



Methane to Markets



Oil & Gas SubCommittee

Eni Session

Natural Gas Leaks Detection and Recovery Experiences

Monday, 19th May 2008

Research Centre of Monterotondo, Rome – Italy

E. Fioravanti



R&D Department structure – Eni R&M

3 Sites



- **CR - SDM**
Oil & Gas (Upstream e Downstream)
Personnel: 301 (275 in reserch)
- **CR - MR**
Environmental Technologies
Personnel: 77 (64 in reserach)
- **AIP Milazzo**
Pilot plans
Personnel: 22 (19 in reserach)
- ❖ Equities in Venezia tecnologie

- GtL pilot plant at Sannazzaro de' Burgundi refinery;
- EST process CDP plant at Taranto refinery

Activities



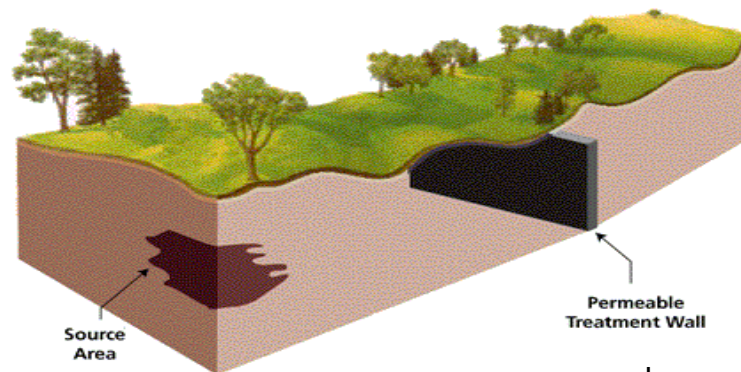
Research Center
for Environmental
Technologies



Site remediation

Sustainable technologies for site remediation

- Cleanup of soils contaminated by hydrocarbons, heavy metals and recalcitrant compounds
- Groundwater and surface water decontamination
- New products for marine oil spills
- Contaminated sediment management



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Waste and wastewater treatment

Waste valorization/recycle and wastewaters from upstream/downstream processes

- o **Industrial sludges**
- o **Drill cuttings**
- o **Water/wastewater reuse**



Atmospheric Pollution

Air quality monitoring

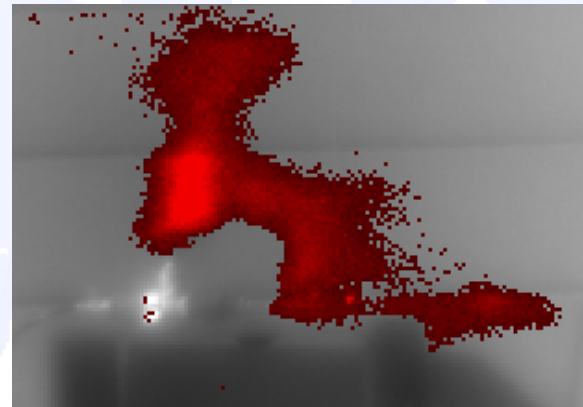
Mobile laboratory



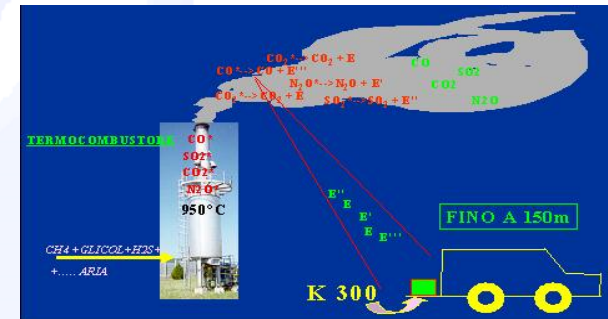
Monitoring station



Field application of prototype



**FT-IR Optical Remote sensing
Field application**

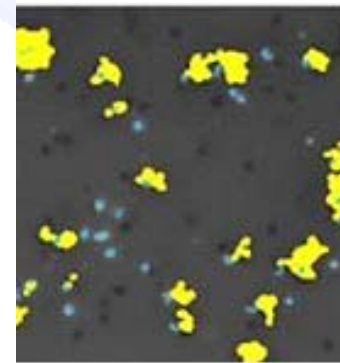
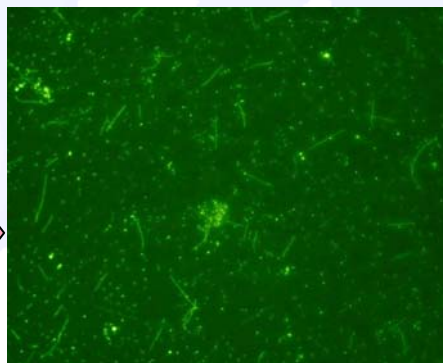
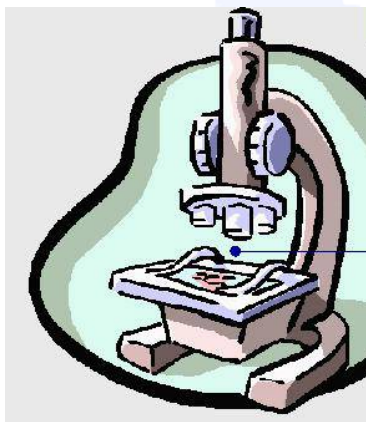


GHG quantification



Advanced systems for environmental impact assessment and reduction

- o Environmental management models
- o Characterization and monitoring of contaminated waters and soils
- o Indicators for evaluation of impacts on the eco-system



Fluorescent microscopy analysis

CO2 Biofixation

- Microalgae for CO2 biofixation and production of vegetable oil (Gela refinery)
- Carbon fertilization (Gela area)

Fuel Cells

- SOFC systems for power generation and distribution

Sulfur topic

- BIOREDOX process development (Gela)
- Sulfur storage proprietary systems





Other activities

- **ENVIRONMENTAL FORENSICS:**
Techniques and know-how for diagnostics of contamination sources in the environment
- Transformation and fate of ENI oils accidentally spilled in sea
- National-international networking in several fields of interest
- Technology monitoring and scouting of environmental products and processes

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Agenda

- 14.00-14.20 **Welcome, Opening Session**
Italian Ministry for the Environment Land and Sea
Emiliano Fioravanti, Head of the Eni Research Centre
- 14.20-14.40 **Eni experience and research with IR video-camera imaging**
Patrizia Buttini, Research Centre - Refining & Marketing Division
- 14.40-15.00 **Monitoring of Fugitive Emissions in a Gas Transportation Infrastructure**
Alberto Ialongo, Gas & Power Division
- 15.00-15.30 **Coffee Break**
- 15.30-15.50 **Gas Dispersion Reduction by Network of Rome**
Maurizio Girard, Italgas
- 15.50-16.10 **Measurement of methane as evidence of abatement of GHG –offshore Libya**
Leonardo Gelpi, Research Centre - Refining & Marketing Division
- 16.10-16.30 **Eni's Flaring Down projects: some examples in Africa**
Renato de Filippo, Exploration & Production Division
- 16.30-17.00 **Discussion**
- 17.00-18.00 **Laboratory visit and technology demonstration**