



October 7, 2011

RCRA Docket  
U.S. Environmental Protection Agency  
Mail Code 28221T  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Re: Docket No. EPA-HQ-RCRA-2010-0695

Dear Sir or Madam:

The CCS Alliance, a multi-industry group of entities whose mission is to address barriers to the potential deployment of carbon capture and sequestration, submits these comments in support of the Environmental Protection Agency's ("EPA" or "the Agency") proposed rule to conditionally exclude geologically sequestered CO<sub>2</sub> from regulation under the Resource Conservation and Recovery Act's ("RCRA") hazardous waste program.

### **Introduction**

The CCS Alliance favors a single, clear regulatory structure for geologic sequestration ("GS") of carbon dioxide, as opposed to a structure composed of multiple regulatory laws with overlapping enforcement regimes and penalty provisions. Unlike with other spheres of commercial activity, with GS the nation has the opportunity to establish a regulatory framework before the practice becomes widespread. Thus government may take into account the factors that specially characterize GS before regulating, as well as the public policy objectives surrounding it.

GS is a practice the government desires to encourage, or at least desires not to discourage, to reduce emission of CO<sub>2</sub> into the atmosphere. We submit that a single, clear structure of regulation and enforcement suits this interest better than confusing requirements under multiple statutes. EPA already has established a detailed, comprehensive regulatory framework for GS through the Underground Injection Control ("UIC") program of the Safe Drinking Water Act. We agree with the Agency's commentary in the proposed rule that the Class VI UIC program for GS wells that EPA established in 2010 is sufficient to protect the environmental and safety interests that RCRA was enacted to protect. Applying burdensome



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RCRA hazardous waste regulation on top of the UIC regulations not only would not advance the interests served by RCRA, but could drive up costs for and discourage deployment of GS, frustrating EPA's carbon dioxide emission reduction goals.

EPA itself has acknowledged the burden of RCRA and the fact that many of its requirements are poorly suited to at least some of the activities to which they apply. EPA initiated a rulemaking in 2002 to reduce the burdens associated with the RCRA hazardous waste program.<sup>1</sup> The Agency noted, "[t]he existing hazardous waste regulations require the submittal of 334 notifications, reports, certifications, demonstrations, and plans from generators and TSDFs to demonstrate compliance with the RCRA regulations."<sup>2</sup>

Reporting requirements are just one example of RCRA's burdens. Construction, permitting, operating, monitoring, and post-site closure requirements are much more burdensome for Class I hazardous wells than for the other types of injection wells. For instance, Class I hazardous wells have a requirement that there be no migration for 10,000 years. Such strict requirements may be appropriate to protect USDWs and the environment from certain hazardous wastes, but were not established with the circumstances of GS of CO<sub>2</sub> in mind.

Furthermore, if a facility were required to obtain a Class I UIC hazardous waste injection permit, all other waste management units at the facility could be subject to the full extent of RCRA's Subtitle C corrective action program, which is an extremely costly and administratively complex program. Determining that CO<sub>2</sub> constitutes a hazardous waste and subjecting CO<sub>2</sub> injection and storage to the burdensome Class I well requirements would not promote underground injection and storage of CO<sub>2</sub>.

Imposing extensive, burdensome RCRA regulations likely to have little benefit for human health and the environment may result in larger atmospheric releases of CO<sub>2</sub> if GS is not as widely deployed.

### **Issues with the Proposed Rule**

The CCS Alliance supports a conditional exclusion from RCRA hazardous waste regulation for geologically sequestered CO<sub>2</sub> streams. This is an appropriate regulatory approach that we and others recommended in comments on the UIC Class VI proposed rule in 2008.

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<sup>1</sup> Resource Conservation and Recovery Act Burden Reduction Initiative, 67 Fed. Reg. 2518 (proposed Jan. 17, 2002); *see also* RCRA Burden Initiative; Final Rule, 71 Fed. Reg. 16,862 (Apr. 4, 2006).

<sup>2</sup> RCRA Burden Reduction Initiative; Notice of Data Availability, 68 Fed. Reg. 61,662, 61,644 (Oct. 29, 2003).

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Nonetheless, there is one threshold issue the Agency needs to address, and there are several issues with the proposed exclusion that merit revision or clarification.

### ***Applicability of RCRA***

EPA has not clearly explained in this proposed rule why RCRA is applicable at all to GS. RCRA's detailed regulatory scheme applies to "solid wastes." However, RCRA's definition of "solid waste" includes a "contained gaseous material" but does not include an uncontained gaseous material.<sup>3</sup> Does the Agency assert that CO<sub>2</sub> that is captured from a generation source - an electric generating facility, a gas processing facility, manufacturing facility, etc. - that is to be geologically sequestered is a contained gas?

Geologically sequestered CO<sub>2</sub> should be considered an uncontained gaseous material and therefore not a solid waste, based on agency precedent. In *In re BP Chemicals America, Inc.*, RCRA Appeal No. 89-4, 1991 WL 208971 (Admin., Aug. 20, 1991), the Agency held that uncondensable hydrogen cyanide from an acrylonitrile manufacturing plant that is "contained" within piping and other equipment within the plant and thermally destroyed is not a solid waste subject to RCRA because it is not a contained gaseous material. Rejecting EPA Region V's argument for applying hazardous waste regulation, the Agency found:

[T]he Agency views gaseous material to be "solid waste" only when it is containerized. Region V argues that BP's HCN vapor is "contained" by the various process units through which it passes, by associated piping, and by the plant as a whole. The Region's reading of the term "contained," however, cannot be reconciled with the Agency's treatment of fume incinerators. Such incinerators are used to treat vapors that are "contained" in the broad sense of being bound or controlled and not being emitted to the atmosphere, but the Agency considers such vapors to be outside the scope of the "solid waste" definition because they are not containerized in the narrower sense of being in an individual container such that the gas is amenable to shipment.<sup>4</sup>

Similarly, in the case of CO<sub>2</sub> for GS, the CO<sub>2</sub> will be "contained" only in the sense that it is within piping and associated equipment inside, and ultimately outside, the industrial facility

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<sup>3</sup> 42 U.S.C. 6903(27).

<sup>4</sup> *In re BP Chemicals America, Inc.*, RCRA Appeal No. 89-4, 1991 WL 208971 (Admin., Aug. 20, 1991), p. 2-3.



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where it is captured. It will be shipped via pipeline, and the Agency precedent makes clear that such containment does not render a material a contained gas. Once it is sequestered in a geologic formation, it is subject to regulations to ensure that it remains within that formation, but it will not be “containerized in the narrower sense of being in an individual container such that the gas is amenable to shipment.”

We note that EPA earlier this year confirmed its interpretation of the “contained gaseous material” portion of the definition of “solid waste.” In response to questions raised by industry about whether an Agency document issued earlier this year was reinterpreting the term, EPA acknowledged the document

has created concerns among the regulated community that the [EPA] has changed a long-standing interpretation of what constitutes a “contained gaseous material” for purposes of defining the term “solid waste” under the Resource Conservation and Recovery Act (RCRA). We have not changed our prior interpretation. . . . We clarify here that the Agency’s previous statements and interpretations remain effective.<sup>5</sup>

### *Contours of Conditional Exclusion*

#### *Incidental Associated Substances*

We note that the Agency did not consider it necessary to clarify in the proposed rule the term “incidental associated substances,” which features in the definition of the term “carbon dioxide stream” in both the Class VI UIC regulation and the proposed rule. We believe that the context of the proposed rule makes clear that other substances captured together with the CO<sub>2</sub> from a gas stream are “incidental associated substances.” If this is not the Agency’s intent, we recommend that this term be clarified. The proposed rule states:

[T]oday’s conditional exclusion would apply to CO<sub>2</sub> streams that are otherwise RCRA hazardous wastes. . . . EPA intends . . . that it is clear that both RCRA hazardous CO<sub>2</sub> streams (that are excluded when managed pursuant to the terms of today’s proposed conditional exclusion) and non-hazardous CO<sub>2</sub> streams may be injected into a UIC Class VI well.<sup>6</sup>

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<sup>5</sup> Letter from Suzanne Rudzinski, Director, Office of Resource Conservation and Recovery, to Tim Hunt, American Forest and Paper Association, May 13, 2011.

<sup>6</sup> Proposed rule, 76 Fed. Reg. 48073, at 48088.

The motivation behind proposing the conditional exclusion is the fact that the presence of other substances in the CO<sub>2</sub> stream could trigger the definition of hazardous waste. Thus it is essential in order for the exclusion to be effective that the scope of the non-CO<sub>2</sub> substances that may be part of the CO<sub>2</sub> stream is clear.

As the proposed rule notes, the purity of the CO<sub>2</sub> stream will depend on a variety of factors, including the source material and the capture process employed. Furthermore, depending on the scope of future regulation, CO<sub>2</sub> streams may be captured from a variety of industrial facilities. The proposed rule lists estimated concentrations of hazardous constituents, such as mercury and chromium, that may be expected to be present in the CO<sub>2</sub> stream. EPA does not appear to suggest that these estimated concentrations are limits, and that higher concentrations or the presence of other incidentally captured materials would void the exclusion. They merely inform EPA's decision that the conditional exclusion is protective of the environment.

The type and amount of such substances that may be included in the stream is of critical importance, because the consequences of voiding the conditional exclusion could be severe. One might anticipate that a GS facility that inadvertently sequesters a CO<sub>2</sub> stream that is not subject to the conditional exclusion could be forced to meet the more stringent Class I hazardous regulations, which could require the facility to shut down temporarily or perhaps permanently. This may have "upstream" effects, as discussed below.

#### *Paperwork and other Minor Violations*

The proposed rule makes clear EPA's intention that the consequences of failing to maintain compliance with the conditions for the exclusion will end the exclusion:

Failure to meet the conditions [of the proposed rule] results in the loss of the exclusion. As proposed, a violation of a condition at any point in the management of a CO<sub>2</sub> stream would result in that CO<sub>2</sub> stream being subject to all applicable subtitle C requirements, from the point of generation.<sup>7</sup>

Among the conditions that must be maintained is a requirement that "[i]njection of the carbon dioxide stream must be in compliance with the applicable requirements for Class VI Underground Injection Control wells, including the applicable requirements in 40 C.F.R.

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<sup>7</sup> Id. at 48087.

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parts 144 and 146.”<sup>8</sup> The requirements of these parts encompass dozens of pages of regulatory text and hundreds of individual requirements (many subject to interpretation of the EPA or the State, whichever may be implementing the program), including recordkeeping and reporting requirements, and others the violation of which may have no consequence to safety.

If violation of a regulatory requirements results in closure of a GS facility, and that closure means that electric generators must shut down because they would be unable to operate without violating Clean Air Act carbon emission regulations, there could be serious impacts to electric reliability, with potential impacts to public health. An affected power plant may be vital to reliability not only because of the power it generates, but for the voltage support it provides to the transmission grid in the region. Note that the fossil-fueled generating units that produce CO<sub>2</sub> typically are baseload generating units that typically are the primary source of reactive power that provides voltage support. This concern about reliability would be attenuated if EPA were to choose another means to preclude the applicability of RCRA that could not result in the facility being potentially subject to hazardous waste regulation for minor violations.

It is understood that full compliance with Class VI UIC regulation is expected, in addition to being legally required. What is unclear is what enforcement discretion the Agency has and intends to be applied (by EPA and the States) in implementing the regulations. We recommend that EPA provide guidance that in considering enforcement options, UIC program directors should take into account the broad consequences of those options, such as electric reliability and operation of “upstream” CO<sub>2</sub> generating facilities.

#### *Overbroad Certification Requirement*

Among the conditions for being subject to the proposed conditional exclusion is the requirement that well owners and operators and CO<sub>2</sub> stream generators have an authorized representative sign the following statement:

I certify under penalty of law that the carbon dioxide stream that I am claiming to be excluded under 40 C.F.R. 261.4(h)(1) meets all of the conditions set forth in that paragraph.<sup>9</sup>

As noted above, one condition is that the sequestration well must be in compliance with 40 C.F.R. parts 144 and 146. It is broadly recognized that in many instances, perhaps even the

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<sup>8</sup> Id. at 48093.

<sup>9</sup> Id.

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majority of the time, a generator will not own or operate the GS facility at which the generator's CO<sub>2</sub> stream is sequestered. One of many features in the regulatory structure that will contribute to safe operation of GS facilities is encouragement for generators to contract with competent, reputable GS facility operators. However, it is neither practicable nor appropriate for a generator to certify that a facility operator is in compliance with each UIC regulatory requirement. That should be the operator's obligation. Nor is it possible for a generator to certify to the compliance of other generators who send their CO<sub>2</sub> streams to the facility.

The certification in proposed 40 C.F.R. 261.4(h)(1)(iv) should be limited to the regulatory obligations that are the responsibility of the party making the certification. For a generator, we believe there is only one such obligation, which is that the injectate be qualified as a CO<sub>2</sub> stream. We recommend that the certification obligation for generators be amended to read as follows:

I certify under penalty of law that the material being delivered is qualified as a carbon dioxide stream under 40 C.F.R. 146(d).

#### ***Potential Applicability of CERCLA***

We note that the issue of whether the CO<sub>2</sub> stream is considered to be a hazardous waste not only determines whether RCRA would apply, but also would influence whether the Comprehensive Environmental Response, Compensation, and Liability Act<sup>10</sup> ("CERCLA" or "Superfund") may apply.

Under CERCLA, the President may compel cleanup actions "when the President determines that there may be an imminent and substantial threat to the public health or welfare or the environment because of an actual or threatened release of a *hazardous substance* from a facility. . . ."<sup>11</sup> In such cases, Superfund's joint, strict, several and retroactive liability scheme applies, a system that has been widely criticized for its expense, delay, and contentious legal wrangling. In fact, cleanups have been completed at fewer than one-quarter of the sites placed on Superfund's National Priorities List since its inception in 1983.

CERCLA defines a "hazardous substance" to include "any hazardous waste having the characteristics identified under or listed pursuant to Section 3001 of [RCRA]."<sup>12</sup>

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<sup>10</sup> 42 U.S.C. 9601 et seq.

<sup>11</sup> 42 U.S.C. 9606.

<sup>12</sup> 42 U.S.C. 9601(14) [Emphasis added].

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The CCS Alliance and many others commented in response to the Class VI UIC proposed rule that the Superfund liability scheme would deter deployment of CCS. Furthermore, were an incident requiring remediation to occur at a Class VI facility, applicability of Superfund could doom the cleanup to delays. Only 350 of the nearly 1,700 sites placed on Superfund's National Priorities List since its inception in 1983 have been cleaned up sufficiently to be removed from the list.<sup>13</sup>

### **Conclusion**

We are pleased that the Agency has proposed this conditional exclusion from hazardous waste regulation. A legally justified and more effective means of precluding hazardous waste regulation would be to determine, consistent with Agency precedent, that CO<sub>2</sub> streams that are geologically sequestered are an uncontained gas. If EPA persists with a conditional exclusion, it should provide clarification with respect to the points noted above.

Sincerely,



Fred Eames  
Counsel to the CCS Alliance

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<sup>13</sup> <http://www.epa.gov/superfund/sites/npl/>, accessed September 23, 2011.