

26th World Gas Conference

1 – 5 June 2015, Paris, France



TEACHING *UNDERGROUND STORAGE OF GAS AND OIL*,
A MULTIDISCIPLINARY COURSE

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Teaching “underground storage of oil and gas”, a multidisciplinary course.

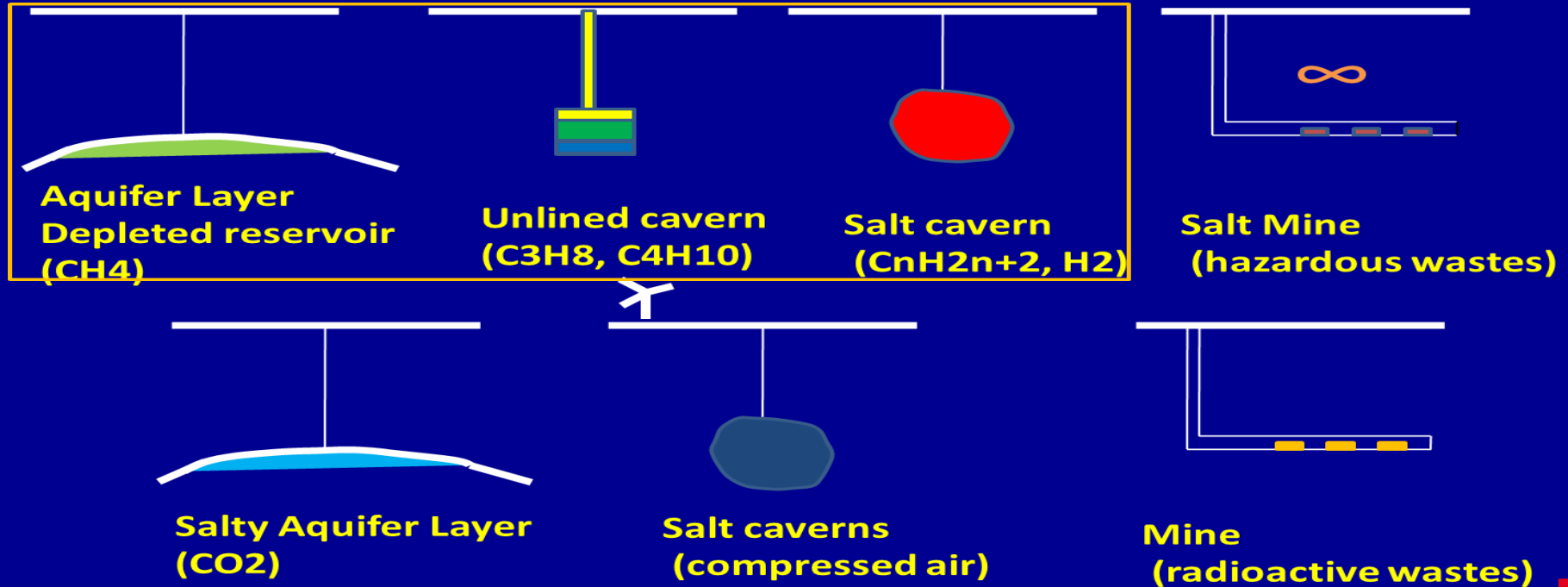
MASTER « UNDERGROUND WORKS IN THEIR ENVIRONMENT », 2015

Ashkan, Hossein, Trung, Luis Henrique, Manuel, Dioly, Van Vinh, Youssef, Sam, Jiaxin, Qui NanhSiham, Noura Sirine, Fatima, Khadija, Dinh Thi, Messaoud, Ngoc Kien, Tuan Vu, Sara, Faneva, Haffsa, Chi Cong

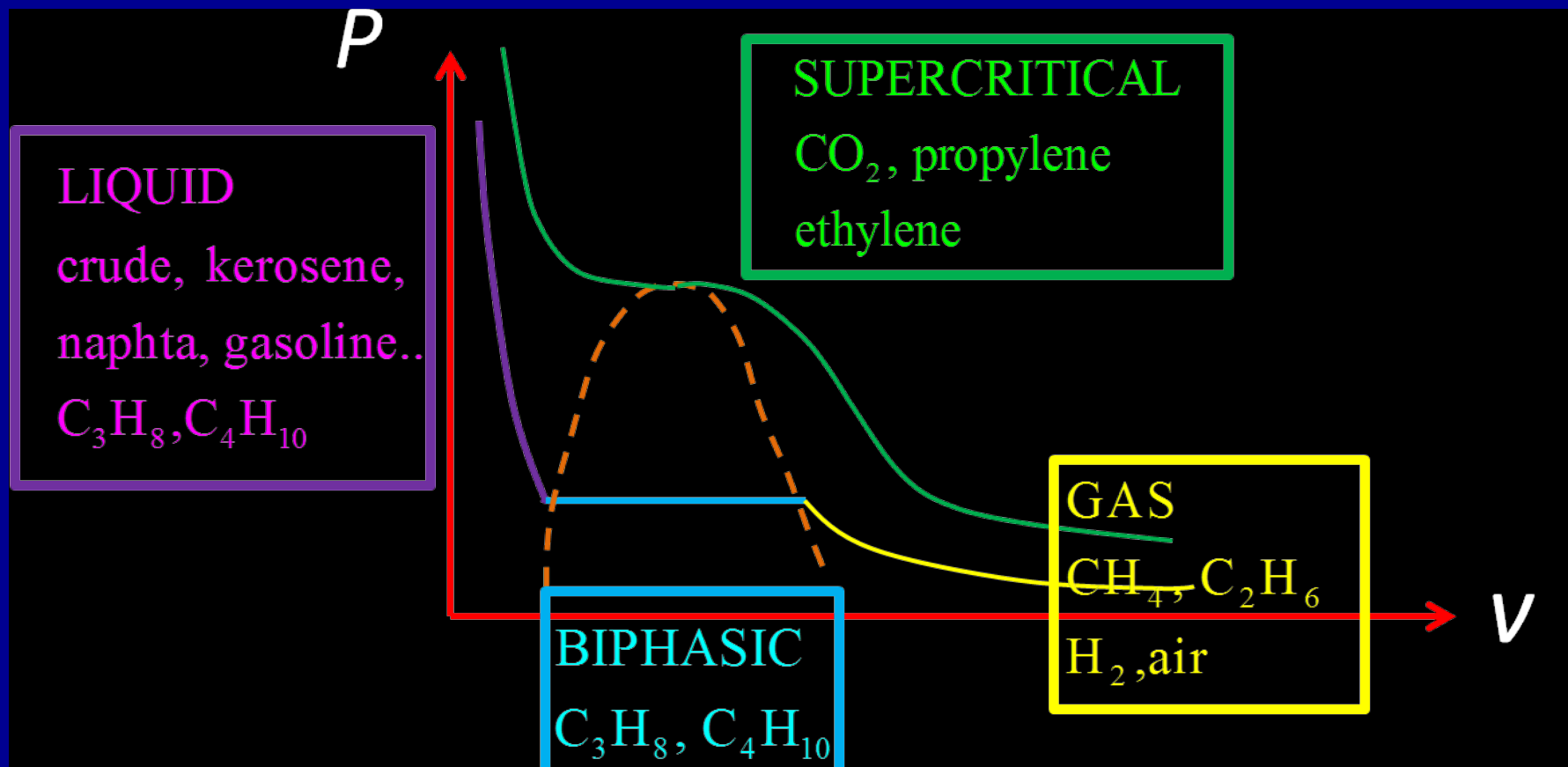
POLYTECH PARIS, UNIVERSITY P. & M. CURIE, 2015



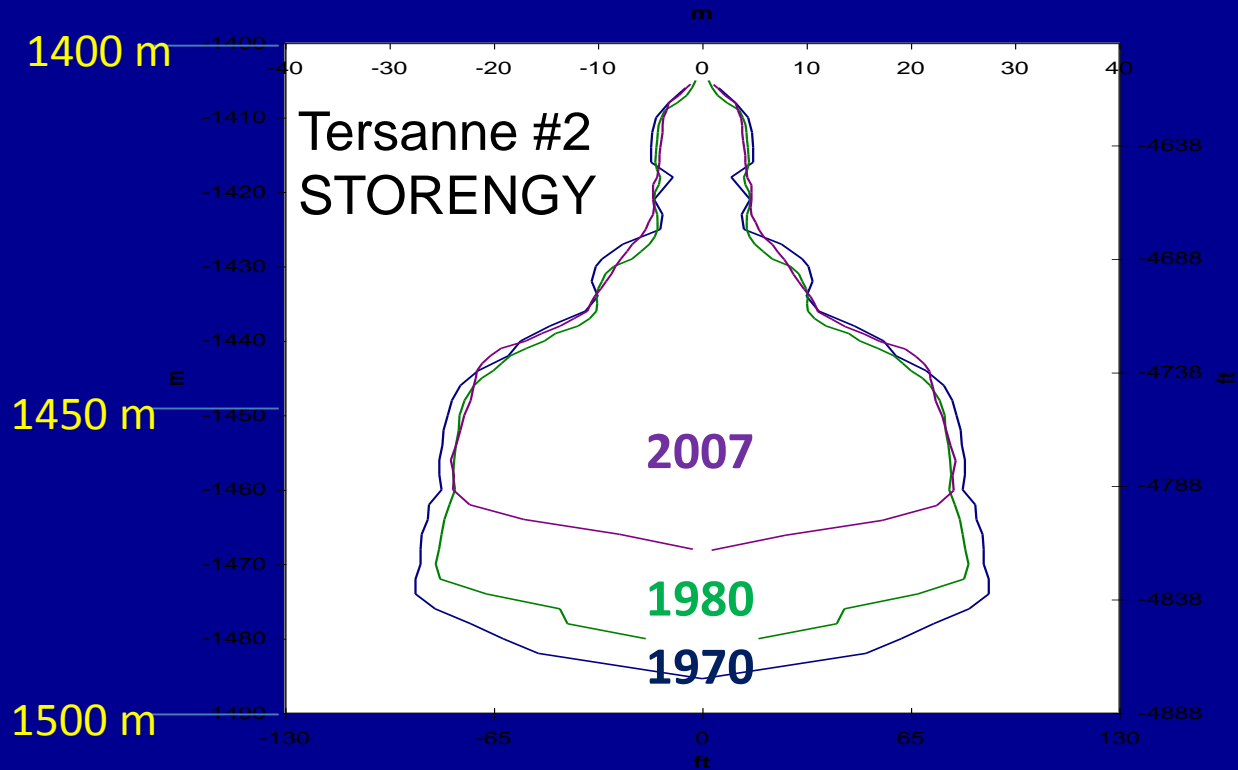
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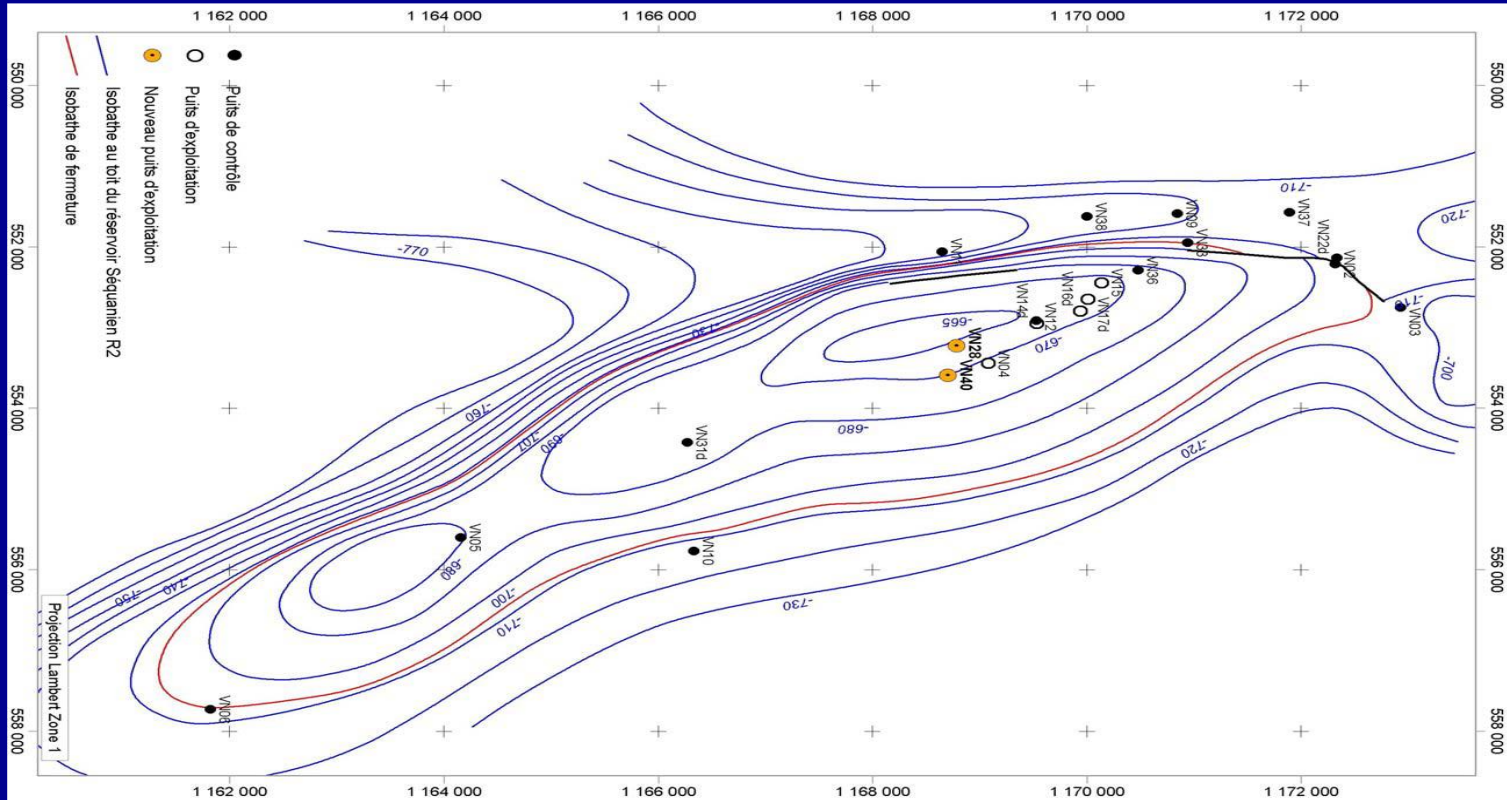


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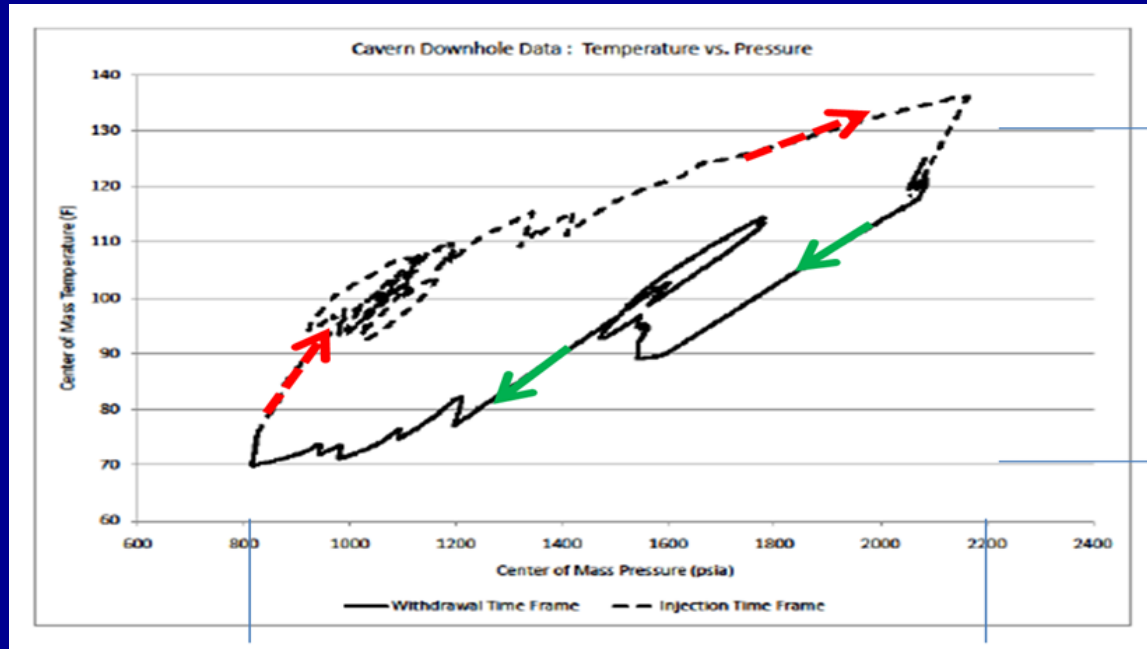
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IZAUTE-LUSSAGNET NATURAL GAS STORAGE (Courtesy TIGF)

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800 psi

2200 psi

130°F

70°F

P-T CYCLE IN A GAS STORAGE CAVERN

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HYDROCARBONS ARE VALUABLE BECAUSE OF THEIR PROPERTY OF RELEASING LARGE QUANTITIES OF ENERGY WHEN THEY BURN OR EXPLODE. BY NATURE, THEY ARE HAZARDOUS PRODUCTS.

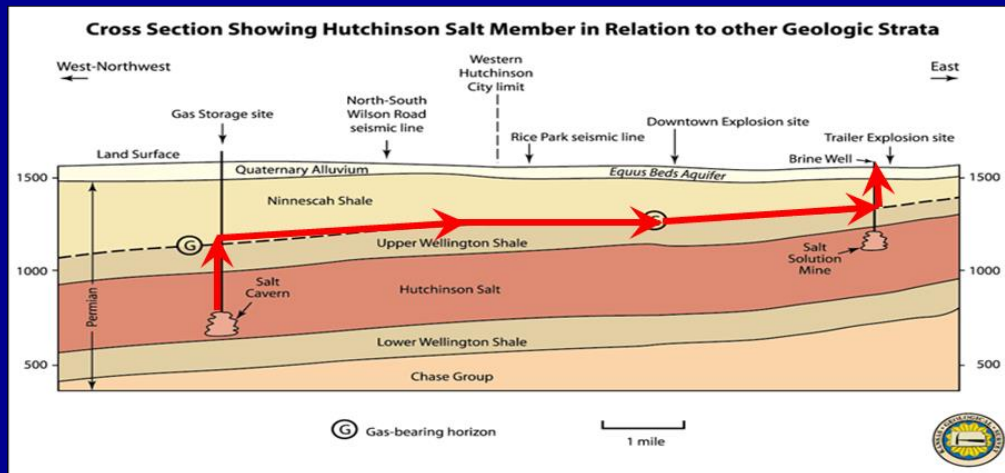
ASSESSMENT OF THE RELIABILITY THAT THE PUBLIC RIGHTLY DEMANDS MUST BE BASED ON AN ESTIMATE OF THE SHORTCOMINGS OF ALTERNATIVE SYSTEMS.

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UNDERGROUND STORAGE IS THE SAFEST WAY OF STORING LARGE QUANTITIES OF HYDROCARBONS:

- They are separated from oxygen by hundreds of meters
- This same barrier is a protection from fire, willful damage, aircraft impact ..
- High pressures is the natural state of fluids in the underground
- The industry has steadily reduced technical hazards and failures by drawing lessons from incidents/accidents

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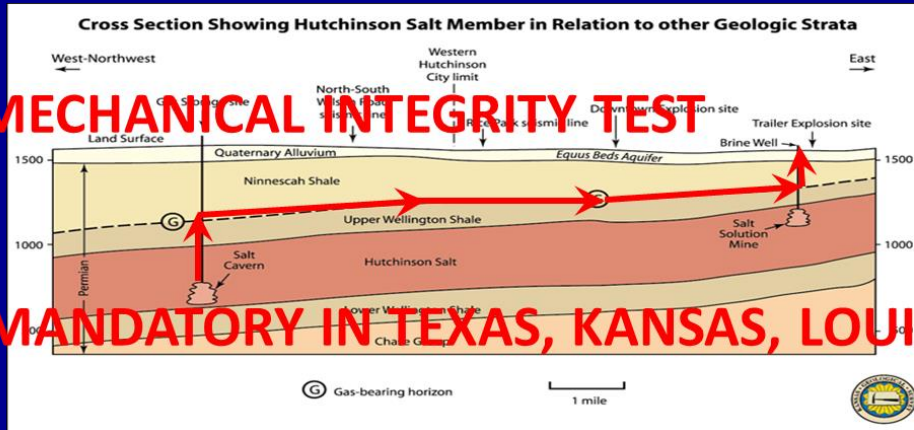
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CARELESS CONVERSION FROM PROPANE TO NATURAL GAS

POOR MECHANICAL INTEGRITY TEST

(NOW MANDATORY IN TEXAS, KANSAS, LOUISIANA)



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PROPANE BLOW-OUT AT BRENHAM, TX

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« ... if we think [the people] not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education »

Thomas Jefferson

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QUESTIONS?