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Characterization and Injection Tests Planned at the Hontomin CO2 Injection Site

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Hontomin is the site for the CO2 storage Technology Demonstration Plant of the Compostilla OXYCFB300 ptoject, operated by CIUDEN. CO2 will be injected in a dolomitized level located at some 1450 m depth. A large number of experiments are planned both for site characterization and for injection technology development.

Expected characterization experiments include conventional hydraulic tests but also some CO2 storage specific test. Among these, a mid-term (several days) high pressure, high flow rate, water injection test will be performed to identify potential brine leakage paths and to assess mechanical stability issues. To this end, the site will be heavily instrumented to measure microseisms and mechanical deformation. Push-pull tests using both reactive and inert tracers will be performed to assess the porosity structure and in situ reactivity of the rock. Supercritical CO2 (with gaseous tracers) push pull tests will also be performed to assess retention mechanisms. Tracers will allow identifying chromatographic effects so as to characterize CO2 dissolution rates.

Regarding the CO2 injection phase, several injection techniques will be tested to promote CO2 stabilization. These include continuous and fluctuating injection rate, temperature controlled injection, dissolved CO2 and prior injection of gases tests will be performed. The interpretation of these tests should allow us to validate the injection concepts implicit in the long term geological storage of CO2. The presentation includes a description of the monitoring instrumentation, test sequence and design calculations.