December 29, 2023

Referencing: RIN 0596-AD55
Agency: USDA, Forest Service
Proposed Rulemaking re: Land Uses; Special Uses;
Carbon Capture and Storage Exemption

Director, Lands, Minerals, and Geology Management Staff
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Public Comments re: RIN 0596-AD55

On behalf of **CapturePoint LLC** and **CapturePoint Solutions LLC**, affiliated privately-held companies based in Allen, Texas (together, "CapturePoint") that provide a full range of carbon management services for US companies and facilities seeking to reduce carbon dioxide (CO_2) emissions in an era of energy transition, I hereby transmit the **full and favorable endorsement** of our teams for the rulemaking changes proposed by the Forest Service in **RIN 0596-AD55**.

CapturePoint supports adoption of both:

a) an amendment of Forest Service Definitions [36 CFR § 251.51] to include a definition of "carbon capture and storage" that is fully aligned with the US Environmental Protection Agency's (EPA) permitting process for Class VI Underground Injection Control (UIC) CO_2 injection wells and that qualifies the associated carbon dioxide streams for exclusion from classification as a 'hazardous waste' pursuant to the regulations at 40 CFR § 261.4(h); and
b) an amendment of Forest Service Proposal and Application Requirements and Procedures [36 CFR § 251.54(e)(1)(iv)] to ensure that permit applications for carbon capture and storage are not prohibited from consideration by regulatory language based on "exclusive or perpetual right of use or occupancy."

CapturePoint opposes any modifications to the proposals of RIN 0596-AD55 that would undermine the intents described above or that would deviate in any way from the Abstract of the proposed rulemaking changes provided on the website of the Office of Management and Budget's Office of Information and Regulatory Affairs (RegInfo.gov).

It is important to note that these proposed changes to Forest Service rules, and the resulting changes that will apply to the Forest Service Handbook, merely allow the Forest Service to *consider* complying with the existing federal land usage law, with Congressional and Administrative intent, and with the climate change goals stated by the Secretary of Agriculture and the Chief of the Forest Service. Additional training and guidance will be required to fully align Forest Service permitting procedures with the applicable legal and leadership policies.

The placement of deep underground carbon storage in pore space beneath national forest lands is authorized by the Federal Land Policy and Management Act (FLPMA) Section 501(a)(2), codified as 43 USC § 1761(a)(2) and repeated verbatim in the regulations defining policies for the Forest Service at 36 CFR § 251.53(l)(2). That specific section of the law allows rights of way – over, upon, under or through the governed lands -- for pipelines to transport gases (other than natural gas and gaseous fuels) *and* for associated storage for those gases (including CO_2). The same provisions of FLPMA apply to many landholding agencies of the Department of Interior, and the Bureau of Land Management (BLM) has established significant precedence by applying that authority since mid-2022 to contract geologic pore space beneath BLM lands for potential carbon storage.

The Congress and Biden-Harris Administration have each also clearly established the intent to prioritize development of deep underground carbon storage facilities in the United States as a keystone of national policies to address climate change, expressed most recently and extensively in the Inflation Reduction Act of 2022. Further, in action plans to address climate change, both the Secretary of the US Department of Agriculture and the Chief of the Forest Service have cited the potential of national forests to serve as carbon sinks, sequestering carbon in trees and the adjacent surface soils. Issuing permits for deep underground carbon storage centers in the geologic pore space beneath national forest lands could substantially add to the sequestered volumes of CO_2 attributable to the policies of the Forest Service, with each Class VI CO_2 injection well site potentially storing millions of tons of carbon dioxide annually,

Not every national forest or grassland contains geologic pore space that is appropriate to, or sufficient for, development of a carbon sequestration site. The geologic requirements for development of a safe and successful CO_2 deep underground carbon storage center must ensure complete containment of both the injected CO_2 and any displaced formation fluids; rigorous protection of underground sources of drinking water; thorough prevention of releases of CO_2 and formation fluids to the surface; and careful injection pressures to prevent induced seismicity or damage to the confining unit.

In order to meet EPA Class VI UIC CO_2 injection well permitting requirements, the following five geologic criteria must be satisfied:

1. A Thick and Solid Rock Formation Seal: There must be a thick, impermeable, robust and regionally extensive confining unit, serving to fully contain the injected CO_2 and any displaced formation fluids;

2. A Thick and Extensive CO_2 Storage Zone: There must be a regionally extensive storage interval with sufficient porosity (storage space) and permeability (flow paths) such that the CO_2 can be injected and stored;

3. Sufficient Depth: The injection interval must be greater than +/- 3,000 feet deep in order to keep the injected CO_2 in the dense phase (demonstrating properties of both liquid and gas);

4. Seismic Stability: The sequestration site must be located in an area with minimal to no seismic activity (potential for earthquakes); and

5. No Leakage Pathways: The confining and injection intervals at and near the injection site must be free of conduits (leakage paths) such as faults and juxtaposed geologic formations. In addition, artificial penetrations (such as well bores) must be limited and able to be sealed permanently using CO_2-compatible products.

The EPA's Class VI UIC regulations are among the most rigorous ever developed by the agency, designed to anticipate and mitigate every potential threat to public health and safety, to ensure best development and operational practices, and to establish the long-term sustainability and integrity of the deep underground CO_2 storage site. In order to prevent speculative or anti-competitive permit applications for national forest pore space, the Forest Service should require applicants to demonstrate both operational capabilities and sufficient resources to meet all Class VI permitting terms, either through a track record of successful carbon sequestration or through submission of a Class VI permit application for the national forest pore space that the EPA or delegated state review agency deems administratively complete.

Geologic pore space under national forests can be developed as deep underground carbon storage with minimal or no impacts to forest surface lands, guaranteeing all current and potential forest uses for conservational, recreational, agricultural, and commercial activities, as well as other Forest Service missions to protect range, water, and wildlife resources. All forest surface areas designated as wilderness or as environmentally or culturally sensitive can be completely avoided, and all living surface and subsurface ecosystems can be preserved intact.

Unlike other activities and developments already commonly found on Forest Service lands -- including infrastructure related to commercial logging; oil and gas production; mining and mineral extraction; ski resorts, et al; as well as access roads and support utilities -- deep underground carbon sequestration would have minimal impacts on the forest environment and visitor usage. Approximately one-third of US national forests and grasslands currently have underground activities for oil, gas, and mineral extraction, many with associated Class II UIC wells (saltwater disposal wells) which are far more likely to introduce subsurface toxins and foreign contaminants than properly implemented deep underground carbon storage.

Simple steps incorporated into development of deep underground carbon storage sites can guarantee maximum protection of Forest Service lands. Carbon dioxide pipelines can be routed primarily along existing roads and rights-of-way. Class VI CO_2 injection wells can be located outside National Forest lands (using directional drilling to reach Forest Service pore space). Stratigraphic test wells and long-term monitoring wells can be located offsite, near the edges of forest lands, or in areas without any significant impacts to Forest Service missions. Provided that approval and permits are obtained from the EPA, even geologic strata above or below the carbon storage units may be utilized for other purposes without interruption.

As the rulemaking changes proposed in RIN 0596-AD55 remove the existing procedural impediments to permit applications for national forest pore space, it is critical that all new Forest Service permit evaluation procedures avoid common misconceptions and misinformation promulgated about carbon capture and storage. CapturePoint provides the following information to factually and accurately address carbon sequestration topics.

A. CO_2 Safety:

- *Is CO_2 a toxin or hazardous material?*
  Not in normal circumstances. CO_2 naturally occurs in our atmosphere, in oceans, and in the ground. It is a natural by-product of respiration in most living things. In usual atmospheric concentrations, CO_2 is not a toxin or hazardous material. At very high concentrations and in confined areas, CO_2 asphyxiation can be deadly to people and animals. Pipeline ruptures can cause temporary CO_2 areas of high concentration that are dangerous until dispersed (generally by the wind). For properly implemented underground injection, however, EPA has determined that CO_2 is not a hazardous material.

- *Is CO_2 a foreign contaminant in the subsurface environment?*
  No. CO_2 occurs naturally in most of earth's environments, including in the deep underground geologic formations used for sequestration. Carbon storage does dramatically increase the concentration of CO_2 in the geologic storage layers, but it does not endanger any underground ecosystems when injected following the required standards.

B. Long-Term Stability of Deep Underground Carbon Storage:

- *Does injected carbon dioxide stay permanently underground?*
  Yes. In suitable geology and with properly designed injection, the injected CO_2 will be permanently sequestered underground. Naturally occurring carbon dioxide has been stably stored underground for an estimated 66 million years in the Jackson Dome geology in Mississippi. And technologies have been used to inject and stabilize CO_2 underground for a variety of purposes for over 50 years without any demonstrable atmospheric leakage.

- *Do Class VI CO_2 injection wells offer greater underground stability?*
  Yes. Class VI permitting requires use of suitable geologic formations that are most capable of receiving CO_2 and that have thick caps of retaining rock to confine the CO_2 and prevent leakage. Other potential leakage sites (such as other deep wells) are required to be sealed permanently utilizing CO_2 compatible products.

- *What about seismic activity?*
  Class VI permitting requires a review of the history of, and potential for, seismic activity in the area and requires injection into geologic formations that are predictably stable.

- *Is deep underground carbon injection like "fracking?"*
  No. Fracking deliberately breaks stable rock containment layers to allow easy migration of oil and gas fluids. Carbon storage requires *unbroken* rock containment layers to lock the CO_2 into permanent sequestration.

- *Doesn't the pressure of injection break the retaining rock?*
  No, Injecting CO_2 at pressures that are too high *can* damage the geologic storage capacity of the site. Therefore, Class VI permitting requires test wells and thorough analysis of the underground geology. Operations are deliberately designed to keep injection pressures well below potential levels that might damage the rock layers that contain or are confining CO_2.

C. CO_2 Pipelines:

- *Are CO_2 pipelines safe?*
  Yes. In fact, CO_2 pipelines have one of the safest track records in the industry. In over 50 years of operation across a network that now exceeds 5,000 miles of pipeline, only one serious CO_2 pipeline rupture has occurred, and there were no deaths. CO_2 is not inherently explosive like some other materials transported by pipeline, but as with any material under pressure, a rupture can cause a dangerous forcible release. In the initial aftermath of a potential rupture, a concentrated CO_2 cloud can be dangerous to human and animal life in proximity to the release; that is why regulations were tightened and now require more carefully designed siting and strengthened pipelines, faster emergency notifications, and more practice and preparedness training for local emergency responders.

- *Does placement of CO_2 pipelines in national forests require ripping up the forest lands?*
  No. In some cases, injection sites can be located adjacent to, rather than within, the national forest lands and CO_2 pipelines might not have to cross forest lands at all. In other cases, pipelines can be routed along existing roads and rights-of-way, thoroughly minimizing crossings of undisturbed forested lands.

D. National Forest Impacts:

- *Does underground carbon storage mean drilling rigs criss-crossing national forests?*
  No. It is important to understand that carbon sequestration sites are very different than oil and gas exploration and production activities. Deep underground carbon storage centers can be designed to minimize surface impacts on national forest lands. Test wells can often be drilled adjacent to the forests or use existing cleared rights-of-way. The Class VI injection well(s) can be sited off Forest Service lands using directional drilling or on a portion of the forest that minimizes the need for new impacts or infrastructure.

- *Does deep underground carbon storage rip up large swaths of the forest?*
  Absolutely NOT. Carbon sequestration should not be inappropriately compared to oil and gas activities (which already exist in national forests) that have much greater impacts due to the larger number of wells required. Other misinformation confuses the conservation mandates of National Parks, Wilderness Areas, and Wildlife Protection Areas with the mission of the Forest Service to support economic use of the forests in harmony with nature conservation and recreational activities. Deep underground carbon storage can minimize surface disturbances and completely avoid sensitive environmental areas.

- *Will carbon sequestration be the first underground use of Forest Service lands?*
  No. Approximately one-third of US national forests and grasslands have underground usages including oil, gas and mining exploration and extraction leases, as well as Class II saltwater disposal wells for oil and gas operations.

- *Will national forests be the first federal lands used for carbon storage?*
  No. In fact, the Forest Service is behind other federal agencies in complying with the legal requirements of FLPMA and Administration and Congressional Policies in support of carbon storage. BLM has been issuing contracts for pore space under their lands for over a year.

- *Is carbon storage compatible with recreational and other visitor uses of national forests?*
  Yes. ALL surface activities in national forests – recreational, agricultural, conservational and commercial – as well as Forest Service missions to protect range, water, and wildlife resources can be maintained without disturbance during every phase of deep underground carbon storage.

By adopting the proposed rulemaking language of RIN 0569-AD55 without change, and by creating permit evaluation procedures for applications to use National Forest deep underground pore space for carbon capture and storage that are based on the reality of Class VI implementations, the Forest Service can come into full compliance with FLPMA, take important steps to implement Congressional and Administration intents regarding significant reduction of CO_2 emissions, and establish a leading-edge profile in federal actions to address climate change.

Respectfully submitted by:

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