REGION 8
DENVER, CO 80202

August 30, 2024

Ref: 8EJC-NE

Bureau of Land Management
Kemmerer Field Office
Attn: Kelly Lamborn
430 US-189
Kemmerer, WY 83101

Dear Kelly Lamborn:

The U.S. Environmental Protection Agency has reviewed the July 2024 Southwest Wyoming Carbon Dioxide Sequestration (project) Environmental Assessment (EA) prepared by the Department of the Interior Bureau of Land Management. The EA has been prepared to assess the environmental impacts of issuing a Right-of-Way (ROW) for approximately 605,091 acres of federal pore space to facilitate future carbon dioxide (CO_2) sequestration activities on behalf of the applicant, Moxa Carbon Storage, LLC (Moxa). As stated in the EA (page 4), if BLM authorizes a pore space ROW grant, this would be the first step of the larger CO_2 sequestration project which will include "CO_2 capture infrastructure at planned ammonia production facilities and other potential CO_2 source points, CO_2 compression and pumps, a CO_2 pipeline, and sequestration surface facilities" and would involve Moxa requesting "the use of specific federal surface lands through a separate ROW application." However, there is very little information about these future phases of development in the EA. We reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA). The CAA Section 309 role is unique to EPA. It requires EPA to review and comment on the environmental impact on any proposed federal action subject to NEPA's environmental impact statement requirements and to make its comments public.

NEPA and the Council on Environmental Quality's (CEQ) implementing regulations require the disclosure of the full range of potential direct, indirect, and cumulative[1] environmental impacts to the project area which would include but are not limited to potential impacts to air and water resources associated with the BLM's ROW decision. See 40 CFR § 1508.1(i). Analyses of reasonably foreseeable impacts to air and water resources were not included in the EA. For water quality, the EA relies entirely on the analysis from the upcoming Wyoming Department of Environmental Quality (WYDEQ) Class VI Underground Injection Control (UIC) program well permitting process for CO_2 sequestration. WYDEQ's

[1] We note there are other projects planned in the area, including the Dry Creek and Project West trona mines, which we recommend considering in the cumulative impacts analysis for this EA.

Class VI UIC well permitting process does not replace the BLM's responsibility to conduct an adequate NEPA analysis. The EPA recommends the NEPA document fully consider the direct, indirect, and cumulative impacts associated with Moxa's proposed project in order to adequately inform federal decision making consistent with NEPA and CEQ's implementing regulations.

The proposal's lack of a Plan of Development (POD), which details the location of future Class VI wells, pipelines, access roads, or other support facilities for the upcoming CO_2 sequestration activities that Moxa will seek to develop, results in a lack of meaningful information about direct, indirect, and cumulative effects. Without a POD, the EA focuses on impacts to select surface resources (e.g., wildlife habitat management areas, paleontological and soil resources, special status plant species) within the project's 605,091 acres in a highly general fashion as they relate to future actions that are represented as unknown (i.e., future ROWs, sequestration wells, and other infrastructure, construction, and operation activities). This approach does not evaluate site-specific impacts to these resources associated with future project actions or describe their intensity. It also does not consider any impacts to air resources, or surface water and groundwater resources other than riparian resources and wetlands. This separation of the project's POD from the subsurface ROW for the federal pore space prevents the public and decision makers from considering and understanding the project's entire scope and associated environmental impacts.

While the BLM mentions that the instant ROW applies only to the subsurface federal pore space, it is reasonably foreseeable that BLM would need to grant future ROWs authorizing surface use and occupancy for the CO_2 sequestration project (see page 4 of EA). Therefore, these future ROW authorizations appear to be connected actions and should be included in the same NEPA review per 40 CFR § 1501.3(b) because the surface occupancy ROWs would be "interdependent parts of a larger action and depend on the larger action [in this case the entire CO_2 sequestration project] for their justification." Not including these connected actions under the same NEPA document creates segmentation between major federal actions which may result in limited consideration of alternatives and avoidance of disclosure of significant impacts, and limits opportunities for public engagement on the full scope of the impacts to public lands.

The lack of a POD appears to be inconsistent with BLM's standard ROW stipulations (detailed in Appendix 4 of the EA) that assume that a POD is utilized to bound the scope and scale of the action.[2] In addition, the June 8, 2022, BLM Instruction Memorandum (IM) 2022-041, *National Policy for the Right-of-Way Authorizations Necessary for Site Characterization, Capture, Transportation, Injection, and Permanent Geologic Sequestration of Carbon Dioxide in Connection with Carbon Sequestration Projects*[3] includes directions for what should be considered in a ROW application for the use of federal pore space, stating:

> "These ROWs should appropriately address construction, operation, maintenance, and termination of surface facilities required to inject CO2 for permanent geologic sequestration.

[2] "The Holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the plan of development which was approved and made part of the grant on (add date). Any relocation, additional construction, or use that is not in accord with the approved plan of development, shall not be initiated without the prior written approval of the authorized officer." (Appendix 4)

[3] https://www.blm.gov/policy/im-2022-041

…
The BLM should complete appropriate exploration and site characterization studies, including any mineral potential reports, and review any applicant-prepared characterization studies to determine surface and pore space ownership, geologic boundary limits, and formation impermeability before authorizing CO2 sequestration. This initial work ensures that no physical connections exist between different formations identified for CO2 sequestration. If needed, the BLM may issue short-term, non-renewable FLPMA Title V ROW authorizations for site testing and characterization studies related to a proposed CO2 sequestration project;
…
Sequestration projects will typically require an approved Plan of Development (POD) submitted along with the application (SF-299) form in accordance with 43 CFR [§] 2804.25. Before approving a POD, the BLM should verify that it outlines all applicable phases of the project, from initial construction to termination and rehabilitation of the public lands involved."

As discussed above, the EA does not address the reasonably foreseeable potential impacts from all the reasonably foreseeable phases of the CO_2 sequestration project. In addition, rather than evaluating exploration and site characterization studies to determine if physical connections exist between different formations identified for CO_2 sequestration as the IM recommends, the EA in Appendix 1 indicates that the project area will only be examined for physical connections between geologic formations during the WYDEQ Underground Injection Control (UIC) program's Class VI well permitting process. Evaluating CO_2 confining zone integrity to ensure proper containment of the injected gas informs whether there could be impacts to water quality and therefore the feasibility of the project. This should be analyzed in the EA rather than deferred to future WYDEQ UIC permitting actions because it is integral to informed BLM decision making. If site testing and characterization studies are not yet available, we recommend considering if a short term or non-renewable ROW for the purposes of site testing and characterization is appropriate, and if BLM determines one is not warranted, explaining why and what is known about the geological characterization of the site. Overall, the EPA recommends expanding the NEPA analysis to consider in detail the direct, indirect, and cumulative effects of the pore space ROW, including the effects of any connected actions that would be included in a POD before deciding on the ROW application for the federal pore space.

The EPA further notes that the Class VI injection well operators will need to coordinate with EPA Region 8's UIC Program in addition to the WYDEQ UIC program. Per 40 CFR § 146.91(e), "Regardless of whether a State has primary enforcement responsibility, owners or operators must submit all required reports, submittals, and notifications under subpart H of this part to EPA in an electronic format approved by EPA." *See also* 40 CFR § 145.14.

The EPA provides the enclosed comments and recommendations for improving the NEPA document for your consideration. These comments include analysis recommendations for air, aquatic, and biological resources. We also suggest methods for the BLM to disclose and analyze Greenhouse Gas (GHG) emissions and emission reduction activities in the context of GHG reduction policies and targets and disclose climate effects by using the best estimates of the social cost of GHGs. Addressing our comments will depend on the EA being expanded to examine in detail all phases of the CO_2 sequestration project. Our comments are limited, however, by the lack of information in the EA and the lack of an available POD. We also recommend considering if such an expansion of the scope of the

project warrants the preparation of an Environmental Impact Statement. If the BLM decides to expand the scope of its analysis and address the identified concerns in a revised NEPA document made available for public review, the EPA may have more detailed comments and recommendations for addressing these and other important resource topics for your consideration.

We appreciate your consideration of our comments. If further explanation of these comments is desired, please contact me at (303) 312-6155 or mccoy.melissa@epa.gov. You may also contact Carolyn Gleason, the EPA Lead Reviewer at (303) 312-6441 or gleason.carolyn@epa.gov. The EPA is encouraging electronic submissions for all future NEPA notifications and documents. Any future BLM NEPA documents for EPA Region 8 review can be emailed to EPA-R8-NEPA@epa.gov.

Sincerely,

MELISSA MCCOY

Digitally signed by MELISSA MCCOY
Date: 2024.08.30 16:34:36 -06'00'

Melissa W. McCoy, Ph.D., J.D.
NEPA Branch Manager
Environmental Justice, Community Health, and Environmental Review Division

Enclosure

Enclosure - EPA Comments on the Southwest Wyoming CO_2 Sequestration EA

General Comment

In addition to the comments on the scope of analysis raised in the cover letter, the EPA notes that the Council on Environmental Quality's (CEQ) revised regulations, *National Environmental Policy Act Implementing Regulations Revisions Phase 2*, became effective on July 1, 2024.[4] While the revised regulations will apply to all NEPA reviews that begin after July 1, 2024, agencies may apply the revised regulations to ongoing NEPA reviews begun before July 1, 2024. We recommend implementing these revised regulations to the greatest extent possible before a decision is issued.

Water Resources

The EA eliminated water quality from detailed analysis in Appendix 1 on the basis that "BLM will provide for compliance with applicable water quality standards by requiring the applicant obtain the necessary authorizations from the State of Wyoming…" The NEPA analysis should evaluate the full range of potential direct, indirect, and cumulative environmental impacts of the proposed action associated with the BLM's ROW decision. As set forth in the NEPA regulations, the analysis should also consider reasonably foreseeable impacts that have catastrophic consequences even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason (40 CFR § 1502.21(d)).

CO_2 injection has the potential to cause impacts to water resources, including groundwater and connected surface waters through the vertical migration of deep subsurface brines to shallower aquifers and the mobilization of trace elements in these systems. This sort of mixing may occur through the displacement of preexisting fluids in the geologic formations present in the injection area or through leaks along the well casing which may create a conduit. Injected CO_2 may also seep upward as the system becomes pressurized and mix with freshwater formations or produce carbonic acid which generally erodes retaining geologic formations and well casings and mobilizes trace metals and metalloids.[5] To support a full impacts analysis, the EPA recommends the BLM include detailed water resource information in the NEPA document to create an inventory of existing water resources and to understand any potential impacts to them related to the development and operation of the project.

While any Class VI permit ultimately issued by the WYDEQ must ensure that underwater sources of drinking water are not endangered and injected CO_2 remains in the authorized injection zone, the Draft EA does not describe these protection measures, nor does it address whether sources of uncertainty could still result in adverse environmental impacts to water resources, even if unlikely. This could also inform planning measures that may be warranted. We therefore emphasize the importance of presenting the baseline conditions of regional water resources and:

- Describing how the WYDEQ UIC Program Class VI well permitting process protects groundwater and surface water resources;
- Identifying what uncertainties exist; and

[4] 89 Fed Reg. 35442

[5] *See* https://pubs.acs.org/doi/10.1021/es3027133.

- Assessing the nature, likelihood, and extent of any potential impacts to water resources that may exist due to these uncertainties.

Without walking through these details in the NEPA document, the public and BLM decision makers are left without a clear picture of the steps that will be taken to ensure that geologic sequestration does not cause the movement of injected CO_2 or formation fluids outside the authorized injection zone.

Construction activities being processed under future ROWs may also adversely impact these resources and as discussed in the cover letter, we recommend including detailed analysis of these actions, including potentially connected federal actions, that should be revealed in a POD or by requesting information from Moxa, as part of the analysis of environmental effects.

Existing Conditions. Existing resource conditions provide the basis for an effective analysis of potential impacts. Therefore, we recommend the NEPA document include the following baseline water resource information (see additional information in sections below):

- An updated map and summary of project area waters, including streams, tributaries, lakes, springs, seeps, and wetlands. It would be helpful if the summary identified high resource value waterbodies and their designated beneficial uses (e.g., agriculture, fisheries, drinking water, recreation);
- Information on any existing oil and gas production and enhanced oil and gas recovery locations in the vicinity of the ROW which may intersect with regional aquifers;
- Watershed conditions including vegetation cover and composition, and soil conditions;
- Surface water information near proposed construction activities including available water quality data in relation to current standards, stream functional assessments, stream channel and stream bank stability conditions, sediment loads, and aquatic life;
- Types, functions, conditions, and acreages of any relevant wetlands, riparian areas, and springs including ephemeral systems;
- A map and list of Clean Water Act (CWA) impaired or threatened waterbody segments within or downstream of the planning area, including the designated uses of the waterbodies and the specific pollutants of concern. The WYDEQ can identify or validate any CWA Section 303(d) listed waterbodies potentially affected by the project; and
- Generalized maps depicting the location of sensitive groundwater resources such as sole source aquifers (available from the EPA Sole Source Aquifer website at https://www.epa.gov/dwssa), municipal watersheds, source water protection zones (available from WYDEQ), sensitive aquifers, superficial aquifers, and recharge areas.

Water Quality Data. Water quality data and data sources for the water resources in the analysis area provide important information for the evaluation of the potential influence of current and future carbon sequestration and enhanced oil and gas recovery activities in the project area on water quality. Such information can then guide management for the project, with the data providing a baseline for future monitoring of impacts. We recommend the NEPA document provide a summary of available information and monitoring data on water quality for the project area including parameters such as total metals, total dissolved metals, total nitrogen, total dissolved solids, total suspended solids, temperature, and those contaminants of interest for groundwater dependent wetlands, springs,

riparian areas, and streams. Identification of any significant gaps in available water quality data may be helpful in developing the project-specific monitoring plan.

Drinking Water Supply Sources. If the project may have the potential to impact sources of drinking water, we recommend the NEPA document include a map, appropriate for public dissemination, showing the generalized locations of all source water assessment and protection areas associated with public drinking water supplies. We also recommend the NEPA document include an assessment of potential project impacts to municipal and private water supplies, and source water protection areas and include design criteria and mitigation for protecting these high value drinking water resources from potential project impacts.

Potential Impacts to Wetlands. The protection and restoration of wetlands and riparian areas is a high priority. These resources increase landscape and species diversity, support many wildlife species, and are critical for protecting water quality and designated beneficial water uses. We recommend the NEPA document include a description of the impacts that may result from project activities to wetlands and any springs and spring runs. These include impacts related to project construction and operations which may influence aquifer water quality and the quality of groundwater supported wetlands or other aquatic resources.

Water Quality Impacts and Mitigation. The EPA recommends that the NEPA document identify foreseeable impacts to regional waters and their overall water quality. This assessment should include the disclosure of which waters may be impacted, the nature of the impacts, and the specific pollutants involved. The following are specific areas that we recommend the NEPA document analyze in a water quality impacts assessment:

- *Development and Operational Waters*: Potential impacts to water quality caused by the disposal of any CO_2 sequestration well development waters. We recommend also including detailed descriptions of any potential operational water demands and related water metering and water quality monitoring activities. Water rights associated with any operational water needs should also be explored.
- *Sedimentation*: Potential impacts to water quality from runoff associated with surface disturbances such as road and support structure construction. This runoff would include sheetwash from the project catchment area into nearby surface water resources such as creeks or ponds. Specifically, we recommend assessing the potential for runoff to modify sediment loads and introduce salts, heavy metals, and other pollutants into surface water as project development progresses.
- *Groundwater:* Potential impacts to local aquifers and the regional groundwater catchment from the future project development and operation. This also includes impacts to groundwater emergences such as springs or seeps.

The EPA recommends the NEPA document identify and discuss how surface water quality will be protected during construction activities. To this end, we recommend the NEPA analysis include:

- A list of BMPs that will be required to protect surface water resources;
- A discussion of the circumstances under which the BMPs would be applied (e.g., proximity to surface water resources, presence of subsidence, erosive soils, slopes, etc.); and

- A monitoring and compliance plan detailing how the BLM, or another government entity, would ensure the timely and correct implementation of the BMPs as well as timely maintenance.

Air Resources

The EA dismissed air resources from further analysis in Appendix 1 on the basis that the project will conform with all applicable local, state, and federal laws regarding air quality. However, adherence to permitting requirements and potential application of undescribed best management practices is not a substitute for analysis of impacts under NEPA and this approach lacks an evaluation of potential impacts, including indirect and cumulative impacts, related to project construction and development that will occur despite conformance with laws and future unknown conditions of approval. The NEPA analysis should evaluate the full range of potential direct, indirect, and cumulative impacts of the BLM's ROW decision. We have provided a framework for this analysis below and continue to recommend expanding the scope of the EA analysis to consider the information that would be made available in a POD. Once this change in scope is achieved, we encourage the BLM to engage with the EPA and other stakeholders to solidify reasonable and representative analyses for these impacts.

Existing Air Quality and Air Quality Related Values (AQRVs). We recommend characterizing the existing air quality baseline for criteria pollutants and AQRVs, including visibility and resources sensitive to deposition. For criteria pollutants, we recommend coordinating with WYDEQ to establish representative design values (background pollutant concentrations) based on the most recent monitoring data for distinct airsheds in Wyoming that could be affected by all phases of the project. Data are available to the public through the EPA's design values webpage,[6] outdoor air monitor webpage,[7] as well as through the EPA's Air Quality System (AQS) for AQS users.[8]

We recommend characterizing trends in visibility within and near the planning areas, including sensitive areas identified in coordination with Federal Land Managers (FLMs). Data are available through the IMPROVE monitoring network as well as information prepared by the FLMs. We suggest working with the relevant FLMs and Tribes regarding existing AQRVs in the areas they manage. Information is also available online at:

- https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors;
- http://vista.cira.colostate.edu/Improve/;
- https://www.nps.gov/subjects/air/park-conditions-trends.htm; and
- https://www.fs.usda.gov/air/technical/class_1/alpha.php.

Existing deposition may be characterized by utilizing the National Atmospheric Deposition Program (NADP) monitoring network in conjunction with total deposition (TDEP)[9] estimates and information available from the FLMs and websites bulleted above. Areas that may be relevant include but are not limited to Bridger Wilderness, Fitzpatrick Wilderness, Flat Tops Wilderness, Mount Zirkel Wilderness, Yellowstone National Park, Grand Teton National Park, Washakie Wilderness, Teton Wilderness,

[6] https://www.epa.gov/air-trends/air-quality-design-values
[7] https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors
[8] https://www.epa.gov/aqs
[9] https://nadp.slh.wisc.edu/committees/tdep/

Dinosaur National Monument.

As part of the characterization of existing conditions, we recommend also providing estimates of current emissions from any known oil and gas development activities in the area. These baseline emission inventories provide useful information regarding existing emissions in the area for criteria pollutants and Hazardous Air Pollutants (HAPs).

Air Quality and AQRV Impact Analysis. We recommend developing an emissions inventory for the CO_2 sequestration development activities that are planned for the project, based on a POD or information requested of Moxa. These activities likely include, but are not limited to, drilling of wells and the construction and operation of compression facilities which generate their own emissions and create reasonably foreseeable indirect and cumulative impacts associated with the project that should be explored in the NEPA document. We are available to work with the BLM on the approach for the air quality impact analysis after completing the emission inventory for all phases of the project. Based on the level of projected emissions, existing emissions, proximity to sensitive areas, and input from other state and federal agencies, it may be appropriate to conduct additional analysis beyond the emission inventory. We recommend that the BLM work with the EPA, FLMs, and state agencies to address the following analysis components:

- Impacts from each of the criteria pollutants (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead), including with respect to their respective NAAQS;
- Impacts to AQRVs in potentially impacted Class I areas and any other relevant areas identified in collaboration with Cooperating Agencies and FLMs; and
- Impacts that could result from exposure to HAPs based on relevant health-based risk thresholds for HAPs. We are available to assist with methods of analysis, and appropriate characterization of available thresholds.

Climate Change

Appendix 1 of the EA dismissed climate change and GHG emissions from further analysis because "[t]he proposed action would not produce or contribute to the environment hydrocarbons or other potential 'downstream' sources of GHGs." However, construction, well development, and operational activities associated with future actions and potential ROWs connected to the project would result in GHG emissions, creating a reasonably foreseeable impact. There are also potential upstream emissions associated with CO_2 sequestration projects (see more on this possibility below).

On January 9, 2023, CEQ published interim guidance, *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*, to assist agencies in assessing and disclosing climate change impacts during environmental reviews.[10] CEQ developed this guidance in response to EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. In the NEPA Implementing Regulations Revisions Phase 2 issued by CEQ in May

[10] https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate; https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html

2024,[11] CEQ instructed that EISs shall include analysis of "climate change-related effects, including, where feasible, quantification of greenhouse gas emissions, from the proposed action and alternatives and the effects of climate change on the proposed action and alternatives."[12] The regulations also state that agencies may apply this requirement and other provisions of the regulations to EAs to improve their efficiency and effectiveness.[13] The EPA recommends using the CEQ's interim guidance to inform the development of a climate and GHG analysis in the NEPA document, including addressing the following for each alternative in the NEPA analysis:

- Estimate the anticipated net direct and indirect GHG emissions (or reductions thereof) associated with the project alternatives. This should include information on the CO_2 sequestration rates expected after any wells are developed and any known CO_2 capture technology efficiency rates. The NEPA.gov website includes a non-exhaustive list of GHG accounting tools[14] available to agencies. In addition to estimating speciated emissions (e.g., CO_2, CH_4, and N_2O), we also recommend estimating GHG emissions values in CO_2-equivalent terms and translating the emissions into equivalencies that are more easily understood by the public (e.g., annual GHG emissions from x number of motor vehicles, see https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator). This information will report on the significance of the net climate change impact of developing this project.
- Include a discussion of the reasonably foreseeable range of GHG emissions or emissions reductions associated with the project in the context of state, national, and international GHG emissions reduction goals, including the U.S. 2030 Paris GHG reduction target and 2050 net-zero pathway.[15] This discussion should address how reasonably foreseeable GHG emissions and storage activities associated with the planning effort are, or are not, consistent with these policies and goals.
- Account for the project's climate impacts by utilizing EPA's values for the social cost of GHG emissions described further below.

As mentioned above, there are potential upstream emissions associated with CO_2 sequestration projects. Specifically, sequestration of CO_2 could induce or provide incentives for more CO_2-emitting activities to occur as emissions are offset. If the project could induce new emissions from oil and gas extraction, enhanced oil recovery (EOR), ammonia production, or "other potential CO_2 source points,"[16] then we recommend exploring these details in the climate change section of the NEPA document, which could involve impacts estimates under different foreseeable project scenarios. Consistent with the CEQ's interim guidance, the EPA further recommends that the EA also provide GHG emission estimates from the upstream carbon-producing source, including not only CO_2 but other GHG emissions such as methane and nitrous oxides. Without a POD and greater detail about the scale and scope of the project, the EPA cannot recommend a method for conducting this analysis, but we are available to work with the BLM to accomplish this before the project decision is issued if further

[11] https://www.federalregister.gov/documents/2024/05/01/2024-08792/national-environmental-policy-act-implementing-regulations-revisions-phase-2
[12] 40 C.F.R. § 1502.16(a)(6)
[13] 40 C.F.R. § 1501.5(k)
[14] https://ceq.doe.gov/guidance/ghg-tools-and-resources.html
[15] https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/
[16] EA page 4.

project details are made available. The project proponent is also presumably aware of the existing upstream sources of CO_2 for the project.

Social Cost of GHGs. In November 2023, the EPA published the *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances.*[17] This report provides updated estimates of the SC-GHGs that reflect advancements in the scientific literature on climate change and its economic impacts and incorporates recommendations made by the National Academies of Science, Engineering, and Medicine (National Academies 2017). In this update, the methodology underlying each of the four components, or modules, of the SC-GHG estimation process – socioeconomics and emissions, climate, damages, and discounting – is developed by drawing on the latest research and expertise from the scientific disciplines relevant to that component. Regarding discounting, the EPA's report presents updated estimates of the SC-GHG at multiple discount rates. Considering the multiple lines of evidence on the appropriate certainty-equivalent near-term rate, the modeling results presented in this report consider a range of near-term target rates of 1.5%, 2.0%, and 2.5%. This range of rates allows for a symmetric one point spread around 2.0%. The updated SC-GHG estimates have also undergone an expert peer review and a public comment process.

The EPA released a Microsoft Excel "Workbook for Applying SC-GHG Estimates" spreadsheet to better assist lead agencies with the utilization of these updated estimates, and it can be accessed at https://www.epa.gov/environmental-economics/scghg. This workbook presents a straightforward tool for applying the updated SC-GHG values to monetize project SC-GHG emissions.

The EPA recommends the BLM use EPA's 2023 SC-GHG estimates to monetize the value of net changes in direct and indirect GHG emissions resulting from the project and its related components such as CO_2 capture, refinement, and transmission to the planned sequestration facilities. This analysis would assess climate impacts and benefits of the project. The EPA also recommends that SC-GHG calculations give specific information regarding the social cost estimate related to individual gases (i.e., use SC-CO_2 to monetize CO_2 emissions changes, and use SC-CH_4 to monetize CH_4 emissions changes). Please feel free to reach out to us directly if there are any follow up questions regarding these recent updates. We are also available to assist the BLM with using the workbook if desired.

Environmental Justice and Public Health

The EA dismissed environmental justice from further analysis in Appendix 1, citing no surface disturbance proposed under the project ROW and general improvements to health impacts for communities proximal to wells. However, the EA does not consider impacts from all phases of the CO_2 sequestration project and the potential 'improvements' are not substantiated. Therefore, it is not clear how the project would result in positive human health impacts. The EPA therefore recommends including a detailed analysis of the potential impacts to communities with environmental justice concerns in the NEPA document in order to fully evaluate direct, indirect, and cumulative effects associated with authorizing CO_2 sequestration and construction/development activities around these communities. The environmental justice analysis should also consider measures to mitigate the

[17] *See* https://www.epa.gov/environmental-economics/scghg; https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf.

potential effects identified.

The protection of public health through timely gas leak detection and pipeline maintenance or repair needs is essential particularly given the colorless, odorless, and dense nature of CO_2. If CO_2 pipelines will be proposed for use under future actions or ROWs, we recommend exploring any potential public safety impacts that could be associated with the transport of the CO_2 to the sequestration wells and ways to mitigate any such potential impacts. In 2020, the Gulf Coast Pipelines LLC CO_2 pipeline ruptured. As a result of this incident, 45 people received treatment at local emergency rooms and 200 people were evacuated from communities in Yazoo County, Mississippi as CO_2 replaced the available oxygen in surrounding low-lying areas.[18] The U.S. Department of Transportation (DOT) incident report on the subject subsequently recommended the implementation of broader public engagement efforts to effectively alert emergency responders and members of the public living in low-lying areas of the hazards associated with CO_2 pipelines. DOT also directed the pipeline owner to develop more resilient mitigation efforts which address the challenges to the integrity of their CO_2 pipelines presented by climate change, geohazards, and soil stability issues.

While DOT has initiated a rulemaking to enhance the safe transportation of CO_2 by pipeline and to address related emergency preparedness and response considerations,[19] we recommend that the BLM and Moxa take measures to encourage members of the communities identified in Appendix 1 to participate in the NEPA process. Consistent with Executive Orders 12898 and 14096, we recommend that the BLM and Moxa engage with and provide educational sessions to local communities and seek their input on the proposed project, CO_2 sequestration technology, the potential risks and impacts associated with the CO_2 pipelines, emergency response planning, and mitigation measures. This outreach should occur prior to the development of final mitigation measures and a final decision. The EPA further recommends detailing effective public involvement and communication strategies regarding the potential hazards associated with these types of projects in the environmental justice analysis. The EPA also recommends the NEPA document contain ROW stipulations to mitigate potential impacts to public health including:

- Utilization of monitoring gages, crack arrestors, and relief valves placed at frequent intervals along the pipelines;
- Pipeline rupture early detection measures and explicit emergency response time commitments; and
- Introduction of chemical odorants to the CO_2 to help alert communities to the presence of potential leaks.

Biological Resources, Habitat, and Wildlife

Conservation and Landscape Health Rule. The EA includes biological resources as a resource taken forward for detailed analysis. BLM's Conservation and Landscape Health Rule became effective June

[18] *See* https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/Failure%20Investigation%20Report%20-%20Denbury%20Gulf%20Coast%20Pipeline.pdf. In addition to low-lying areas, buildings with basements should be considered in any risk assessment.

[19] *See* https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202404&RIN=2137-AF60.

10, 2024.[20] This rule establishes policy to protect the most intact, functioning landscapes; restore degraded habitat and ecosystems; and use science and data as the foundation for management decisions across all plans and programs. It also puts conservation on par with other uses and prioritizes protection of Areas of Critical Environmental Concern (ACECs). We recommend that the NEPA document demonstrate how the chosen alternative is consistent with this rule. In addition, we recommend ensuring that the proposed action and all other phases of the CO_2 sequestration project are consistent with protection of the important resources for which the Special Status Plant Species ACEC referenced in Section 3.19 was designated.[21]

Greater Sage-Grouse (GRSG). The EA states that there is a total of 171,413 acres of designated GRSG General Habitat Management nesting habit within the project areas, as well as 340,790 acres of GRSG Priority Habitat, which is defined as having the highest value to maintaining substantiable GRSG populations. These areas include breeding, late brood rearing, winter concentration areas, and migration or connectivity corridors. Therefore, impacts to GRSG are important to evaluate in detail. The EA states that the BLM currently manages GRSG through the 2015 Resource Management Plan (RMP) (p. 7) and it includes an analysis of potential impacts to GRSG (pp. 9-11). As the BLM acknowledges in the EA, it is in the process of amending the GRSG RMP. These revisions will include revised Habitat Management Area boundaries, ACECs, stipulations, and mitigation. We recommend coordinating with the BLM GRSG planning group to incorporate into the NEPA document the best available GRSG science and Habitat Management Area evaluations the BLM has completed thus far for the GRSG RMP amendment and use that information to evaluate the potential impacts to GRSG from all phases of development. We also recommend including a commitment in the NEPA document to incorporate the requirements from the Final GRSG RMP. This will be important because GRSG populations continue to decline because of habitat loss and fragmentation and the overall project has the potential for significant surface disturbance and infrastructural development.

Ecological Connectivity. On March 21, 2023, the CEQ published a memo titled *Guidance to Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors*. This memo reinforces the need to promote greater connectivity across terrestrial and freshwater habitats, as well as across airspaces; to sustain biodiversity; and to enable wildlife to adapt to fluctuating environmental conditions, including those caused by climate change. We recommend utilizing this guidance to inform project design features, BMPs, and mitigation measures to conserve, enhance, protect, and restore wildlife corridors and connectivity during all phases of the project.

[20] *See* https://www.federalregister.gov/documents/2024/05/09/2024-08821/conservation-and-landscape-health.
[21] *See* https://www.blm.gov/sites/default/files/docs/2024-04/Areas%20of%20Critical%20Environmental%20Concern%20Fact%20Sheet.pdf.