CCS pilot project in Lacq, a guide for a Hungarian project

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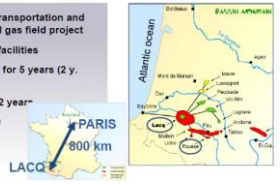
CCS pilot project in Lacq

CCS pilot, Lacq, SW France
Objectives

- An integrated carbon capture, transportation and geological storage in a depleted gas field project
- Industrial scale within existing facilities
- Official authorization: May 2009 for 5 years (2 y. injection and 3 y. observation)
- Up to120,000 t CO_2 injection in 2 years
- Start up injection: January 2010
- Project budget: 60 M€



Source: Lescanne, 2011

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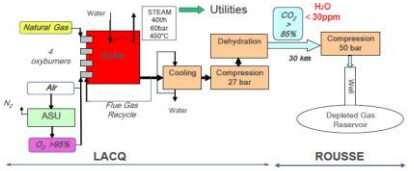
CCS pilot project in Lacq

Oxycombustion as part of a CCS integrated pilot



- Industrial scale 30MWth oxycombustion unit with gas
- Revamping of a conventional boiler
- CO_2 transport and injection for 2 years
- 120 kt CO_2 storage in a depleted reservoir
- First CO_2 injection for storage in France
- Public acceptance with consultation and dialogue
- Upscaling of oxyboilers for high steam/power generation

Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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CCS pilot project in Lacq

Air Separation unit by cryogenic distillation

- 240 t/day of oxygen
- 95% to 99,5% oxygen purity
- Nitrogen for CO2 dehydration molecular sieves regeneration

Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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Oxyburner implementation into Lacq CH2 boiler

Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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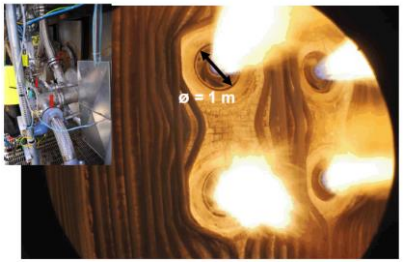
CCS pilot project in Lacq

"Oxyfiring" started on July 3rd, 2009



Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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CO2 compression, dehydration and export

Source: Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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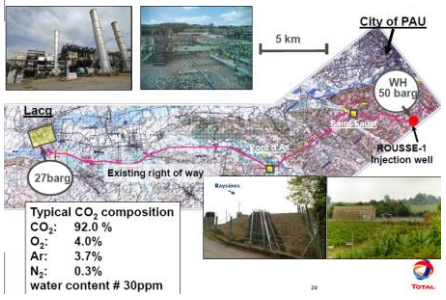
CCS pilot project in Lacq

Transportation and injection into a gas depleted reservoir



Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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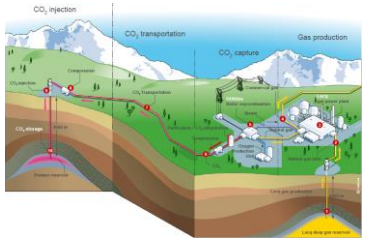
CCS pilot project in Lacq



Source: Aimard, 2007

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CCS pilot project in Lacq
Transportation pipeline

„The Rousse compressor is a one-stage reciprocating compressor with 330kW power, designed to compress to CO_2 stream from 27 barg to 51 barg for injection in the reservoir".

Source: Aimard The experience of Lacq industrial CCS reference project, 2010

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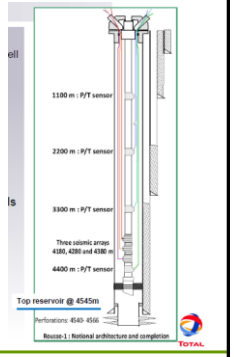
CCS pilot project in Lacq
Injection well

„The CO_2 is injected through an existing well, Rousse #1, which was used from 1972 to 2008 to produce wet sour gas."

Monne, SPE 157157



Source: Lescanne, 2011

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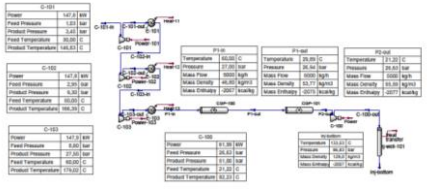
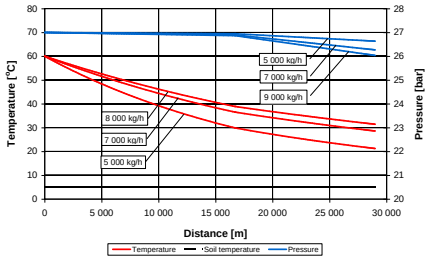
CCS pilot project in Lacq
Calculation model (HYSYS)



Source:

12

Calculated results



Forrás:

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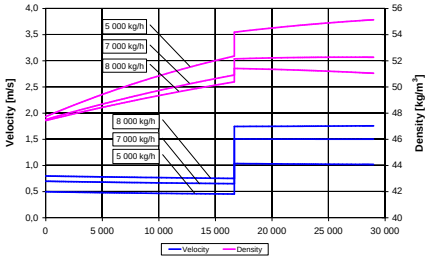
Calculated results



Forrás:

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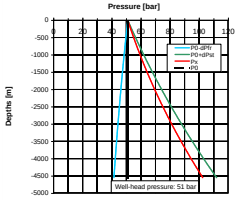
Calculated results – Well-head pressure: 51 bar

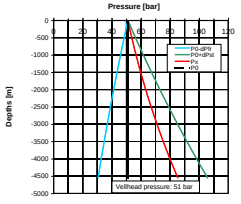


Flow-rate: 5000 kg/h

Forrás:

15

Calculated results – Well-head pressure: 51 bar

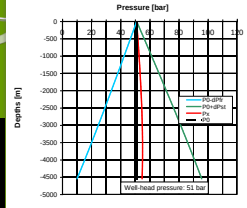


Flow-rate: 7000 kg/h

Forrás:

16

Calculated results – Well-head pressure: 51 bar

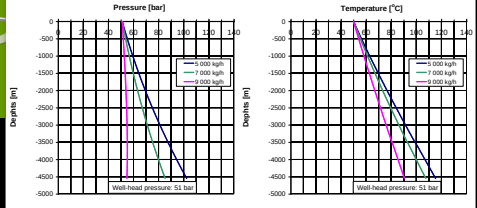


Flow-rate: 7000 kg/h

Forrás:

17

Calculated results – Well-head pressure: 51 bar



Forrás:

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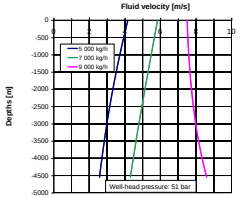
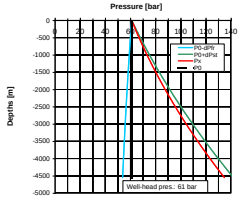
Calculated results – Well-head pressure: 51 bar



Forrás:

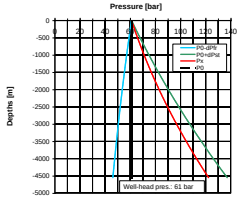
Calculated results – Well-head pressure: 61 bar



Flow-rate: 5000 kg/h

Forrás:

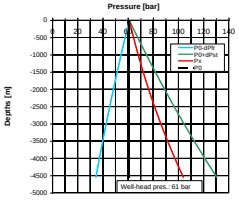
Calculated results – Well-head pressure: 61 bar



Flow-rate: 7000 kg/h

Forrás:

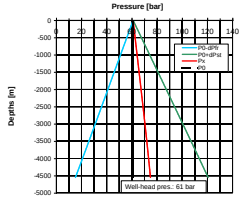
Calculated results – Well-head pressure: 61 bar



Flow-rate: 9000 kg/h

Forrás:

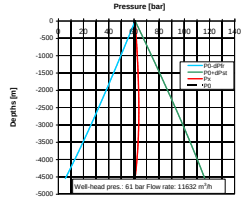
Calculated results – Well-head pressure: 61 bar



Flow-rate: 11000 kg/h

Forrás:

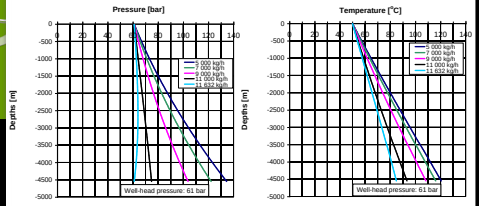
Calculated results – Well-head pressure: 61 bar



Flow-rate: 11632 kg/h

Forrás:

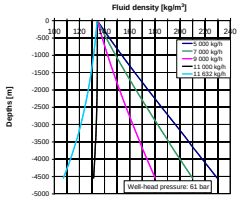
Calculated results – Well-head pressure: 61 bar



Well-head temperature: 50 °C

Forrás:

Calculated results – Well-head pressure: 61 bar



Well-head temperature: 50 °C

Forrás:

Thank You for listening!

Köszönöm megtisztelő figyelmüket!