



Right click to replace with company logo

# Jensen Carbon Inc., Caster Field Project for the Long-Term Underground Storage of Carbon Dioxide (Carbon Sequestration)

## Community Update

Summary of Operations, Testing, and Monitoring for September 1, 2024 –  
March 1, 2025

---

### Purpose of this Report

Jensen Carbon is providing this report to people who live or work near the Caster Field project. The report provides information on actions Jensen Carbon is taking to ensure protection of drinking water in the area. It provides background on the project, explains the results of required testing and monitoring, and summarizes other activities Jensen Carbon has conducted to safely operate and maintain the project. This report covers the time period of September 1, 2024 to March 1, 2025.

The U.S. Environmental Protection Agency (EPA) has issued a permit to Jensen Carbon that includes all requirements for the Caster Field project. Under the Safe Drinking Water Act, this permit allows Jensen Carbon to inject carbon dioxide (CO<sub>2</sub>) underground. At the end of this document, there are links to the permit, the testing and monitoring plans, and other reports Jensen Carbon submitted to the EPA as part of its permit application.

*This report was developed without review or input by EPA. It does not replace any requirements of the Safe Drinking Water Act and its regulations. Information presented here does not represent or affect EPA's determinations about whether the Caster Field Project is in compliance with its permit requirements. Any violations of the Safe Drinking Water Act or its regulations remain subject to enforcement.*

### Project Background

Burning fossil fuels like coal, oil and natural gas releases CO<sub>2</sub> into the atmosphere. This has a major impact on earth's changing climate. Preventing CO<sub>2</sub> from entering the atmosphere is an important action for slowing down climate change. Long-term underground storage of CO<sub>2</sub> is also known as geologic sequestration. CO<sub>2</sub> is injected deep underground into natural rock formations to prevent it from entering the atmosphere.

In 2021, Jensen Carbon constructed two deep underground injection wells, OGS#1 and OGS#2. The wells capture and inject CO<sub>2</sub> that is generated by the Simmons County Power Authority plant. The injection wells are located on previously undeveloped land next to the plant, three miles northeast of Martinsville. The project has been operating since September 2021. Figure 1 shows the location of the wells near Martinsville.

The wells inject CO<sub>2</sub> into an underground rock formation known as the Wiley Sandstone, located approximately 5,000 feet below ground. Another, denser rock formation, called the Martin Shale, lies above the Wiley Sandstone. The Martin Shale acts like a cap, preventing the CO<sub>2</sub> from moving upward. EPA has determined that CO<sub>2</sub> can be safely contained in this area for long-term storage without affecting drinking water or public health. Jensen Carbon plans to continue CO<sub>2</sub> injection until 2030.

When injection ends, Jensen Carbon has to show that the CO<sub>2</sub> is stable and drinking water is not at risk. The well site will be monitored and all equipment will be removed. The site will be restored to its original condition, including: filling all pits and holes; leveling the surface; removing access roads, buildings, sidewalks, parking areas, fencing, underground electric, and other installations; and reseeding the area.

There is more information on the Caster Field project and geologic sequestration in the Additional Resources and Contacts section at the end of this report.

## Status Update

As of September 1, 2024, Jensen Carbon has injected 4.4 million metric tons of CO<sub>2</sub> into the Caster Field project wells. This amount of CO<sub>2</sub> equals the emissions from approximately 350,000 cars for a year. In May 2024, Jensen Carbon hosted a community forum to provide an update on the project and information on operations. Over 100 residents attended the forum. We plan to host another community forum in early 2025.

Key updates since the last community report in September 2023 include:

- Replacing a malfunctioning surface pressure meter on well OGS#1, which was noted in the September 2023 report. This device can identify potential issues with declining pressure or pressure buildup.
- Repairing a 100-foot section of outer cement for well OGS#2, also identified as an action item in the September 2023 report. The cement prevents gas and liquid from moving from the Wiley Sandstone into more shallow rocks and groundwater.
- Upgrading the pressure alarm system to a new state-of-the art system. The new system allows us to respond more quickly if there are any unexpected changes in pressure.
- Conducting testing and monitoring as the permit requires, described in the table below
  - Injection rates and pressure are below the maximum levels allowed by the permit.
  - There has been no impact on water quality, including drinking water quality.
  - The injected CO<sub>2</sub> has moved slightly farther within the Wiley Sandstone than expected. There is no risk to drinking water sources or public health and the injected CO<sub>2</sub> is within the area evaluated by EPA.
  - We will continue to evaluate injection well OGS#1 to determine if test results indicate the need for repair in a small portion of the well.

The information in the table below is only a summary of testing and monitoring activity and results. EPA requires Jensen Carbon to submit more detailed reports with testing and monitoring results, twice per year. We will submit our next report in March 2025. These reports can all be found in [EPA's Class VI Data Repository](#). Community members can also get more information at any time by contacting Jensen Carbon.

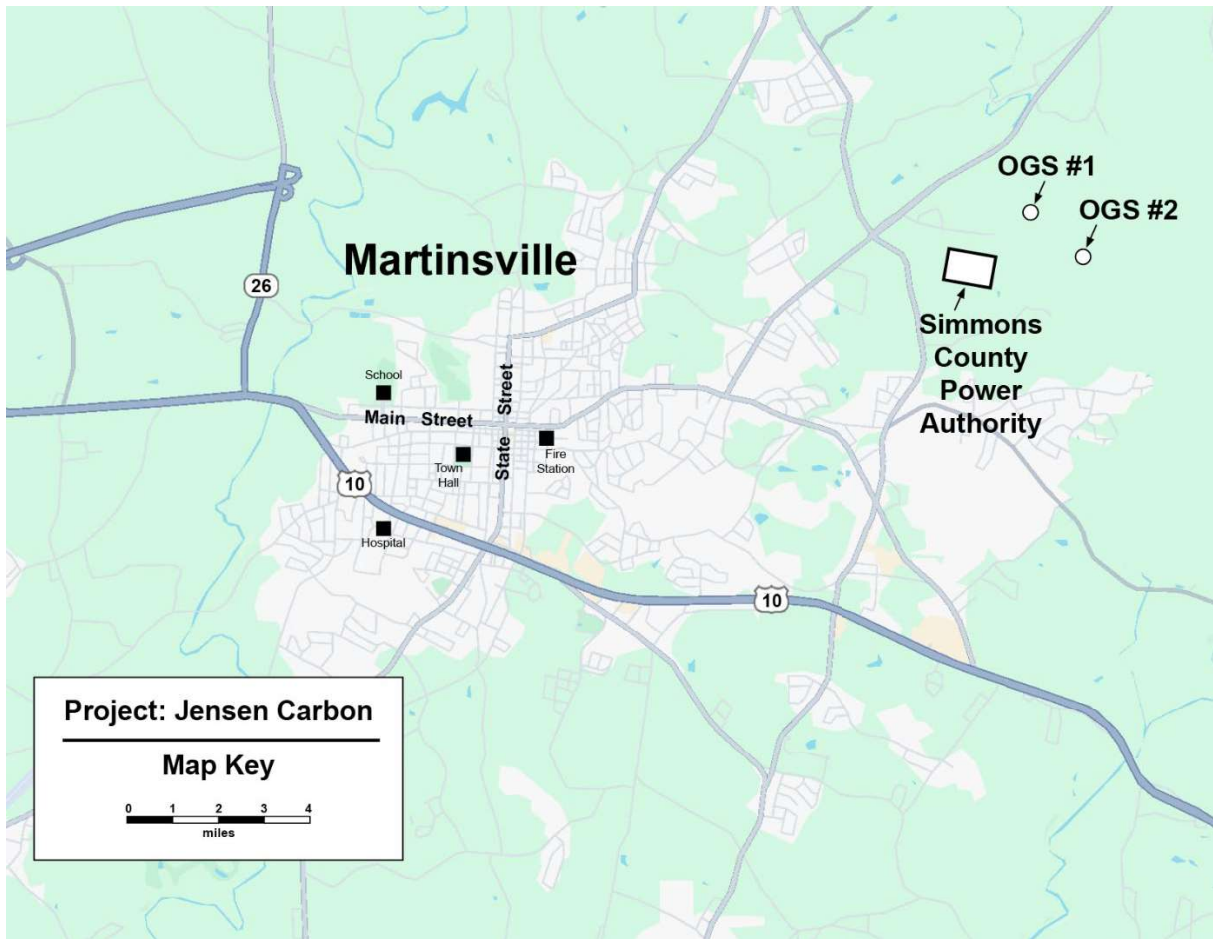



Figure 1: Jensen Carbon Project Location









## Operations, Testing, and Monitoring Status


Testing/Monitoring Activity			Results	Actions to Address Results	Status and Trend Summary	
Type	Purpose				Current Results	Previous Results
Project Operation and Performance						
Continuous monitoring of CO <sub>2</sub> injection operations <i>Injection rate and volume and injection pressure monitoring</i>	<ul style="list-style-type: none"><li>Unexpected values for injection rate, volume, or CO<sub>2</sub> stream pressure may require adjustments to the injection rate</li></ul>		Average and maximum injection rates, pressures, and volume all below limits in permit	No follow-up action required at this time, based on monitoring results	<div></div>	<div></div>
	<ul style="list-style-type: none"><li>Assess if the CO<sub>2</sub> stream has changed and whether action is needed to address any changes</li></ul>		Amounts of impurities are within 2% of the previous reporting periods.	<ul style="list-style-type: none"><li>2% variation is within the range of expected results</li><li>No follow-up action required at this time, based on monitoring results</li></ul>	<div></div>	<div></div>
	Injection formation testing <i>Testing every 5 years to determine if CO<sub>2</sub> can still be injected at the desired rate</i>		Five-year test is not due until 2026	No action required at this time	N/A	<div></div>
Well Condition						
Corrosion monitoring <i>Quarterly testing for deterioration of well materials</i>	<ul style="list-style-type: none"><li>Ensure the well is in good physical condition. This prevents the movement of CO<sub>2</sub> or briny water into</li></ul>		<ul style="list-style-type: none"><li>Testing showed a low corrosion rate</li><li>No concerns identified during visual inspection</li></ul>	<ul style="list-style-type: none"><li>Corrosion rate is within safe limits</li><li>No follow-up action required at this time, based on monitoring results</li></ul>	<div></div>	<div></div>

 Results as expected/required

 Results require additional follow-up; no anticipated impact on community







 Results require additional follow-up, with potential impact on community


Testing/Monitoring Activity		Results	Actions to Address Results	Status and Trend Summary	
Type	Purpose			Current Results	Previous Results
<b>External mechanical integrity testing (MIT)</b> Annual testing of the condition of the outer surface of the injection well	<ul style="list-style-type: none"> <li>underground rock outside of the permitted injection zone or other leakage. Verify that there is no fluid movement along the outside of the well (external) or leakage within the well (internal)</li> </ul>	<p>Testing showed evidence of possible minor fluid movement along the outside of the well casing of OGS#1</p>	<ul style="list-style-type: none"> <li>Fluid movement detected will have no impact on drinking water sources</li> <li>Conduct additional testing at OGS#1 to determine if a repair is needed</li> </ul>		
<b>Internal mechanical integrity monitoring</b> Monitoring or testing of the interior condition of the injection well		No leakage detected within either well.	No follow-up action required at this time, based on monitoring results		
<b>Tracking CO<sub>2</sub> Plume and Pressure in the Injection Formation</b>					
<b>Direct pressure tracking</b> Measuring pressure via sensors in the injection and/or monitoring wells	<ul style="list-style-type: none"> <li>Measure pressure in the injection zone and track if the stored CO<sub>2</sub> is remaining in the porous rock area as intended</li> <li>Determine if the stored CO<sub>2</sub> could come into contact with and contaminate underground drinking water sources</li> </ul>	<p>Pressure in the injection zone is 5% lower than expected based on pre-injection modeling</p>	<ul style="list-style-type: none"> <li>Although not expected, a slightly lower pressure will not cause the stored CO<sub>2</sub> to affect drinking water sources</li> <li>We will further monitor and evaluate pressures as required</li> <li>No additional action needed at this time</li> </ul>		
<b>Direct CO<sub>2</sub> plume tracking</b> Measuring the CO <sub>2</sub> in the injection zone via monitoring wells		<p>Stored CO<sub>2</sub> is 2% higher than anticipated based on pre-injection modeling</p>	<ul style="list-style-type: none"> <li>Although not anticipated, slightly higher CO<sub>2</sub> content does not affect drinking water sources</li> <li>We will continue to monitor CO<sub>2</sub> content as required</li> <li>No additional action needed at this time</li> </ul>		


 Results as expected/required

 Results require additional follow-up; no anticipated impact on community

 Results require additional follow-up, with potential impact on community



Testing/Monitoring Activity		Results	Actions to Address Results	Status and Trend Summary	
Type	Purpose			Current Results	Previous Results
<b>Indirect pressure and CO<sub>2</sub> plume tracking in the injection zone</b> Tracking the CO <sub>2</sub> and pressure in the injection formation using equipment on the surface		Plume has progressed approximately 250 feet farther at this time than initially predicted	<ul style="list-style-type: none"> <li>Although not predicted, this slightly larger plume extent does not affect drinking water sources.</li> <li>No additional action needed at this time</li> </ul>		
<b>Groundwater Quality</b>					
<b>Monitoring water quality</b> Testing water quality for changes that could be due to CO <sub>2</sub> leakage	Assess whether there has been any contamination of underground drinking water sources	No changes in water quality detected	No action needed at this time based on monitoring results		
<b>Seismic Monitoring</b>					
<b>Monitoring seismicity</b> Monitoring for natural or injection-related seismicity with a passive sensor network	<ul style="list-style-type: none"> <li>Detect small (cannot be felt at the surface) or larger (can be felt at the surface) natural seismic events or seismic caused by the CO<sub>2</sub> injection.</li> <li>Determine whether seismic events require changes in the project.</li> </ul>	Three microquakes (magnitude -1 to 0) detected in the bedrock below the injection zone.	<ul style="list-style-type: none"> <li>Small seismic events are expected as part of operations and cannot be felt at the surface. They do not pose a risk to drinking water and have not affected the wells or project operation.</li> <li>We will continue regular monitoring, and reduce or stop injection if seismic events exceed thresholds as defined by the well permit</li> <li>No action needed at this time based on monitoring results</li> </ul>		

 Results as expected/required

 Results require additional follow-up; no anticipated impact on community

 Results require additional follow-up, with potential impact on community



Testing/Monitoring Activity		Results	Actions to Address Results	Status and Trend Summary	
Type	Purpose			Current Results	Previous Results
Surface Air and Soil Gas Monitoring					
Soil gas monitoring Monitoring surface air and soil gas for CO <sub>2</sub> concentrations	Assess whether there may be fluid movement outside of the injection zone	No change in soil gas CO <sub>2</sub> content compared to baseline testing.	No action needed at this time. EPA does not require Jensen Carbon to conduct surface air monitoring.		


Results as expected/required


Results require additional follow-up; no anticipated impact on community


Results require additional follow-up, with potential impact on community

## Questions? Contact Us!

Topic of Interest	Information Source
General questions	Contact: Eileen Rickert (Jensen Carbon Community Liaison Officer), 228-381-5273 Email: <a href="mailto:Eileen.Rickert@jensencarbon.com">Eileen.Rickert@jensencarbon.com</a>
Details of testing and monitoring procedures and results	<a href="http://www.jensencarbon.com/CasterField/DataSummary_Sept2023">http://www.jensencarbon.com/CasterField/DataSummary_Sept2023</a> Contact: John Smith, 555-123-4567 Email: <a href="mailto:Smith.John@jensencarbon.com">Smith.John@jensencarbon.com</a>
More information about the Caster Field geologic sequestration project	<a href="http://www.jensencarbon.com/CasterField/About">http://www.jensencarbon.com/CasterField/About</a> Contact: Sarah Jones, 555-123-7654 Email: <a href="mailto:Jones.Sarah@jensencarbon.com">Jones.Sarah@jensencarbon.com</a>
UIC permit for Caster Field	<a href="https://www.epa.gov/uic/class-vi-wells-permitted-epa">https://www.epa.gov/uic/class-vi-wells-permitted-epa</a>
Emergency response	<b>County</b> Simmons County Emergency Management and Regional Security Contact: Sonia Davis, 555-789-000 Email: <a href="mailto:Sonia.Davis@simmonscounty.gov">Sonia.Davis@simmonscounty.gov</a>  <b>State</b> State Emergency Management Agency Contact: Robin Johnson, 111-432-0123 Email: <a href="mailto:robin.johnson@state-ema.gov">robin.johnson@state-ema.gov</a>
Community alerts	Sign up for text and e-mail alerts at <a href="http://www.simmonscountyalert.gov">www.simmonscountyalert.gov</a>

## Additional Resources and Contacts

Topic of Interest	Information Source
County requirements for Caster Field	Contact: Jane Jones, 555-212-6712 Email: <a href="mailto:Jane.Jones@simmonscounty.gov">Jane.Jones@simmonscounty.gov</a>
State requirements for Caster Field	Contact: Jill Johnson, 555-868-9240 Email: <a href="mailto:jill.johnson@stateepa.gov">jill.johnson@stateepa.gov</a>
EPA permit requirements for Caster Field	EPA Region 0 Contact: Jeremy Arons, 555-867-1234 Email: <a href="mailto:Arons.Jeremy@epa.gov">Arons.Jeremy@epa.gov</a> <a href="#">Caster Field Permit documents</a>
EPA Resources on Underground Injection and Carbon Sequestration	<ul style="list-style-type: none"> <li>• <a href="#">General information on EPA's Underground Injection Program</a></li> <li>• <a href="#">General information on geologic carbon sequestration</a></li> <li>• <a href="#">EPA fact sheet on how EPA regulations protect underground drinking water sources</a></li> <li>• <a href="#">EPA's Class VI Data Repository</a> (including testing and monitoring reports from Jensen Carbon)</li> <li>• <a href="#">Federal Underground Injection Control regulations</a> (Code of Federal Regulations Title 40, Chapter I, Subchapter D, Part 144)</li> </ul>