

Table of Contents

Summary	1
Zusammenfassung	3
1 Introduction.....	5
1.1 CO ₂ content in natural gases	6
1.2 CO ₂ content in biogas	7
2 Natural CO₂ occurrences	8
2.1 CO ₂ gas reservoirs.....	8
2.1.1 CO ₂ -Reservoirs of the western USA.....	10
2.1.2 CO ₂ reservoirs in Europe	11
2.2 EOR with CO ₂	15
2.3 Production of CO ₂ rich natural gases in Europe.....	19
2.3.1 Corrosion due to CO ₂ and H ₂ S in sour gas wells.....	19
2.3.2 Corrosion during production of CO ₂ containing sweet gases	24
3 Investigation of CO₂ storage projects.....	26
3.1 Overview of CO ₂ storage projects.....	26
3.2 Particular investigations of CO ₂ effects on the CCS storage formation....	27
3.3 CO ₂ effects on wellbores.....	32
3.3.1 Steel corrosion of the well completion	32
3.3.2 CO ₂ cement corrosion	34
3.4 CO ₂ effects on CCS surface facilities.....	36
4 Town gas and natural gas experiences from underground storages in Europe	37
4.1 Reservoir effects of CO ₂ in town gas	37
4.1.1 Corrosion experience in town gas UGS	38
4.2 Natural Gas reservoirs in Germany	41
4.3 UGS in France: Effects of CO ₂ content on the reservoir formation	41
4.3.1 Observations at changing gas provenance.....	41
4.3.2 Inert gas injections.....	42
4.4 Well integrity	43
4.4.1 Experimental investigation of town gas.....	43
4.4.2 Experimental investigation of natural gas	44
5 Conclusions	45
6 References	48
Appendices	56