

# Chemical exposure of workers in soil remediation activities contaminated by hydrocarbons

**Objectives** Assess and measure the risk of chemical exposure during the different processing operations

Our job:  
making yours safer

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# Methodology

In-situ  
(5)

Old



- Metallurgical plant
- Gas plant
- Printing plant
- Service station

Remediation Process :

- Excavation
- Sort & Screening
- Venting/sparging + multi-phase extraction

Tasks :

- Screening – Sort
- Excavation
- Cleaning operation
- Burehold tube drilling
- Process control & sample

Outside (4)  
Under tent (1)

7 depollution sites



HCT  
COHV/BTEX  
HAP  
metals

- Ground staff
- Engin operators

- 3 days sample / site
- 4 workers / site
- 3 stationary point / site

- Internal MetroPol  
Methodology & sampling  
& analysis Protocol

Ex-situ  
(2)

Remediation platform  
Biocenter

Remediation Process

- Biopile

Tasks :

- Screening – Sort
- Biopile di & assembly
- Cleaning

# Results

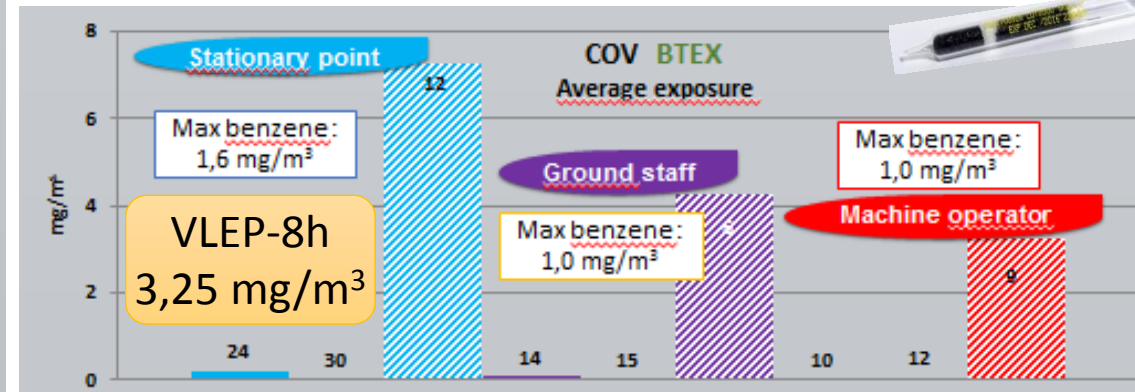
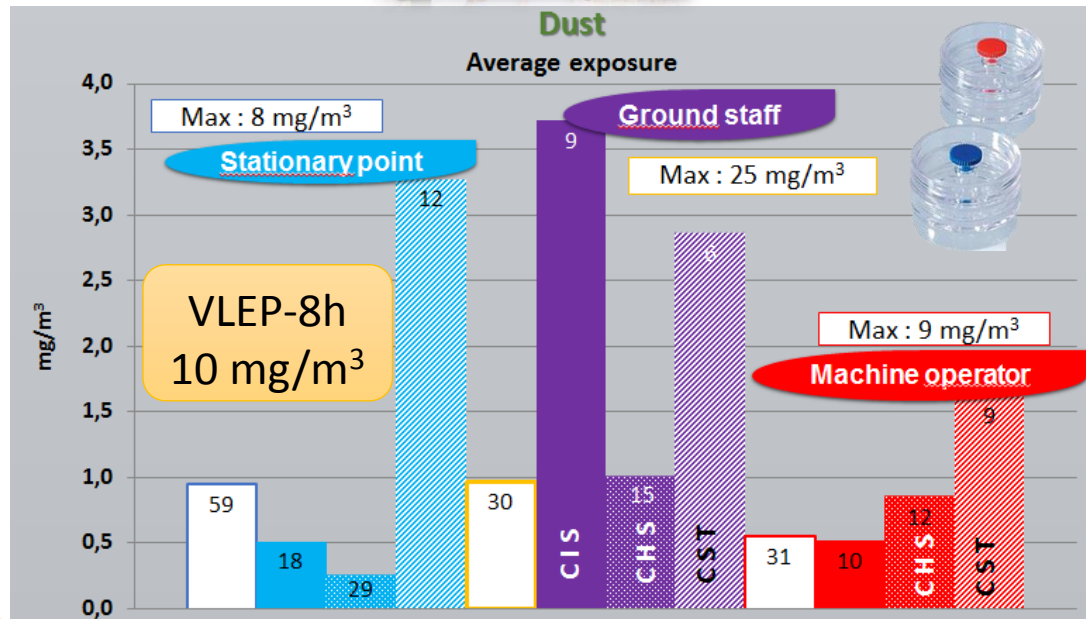


189 Stationary samples  
point (atmosphere) 9/day

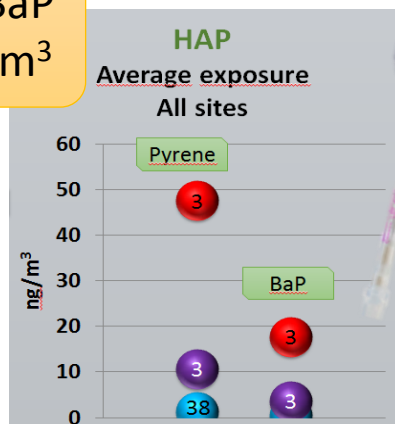
179 Individual samples  
point 9/day



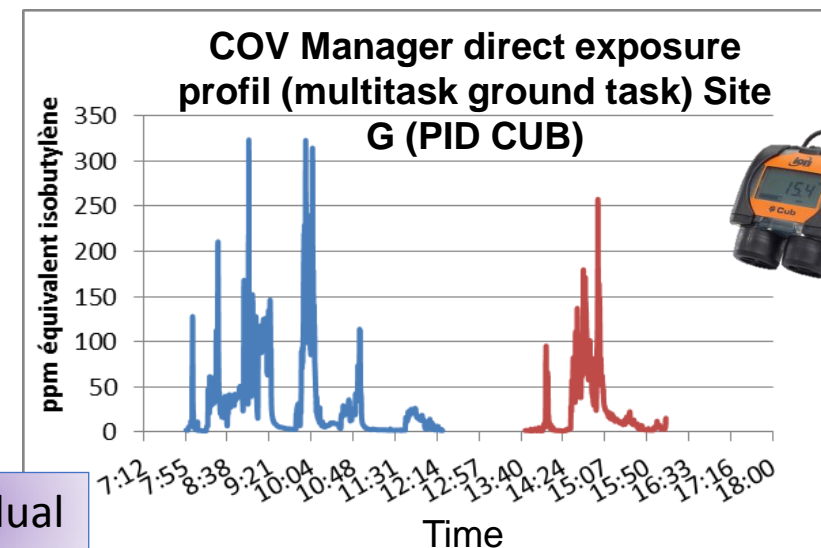
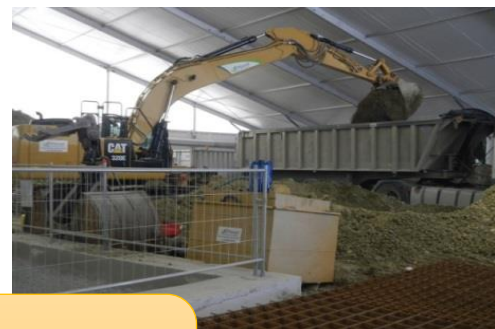
VLEP\_8h  
VLEP\_CT



CNAM BaP  
150 ng/m³



Concentration variation  
during working activities



Individual

# Results

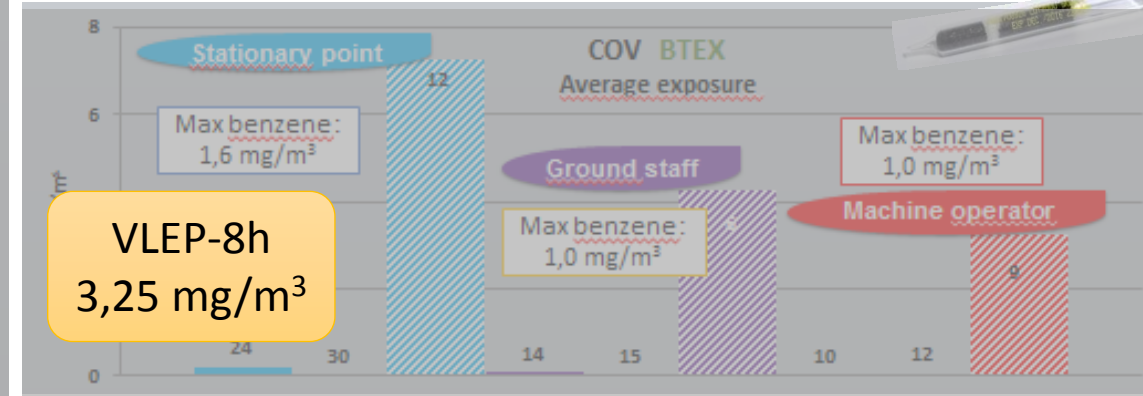
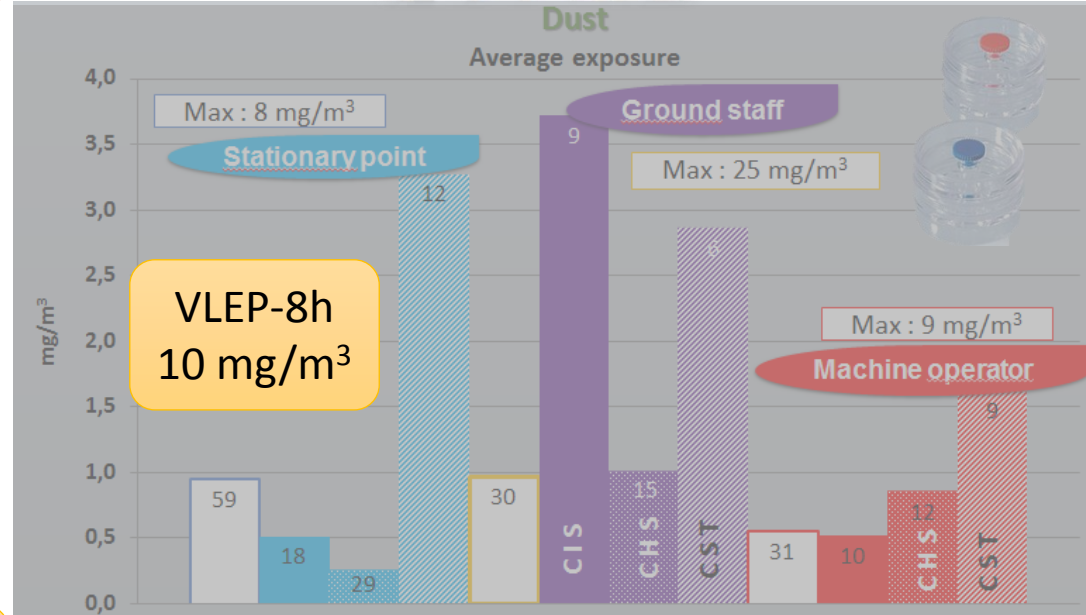


189 Stationary samples  
point (atmosphere) 9/day

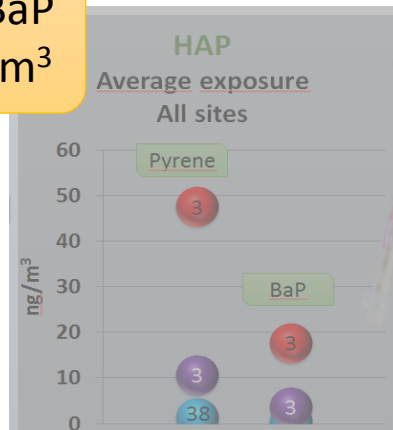
179 Individual samples  
point 9/day



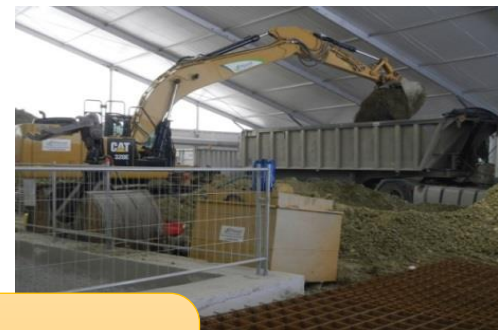
VLEP\_8h  
VLEP\_CT



CNAM BaP  
150 ng/m<sup>3</sup>

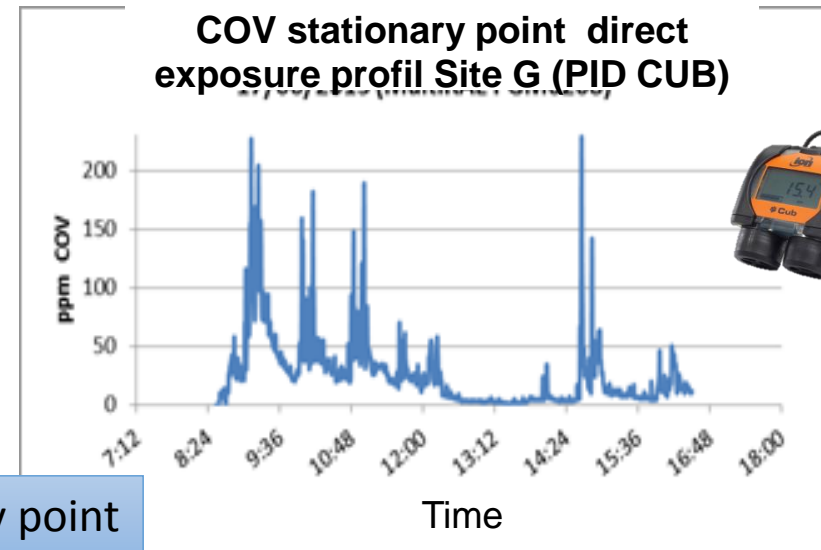


Concentration variation  
during working activities



Stationary point

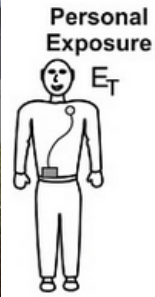
COV stationary point direct  
exposure profil Site G (PID CUB)





# Conclusion & Prevention

- Spatio-temporal variation of the pollution
  - > Collective prevention strategy is difficult to build
- Pollution pic



Dry weather & soil

Production during engine operation & screening

→ Strongly recommended

> Respirator & specific detector



> Engine equipped with well maintained Air-conditioned cabins pressurized & air purified (close windows)





# Any Question ?





Our job: making yours safer

Thanks for your attention



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You Tube

