MIDWEST GEOLOGICAL SEQUESTRATION CONSORTIUM

INJECTION WELL #1 (CCS1)

CCS1 Specification Sheet

Location: 39.876963 N and 88.893410 W

Elevation: The Rig Kelly Bushing (RKB) is 15 ft (5 m) above the surface elevation, or 674 ft (205 m) above Mean Sea Level.

Drilling Company: Les Wilson Inc., Rig 25

Spud and Target Depth Date: 2/14/2009 to 5/4/2009

Total Well Cost: ~$6.6 million

Wellbore Geometry and Drilling Fluids at Section Target Depth

Surface Section:

Hole: 0–355 ft (0–108 m), Diameter: 26 in (0.66 m)
Casing: Surface to 355 ft (0–108 m), Diameter: 20 in (0.51 m)
Cement Type: Surface to 355 ft (0–108 m), Class A Lead (L) & Tail (T)
Drilling fluids: Water/gel, 9.7 ppg

Intermediate Section:

Hole: 355–5,339 ft (108–1,627 m), Diameter: 17 1/2 in (0.45 m)
Top Casing: Surface to 3,630 ft (0–1,106 m), Diameter: 13 3/8 in (0.34 m), W: 59.5 lbs/ft
Bottom Casing: 3,630–5,339 ft (1,106–1,627 m), Diameter: 13 3/8 in (0.34 m), W: 66.17 lbs/ft
Cement Type S1: 3,715–5,339 ft (1,132–1,627 m) Class H (L & T)
Cement Type S2: Surface to 3,715 ft (0–1,132 m), Lead 65/35 P0z/H and Tail Class H
Drilling Fluids: Water/gel, 9.1 ppg
Lost circulation while drilling. Cement plugs required.

Final Section:

Hole: 5,339–7,236 ft (1,627–2,206 m), Diameter: 12 1/4 in (0.31 m)
Top Casing: Surface to 5,272 ft (0–1,607 m), Diameter: 9 5/8 in (0.24 m), Grade: N-80
Bottom Casing: 5,272–7,219 ft (1,607–2,200 m), Diameter: 9 5/8 in (0.24 m), G: 13Cr80
Cement Type: 4,170–7,219 ft (1,271–2,200 m), EverCRETE* CO_2-resistant cement system (T)
Cement Type: Surface to 4,170 ft (0–1,271 m), 35:65 P0z: Class H (L)
Injection Tubing: 0–6,363 ft (0–1,939 m), Diameter: 4 1/2 in (0.11 m), G: 13Cr80
Drilling Fluids: Water/gel, 9.8 ppg

Packer:

The top of the packer is set at a wireline-referenced depth of 6,363.7 ft (1,939.6 m) with the center of the sealing elements at 6,365 ft (1,940 m). This QUANTUM MAX* (Q-Max) is a high temperature-high pressure seal bore packer built of CR-85 material and CO_2 compatible elastometers, retrievable production packer. Type III Service Tool, Q-Max 13 Chrome.

Downhole Injection Pressure/Temperature Gauge:

Location: Mounted within the downhole solid gauge mandrel at a measured depth of 6,325 ft (1,928 m) as part of the tubing completion.
Make/Model: Schlumberger/NDPG-CA (P/N 500897)

*Mark of Schlumberger

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Passive Seismic Sensing System (PS^3):

Three level and four component geophones located at: 4,925 ft (1,501 m), 5,743 ft (1,750 m), and 6,137 ft (1,871 m).

Digital Temperature Sensing (DTS):

DTS is a fiber optic cable that measures temperature every 1.624 ft (0.5 m) within a thousandth of degree of accuracy every 30 seconds. The DTS cable runs from the back of the DTS machine and is trenched underground and into the well to a depth of 6,326 ft (1,928 m). The measurement is derived from the phase changes observed in the incoming reflections of a sequence of laser pulses that are continuously fired through the fiber optic line installed along the outer diameter of the injection tubing. The phase changes between outgoing and incoming laser pulses are correlated to the temperature conditions in the fiber.

Perforations: (55 feet total)

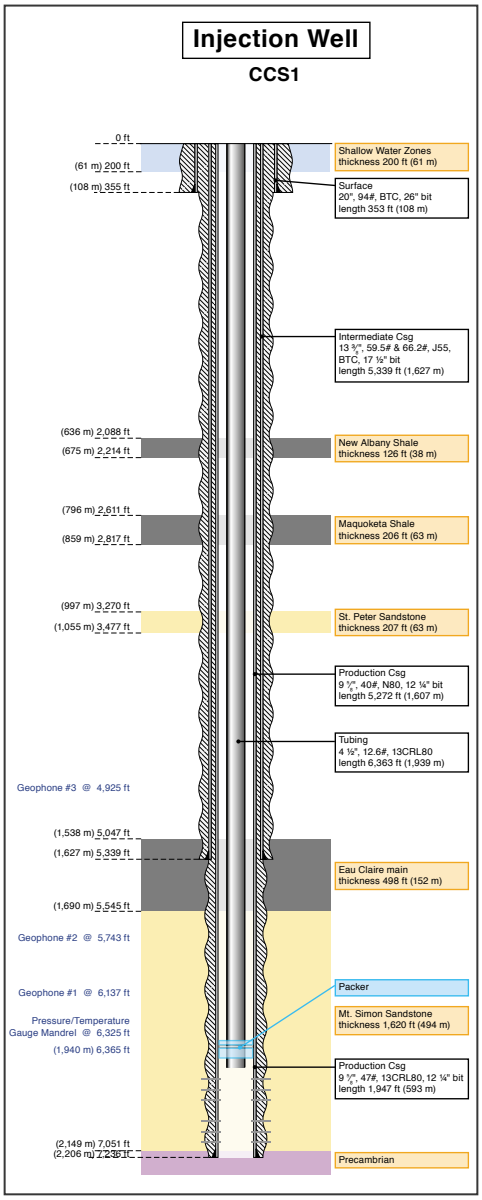
The injection well is fully-cased and perforated in the intervals 6,982–7,012 ft (2,128–2,137 m) and 7,025–7,050 ft (2,141–2,149 m) with 6 shots per foot and a shot phasing of 60 degrees.

Regulatory Requirements [Permit Section]:

- Less than 1,950 psig at the wellhead. [B.1.a (3/76)]
- Injection rate between 14.1 tonnes per hour to 49.7 tonnes per hour. [B.1.b (4/76)]
- No more than 1,200 tonnes per day and 1 million total tonnes. [B.1.c (4/76)]
- Wellhead temperature between 60–150° F (15.6– 65.6° C). [B.1.d (4/76)]
- Temperature survey and time-lapse sigma log every 24 months. [B.4.h.vii. (11/76)]
- All logs must be submitted and signed off by a qualified log analysis. [B.4.h.viii. (11/76)]
- Annulus pressure greater than 400 psi. [B.1.e.ii. (5/76)]
- Annual pressure falloff (PFO) Test. [B.5 (13/76)]
- Annual CCS1 annulus pressure test. [H.26.c (28 & 42/76)]

Coring Summary (Whole Cores)

Hole Section (in)	Formation Name	Length (ft)	Core Top (ft)	Core Bottom (ft)
12 1/4	Eau Claire-Mt. Simon Transition	30	5,474	5,504
12 1/4	Mt. Simon	30	6,404	6,434
12 1/4	Lower Mt. Simon	30	6,750	6,780



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