Pictures and texts of corrosion of air energy storage pipelines

Can oxyfuel gas reduce corrosion risk in a pipeline?
Since water as well as oxygen and acid gas components are required to get significant corrosion of pipeline materials,any reduction of one of these components in the CO 2 stream would lower the corrosion riskof the pipeline. So far only experiments with oxyfuel gas mixtures were performed.

Does a pipeline have a low corrosion rate?
Conclusions If conditions in a pipeline are maintained so that the water content and other contaminant levels are kept extremely low (i.e. from drying),as is currently the case for EOR pipelines,then corrosion rates are also likely to be sufficiently low,as suggested by empirical evidence.

What if a less rigorous pipeline strategy is adopted?
However,if for economic reasons a less rigorous strategy is adopted,then the pipeline may fall into regimes B,C or D,and additional corrosion prevention measures would be required.

Do aqueous phases cause high corrosion rates?
Experimental work indicates that high corrosion rates may resultif an aqueous phase exists,particularly in the presence of contaminants that may acidify this aqueous phase. However,such tests have been carried out in laboratory chambers and cannot account for flow effects in pipelines.

What if corrosion occurs under regime B & D?
Significant corrosionis likely to occur under regimes B-D,and under regimes C and D it would certainly be at such levels to necessitate intervention,either by the application of a coating technology,the use of a cathodic protection system,or by a program of monitoring and repair.

How does pH affect corrosion rate?
For a given concentration of additional contaminant (e.g. HNO 3 or HCl),the pH of the aqueous phase will decrease as the percentage concentration of the aqueous phase increases,and thus it is unclearif the corrosion rate will fall or rise as the water content increases above the solubility limit.

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