

# WHAT EVERY WYOMING LANDOWNER SHOULD KNOW ABOUT CARBON CAPTURE AND STORAGE

A CCS RESOURCE GUIDE AND  
FREQUENTLY ASKED QUESTIONS

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School of  
Energy Resources

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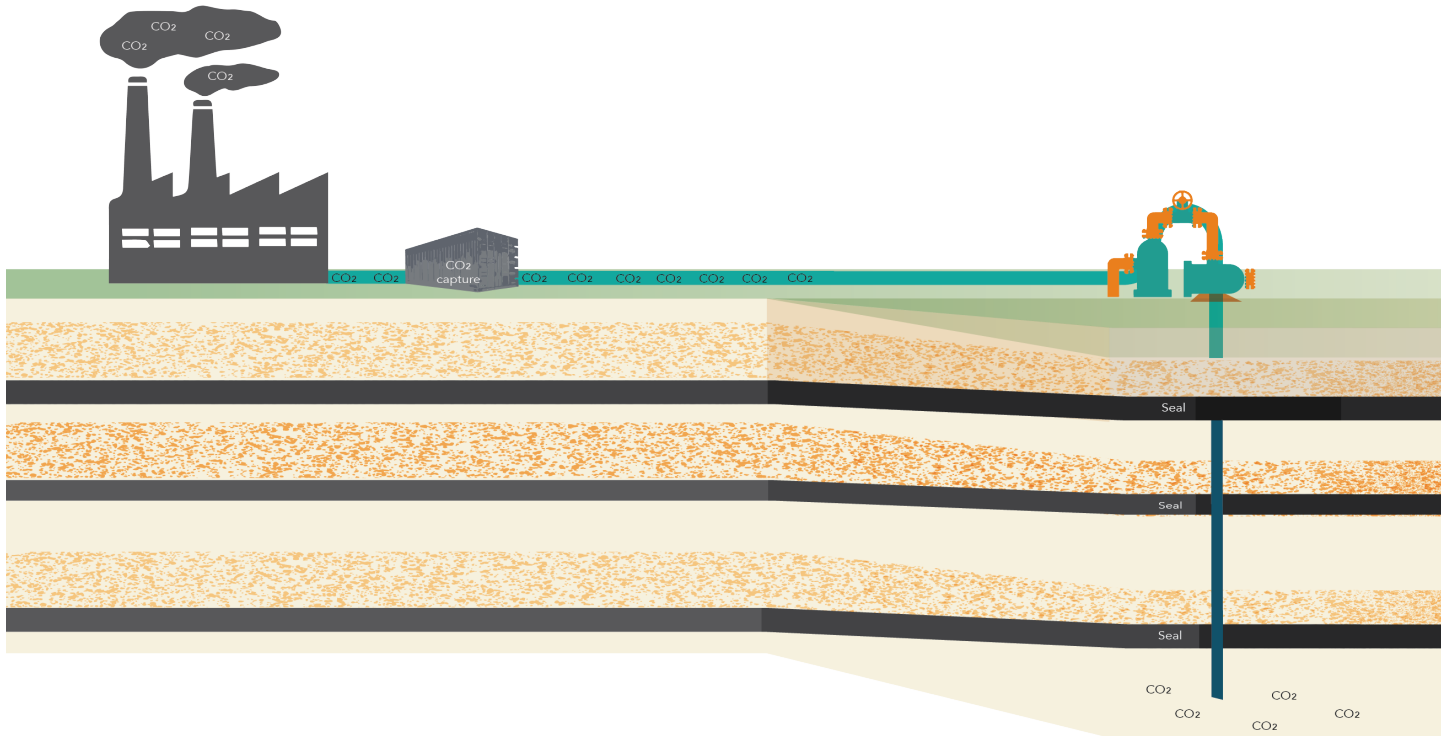
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# WHAT EVERY WYOMING LANDOWNER SHOULD KNOW ABOUT CARBON CAPTURE AND STORAGE (CCS)<sup>1</sup>

## WHAT IS CARBON CAPTURE AND STORAGE?

Carbon capture and storage (“CCS”) is the process of capturing carbon emissions including carbon dioxide (“CO<sub>2</sub>”) molecules and storing them into underground geologic formations.<sup>2</sup> CCS may also include transporting CO<sub>2</sub> via pipelines from capture sources to injection wells.



## WHAT ARE THE POTENTIAL RISKS OF CCS?

CCS is highly regulated to limit risks to public health and the environment. CO<sub>2</sub> transportation and injection operations have been conducted for decades as part of operations for enhanced oil recovery, and in many places, CO<sub>2</sub> exists naturally in the subsurface. CO<sub>2</sub> is a non-flammable gas and does not pose a risk of explosion. Concerns about CCS include the possibility of leakage into the atmosphere or into other subsurface formations, including those containing oil and gas or groundwater.<sup>3</sup> In rare cases, a high concentration leak from a pipeline or injection well could pose health and safety concerns.<sup>4</sup>

<sup>1</sup> This publication was authored by Carson Tanner as part of an independent study supervised by Professor Tara Righetti. Carson graduated with a J.D./M.A. in Environment and Natural Resources at the University of Wyoming, and will be joining Yonkee & Toner, LLP as an associate attorney upon passing the 2023 Wyoming bar exam.

<sup>2</sup> United States Geologic Survey, *What's the Difference Between Geologic and Biologic Carbon Sequestration?* <https://www.usgs.gov/faqs/whats-difference-between-geologic-and-biologic-carbon-sequestration> (last visited April 9, 2023).

<sup>3</sup> See, e.g., John Fogarty and Michael McCally, *Health and Safety Risks of Carbon Capture and Storage*, 303 J. OF THE AMERICAN MEDICAL ASSOCIATION 67, 68 (2010); Elizabeth J. Wilson, *et al.*, *Assessing a Liability Regime for Carbon Capture and Storage*, 1 ENERGY PROCEDIA 4575, 4576 (2009) (internal citation omitted); Ian Havercroft and Richard Macrory, *Legal Liability and Carbon Capture and Storage: A Comparative Perspective*, GLOBAL CARBON CAPTURE AND STORAGE INSTITUTE at 11 (2014).

<sup>4</sup> See Fogarty and McCally *supra* note 3.

## HOW IS CCS REGULATED?

CCS is regulated by Class VI of the Underground Injection Control Program of the Safe Drinking Water Act.<sup>5</sup> The program is administered either by the Environmental Protection Agency (the “EPA”) or by state agencies who have obtained primacy over the Class VI program.<sup>6</sup> To achieve primacy, a state must have implemented a Class VI regulation program which meets EPA’s minimum requirements; Wyoming has achieved primacy.<sup>7</sup>

In Wyoming, the water quality division of the Department of Environmental Quality (“DEQ”) is the state agency responsible for regulating injection operations as part of CCS.<sup>8</sup> The Class VI permitting process requires the injector to demonstrate the ability of the subsurface formations to safely contain the CO<sub>2</sub>, establishes stringent well construction standards, and imposes monitoring obligations to limit potential risks associated with CCS.<sup>9</sup>

## WHO IS RESPONSIBLE IF SOMETHING GOES WRONG?

Wyoming law clarifies that injectors maintain the title and responsibility for any CO<sub>2</sub> they maintain and store underground. The law explicitly provides that landowners—as pore space owners—will not be liable for CCS operations “solely by virtue of their interest or by their having given consent to the injection.”<sup>10</sup>

If injectors meet certain criteria, and after a period of at least 20 years following the cessation of injection, the injector can apply to transfer liability to the State by requesting a “certificate of project completion.”<sup>11</sup> When an injector receives a certificate of project completion, the injector is “forever released from all regulatory requirements associated with the continued storage and maintenance of the injected carbon dioxide,” and “[p]rimary responsibility and liability” for the carbon dioxide transfers to the State. To cover these obligations, injectors into Class VI wells pay 7 cents per ton of injected carbon dioxide into a “geologic sequestration special revenue account” which can be used to satisfy claims associated with the release of carbon dioxide from a project after the operator has received a certificate of project completion.<sup>12</sup> Where an operator has not yet received a certificate, the State bears no responsibility for the CO<sub>2</sub>.

A landowner may also have civil claims against the injector arising under tort or contract. DEQ requires CCS injectors to maintain a public liability insurance policy until DEQ certifies that the

<sup>5</sup> See 42 U.S.C. § 300h-9(b).

<sup>6</sup> See 42 U.S.C. § 300g-3(a)(2).

<sup>7</sup> See Environmental Protection Agency, *Primary Enforcement Authority for the Underground Injection Control Program*, <https://www.epa.gov/uic/primary-enforcement-authority-underground-injection-control-program-0> (last visited April 24, 2023); see also 42 U.S.C. § 300h-1, providing for states to be the primary regulatory authorities for the Safe Drinking Water Act.

<sup>8</sup> See Wyo. Stat. §§ 35-11-313(a), (e)-(f), providing that CCS is prohibited unless authorized by a permit issued by DEQ and providing DEQ with the authority to promulgate rules to regulate CCS operations in Wyoming.

<sup>9</sup> See 020-0011-24 Wyo. Code R. § 12(a); 020-0011-24 Wyo. Code R. § 14; 020-0011-24 Wyo. Code R. § 20.

<sup>10</sup> Wyo. Stat. § 34-1-153(b).

<sup>11</sup> Wyo. Stat. §§ 35-11-319(b), (c).

<sup>12</sup> See 020-0011-29 Wyo. Code R. § 4(a); Wyo. Stat. §§ 35-11-320(c), (d).



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CO<sub>2</sub> plume has stabilized.<sup>13</sup> The policy must cover accidents included in the “Risk Activity Table” provided by DEQ, which includes mineral rights infringements, water quality contamination, CO<sub>2</sub> releases, and others.<sup>14</sup> However, the insurance coverage required by DEQ may not cover all claims. As a result, CCS agreements may include additional risk management provisions to protect landowners, including indemnity provisions, insurance, and bonding. Working with a licensed Wyoming attorney on any agreements for use of your pore space can help protect you against risks.

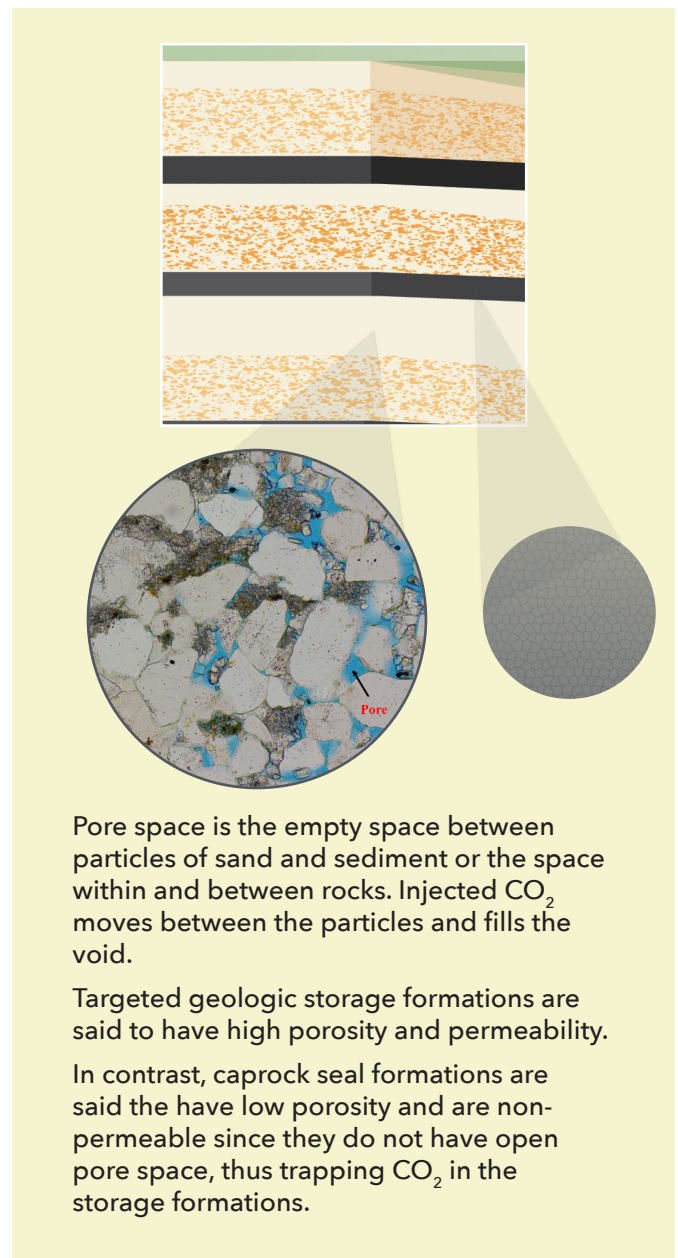
## HOW WILL I KNOW IF A CCS PROJECT IS CONTEMPLATED UNDER OR NEAR MY PROPERTY?

Wyoming law requires Class VI applicants to provide landowners with notice of proposed projects anytime the landowner’s interests are included in the project, or if the landowner’s property is located within 1 mile of the geologic sequestration site.<sup>15</sup> Class VI applicants must also publish notice of the application in a newspaper of general circulation in each county of the proposed operation at weekly intervals for 4 consecutive weeks.<sup>16</sup> In addition, land professionals may approach Wyoming landowners to ask about acquiring injection rights.

## WHAT IS PORE SPACE AND WHO OWNS IT?

In geologic CCS, CO<sub>2</sub> is injected into the “pore space” of a subsurface geologic formation. Wyoming defines pore space as “subsurface space which can be used as storage for carbon dioxide or other substances.”<sup>17</sup> When thinking about pore space, envision a kitchen sponge. Pore space is similar to the small holes within a sponge which hold water. The existing pore space under your land is not empty; those pores will already be occupied by oil, gas, brine, or water.

In Wyoming, the surface owner also owns the underground pore space.<sup>18</sup> However, pore space can be “severed” into its own estate, meaning the owner of the surface and the owner of the subsurface pore space can be two different parties.<sup>19</sup> A review of historical transactions concerning the property and minerals is necessary to determine if pore space has been conveyed.



<sup>13</sup> 020-0011-24 Wyo. Code R. § 26(I)(iii).

<sup>14</sup> 020-0011-24 Wyo. Code R. § 26(I)(i)(A); see generally, 020-0011-24 Wyo. Code R. App. A.

<sup>15</sup> Wyo. Stat. § 35-11-313(f)(2)(N)(II).

<sup>16</sup> Wyo. Stat. § 35-11-313(f)(2)(N)(I).

<sup>17</sup> Wyo. Stat. § 34-1-152(d).

<sup>18</sup> See Wyo. Stat. § 34-1-152(a).

<sup>19</sup> See Wyo. Stat. § 34-1-152(b).

## HOW DO I CONTRACT FOR MY PORE SPACE?

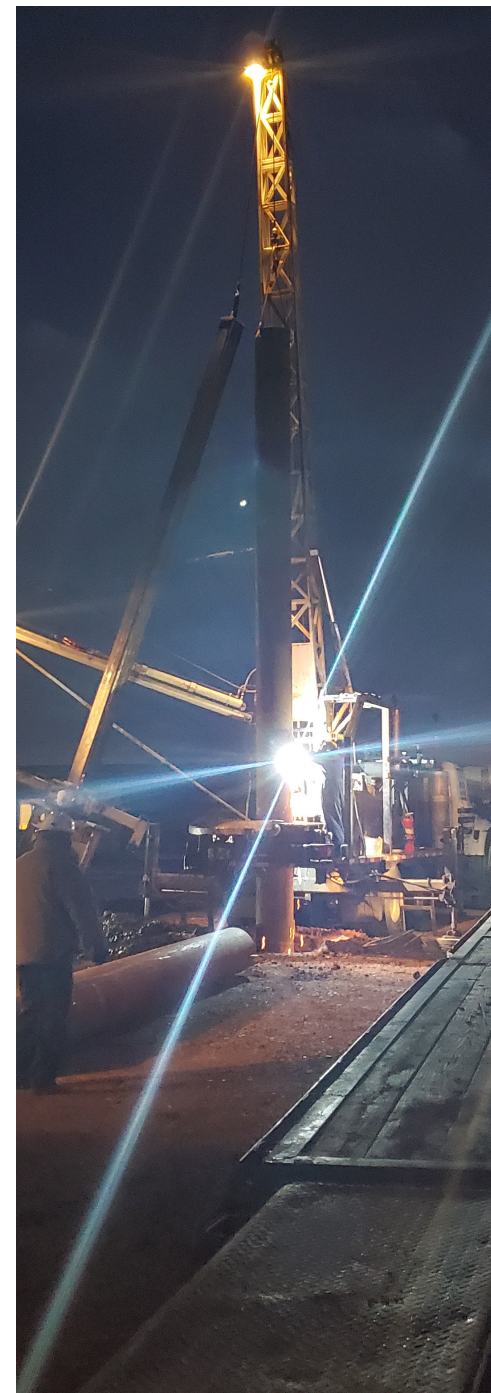
Under Wyoming law, pore space can be “conveyed in the manner provided by law for the transfer of mineral interests in real property.”<sup>20</sup> Common methods to convey pore space interests include easements, leases, and sales. Some of these agreements limit the rights only to subsurface use of the pore space while others also grant the right to put facilities on the land.

## WHAT HAPPENS IF I DON'T ENTER INTO AN AGREEMENT?

Some sequestration projects can require tens of thousands of acres of pore space. Due to the immense contracting and land acquisition challenge that presents, Wyoming law permits the Oil and Gas Conservation Commission to create geologic sequestration units and to compulsorily include pore space in some circumstances.<sup>21</sup> To form a unit, a petitioner must submit a unitization plan to the Commission which includes allocation of economic benefits within the unitized area and how the area is to be operated.<sup>22</sup> Importantly, neither the Commission nor Wyoming courts have interpreted the term “economic benefits,” so it is not clear how such benefits will be calculated in unitization plans.

The Commission is statutorily required to hold a public hearing regarding unitization petitions.<sup>23</sup> Petitioners are required to provide notice to all persons having an interest in the surface estate and pore space in the unit area, encumbrance holders, and surface estate and pore space owners not included within the unit but immediately adjoining the unit boundaries, via certified mail at least 30 days prior to the hearing.<sup>24</sup>

After the hearing, the Commission must decide whether to approve the proposed unitization plan.<sup>25</sup> If the Commission approves, enough parties owning at least 75 or 80% of the pore space storage capacity included in the unitization plan must ratify the plan for it to become effective.<sup>26</sup> Additionally, pore space owners located within a sequestration unit's boundaries but not included in the unitization plan may petition to be included in the unit.



<sup>20</sup> *Id.*

<sup>21</sup> Wyo. Stat. § 35-11-315(a).

<sup>22</sup> Wyo. Stat. §§ 35-11-315(a)(vi)-(ix).

<sup>23</sup> Wyo. Stat. § 35-11-316(a).

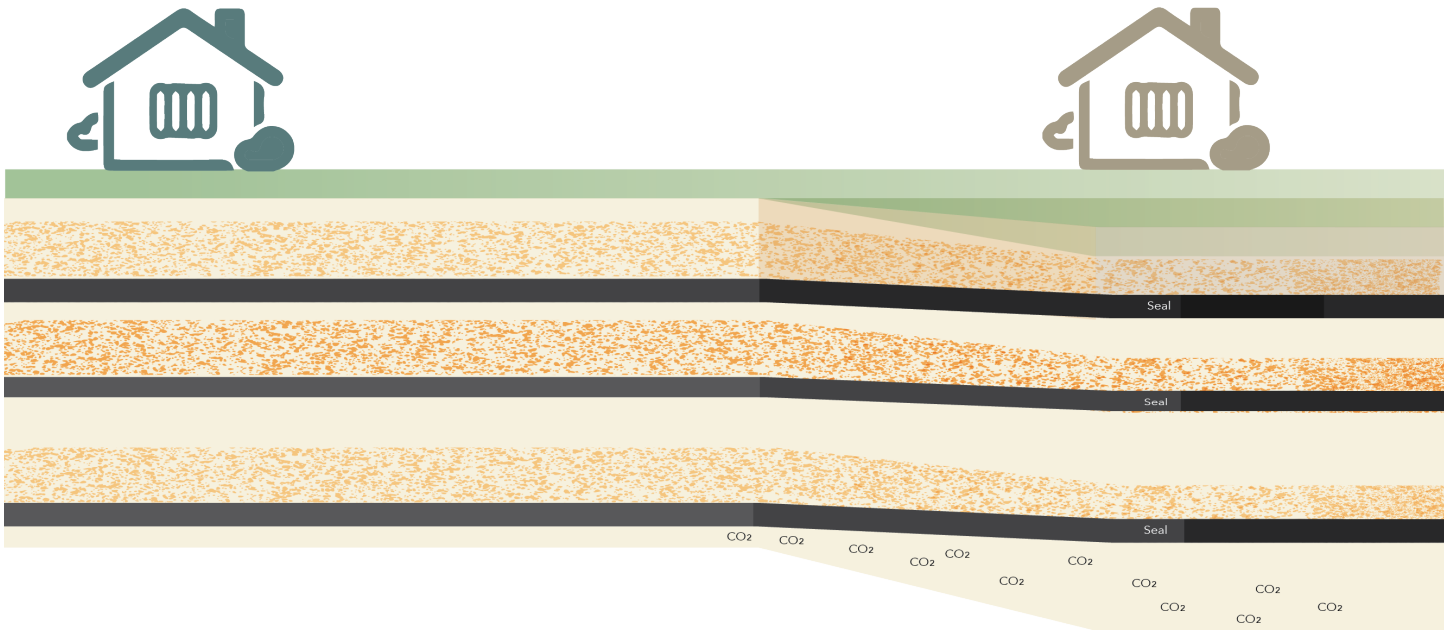
<sup>24</sup> Wyo Stat. § 35-11-315(a)(iii); Wyo. Stat. § 35-11-316(a).

<sup>25</sup> Wyo. Stat. § 35-11-316(b).

<sup>26</sup> *Id.*

## WHAT DO I DO IF CO<sub>2</sub> MIGRATES ONTO MY PROPERTY?

After CO<sub>2</sub> is injected underground, it migrates within the pore space.<sup>27</sup> This creates the possibility for CO<sub>2</sub> to migrate into a landowner's pore space, even though that landowner has not contracted for CCS development or included in a CCS unitization plan. Such landowners may petition the Commission to be included within a geologic sequestration unit, where they will be afforded a hearing to present the basis for being included in a unitization plan.<sup>28</sup> If the landowner's petition is granted, the landowner will be "considered to have been a member of the unit since its inception



and ... shall be entitled to all economic benefits received by unit members since the inception of the unit."<sup>29</sup> Landowners may be required to petition for inclusion prior to filing a lawsuit against the injector.

Landowners affected by migrating carbon dioxide should consider consulting with an attorney to navigate the petition process. Petitioning landowners are statutorily required to provide notice of their petition to all interested parties, and must provide a "deposit of money sufficient to pay all costs of the inclusion of proceeds."<sup>30</sup> An attorney would be able to help a landowner identify all interested parties and to provide legally sufficient notice according to Wyoming's statutory requirements. If the petition is unsuccessful, the landowner must rely on an attorney to bring a civil trespass claim. Indirect subsurface trespass is an unsettled area of law in Wyoming.<sup>31</sup>

<sup>27</sup> See Shelagh J. Baines and Richard H. Worden, *Geologic Storage of Carbon Dioxide*, THE GEOLOGIC SOCIETY OF LONDON at 3 (2004).

<sup>28</sup> See Wyo. Stat. § 35-11-316(g).

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> See generally, *ANR Production Co. v. Kerr-McGee Corp.*, 893 P.2d 698 (Wyo. 1995).

## WHAT IS MY PORE SPACE WORTH?

This is perhaps the most common question any landowner presented with a CCS opportunity will have. Unfortunately, this may also be the most complex question to answer. Not all pore space is equal. The characteristics of the geologic subsurface can vary even between neighboring landowners, and characteristics like porosity and depth are important economic factors in the valuation of pore space. Additionally, a landowner's proximity to sources of CO<sub>2</sub> or CCS infrastructure such as carbon dioxide pipelines can influence the value of that landowner's pore space. The terms of the granting instrument will also affect the value of the interest in pore space granted. Landowners should consider consulting with an attorney to help negotiate the best possible value for their pore space.

## I ALSO OWN MINERALS. HOW CAN CCS OPERATIONS IMPACT MY MINERAL RIGHTS OR PRODUCTION?

DEQ rules specify that injection operations will not degrade or decrease the availability of mineral resources, including oil and gas.<sup>32</sup> Accordingly, Class VI well applicants must provide an analysis of how the proposed CO<sub>2</sub> injection will be compatible with minerals. In addition, DEQ requires CCS operators to include cost estimates for mineral rights infringements in their financial assurance calculations.<sup>33</sup>

Existing oil and gas wells and plugged and abandoned wells may provide a conduit for CO<sub>2</sub> to migrate out of the injection formation. DEQ may require a CCS operator to perform corrective action on existing wells, which could include recompletions or abandonment. Access to these wells must be negotiated with the well operator.

Finally, Wyoming mineral owners should also consider the possibility that minerals are discovered below a geologic formation where CCS operations are being conducted. Exploring for those minerals could be more costly and difficult due to the presence of CCS operations. In addition, to protect the containment system, many CCS agreements will place restrictions on the landowner's right to drill through the storage formation.



*Class VI well applicants must provide an analysis of how the proposed CO<sub>2</sub> injection will be compatible with minerals.*

<sup>32</sup> 020-0011-8 Wyo. Code R. § 6(c)(ii).

<sup>33</sup> 020-0011-8 Wyo. Code R. § 26(b)(ii)(B).



## CAN CARBON SEQUESTRATION DAMAGE MY GROUNDWATER?

Class VI regulations prohibit injection of CO<sub>2</sub> into underground sources of drinking water (USDW).<sup>34</sup> Under current law, aquifer exemptions are not available for sequestration operations.<sup>35</sup> Operators are required to manage injection pressures such that formation fluids and CO<sub>2</sub> cannot migrate into formations containing USDWs.<sup>36</sup> Additionally, sequestration operations will most often occur in formations that are significantly deeper than could reasonably be developed for freshwater use.

## WHO CAN AUTHORIZE SEISMIC OPERATIONS ON MY LAND?

Evaluating the suitability of subsurface formations for carbon sequestration may require seismic operations. Geophysical operations to explore the pore space require permission from the surface owner. This permission may be expressly granted or implied into a pore space easement or lease, but may also be granted separately in a geophysical permit without any associated rights to inject. Although Wyoming courts have not considered the issue, case law from Colorado supports the conclusion that a split-estate mineral owner cannot consent to geophysical exploration of surface-owned resources.<sup>37</sup>



<sup>34</sup> 020-0011-24 Wyo. Code R. § 11(c)(ii)

<sup>35</sup> 40 CFR § 144.7

<sup>36</sup> 20-0011-24 Wyo. Code R. § 13(b)(i)(B)

<sup>37</sup> *Grynberg v. City of Northglen* (Colo. 1987)



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