

# Keeping an Eye on Injected CO<sub>2</sub> CCUS MONITORING

Permanently storing CO<sub>2</sub> captured from industrial sources can help address climate change concerns.

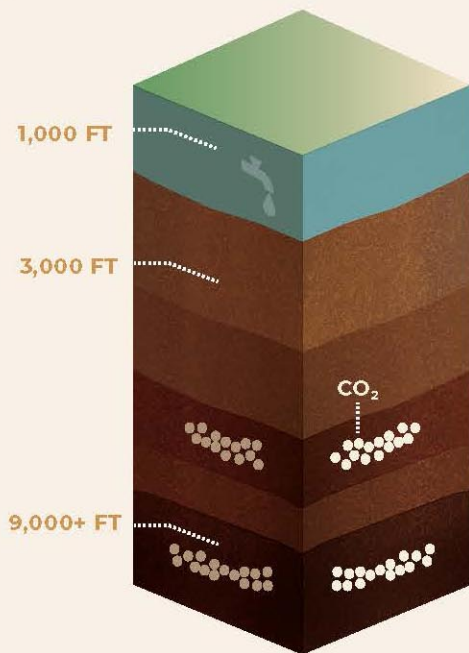
## HOW DO WE KNOW THE PROCESS IS SAFE?

CO<sub>2</sub> capture, utilization, and storage (CCUS) projects are designed to be safe for humans and the environment. Plans and operations throughout the CCUS project ensure the CO<sub>2</sub> will stay within the geologic rock layer into which it's injected.

## BEFORE THE PROJECT BEGINS:



CCUS professionals select only the best sites for safe, permanent CO<sub>2</sub> storage



### CONTAINMENT

Sealed container (sealing or cap rocks above the storage zone)

### CAPACITY

More than enough space to hold all the injected CO<sub>2</sub>

### STABILITY

No geologic faults in the surrounding rock

### DEPTH

Ample barriers between the storage zone and sources of drinking water

### CHEMISTRY

Rock compatible with CO<sub>2</sub> injection

### PRESSURE

Injection pressure won't break rock layers



Predict lateral movement of CO<sub>2</sub> in the storage zone



How far will the CO<sub>2</sub> move over time?



How fast?



Seek project approval from North Dakota regulatory authority to operate storage facilities and inject CO<sub>2</sub>

- ✓ Provide proof that the permanent storage container is safe
- ✓ Provide plans for:



Safe injection and monitoring



Leak detection and reporting

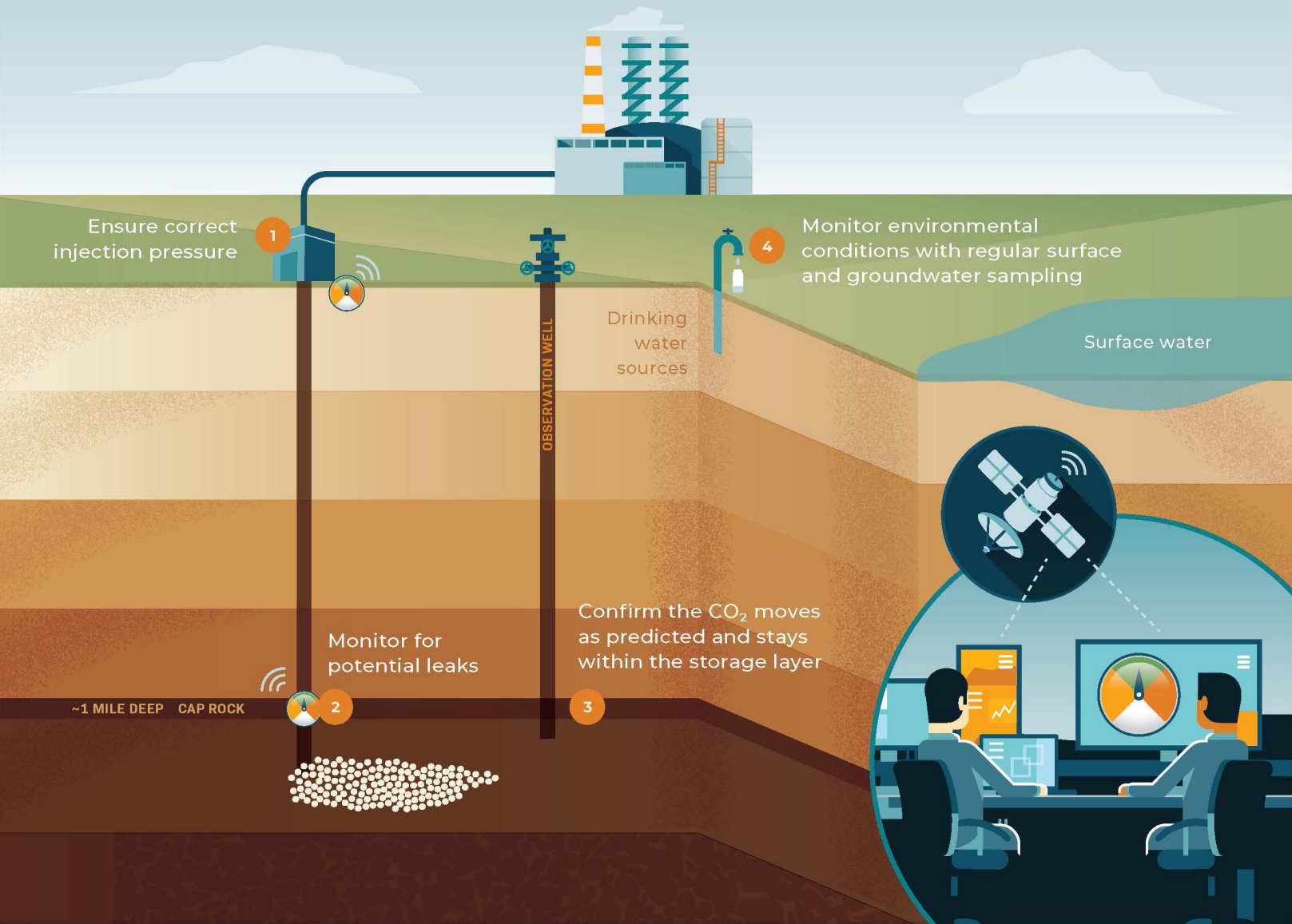


Risk assessment and mitigation



Post-injection site care and closure

## DURING THE CO<sub>2</sub> INJECTION PHASE:



## AFTER THE CO<sub>2</sub> INJECTION PHASE HAS ENDED:

Continue monitoring according to permit plan until the CO<sub>2</sub> stops moving (at least 10 years)



### DEEP UNDERGROUND MONITORING

Monitor to ensure that the CO<sub>2</sub> remains securely stored in the storage zone



### AT/NEAR THE SURFACE MONITORING

Monitor environmental conditions to assure no effects from CCUS

Support the development of CCUS  
in North Dakota as a clean energy strategy.

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