MONTANA
STATE UNIVERSITY

FINDING OF NO SIGNIFICANT IMPACT FOR THE BIG SKY REGIONAL CARBON SEQUESTRATION PARTNERSHIP PHASE III: KEVIN DOME CARBON STORAGE PROJECT

October 23, 2013

To: All Interested Persons

The Kevin Dome Carbon Storage Project (project) involves the production, injection, and monitoring of up to 1 million metric tons of carbon dioxide (CO_2) into the Duperow Formation in Kevin Dome, Montana. The project is funded by a financial assistance agreement between the U.S. Department of Energy (DOE) and Montana State University's (MSU) Big Sky Carbon Sequestration Partnership (BSCSP). In compliance with the National Environmental Policy Act (NEPA), DOE National Energy Technology Laboratory (NETL) completed an environmental review and issued the *Final Environmental Assessment for the Big Sky Regional Carbon Sequestration Partnership – Phase III: Kevin Dome Carbon Storage Project* (Kevin Dome Carbon Storage Project EA) and a Finding of No Significant Impact (FONSI) for the project. As a state entity undertaking a state action for this project, MSU must comply with the Montana Environmental Policy Act (MEPA), as amended (Title 75, Chapter 1 of the Montana Code Annotated (MCA)), and MEPA implementing rules, known as the MEPA Model Rules.

With this decision document, MSU adopts by reference the Kevin Dome Carbon Storage Project EA. MSU finds that the EA prepared by DOE is applicable to MSU's proposed action (see Section 2 below) and that the information and analyses presented in the EA are accurately presented. In October 2013, MSU retained an independent third-party consultant, ERO Resources Corporation (ERO), to review the EA and FONSI. ERO prepared a report, titled *Montana State University Compliance with the Montana Environmental Policy Act for the Kevin Dome Carbon Storage Project*. The report included recommended actions that MSU should undertake to ensure MEPA compliance. The following sections provide a summary of the environmental analysis and include ERO's recommendations.

1. Purpose and Benefit

By conducting the Kevin Dome Carbon Storage Project, MSU will pursue key points of its mission and strategic priorities. The project will also advance scientific knowledge and technology, support Montana's energy resources, and create economic opportunities in Montana.

MSU's Mission Statement is: Montana State University, the State's land-grant institution, educates students, creates knowledge and art, and serves communities,

Office of the Vice President for Research, Creativity and Technology Transfer

P.O. Box 172460
Bozeman, MT 59717-2460

Tel (406) 994-2891
Fax (406) 994-2893
www.montana.edu/research

by integrating learning, discovery, and engagement. Moreover, it is a Strategic Priority of MSU, as a land grant university, to sustain and enhance programs that address issues of Montana's traditional industries, contribute to the development of knowledge- and technology-based industries, and contribute to the state's need for well-educated citizens who can participate and lead in an increasingly knowledge-based, technology-dependent global economy.

The Kevin Dome Carbon Storage Project is one of a few projects worldwide testing CO_2 storage in a carbonate saline formation with a carbonate primary caprock. MSU believes the project to be the only large-scale project that couples engineered storage with the study of a natural system. This natural system has successfully stored CO_2 over many millions of years, allowing the project to generate an understanding of the very long-term effects of CO_2 on the storage reservoir. The project will also test newly developed monitoring technologies, including some developed at MSU, and will provide student research opportunities.

The Kevin Dome Carbon Storage Project can contribute to Montana's traditional energy industries. The state possesses 6% of the world's coal reserves and contains conventional oil, depleted oil reserves that could produce more with tertiary recovery techniques (CO_2 enhanced oil recovery), and shale oil in the Bakken and similar formations. These fossil energy reserves represent a very large economic opportunity for the state, but they could end up as stranded assets if the state's energy industries cannot respond to potential climate change/carbon management policy. The project will test an important formation (Duperow) with large storage potential and wide geographic coverage in the state. The project will engage state regulatory agencies providing valuable experience in advance of commercial projects, and it will provide technical knowledge concerning how to inject, monitor, and model CO_2.

The Kevin Dome Carbon Storage Project will also create jobs in Montana and will benefit the local service industry.

2. Proposed Action

MSU's BSCSP proposes to construct and operate the Kevin Dome Carbon Storage Project in Toole County, Montana, and to accept $63.8 million in financial assistance for the project from DOE as part of a cost-sharing arrangement. The estimated total cost of the project is $81.4 million. The project will include the following components: drilling of up to five production wells, one injection well, and four monitoring wells; constructing a compressor station, 5 miles of roads, and 6 to 10 miles of stainless steel pipe; and conducting various monitoring activities. For a complete description of the project, see Section 2.2 of the Kevin Dome Carbon Storage Project EA.

3. Alternatives Considered

DOE evaluated the proposed action and a no action alternative in the Kevin Dome Carbon Storage Project EA. MSU did not identify any other reasonably available and economically feasible alternatives to the project. BSCSP, directed by MSU and under which this project is being pursued, operates in a six-state region. MSU and BSCSP investigated alternatives in other states that could not be pursued because appropriate private sector partnerships required unattainable cost shares.

MSU was constrained by the DOE Funding Opportunity Announcement, which had (among others) the following conditions: 1) a maximum of $67 million of DOE funds available; 2) a required 20% of total project budget cost share for saline storage, and 50% for enhanced oil recovery storage; 3) a limit of 10 miles of pipeline to be funded by DOE; and 4) a total of 1 million metric tons of CO_2 to be injected.

The primary constraint in developing the project was the availability of CO_2. Developing a capture facility, which has an estimated cost of $100 to $300 million (capital plus operating costs), would have exceeded the budget. MSU could not identify a Montana source willing to fund a high enough percentage of the construction costs for a capture facility or its operating costs to make the project economically feasible. MSU negotiated with SaskPower in Saskatchewan to provide CO_2 as part of a Canadian-funded capture project. SaskPower indicated they would charge MSU $50 per metric tonne for CO_2 for capture and pipeline transport. This $50 million total cost for CO_2 would not have left adequate budget for drilling wells, monitoring, and performing other DOE-required activities. MSU identified Kevin Dome as a natural, pre-commercial source of CO_2, and the only economically viable, available source in the state at the time of the proposal.

Further consideration of alternatives was limited to storage locations for Kevin Dome CO_2. Discussions with oil and gas operators in the general vicinity of Kevin Dome revealed that candidate fields for enhanced oil recovery were outside a 10-mile radius, and no operators were willing to assist in funding a pipeline until the ability to produce CO_2 was proven. Saline storage of CO_2 produced from the natural Kevin Dome source (i.e., the project as proposed) remained as the only reasonable and economically feasible carbon storage project for MSU to undertake.

4. Environmental Consequences

DOE evaluated the potential impacts, including cumulative and secondary (indirect), of the proposed action and the no action alternative on the physical environment and the human population in the affected area. This impacts analysis can be found in Section 4 of the Kevin Dome Carbon Storage Project EA. The project is not expected to have any significant adverse impacts.

5. Mitigation Measures

MSU will implement the following mitigation measures:

- Risk Management Approach for Reducing Resource Impacts (described on pp. 64-65 of the EA; examples are provided in Tables 4.2.2.1 and 4.3.2 of the EA);
- Mitigation and compliance measures (Section 106 of the National Historic Preservation Act) contained in the Programmatic Agreement signed by the Montana State Historic Preservation Office, DOE, and MSU; and
- Mitigation measures for migratory birds and other wildlife described in the DOE FONSI (pp. 3-4).

6. Other Needed Permits

Potentially applicable federal and state permits for the project are listed in Section 1.6 of the Kevin Dome Carbon Storage Project EA. In addition, MSU will file a Notice of Intention to Engage in Geophysical Exploration with Toole County, Montana.

7. Resources Used

MSU used the following resources in completing its MEPA environmental review for this project: 1) *Final Environmental Assessment for the Big Sky Regional Carbon Sequestration Partnership – Phase III: Kevin Dome Carbon Storage Project*; 2) *Finding of No Significant Impact for the Big Sky Regional Carbon Sequestration Partnership Phase III: Kevin Dome Carbon Storage Project, Toole County, Montana*; and 3) *Montana State University Compliance with the Montana Environmental Policy Act for the Kevin Dome Carbon Storage Project.*

These resources are available for review upon request by contacting:

Lindsey Tollefson, Project Manager
Big Sky Carbon Sequestration Partnership – Montana State University
PO Box 173905
Bozeman, MT 59717-3905
Phone: 406-994-3755
Email: ltollefson@montana.edu

The federal and state agencies and tribes contacted or provided information as part of the environmental review process for the Kevin Dome Carbon Storage Project EA are shown in Table 1.

Table 1. Consultation with Federal and State Agencies.

State Agencies
Montana Board of Oil and Gas
Montana Department of Environmental Quality
Montana Department of Natural Resources and Conservation
Montana State Historic Preservation Office
Federal Agencies
United States Department of the Interior, Bureau of Indian Affairs
United States Department of the Interior, Bureau of Land Management
United States Department of the Interior, Fish and Wildlife Service
United States Army Corps of Engineers
United State Environmental Protection Agency
Tribes of Montana
Blackfeet Tribe
Confederated Salish and Kootenai Tribes of the Flathead Reservation
Chippewa Cree Tribe of the Rocky Boy's Reservation
Fort Belknap Tribe
The Crow Tribe of Indians
Northern Cheyenne Tribe

8. Determination of Significance

Based on the information and analyses presented in the Kevin Dome Carbon Storage Project EA and consideration of the MEPA significance criteria (MEPA Model Rule IV(1)), the project will have no significant adverse impacts after mitigation. Therefore, preparation of an environmental impact statement is not required, and MSU is issuing this FONSI for the Kevin Dome Carbon Storage Project.

Signed,

Anne K. Camper

Anne K. Camper, Ph.D.
Interim Vice President for Research, Creativity and Technology Transfer
Montana State University

cc: file
Montana Governor
Montana Environmental Quality Council