CO_2 INJECTION FEASIBILITY STUDY FOR CARBON CAPTURE AND STORAGE (CCS), CANADA

Canada anticipates capturing and storing 15 million tons of carbon dioxide (CO_2) annually by 2030. Growing the CCS industry and reaching these storage levels will require building several new CCS facilities - profitably.

Our client, a Canadian energy company, had an opportunity for an underground storage facility by converting a depleted gas reservoir to CO_2 storage. RPS reservoir engineers supported them in determining the economic viability of this potential project.

Evaluating the reservoir

As with most energy projects, site selection is one of the most critical factors in determining its success. Our client, an energy company, engaged with **reservoir engineers** at RPS to perform an early-stage feasibility study of the project. We calculated that the injection flow rate of this reservoir would take 24 months to fill. This time would not be nearly long enough to make the project economically viable. Additionally, during the study, an investigation of the injection well showed issues with corrosion, making it unworkable for a CO_2 injection well.

The reservoir size and the wells' suitability for injection are significant factors for geological sequestration. Before spending additional capital on site investigation or leasing, these factors should be determined.

Our feasibility study reported on the following:

- Reservoir capacity
- Reservoir injectivity
- Reservoir containment, including plume development and offsetting wells penetrating the reservoir
- Reservoir depth, temperature, pressure, thickness, porosity
- Reservoir compatibility with CO_2
- Cost estimates for the required completion modifications to convert the existing injection well into a CO_2 injector well
- Estimated original in-place volumes:
- Estimated volumes and time for injection
- Evaluation of the proposed injection well

In this case, the reservoir size was too small to justify the capital allocation of converting the site for CO_2 injection and storage. Although, on the face of it a negative result, the early feasibility analysis saved our client time and money to put into better quality opportunities.