Utilisation of CMM and AMM in Germany

Case studies
Utilization AMM

**System used in Germany**

Connection between surface and abandoned mine

mostly pipe in filled shaft

New drilling in old underground roadway
Utilized from 2003 to 2017:
- 3.7 Bil. Nm³ Methane
- 62 Mio. t CO2-Equivalent avoided
Case study: Lucentec

Von Threedots (Daniel Ullrich), CC BY-SA 3.0.
Case study: Luentec
Case study: Luentec

Shaft sealing

2000

Power [kW]
Mine pressure [mbar abs]
CH4 [%]

Waterlevel in abandoned mine Achenbach

Shaft filled -430 mNN
highest Roadway +002 m Depth

20.06.2018

CMM / AMM Utilization
Case study: Luentec

 Shaft sealing

2004

- Power [kW]
- Mine pressure [mbar abs]
- CH4 [%]

Waterlevel in abandoned mine Achenbach

Shaft filled -430 mNN

highest Roadway -002 m Depth

20.06.2018

CMM / AMM Utilization
Case study: Luentec
Case study: Luentec

Project results over time

- Power [kW]
- Mine pressure [mbar abs]
- CH4 [%]
Case study: Corvin-2
Case study: Corvin-2

AMM-Quality
Case study: Corvin-2

AMM-Utilisation

- Mine pressure [mbar abs]
- Power production [kW]
Case study: Lohberg

Data Mine Lohberg
Closure Lohberg: 12/2005
Shafts 1 and 2 covered and Gas extraction operating still in 2018
Shaft Nordschacht filled with degassing pipe, operating
Shaft 3 in 2000 filled, Shaft 4 still open

Number of IC-engine working

- Mine closed
Case study: Lohberg

CMM – AMM – Production

Methane Production and Utilisation - Mine Lohberg

- active mine <-> closed mine
- measured
- forecast

SUM Power [MWh]
expected Methane [m³]
used Methane [m³]
Conclusions

- AMM quality and mine pressure change over time
- AMM capture is possible, even if the highest roadway is flooded as long as the end of the degassing pipe in the abandoned mine is above the water level
Thank you for your attention

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