









AMBES OIL DEPOT

Crude oil tank failure 12/01/2007

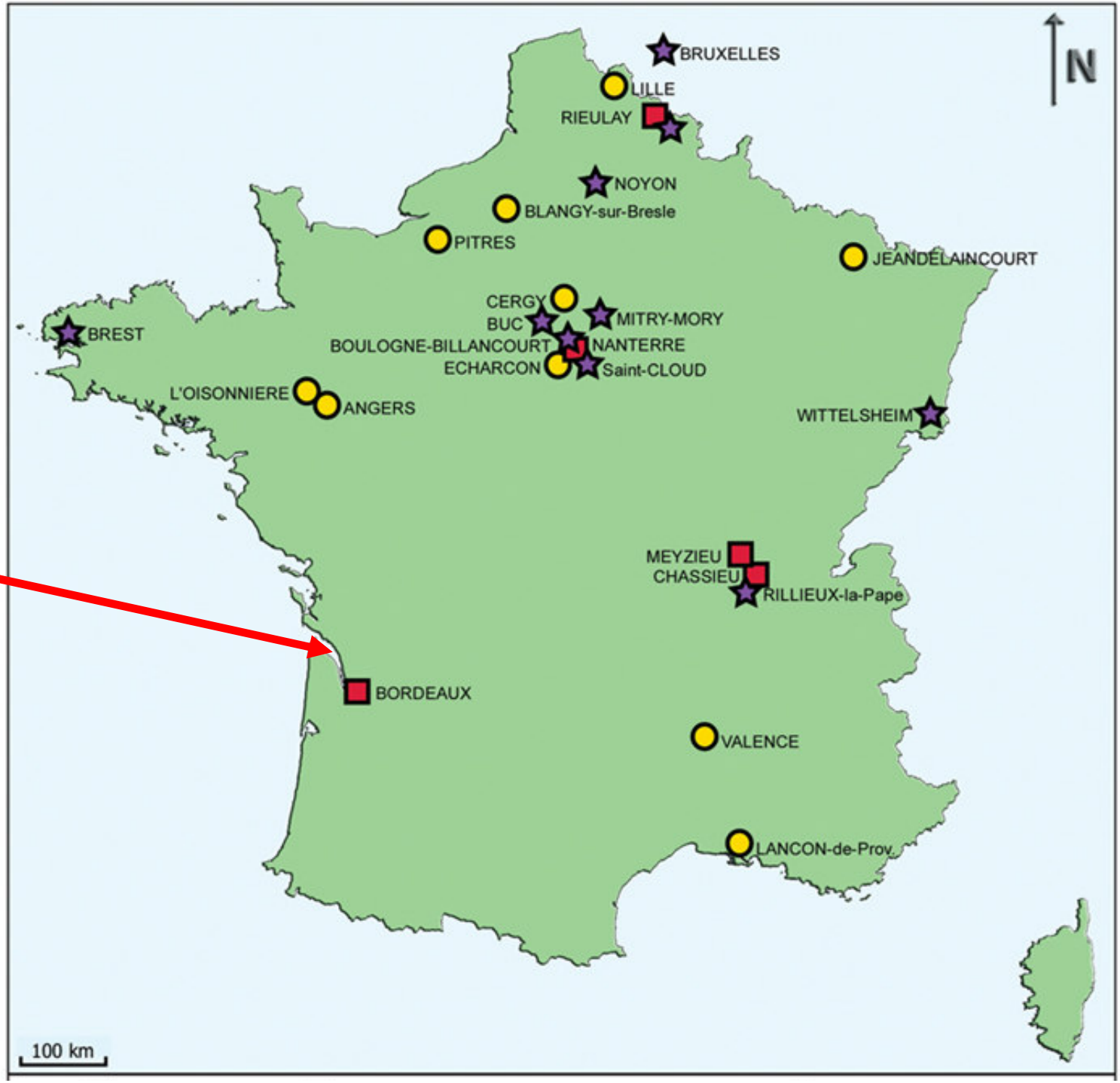
Arnaud Guéna, Emmanuelle Poupon, Mikaël Laurent

715, Rue Alain Colas CS 41836 29218 BREST CEDEX 2 Tél. : 02 98 33 10 10 Fax : 02 98 44 91 38

http://www.cedre.fr contact@cedre.fr

Cedre

Oil depot


BRUXELLES
LILLE
RIEULAY
NOYON
BLANGY-sur-Bresle
PITRES
JEANDELAINCOURT
CERGY
BUC
MITRY-MORY
BOULOGNE-BILLANCOURT
NANTERRE
ECHARCON
Saint-CLOUD
BREST
L'OISONNIERE
ANGERS
WITTELSHEIM
MEYZIEU
CHASSIEU
RILLIEUX-la-Pape
BORDEAUX
VALENCE
LANCON-de-Prov.
N
100 km


Royan
Ambès Oil depot
© 2007 Europa Technologies
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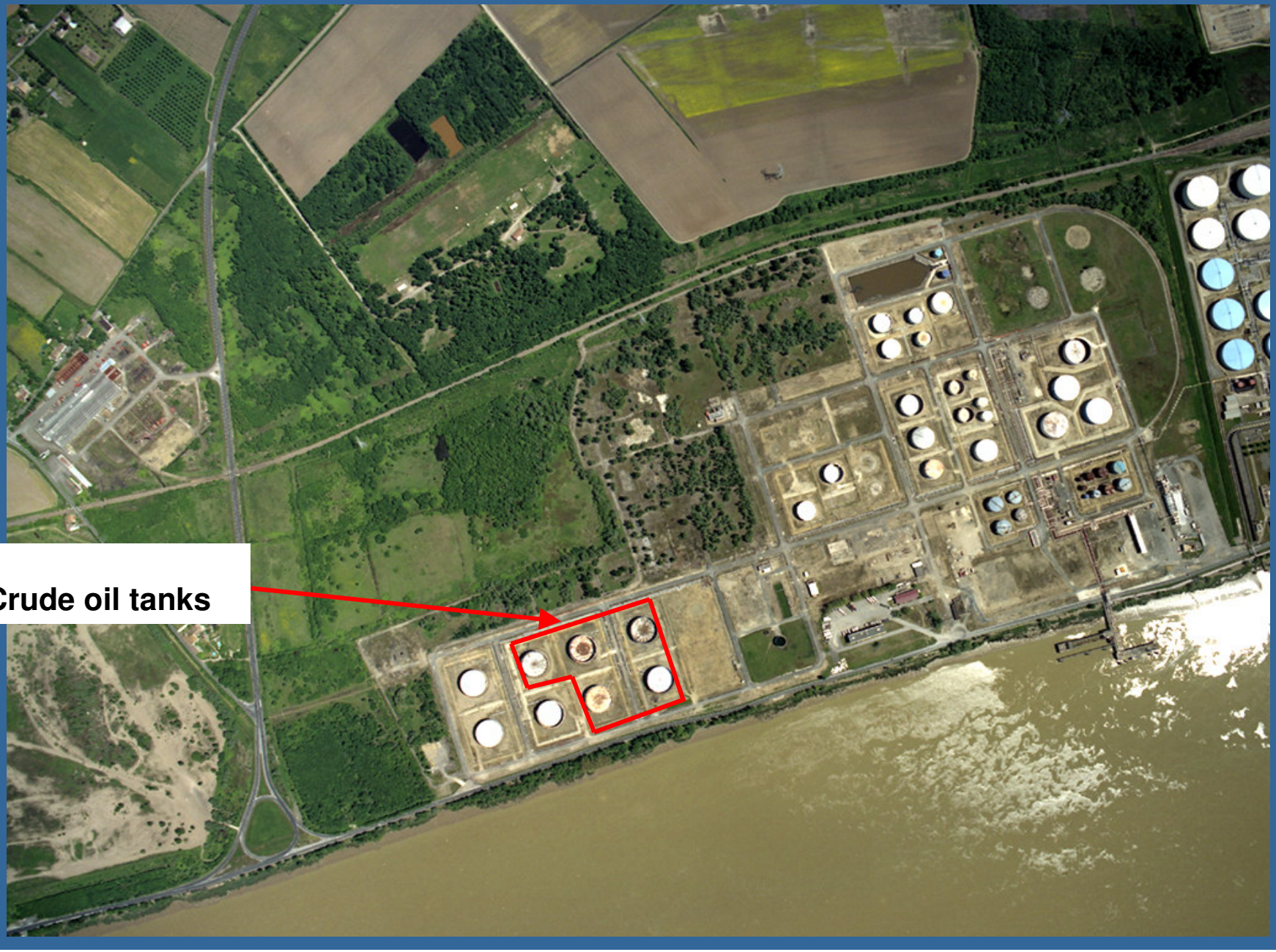
29 km
45°18'18.49" N 0°57'39.09" O élév. 9 m
Mise au point 100%
Google

OIL DEPOT



II. THE ACCIDENT

Thursday 11 January 2007 – 15h

Little leakage on tank bottom

Friday 12 January 2007 – 8h

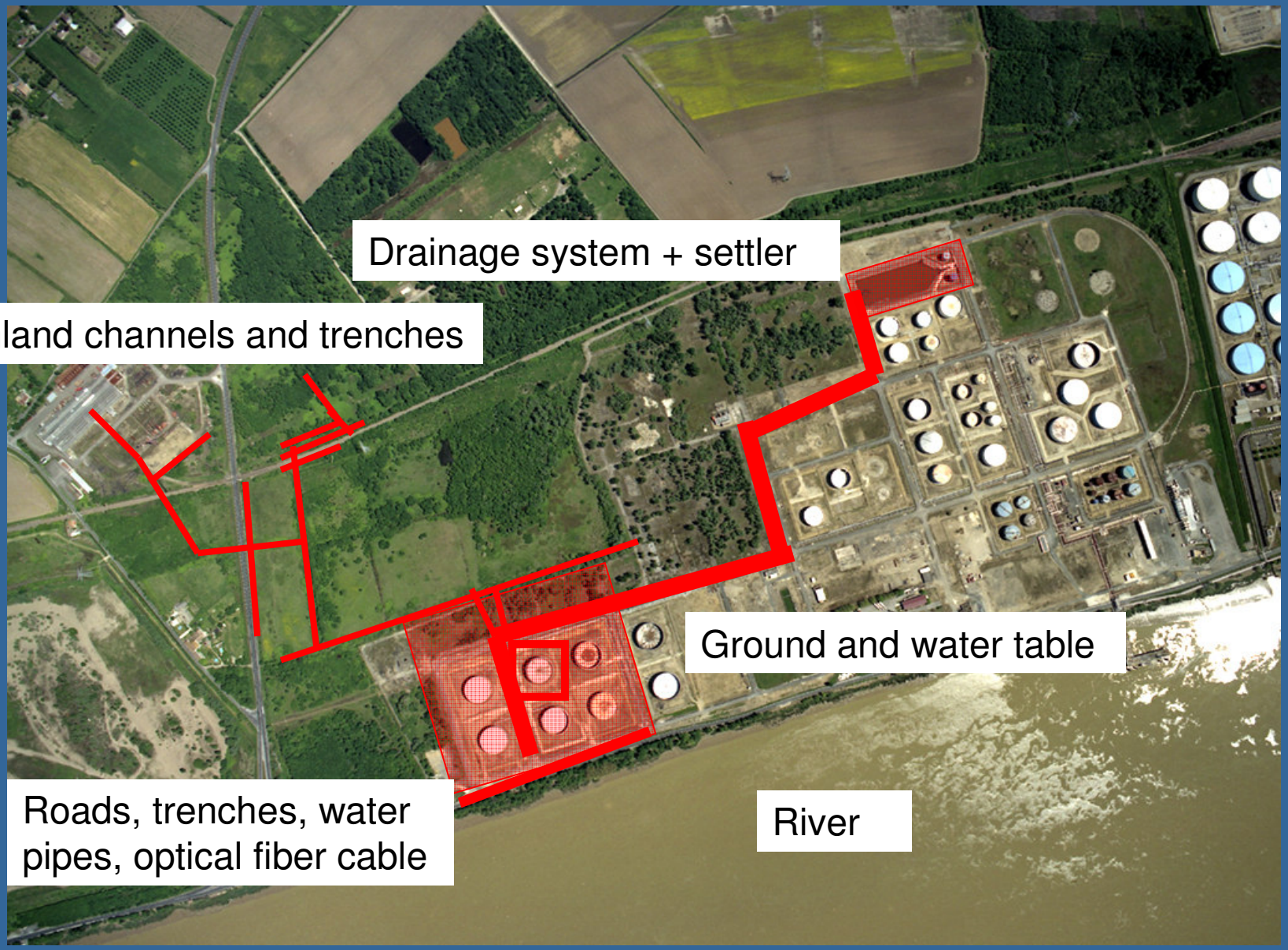
Failure of the bottom of the tank 1602

13 500 m^3 (85 000 barrels) of Aquitaine crude oil spilled

TANK BOTTOM, RENTENTION POOL, WAVE EFFECT (Splash over of 2000 m^3 (12600 barrels)

Spreading of the crude oil through drainage system and roads …outside the depot

Impacted areas



IMPACTED AREAS (©TASO)

III. FIRST MEASURES TAKEN BY THE OPERATOR

- Measures of conservation
- Activating of the internal emergency plan

- Alert of the authorities and fire brigade
- Spreading of foaming agent
- Evacuating all personnel onsite
- Requesting the closure of the nearby major road

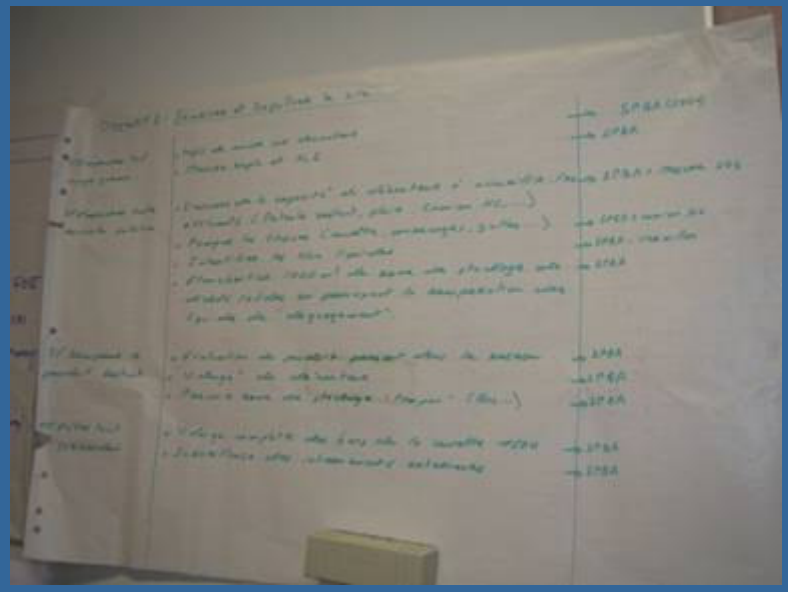
IV. ACTIONS CONDUCTED BY FIRE BRIGADE

- Activation of a command center (60 firemen and 15 vehicles)
- In the same time, activation of crisis center:
  - By the Prefet (local representative of the state)
  - By the director of the Blayais nuclear power plant (downstream of the oil depot)

- Stopping all operations and cutting the power

THE COMMAND CENTER

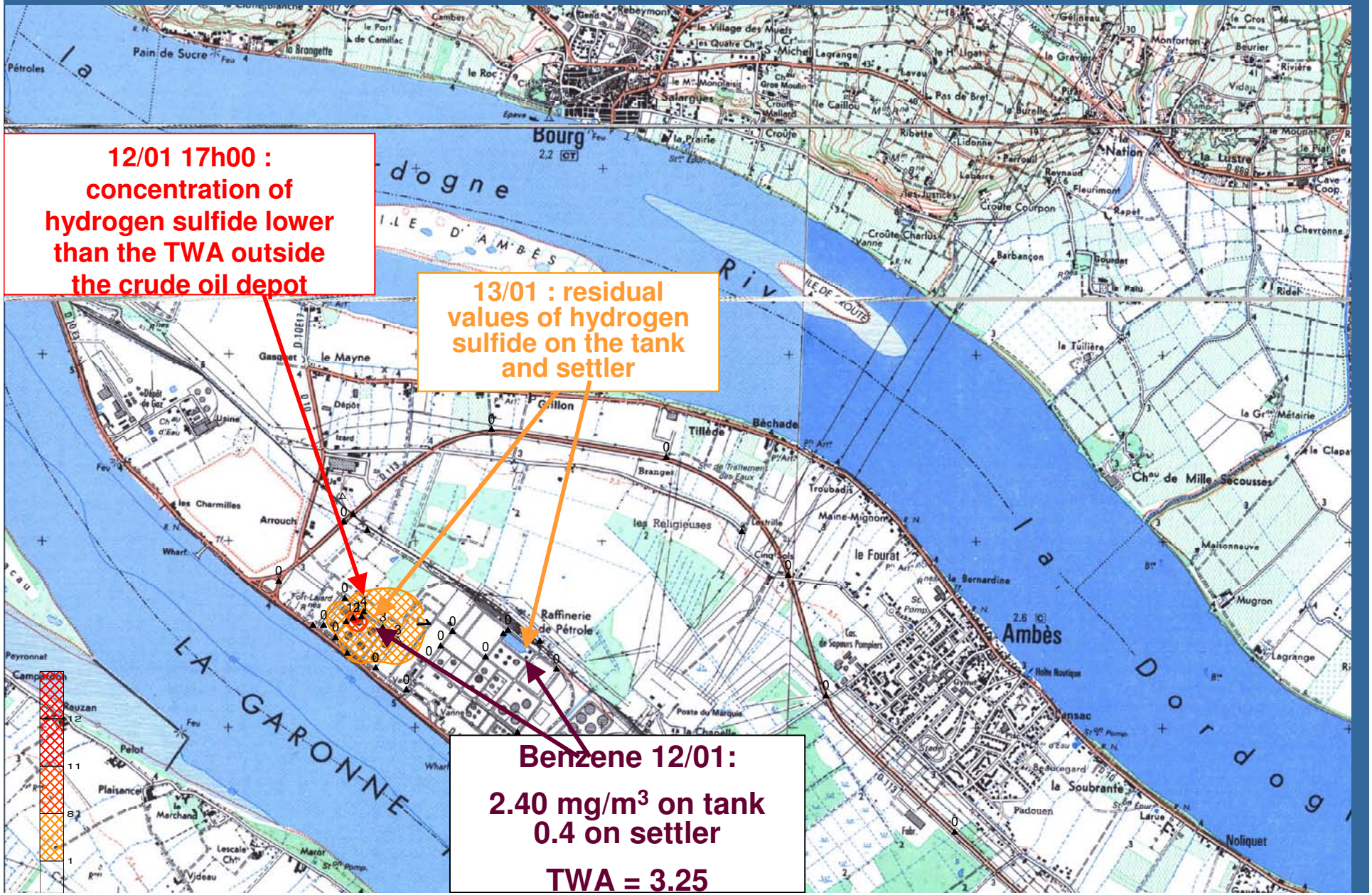
- Reconnaissance onsite: looking for potential victims, air quality monitoring (explosive gas, hydrogen sulfide)



- Spraying foaming agent on the settler

Air quality monitoring:
explosive gas, hydrogen sulfide, VOC (BTEX)

Air quality (source: SGS Laboratory)



- Evacuating of nearby population during one day

- Aerial observation of the impacted areas

- Alert of the railway company, port authority and neighboring companies for stopping navigation, rail traffic and activities

- Pumping of the oil contained in the retention pools (around 72 000 barrels)

- Transfer of all the oil in other tanks and closure of this part of the depot (8 tanks)

- Digging of spreading break trenches to contain surface oil and oil floating on the water table

- 80 people 24h/24 during 8 days

- End of the fire brigade response after 8 days and transfer of the response direction to the oil depot operator.

V. RESPONSE IN THE RIVER

FIRST SURVEY : aerial observation 12/01/2007

12/01/07 : around 50 m^3 of crude oil on the right bank of the *Garonne* river in the beginning of the flood tide.

SURVEY

SITUATION on the 13.01.2007

<u>Reconnaissance DRAGON 33 du 13.01.2007 (SDIS 33 / FOST)</u>

« Entre PK 45 et PK 35 : irisations.

Au niveau de PK 35 (Blaye) : stagnation du polluant sur les hauts-fonds.

De PK 35 à PK 10 : polluant libre en surface (traînées d'hydrocarbures de taille et de concentration variables.

En amont de PK 10 : irisations

Dordogne : berges souillées jusqu'à l'île de Croute. »

<u>Reconnaissance nautique du 13.01.2007 (SDIS 33 /Cedre) sur la Garonne</u>

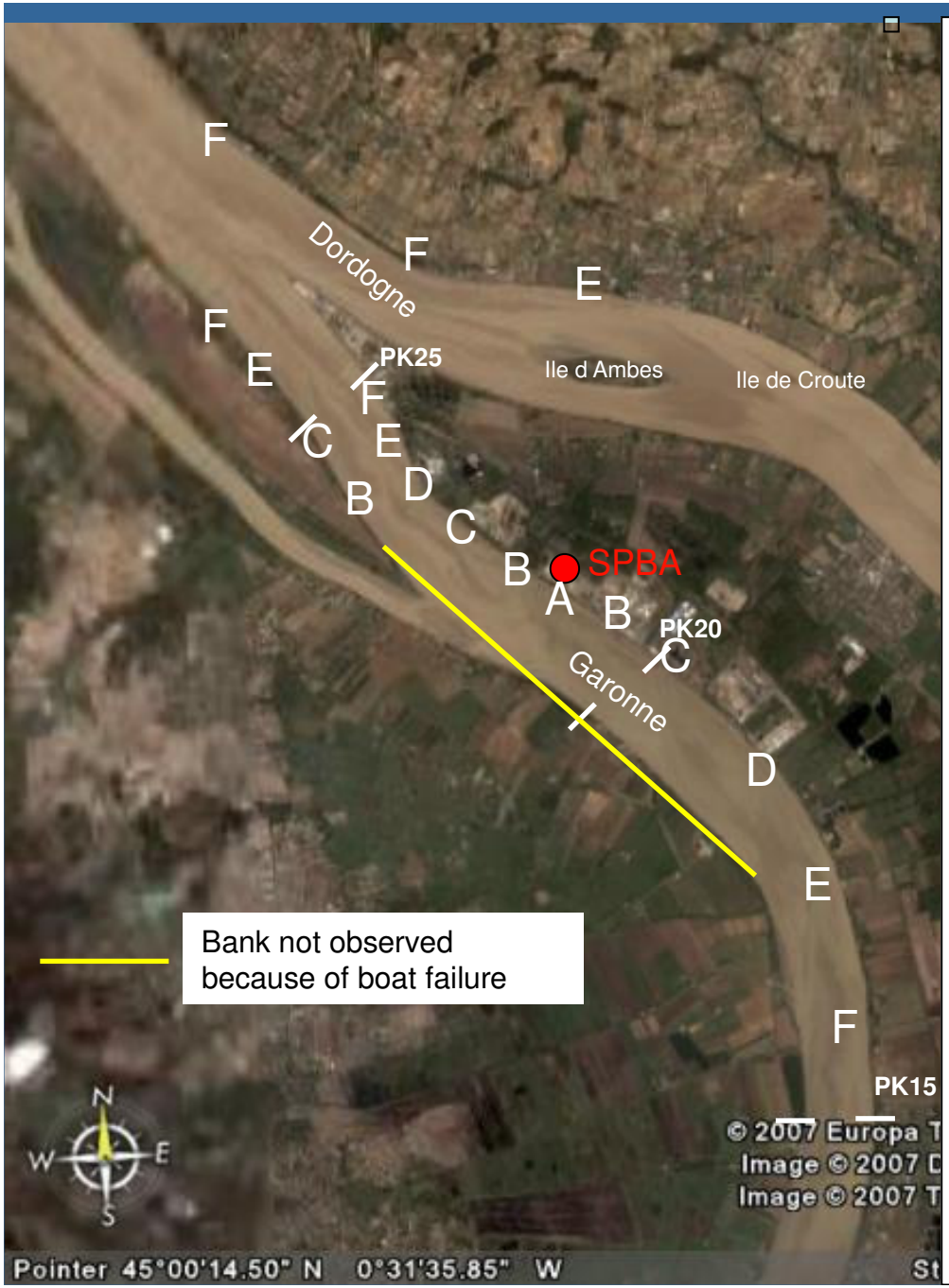
Berges rive droite, au droit du site : dépôt de polluant fluide sur la vase et la végétation

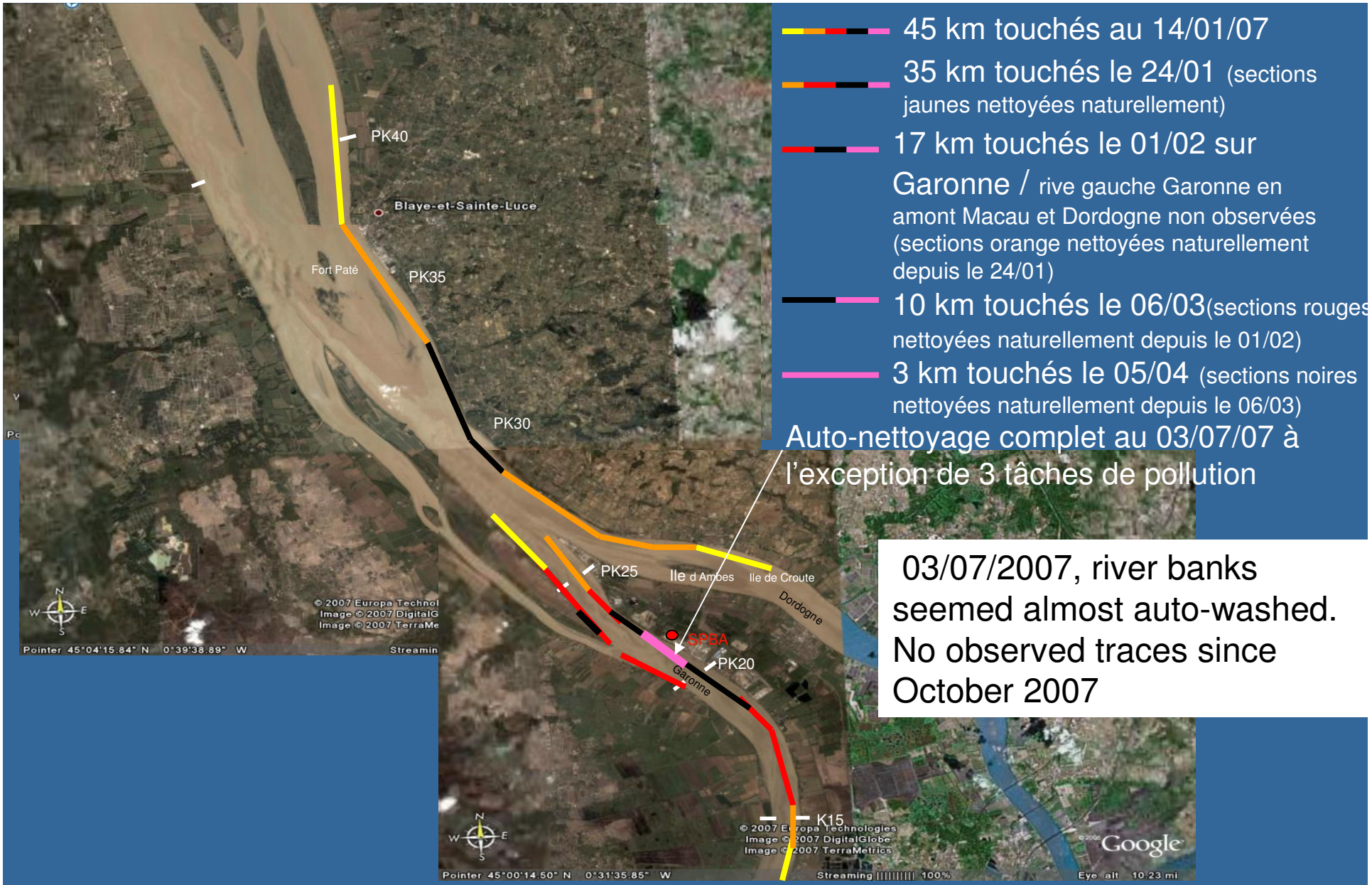
Entre PK 25 et PK 15 : polluant fluide sous forme de « traînées », celles-ci ayant tendance à se concentrer sous les appontements.

Au niveau de PK 15 (rive gauche) : liseré continu d'environ 15 cm de haut sur végétation rase.

<u>Remarque :</u> Avifaune : observations de quelques individus souillés

First complete nautical survey on 24 January 2007 by *Cedre*





Synthesis of the nautical survey (24/01, 01/02, 06/03, 03/07) and pedestrian survey (05/04 et 03/07).

RESPONSE AGAINST FLOATING OIL

Dispersant spraying (12/01/2007) + boat recovery attempt (13/01/07)

Arrangement of sorbent booms under the wharfs to catch floating pollutant despite two directions of tidal current (began 14/01/2007)

Dynamic then manual recovery of floating pollutant

(began 15/01/2007)

CONTAINMENT AND PUMPING OF OIL WHICH COULD FLOW TOWARDS THE RIVER

Pumping of pollutant accumulations near the banks (began 12/01/2007)

Fitting of tidal seal boom in front of main leak (15/01/2007)

Fitting of sorbent booms in front of other leaks

(began 14/01/2007)

Makeshift booms (wire netting + straw + geotextile) to reinforce existing system (began 18/01/2007)

Creation of earth dams to contain and recover pollutant in front of leaking sources (began 19/01/2007)

ROUGH CLEAN-UP OF THE BANKS

Manual recovery of polluted litters and vegetation to avoid remobilization due to increasing tide coefficient

(began 20/01/2007)

NO FINAL CLEAN-UP AS DECIDED DURING A MEETING CONDUCTED BY LOCAL AUTHORITIES IN FEBRUARY

VI. RESPONSE IN THE MARSHLAND CHANNELS

TO AVOID OIL SPREADING WITH MAKESHIFT BOOMS

TO PRUNE AND TO CLEAR

TO MARK ACCESS AND PROTECT THE GROUND

TO RECOVER THE OIL

USING LOCAL TOOLS

TO CUT, COLLECT AND EVACUATE OILED VEGETATION FROM THE BANKS

TO SCRAPE AND RINSE THE BANKS, USE OF SORBENTS

Regular visits on site for validation of the operations by industrials, municipalities, local authorities, NGO, insurance, etc

11/04/08

18/09/08

Example:
Channel J

20/02/07

07/03/07

04/04/07

23/04/07

02/07/2007

10/10/2007

18/12/2007

23/04/2008

18/09/2008

Marshland channels soil analysis :
(1st campaign)

- 172 samples during February 2008 on ranges 0-0,15 m depth and 0,15-0,30 m with systematic TPH analysis and PAHs + BTEX on 10 higher TPH rates
  - TPH :
    - Concentrations from detection limit to 87 000 mg/kg in the superficial layer near tank 1602
    - Average : 3 000 mg/kg
  - PAHs :
    - Concentration from 2,18 to 44,01 mg/kg, under 50 mg/kg (threshold for inert waste according to French regulation)
  - BTEX :
    - Low level, about 1 mg/kg, without traces of benzene

Marshland channels soil analysis :
(2nd campaign)

- 25 new samples during September 2008 of which 19 among most TPH polluted points of February 2008
  - TPH : concentration decrease by factor :
    - 2 to 10 for 11 samples
    - 35 to 9000 for those located in marshland channel nearest of tank 1602
  - Natural decrease, confirmed by laboratory biodegradation tests

Marshland channels water analysis :

- 8 samples during February 2008 downstream in each marshland channel
  - TPH :
    - Concentrations lower than 0,05 µg / L
  - PAHs :
    - No detection
  - BTEX :
    - No detection
- Sediments residual pollution has no impact on water quality

XI. WASTE MANAGEMENT

- POLLUTED SOILS :
  - Storage on site
  - Study on treatment process on going
- SOLID WASTE :
  - Storage into skip containers
  - Incineration as Dangerous waste
- LIQUID WASTE :
  - Storage and settling into settler
  - Oil reintroduced into process
  - Water polluted by foaming agent treated on site by biodegradation

Polluted soil

Polluted vegetation and other waste

Liquid waste





205 tons of polluted solid waste incinerated by the end of summer 2008 for an average cost of 500 €/ton

CASE STUDY