

## COMMENT #5

### Comments of Environmental Defense on First Draft Language for WAC 173-218, Geologic Sequestration of Carbon Dioxide

October 23, 2007

Submitted to:  
Mr. John Stormon, Hydrogeologist  
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Department of Ecology  
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Dear Mr. Stormon:

Although Environmental Defense is not a participant in the Department's informal working group, we have seen a copy of your first draft and hope that you might accept a few comments from us.

We commend you for tackling this important subject and believe you are well on your way toward developing a quality set of regulations – in fact, it appears that Washington is on track to be one of the first states in the nation to adopt robust rules governing geologic sequestration.

In addition to offering the suggestions below, we urge you to give careful consideration to comments being submitted jointly today by the NW Energy Coalition, Climate Solutions, the Washington Environmental Council, and NRDC.

At this time we have only a limited number of suggestions, but we can submit additional ideas in the near future if doing so would be useful to you and acceptable under your procedures.

#### **1. Basic Concepts Regarding the Components of a Geologic Sequestration Project**

We believe you may find it helpful for permitting purposes to define the term “geologic sequestration project” and to have it consist of three separately identified components. Conceptually, the components would be:

- (1) A geologic containment system that both receives the injected CO<sub>2</sub> and permanently confines or sequesters it within the system's physical boundaries (the basic concept here is a three dimensional area for injection and storage, with defined boundaries, that includes one or more geologic

- formations; the concept could be extended, if it is beneficial to do so, to processes within the formations that help to sequester carbon dioxide)
- (2) Monitoring zones and facilities that are below the surface but that lie outside of the geologic containment system
  - (3) Surface facilities for the project

Even if you decide not to define all of these elements, we believe it is critical that you revise the draft's current definition of "geologic target formation." This term is used in the draft rules in a number of important contexts. Many of those contexts relate to making sure that the "geologic target formation" will effectively retain or sequester carbon dioxide. But the definition of "geologic target formation" is limited to the "layer" (a narrow word) where it is feasible to *inject* carbon dioxide "for" sequestration. In order to make sure that geologic characterization efforts, area of review studies, and other important activities fulfill their purpose, it is important that the concept presently represented by the term "geologic target formation" not be limited to the injection zone. What is needed is a term that covers both the area into which carbon dioxide is injected and all areas into which the carbon dioxide moves afterwards. The concept of a "geologic confinement system" as described above would provide the necessary scope.

If there is a particular reason to do so, we would not disagree with having a separate definition of "injection zone." However, such a zone should be thought of as a subset of the complete geologic containment system. We believe that the fundamental focus of regulatory interest must be the entire space, with boundaries defined in a permit, within which carbon dioxide moves.

## **(2) "Permanent Sequestration"**

There is a need to define what is meant by permanent sequestration. We suggest the following:

"'Permanent sequestration' means sequestration in a defined geologic containment system where operational protocols and the use of established and proven monitoring and verification methods create a high degree of certainty that approximately 99% of the CO<sub>2</sub> injected will remain sequestered for at least one thousand years."

This suggested definition is consistent with the findings on long-term retention made by the International Panel on Climate Change (IPCC).

## **(3) Cement Evaluation**

We believe that, as currently drafted, item 7(b) in the section on Geologic Sequestration Well Standards reflects an outdated approach to the important issue of evaluating the quality of cement jobs. We suggest the following language instead:

“(b) Unless an alternative evaluation is approved by the department, the integrity of cement behind casings, including the location of any channels, contamination or missing cement, shall be verified by a cement map that incorporates data from a cement bond log, a variable density display, and an ultrasonic image.”

We hope you find these comments useful. We commend you once again for your work on these issues.

Respectfully submitted,

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