



Through the Underground Injection Control (UIC) program, EPA protects underground sources of drinking water (USDWs) by regulating the construction, operation, permitting, and closure of injection wells that are used for the underground storage or disposal of fluids. Class VI wells are specifically used to inject carbon dioxide (CO<sub>2</sub>) into deep rock formations. The UIC permitting authority reviews Class VI permit applications to ensure that injected CO<sub>2</sub> will remain within deep, isolated formations, protecting human health and the environment.

**KEY**

- Site geology
- Injection, monitoring, and other wells
- Drinking water resource protection practices
- Water table

- |   |  |   |  |
|---|--|---|--|
| <p><b>1</b> Thick, impermeable confining layer prevents CO<sub>2</sub> from leaking upward</p> <p><b>2</b> Permeable injection formation will hold injected CO<sub>2</sub></p> <p><b>3</b> Testing shows that the fault is inactive and sealed against movement of CO<sub>2</sub></p> <p><b>4</b> Water quality is tracked in the permeable formation above the confining layer using a monitoring well</p> | <p><b>5</b> Pressure and CO<sub>2</sub> in the injection formation are tracked using a monitoring well</p> <p><b>6</b> CO<sub>2</sub> injection well is permitted for safe operation with many safeguards</p> <p><b>7</b> Cementing prevents CO<sub>2</sub> from moving outside of the well</p> <p><b>8</b> Well materials are corrosion-resistant</p> <p><b>9</b> Properly plugged and abandoned well prevents CO<sub>2</sub> movement between formations</p> | <p><b>10</b> Seismic activity is monitored using surface equipment as needed</p> <p><b>11</b> Shallow groundwater well is isolated from the injection formation by multiple impermeable layers</p> <p><b>12</b> Seismic surveys are used to study the geology and track the location of CO<sub>2</sub> through images of the subsurface</p> | <p><b>13</b> Safe CO<sub>2</sub> injection pressure avoids damaging the injection formation</p> <p><b>14</b> Regular testing confirms the physical integrity of the well</p> <p><b>15</b> Injection pressure and flow are continually monitored</p> <p><b>16</b> Emergency response plan is in place and ready to be implemented</p> |
|---|--|---|--|