24,1
GREAT-BRITAIN	4	2,2	178	97,8	182	12,5
US	1	12,5	7	87,5	8	0,5
RUSSIA	3	4,2	69	95,8	72	4,9
AUSTRIA	5	2,9	170	97,1	175	12,0
ITALY	4	2,7	146	97,3	150	10,3
TOTAL	66	4,5	1.389	95,5	1.455	100,0

- **WW I**

- 1.455 millions projectiles
- Toxic shells: 4,5%
- **30 % duds ...**

- **Today**

- 250 t / year
- 700 EA toxic shells (OCW) / year

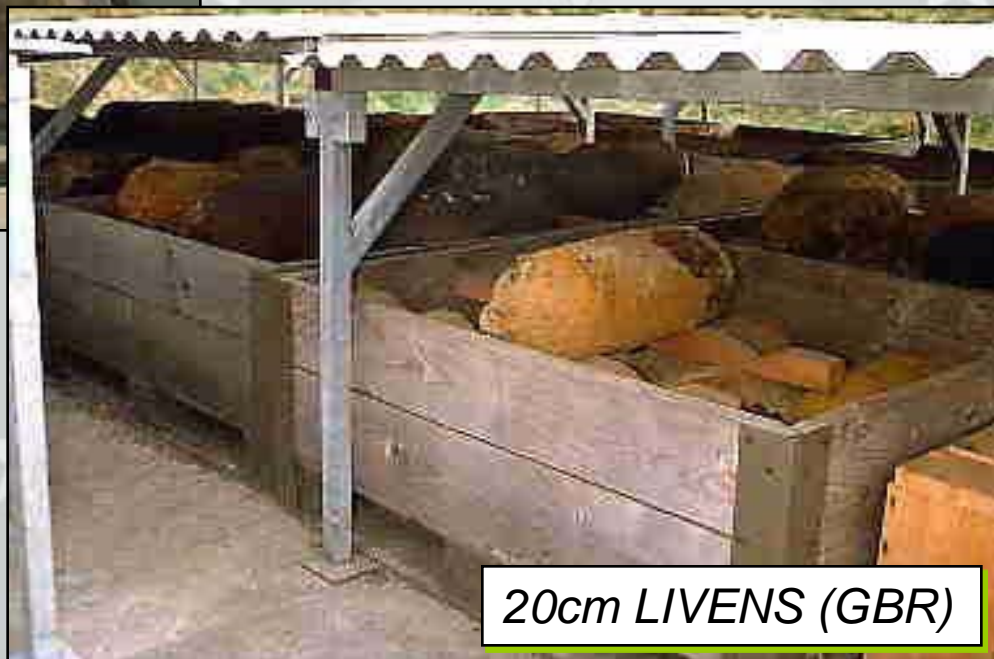




OLD CHEMICAL WEAPONS



7,7cm (DEU)



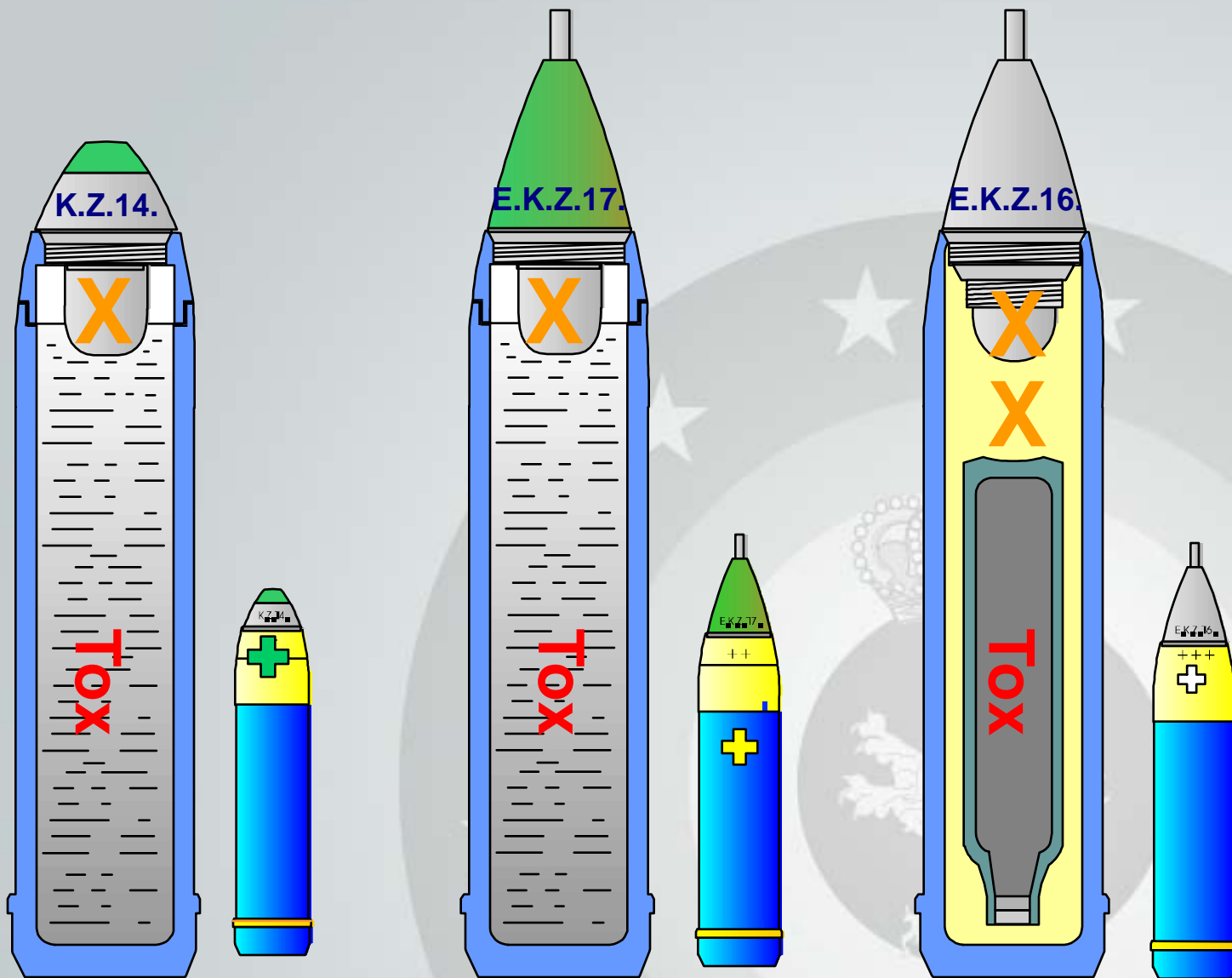
20cm LIVENS (GBR)



THE BELGIAN OCW PROGRAM

- **1989**: Government decision OCW program
- **1997 – 1999**: Intensive testing of the installation
 - Modification of process
 - Definition of new necessary investments
- **1999**: Routine identification and dismantling
- Main process : **mechanical separation**
- **2002**: introduction of **contained detonation**







Inflow

Daily found WWI
ammunitions

'Heritage'

Stockpiled supposed
OCW since 1980

High Priority

Low Priority

IDG

Non destructive IDF

OCW

Identified
OCW Platform

Non OCW
Platform

Non
OCW

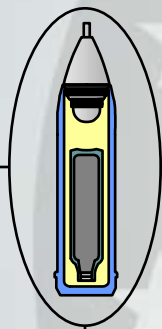
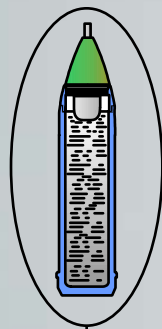
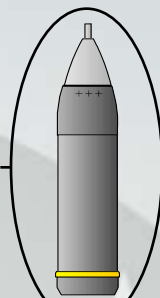
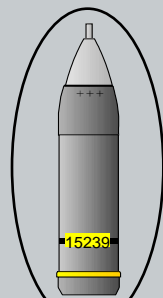
OMG

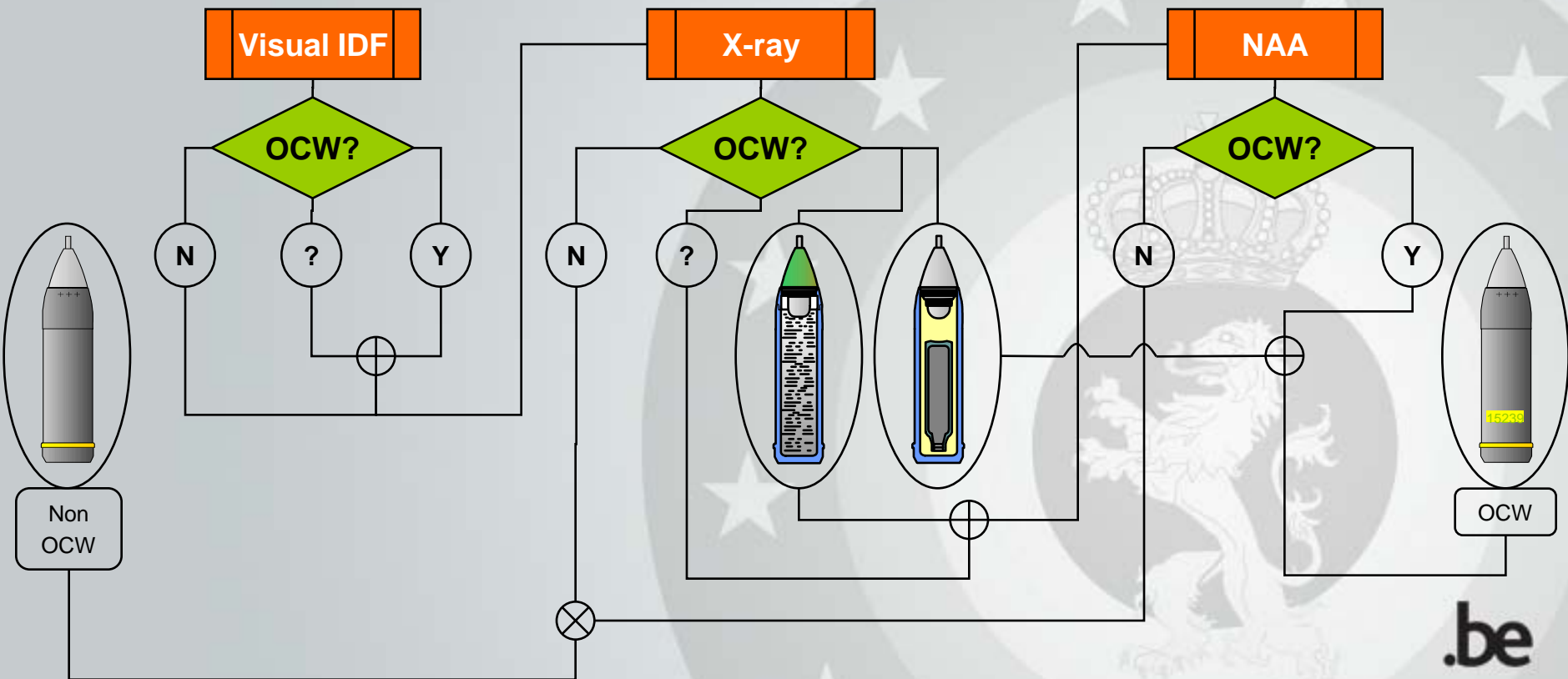
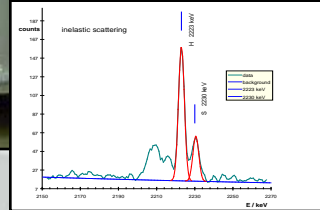
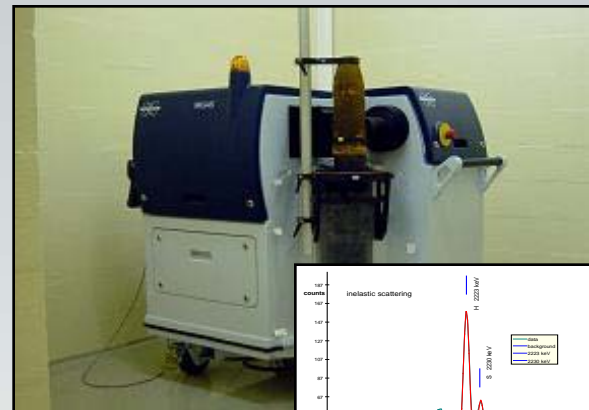
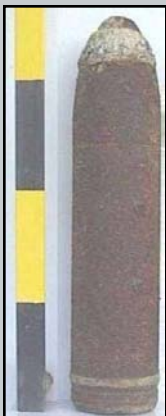
Dismantling

CDC

CED

Scrap







CDC DAVINCH 50 – KOBELCO (JAP)

- Chamber + OffGas Treatment
- $NEQ_{max} = 50 \text{ Kg}$
- $NEQ_{regime} = 25 \text{ Kg}$
- Detonation in vacuum condition
- ➔ Reduction Impulsive Load + Noise

- Target Mun
 - (2008 – 2010) : OCWs ➔ **21cm**
 - (2011 - ...)
 - Most polluting UXOs
 - Daily inflow OCWs

- DONOR : Slurry (LEDC) – 0.9 NEQ







SPIN OFF (overkill)

- To investigate some fundamental aspects of the basic functioning of a CDC and some of its operating parameters.
- Agent of choice: sulphur mustard (Yperite)
- Basic functioning & operating parameters
 - Overall: residual yperite (similar to Destruction Efficiency, DE)
 - Previous work: donor charge and “mechanical” destruction of the munitions
 - This work: **performance of the donor charge** to destroy the CWA
 - Thermal effect versus shock wave
 - Brisance of the donor, explosion temperature, importance of aluminized explosives
 - Use of additional water
 - Influence of vacuum, inert or reactive (O_2) gas
 - Ratio donor/CWA (later)

Selection of the
donor explosive

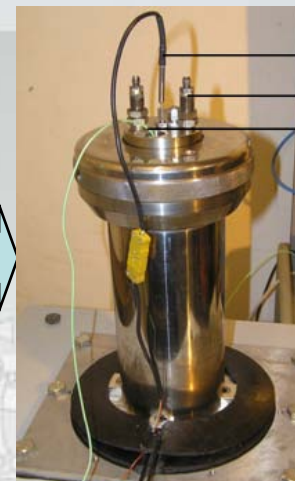
Optimizing operation
procedure



Full scale



1/7 scale model



μ-CDC



TAKE AWAY's

- Detonating donor charge has a limited additional contribution
 - In this case, about 1-% increase of DE
 - Not yet fully clear if this “1-% effect” is only due to the shock wave
 - Contribution of the shock wave could increase when the ratio “agent/donor” increases
- Residual yperite as function of temperature indicates that the high temperature in the fireball is the main factor responsible for destruction of the agent
- Appropriate detonation (i.e. brisance of the donor charge) is required for *dismantling* the item but...
- ...high destruction efficiency of the agent will be achieved with high energy energetic material.



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Improvised Explosive Device Disposal

NATIONAL STAND-BY 24/24 Hr

- one team in MEERDAAL barracks (NTM 15 min)
- one team at home with mobile phone and ASTRID
- up to 4 teams





NEUTRALIZATION IMPROVISED DEVICES



Vanguard



thEODor





POST-EXPLOSION investigation





TECHNICAL REPORTS



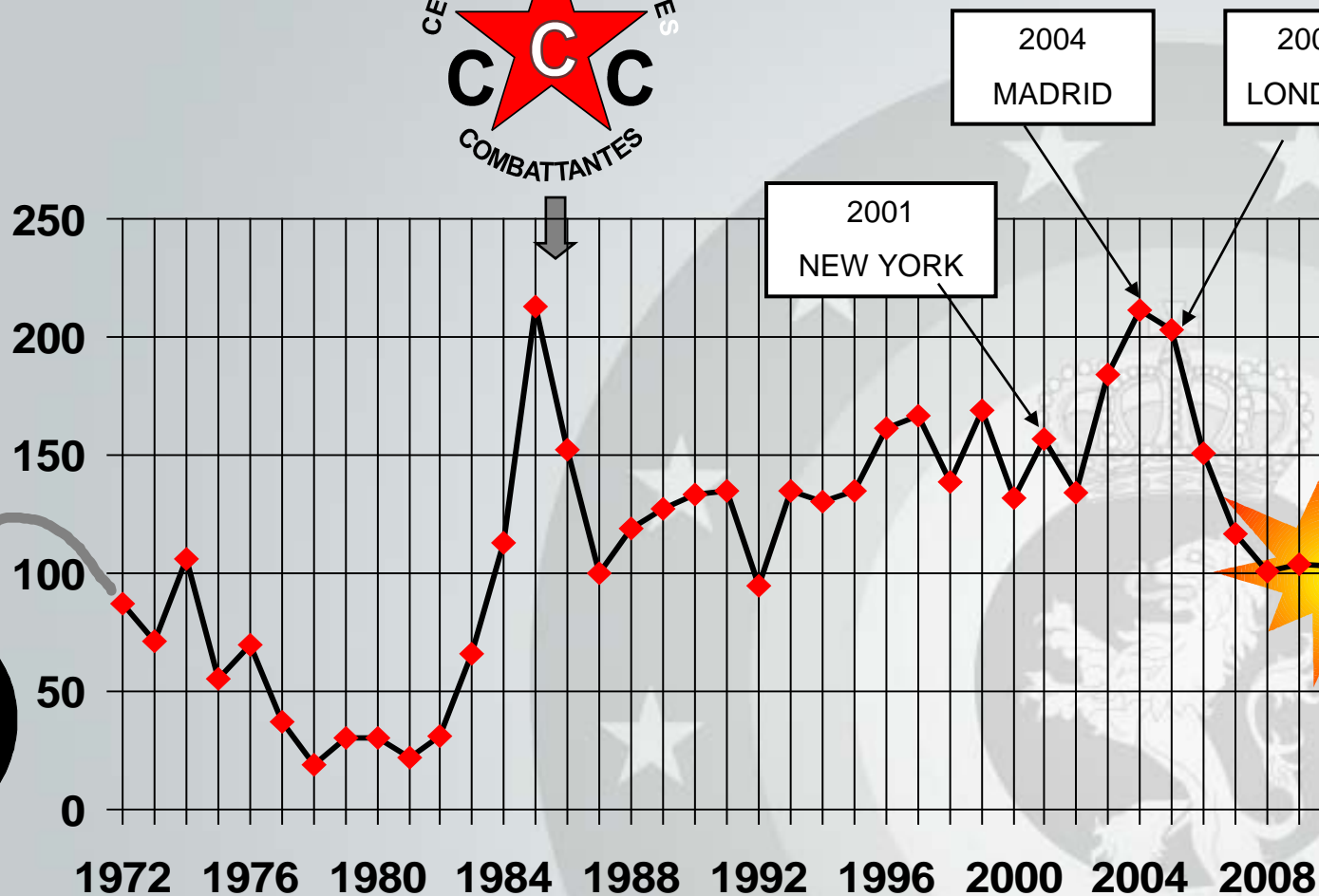


NATIONAL REPOSITORY FOR EVIDENCE





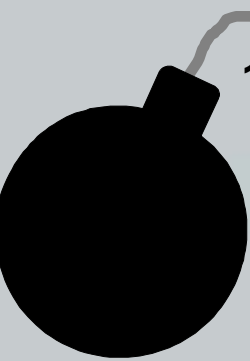
Improvised Explosive Device Disposal



2010

103 requests

57 reports





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INSTRUCTION AND TRAINING

EOD SCHOOL



DIVING SCHOOL





INSTRUCTION AND TRAINING

Courses in F, N and/or E

- intra COL-2D
- intra Defense
- other Federal Departments (police, ...)
- civil authorities (Fire Service, critical infrastructure, ..)
- international (Homeland and “in country”)

! Accreditation (CHE) Police (IEDD operator)

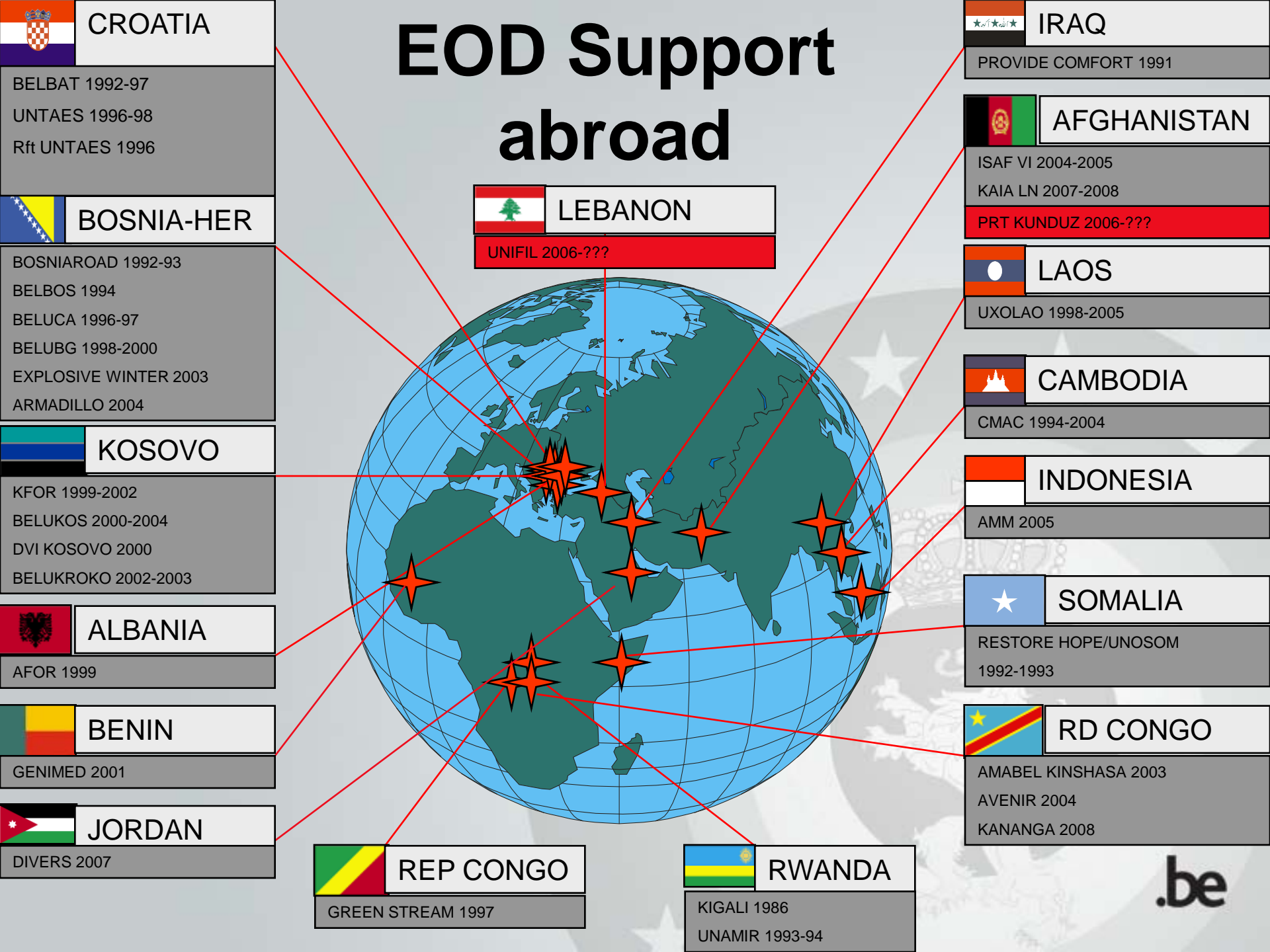
! Info IED = module basic training Police



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EOD Support abroad





AFGHANISTAN



PRT KUNDUZ : 02 teams



PRT KUNDUZ





PRT KUNDUZ





LEBANON (UNIFIL)



BELUFIL – ATIRI :

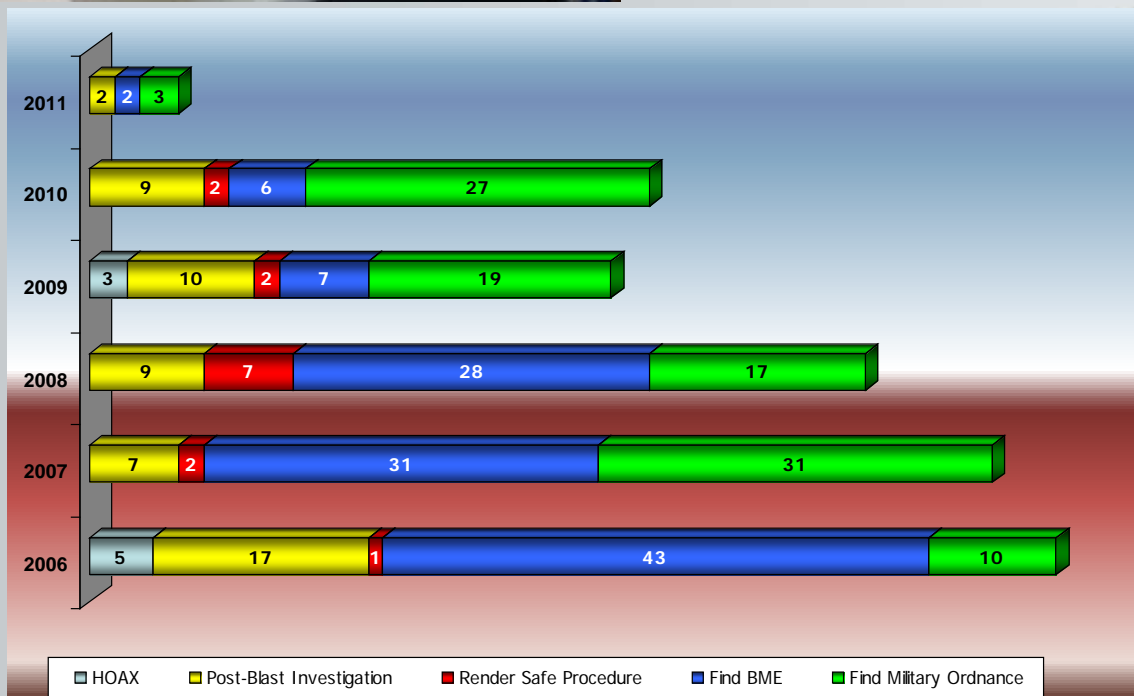
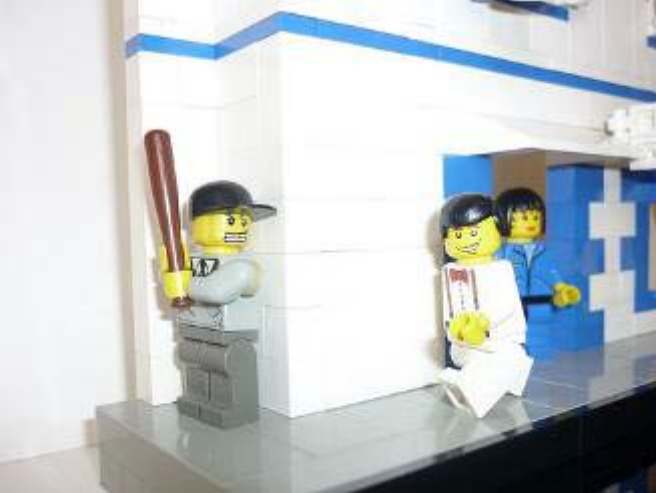
01 team



de

Attack the network

- Identify
- Analyse
- Reconstruct
- Compare



TECHNISCH VERSLAG
TR 2006/24 ZAVENTEM

Interventie in een vliegvlug bij ZAVENTEM op

Opdracht:
Omschrijving: ...

Doel: ...

Naam: ...

Contactpunt: ...

Gemachtiging van de opdracht:

- Administratieve gegevens
- Inventaris van de overlevingsgetuigen
- Onderzoek ter plaatse
- Technische studie
- Bevindingen

BUREAU VERBODEN
Inventaris van de overlevingsgetuigen – Nationale G4W4 voor Oerpluimingslagen

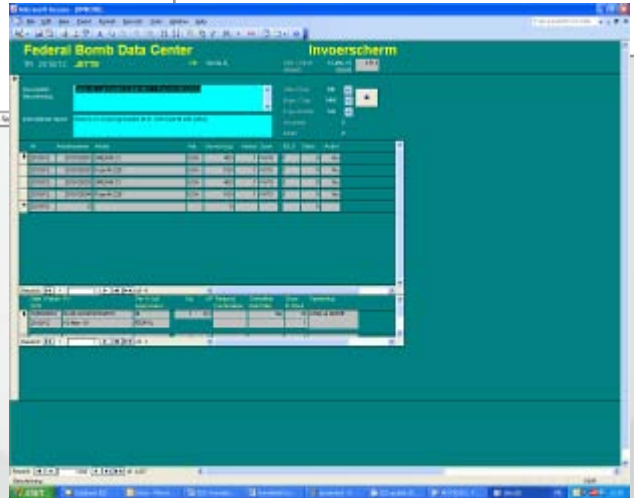
Administratieve gegevens voor de G4W4

Dossier: TR 2006/24
Datum: 25.03.2007
Plaats: 96.0006
Informatie OMSZ: 460000 524807
PI nummer: 01173461106
Bevrijdings datering: 25.03.2007

Tabel

Item	Omschrijving	Status	CO/Nummers
1	... (hoofdstuk 1)	...	2006130017
2	... (hoofdstuk 2)	...	2006130018
3	... (hoofdstuk 3)	...	2006130019
4	... (hoofdstuk 4)	...	2006130020
5	... (hoofdstuk 5)	...	2006130021
6	... (hoofdstuk 6)	...	2006130022
7	... (hoofdstuk 7)	...	2006130023
8	... (hoofdstuk 8)	...	2006130024
9	... (hoofdstuk 9)	...	2006130025
10	... (hoofdstuk 10)	...	2006130026

Overzichtsfoto



L2 Technical Exploitation Report



Industry / Material related issues

- **internal organization armored EOD-vehicle**
- **medium-sized RVC**
- **ECM-resistant detector**
- **containment vessel (single / multiple use)**
- **incident information database (GIS module)**



Questions?

Moerman Luc

Commanding Officer
LtCol GS
OF4 (BEL) Army

Belgian EOD Group

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Belgium

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UNCLASS luc.moerman2@mil.be



**All that is necessary for evil to succeed is
that good men do nothing.**