

US EPA ARCHIVE DOCUMENT

ATTACHMENT A: SUMMARY OF REQUIREMENTS

CLASS VI OPERATING AND REPORTING CONDITIONS

Facility Name: FutureGen 2.0 Morgan County CO₂ Storage Site
IL-137-6A-0004 (Well #4)

Facility Contacts: Kenneth Humphreys, Chief Executive Officer,
FutureGen Industrial Alliance, Inc., Morgan County Office,
73 Central Park Plaza East, Jacksonville, IL 62650, 217-243-8215

Location of Injection Well: Morgan County, IL; 26–16N–9W; 39.80111°N and 90.07544°W

Injection Well Operating Conditions:

PARAMETER/CONDITION	LIMITATION or PERMITTED VALUE	UNIT
Maximum Injection Pressure		
Surface	1,171	psig
Downhole	2,237	psig
Annulus Pressure	100 minimum	psig
Annulus Pressure/Tubing Differential	100 above surface injection pressure	psig

The *downhole gauge* for injection pressure monitoring is located at: 3,850 feet below ground surface.

The maximum injection pressure, which serves to prevent confining-formation fracturing, was determined using the following formula/methodology:

- For *maximum injection pressure using a downhole pressure gauge*, the maximum pressure is calculated as follows: 90% of fracture pressure of the injection zone. Therefore, the maximum injection pressure using downhole pressure gauge is 2,252 psia or $2,252 - 14.7 = 2,237$ **psig**.
- For *surface maximum wellhead injection pressure*, this limitation was calculated using the following formula: $[\{90\% \text{ of fracture gradient} - (0.433 \text{ psi/ft})(\text{specific gravity})\} \times \text{upper depth of perforated interval}] - \text{atmospheric pressure}$. The maximum wellhead injection pressure is: $[\{0.585 - (0.433)(0.64)\} \times 3850] - 14.7 = 1,171$ **psig**.

If the downhole pressure gauge fails to function properly, then the maximum injection pressure shall immediately be limited to the calculated surface pressure until the downhole pressure gauge is repaired or replaced.

Shutdown Procedure:

The permittee has not developed procedures for implementing a gradual well shutdown.

Therefore, unless and until other procedures are developed and approved, every situation that warrants shutting down the well (from routine maintenance to emergency conditions) will require an immediate shutdown.

Summary of Class VI Injection Well Reporting Frequencies:

ACTIVITY	MINIMUM REPORTING FREQUENCY
CO ₂ stream characterization	Semi-annually
Pressure, flow, rate, volume, pressure on the annulus, annulus fluid level and temperature	Semi-annually
Corrosion monitoring	Semi-annually
External MIT	Within 30 days of completion of test
Pressure fall-off testing	In the next semi-annual report

Note: All testing and monitoring frequencies and methodologies are included in Attachment C (the Testing and Monitoring Plan) of this permit.

Summary of Class VI Project Reporting Frequencies:

ACTIVITY	MINIMUM REPORTING FREQUENCY
Ground water quality monitoring	Semi-annually
Plume and pressure front tracking	In the next semi-annual report
Surface air and/or soil gas monitoring	In the next semi-annual report
Monitoring well MITs	Within 30 days of completion of test
Financial Responsibility updates pursuant to H.2 and H.3(a) of this permit	Within 60 days of update

Note: All testing and monitoring frequencies and methodologies are included in Attachment C (the Testing and Monitoring Plan) of this permit.