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October 21, 2013

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Linc Energy Operations, Inc.  
317 West Birch St.  
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**Re: Sierra Club's Opposition to Linc Energy's request for an aquifer reclassification for experimental underground coal gasification project**

Sierra Club writes to strongly oppose Linc Energy's ("Linc") proposed research and development license for underground coal gasification and proposed aquifer reclassification and exemption. This short-term experimental project is highly likely to contaminate a high quality aquifer. Because the impacted aquifer is a source of drinking water or could be, the reclassification and exemption would violate the Safe Drinking Water Act ("SDWA"), EPA's regulations implementing the SDWA, and corresponding state laws and regulations.

The Sierra Club, founded in 1892, is the nation's oldest and largest grassroots environmental organization. The Wyoming Chapter of the Sierra Club is a non-profit member-supported, public interest organization that promotes conservation of the Wyoming natural environment by influencing public policy decisions— legislative, administrative, legal, and electoral. The Wyoming Sierra Club has more than 800 members in the state. Sierra Club's 1.3

million members nationwide are dedicated to the protection and preservation of the natural and human environment, including protecting public health. The Sierra Club's most important current priority is to advance smart, clean energy solutions that address the critical problems of global warming and our nation's dependence on fossil fuels.

Linc proposes to carry out a high-risk experimental underground coal gasification project on a state section of land in Campbell County that overlies the Fort Union Formation. The proposal is to convert coal to a syngas underground through chemical reactions that oxidize the coal, ignite it and convert it into a syngas that is transported to the surface through a production well. Gasifying coal underground carries significant risk, including "excessive subsidence, groundwater influx, mixing of aquifers (or water bearing strata), and groundwater contamination."<sup>1</sup> Past attempts at underground gasification in the Powder River Basin contaminated groundwater and were considered failures.<sup>2</sup>

In order to receive an exemption under SDWA, an applicant must demonstrate that the aquifer is not currently a drinking water source and is not likely to be used as a drinking water source in the future. Under 40 C.F.R. § 146.4, aquifer exemptions are available if the aquifer:

- a) Does not currently serve as a source of drinking water, and
- b) It cannot now and will not in the future serve as a source of drinking water because:

- (1) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.
- (2) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;
- (3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or
- (4) It is located over a Class III well mining area subject to subsidence or catastrophic collapse.

EPA instructs that aquifers or portions of aquifers can only be exempted when they have "no real potential to be used as drinking water sources."<sup>3</sup>

Linc does not qualify for an aquifer exemption because the Fort Union Formation is used by private landowners for domestic and livestock watering purposes, and it also provides significant water resources to municipalities and water districts.<sup>4</sup> Linc's extremely risky

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<sup>1</sup> Gas Tech, *Viability of Underground Coal Gasification in the "Deep Coals" of the Powder River Basin, Wyoming*, June 2007, at 3.

<sup>2</sup> *Id.* at 8, 18-19; see also Linc Application at 14-6 to 14-7.

<sup>3</sup> 45 Fed. Reg. 33,290, 33,328 (May 19, 1980); see also, *Id.* at 33,330 (an exempted aquifer is an aquifer or portion of an aquifer that would otherwise qualify as a USDW, but has no actual potential for providing drinking water).

<sup>4</sup> See Wyoming State Engineer's Office, *Background: Time Limited Water Haul Permits from the Fort Union Formation in Campbell County*, April 9, 2008, available at <http://tinyurl.com/longpcb> ("The City of Gillette and all other water users in the vicinity of Gillette depend solely on ground

proposal to ignite coal underground carries a significant risk of contaminating the Fort Union Formation.

Moreover, the portion of the Fort Union Formation where Linc proposes its project has some of the best groundwater quality in the region and could, with reasonable foreseeability, be used as a future source of drinking or livestock water in the near future. Although coal is present in the aquifer, the water quality is high and the coal is not commercially producible. EPA's regulations provide that the aquifer can be exempted only if "it cannot now and will not in the future serve as a source of drinking water *because . . . [it] contain[s] minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.*"<sup>5</sup> In this case the minerals present in the aquifer do not prevent the aquifer from being a future source of drinking water. This is clear based on Linc's own water sampling data which shows that the aquifer has good water quality, and in fact has a lower TDS concentration than many other portions of the Fort Union Formation that are currently used for drinking water purposes. Since underground coal gasification is not commercially viable and the proposed project is a short-term demonstration project, Linc has not demonstrated that the coal is "expected to be commercially producible."

High quality groundwater is a precious human resource in the state of Wyoming. The state cannot afford to sacrifice high quality drinking water in the Fort Union Formation for the benefit of an ill-conceived 6-month demonstration project. Sierra Club urges the Wyoming Department of Environmental Quality, the Wyoming Environmental Quality Council, and EPA to reject Linc's request for an aquifer exemption. Sierra Club requests notice of further developments on this project.

Sincerely,



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water for their water needs."); *See e.g., HKM Engineering, Northeast Wyoming River Basins Water Plan*, Appendix E, available at <http://waterplan.state.wy.us/plan/newy/techmemos/muniuse.html> (showing that most municipalities and water districts in Campbell County use water from Fort Union wells).

<sup>5</sup> 40 C.F.R. § 146.4(b)(1) (emphasis added).