

Office of Chief Counsel
Internal Revenue Service
Memorandum

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date: May 3, 2013

to:
Coordinator

from:
Senior Counsel
(Large Business & International)

subject: Request for Advisory Opinion

Taxpayer:
EIN:
Taxable year:

You have asked for our views on the following issue associated with the carbon dioxide ("CO₂") sequestration credit claimed by the taxpayer under I.R.C. § 45Q. This advice may not be used or cited as precedent.

Taxpayer =
Company =
Property =
Year =
Property Facilities =

Industrial Facility 1 =
Industrial Facility 2 =
Industrial Facility 3 =
Activity 1 =
Activity 2 =
Activity 3 =
Activity 4 =
Activity 5 =

- Activity 6 =
- Activity 7 =
- Activity 8 =
- Activity 9 =
- Activity 10 =
- Activity 11 =
- Resource 1 =
- Resource 2 =
- Location 1 =
- Location 2 =
- Location 3 =
- Location 4 =
- Location 5 =
- Period 1 =
- Period 2 =
- Quantity 1 =
- Quantity 2 =
- Quantity 3 =
- Quantity 4 =
- Quantity 5 =
- State 1 =
- State 2 =
- Substance A =
- Substance B =
- Substance C =
- Substance D =
- Substance E =
- Substance F =
- Substance G =
- Substance H =
- Substance I =
- a =
- b =
- c =
- d =
- e =
- f =
- g =
- h =
- i =
- i =

Issue:

Whether the taxpayer's use of CO₂ extracted at its Property as a tertiary injectant in certain enhanced oil recovery ("EOR") projects during the Year taxable year qualifies as a disposal by the taxpayer in secure geological storage under I.R.C. § 45Q(a)(2)(C) and Notice 2009-83.¹

Conclusion:

The taxpayer's use of the CO₂ as a tertiary injectant in certain EOR projects during the Year taxable year fails to qualify as a disposal by the taxpayer in secure geological storage under I.R.C. § 45Q(a)(2)(C) and Notice 2009-83.

Facts:

Company was a member of the Taxpayer consolidated return group during the Year taxable year. During Year Company owned and operated the Property in Location 1. Company claimed Section 45Q carbon dioxide sequestration credits for its Property operations in Year. The Property is an Industrial Facility 1 specifically designed to process Substance A found in the Location 1 area. Company used the CO₂ extracted at the Property in various EOR projects it operates in Location 2.

CO₂ has been used for Period 1 to recover oil from Period 2 oil fields in Location 2. This is one type of EOR project. The gas is injected into a producing reservoir and acts as a solvent for oil imbedded in the reservoir rock. The oil released through interaction with the CO₂ is then pumped to the surface. Any CO₂ that comes to the surface with the oil is separated from the oil and recycled for further use as a tertiary recovery injectant.

Company has been active in conducting CO₂ EOR projects in Location 2. Traditionally, Company and other oil companies have used CO₂ from Resource 2 in their EOR projects. Resource 1 exists in the Location 3 and Location 4 of State 1 and in the Location 5 of State 2. The Substance B is Activity 1 to the Location 2 projects using an a Quantity 1 Industrial Facility 2.

Company Activity 2 the Property to provide a Substance C of CO₂ for its Location 2 EOR projects. The Property is an Industrial Facility 1 specially designed to Activity 3 CO₂ from the b% Substance D found in Location 1.² The Property has Activity 4 technology for Activity 3 CO₂ over that found at an existing Location 1 Industrial Facility 3. The CO₂ Activity 5 rate at the Property Quantity 2 the e% or less CO₂ Activity 6 rate seen at those other facilities.

¹ This advisory opinion is limited to the issue of whether taxpayer's use of the CO₂ as a tertiary injectant in certain EOR projects qualifies as a disposal by the taxpayer in secure geological storage under I.R.C. § 45Q(a)(2)(C) and Notice 2009-83. We express no opinion as to whether the taxpayer satisfied any other requirement of I.R.C. § 45Q in Year taxable year.

² Substance E normally has a c% to d% CO₂ content.

Company owned and operated the Property during Year. The Property produced in excess of f Quantity 3 of CO₂ from its operations during Year. The Property is located on Quantity 4 and cost more than \$g to Activity 7. The Property includes the Property Facilities. The Property is designed to treat h Quantity 5 of Substance F. Company has an i year Activity 8 contract with the Substance E Activity 9 to extract the CO₂ from Substance E. Company retains the CO₂ extracted from the Substance F for use in its EOR projects. The Substance F Activity 9 Activity 10 the Substance G and Substance H contained in the Activity 11 Substance I stream.

The CO₂ injection wells at Company's Location 2 EOR projects have Class II permits under the Environmental Protection Agency ("EPA") Underground Injection Control ("UIC") program. 40 C.F.R. Part 144 (2012). The UIC regulations do not require the taxpayer to convert the injection wells to Class VI wells and the taxpayer has not chosen to convert the wells to Class VI wells. See, Federal Requirements under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO₂) Geologic Sequestration (GS) Wells, 75 Fed. Reg. 77230 (December 10, 2010). EPA's regulations at 40 C.F.R. Part 98, Subpart RR, establish Greenhouse Gas ("GHG") reporting requirements for the geologic sequestration of CO₂. Subpart UU of these regulations govern the GHG reporting requirements associated with facilities that otherwise inject CO₂ into the subsurface generally. The taxpayer has not chosen to report under Subpart RR. Instead, the taxpayer complies with the reporting requirements of 40 C.F.R. Part 98, Subpart UU.

Class VI wells have much more rigorous technical requirements than injection wells with Class II permits with respect to: 1) permitting; 2) area of review evaluation and corrective action responsibilities; 3) financial responsibility; 4) injection well construction; 5) injection well testing before operation commences; 6) injection well operations; 7) mechanical integrity testing; 8) testing and monitoring of injection operations; 9) reporting requirements; 10) well plugging; 11) post-injection site care and site closure; and 12) emergency and remedial responses.

For the Year taxable year, Company also chose not to submit monitoring, reporting, and verification ("MRV") plans to the EPA for its Class II CO₂ injection wells at its Location 2 EOR projects. Instead, Company simply followed the more limited reporting requirements for injection of CO₂ into the subsurface under Subpart UU, Part 98, of Title 40, Code of Federal Regulations (2012).

The Taxpayer consolidated Form 1120 for the Year taxable year claimed approximately \$j of I.R.C. § 45Q(a)(2) credits. The credits related to CO₂ captured at Company's Property and then used as tertiary injectants at Company's Location 2 EOR projects. The claimed credits are based on the \$10 per metric ton rate contained in I.R.C. § 45Q(a)(2).

Analysis:

In 2008 Congress first enacted the I.R.C. § 45Q credit for CO₂ sequestration as part of Energy Improvement and Extension Act of 2008. Sec. 115, Division B, P.L. 110-343, 110th Cong., 2d Sess. (2008). The original provision had one set of criteria for claiming the credit for CO₂ injected into EOR projects. There was another set of criteria for claiming the credit for CO₂ injected into other types of storage. The legislation also had two separate credit rates for these different types of storage. The credit was available for CO₂ captured after October 3, 2008. Sec. 115(d), Division B, P.L. 110-343, 110th Cong., 2d Sess. (2008)

In the 2008 legislation I.R.C. § 45Q(a)(1) allowed a Section 38 general business credit for CO₂ sequestration associated with general storage projects at a rate of \$20 per metric ton. The credit covered qualified CO₂ which is:

- 1) captured by the taxpayer at a qualified facility, I.R.C. § 45Q(a)(1)(A), and
- 2) disposed of by the taxpayer in secure geological storage, I.R.C. § 45Q(a)(1)(B).

Sec. 115(a), Division B, P.L. 110-343, 110th Cong., 2d Sess. (2008).

In the 2008 legislation, I.R.C. § 45Q(a)(2) allowed a Section 38 general business credit for CO₂ sequestration associated with EOR projects at a rate of \$10 per metric ton. The credit covered qualified CO₂ which is:

- 1) captured by the taxpayer at a qualified facility, I.R.C. § 45Q(a)(2)(A), and
- 2) used by the taxpayer as a tertiary injectant in a qualified enhanced oil or natural gas recovery project, I.R.C. § 45Q(a)(2)(B).

Sec. 115(a), Division B, P.L. 110-343, 110th Cong., 2d Sess. (2008).

Thus, under the original 2008 legislation taxpayers claiming the \$10 per ton credit for CO₂ used in an EOR project did not have to dispose of the CO₂ in “secure geological storage.”

The 2008 legislation provided that the Secretary of the Treasury would, “in consultation with the Environmental Protection Agency,” establish regulations for determining the requirements for “secure geological storage” under I.R.C. § 45Q(a)(1)(B). I.R.C. § 45Q(d)(2). Those regulations were to provide for “adequate security measures for the geological storage ... such that the carbon dioxide does not escape into the atmosphere.” *Id.* The legislation stated that secure geological storage shall include deep saline formations and unminable coal seams “under such conditions as the Secretary [of the Treasury] may determine under such regulations.” *Id.*

While the 2008 legislation was under consideration, certain questions arose as to the meaning of I.R.C. § 45Q(d)(2). During Senate floor consideration of the bill, Senator Boxer sought clarification of the exact roles of the Secretary of the Treasury and the EPA in fashioning the standards for defining “secure geological storage” under I.R.C. 45A(d)(2). This led to the following colloquy with Senator Baucus, Finance Committee Chairman:

Mrs. BOXER. I wish to address section 115 of the bill, which provides a tax credit for carbon dioxide sequestration. Specifically, in section 115 of the bill, new section 45Q(d)(2) of the code provides that the Secretary of the Treasury, in consultation with the Administrator of the Environmental Protection Agency, shall establish regulations for determining adequate security measures for the geological storage of carbon dioxide to qualify for the \$20 per ton credit, such that the carbon dioxide does not escape into the atmosphere or affect underground sources of drinking water. Carbon dioxide sequestration in this provision includes storage at deep saline formations and unminable coal seams [sic] under such conditions as the Secretary may determine under these regulations. Is my understanding correct that the legislation is intended to require that EPA, in consultation with the Secretary of the Treasury regarding the carbon sequestration tax credit under this provision, will establish the specific substantive environmental criteria and requirements for security and other measures for the geologic storage of carbon dioxide such that it does not escape into the atmosphere or affect undergrounds [sic] sources of drinking water, and that the Secretary of the Treasury will then apply such criteria and requirements in establishing the requirements to qualify for the tax credit under this section?

Mr. BAUCUS. Mr. President, the distinguished chairman of the Committee on Environment and Public Works is correct. The legislation is intended to leave the substantive environmental criteria and requirements for carbon sequestration to EPA, including security-related issues, and as was done with respect to carbon sequestration in section 706 of the Energy Independence and Security Act of 2007, the provision is not intended to limit the legal requirements and authorities of EPA. EPA’s criteria and requirements for carbon sequestration will be applied by the Secretary of the Treasury after consultation. (*Emphasis added*)

154 Cong. Rec. S10251-10252.

Consequently, the EPA was given the primary role in establishing the technical criteria for “secure geological storage” under I.R.C. § 45Q.

Early in 2009 Congress took action to eliminate one of the main differences between the I.R.C. § 45Q credit available for EOR projects and that allowed for other types of storage facilities. The American Recovery and Reinvestment Act of 2009 added I.R.C. § 45Q(a)(2)(C) and required the CO₂ used in EOR projects to be “disposed of by the taxpayer in secure geological storage.” Sec. 1131(a), P.L. 111-5, 111th Cong.,

1st Sess. (2009). The amendment is effective for CO₂ captured after February 17, 2009. Sec. 1131(c), P.L. 111-5, 111th Cong., 1st Sess. (2009). Thus, for CO₂ captured after this effective date, a taxpayer must not just show the CO₂ was used in an EOR project. The taxpayer must also show the CO₂ was disposed of in secure geological storage to be able to receive the I.R.C. § 45Q(a)(2) credit.³ The legislation uses the same definition of “secure geological storage” for EOR projects as it does for other types of storage facilities. Sec. 1131(b)(1)(A), P.L. 111-5, 111th Cong., 1st Sess. (2009).

While no regulations have yet been issued under I.R.C. § 45Q(d)(2), the Internal Revenue Service provided published guidance on the definition of “secure geological storage” in Notice 2009-83, 2009-44 I.R.B. 588. When issued on October 8, 2009, Sec. 5.02(b)(i) of Notice 2009-83 required a taxpayer to take the following actions for a site to be considered “secure geological storage”: 1) conduct a site characterization of the proposed sequestration site; 2) conduct an assessment of the risks of CO₂ leakage or escape into the atmosphere at the site; and 3) monitor potential leakage pathways at the site. These efforts must be conducted in accordance with 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories (“IPCC Guidelines”). Taxpayers were required to meet these IPCC Guidelines until superseded by any future EPA regulations on underground injection wells under the Safe Drinking Water Act, 42 U.S.C. 300h, et seq., or on the geological sequestration of CO₂ under the Clean Air Act, 42 U.S.C. 7201, et seq. Sec. 5.02(b)(ii) and (iii), Notice 2009-83.

Notice 2009-83 recognized the primary role Congress identified for the EPA when fashioning the I.R.C. § 45Q(d)(2) “secure geological storage” standard. Thus, Notice 2009-83 identified two sets of future EPA regulations that could impact whether a site qualified as “secure geological storage” under I.R.C. § 45Q(d)(2). This included the proposed Underground Injection Control (“UIC”) program regulations for injection of CO₂ for the purpose of geological sequestration, and the Greenhouse Gas (GHG) reporting rules for reporting CO₂ that is geologically sequestered. Sec. 5.02(b)(ii) and (iii), Notice 2009-83.

Under the Notice a site would only be treated as I.R.C. § 45Q(d)(2) “secure geological storage” if it met the modeling, well construction, and other requirements established under the final UIC Class VI regulations. Sec. 5.02(b)(ii), Notice 2009-83. Those requirements were to be imposed in lieu of the IPCC Guidelines. Id. To qualify as I.R.C. § 45Q(d)(2) “secure geological storage”, Sec. 5.02(b)(iii), Notice 2009-83, also required a site to satisfy the final regulations on the GHG reporting of CO₂ that is geologically sequestered for long-term storage. Sec. 5.02(b)(iii), Notice 2009-83. The final GHG reporting regulations governing CO₂ that is geologically sequestered were to be used in lieu of the IPCC Guidelines. Sec. 5.02(b)(iii), Notice 2009-83.

³ The legislation also: 1) adds the Secretary of the Interior and the Secretary of Energy to the list of governmental departments with a consulting role in fashioning the secure geological storage regulations; and 2) adds oil and gas reservoirs to the types of below ground storage that may qualify as secure geological storage. Sec. 1131(b)(1)(B) and (C), P.L. 111-5, 111th Cong., 1st Sess. (2009).

The final EPA UIC Class VI requirements apply to owners or operators of wells used to inject CO₂ into the subsurface for the purposes of long-term storage. Federal Requirements under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO₂) Geologic Sequestration (GS) Wells, 75 Fed. Reg. 77230 (December 10, 2010). The final Class VI rule was effective January 10, 2011. *Id.* The regulations create a new Class VI well category for CO₂ injection wells used for long-term storage. The UIC regulations establish minimum technical criteria covering Class VI wells in the areas of: 1) permitting; 2) area of review evaluation and corrective action responsibilities; 3) financial responsibility; 4) injection well construction; 5) injection well testing before operation commences; 6) injection well operations; 7) mechanical integrity testing; 8) testing and monitoring of injection operations; 9) reporting requirements; 10) well plugging; 11) post-injection site care and site closure; and 12) emergency and remedial responses. 40 C.F.R. §§ 146.81 – 146.95 (2012).

The final Class VI requirements do not require the owners or operators of EOR projects to convert from Class II wells to Class VI wells where there is no increased risk of endangerment posed to underground sources of drinking water. Instead, the rule establishes risk based factors at 40 C.F.R. § 144.19 to inform a decision to transition from Class II to Class VI where an owner or operator is injecting CO₂ for the primary purpose of long-term storage and there is an increased risk to underground sources of drinking water. 40 C.F.R. § 144.19 (2012). Thus, “traditional” EOR projects (i.e., those that do not pose an increased risk to underground sources of drinking water above that which is addressed by the UIC Class II requirements) are not impacted by the Class VI rule. Therefore, the UIC regulations do not preclude Class II EOR project owners or operators from claiming Sec. 45Q(a)(2) credits.

The final GHG reporting regulations establish two categories of reporting for those who inject CO₂ into the subsurface. The first category involves facilities that inject CO₂ into the subsurface for the purpose of geologic sequestration of CO₂. 40 C.F.R. § 98.440(a) (2012). This source category comprises any well or group of wells that inject a CO₂ stream “for long-term containment in subsurface geologic formations.” 40 C.F.R. § 98.440(a) (2012). These activities are governed by Subpart RR – Geologic Sequestration of Carbon Dioxide. 40 C.F.R. § 98.440, *et seq.* (2012). The other category covers all other facilities that inject CO₂ into the subsurface. The activities are governed by Subpart UU – Injection of Carbon Dioxide. 40 C.F.R. § 98.470, *et seq.* (2012). Thus, the regulations clearly distinguish between those who are injecting the CO₂ for the purpose of geological sequestration and those who are injecting the CO₂ into the subsurface for other purposes. The final regulations under Subpart RR and Subpart UU are effective on December 31, 2010. Mandatory Reporting of Greenhouse Gases: Injection and Geologic Sequestration of Carbon Dioxide, 75 Fed. Reg. 75060 (December 1, 2010).

There are two circumstances where an EOR project can qualify to report under the Subpart RR geologic sequestration requirements:

- 1) the owner or operator
 - a) is permitted as a UIC Class II EOR injector and injects CO₂ for long-term containment in subsurface geologic formations,
 - b) has chosen to submit a proposed MRV plan for the site to the EPA, and
 - c) has received an approved MRV plan from the EPA,

or

- 2) the well is permitted as a Class VI well under the UIC program.

40 C.F.R. § 98.440(c) (2012).

A MRV plan must contain: 1) delineation of the monitoring areas; 2) identification of potential surface leakage pathways for CO₂; 3) a strategy for detecting and quantifying surface leakage of CO₂; 4) a strategy for establishing the expected baseline for monitoring CO₂ surface leakage; 5) a summary of the considerations you intend to use to calculate site specific variables for the mass balance equation; 6) information on wells permitted or to be permitted under the UIC program; and 7) the proposed date to begin collecting data on the amount of CO₂ sequestered. 40 C.F.R. § 98.448(a) (2012). An owner or operator of an EOR project at which UIC Class II wells are permitted can submit a proposed MRV plan to the EPA at any time. 40 C.F.R. § 98.448(b)(3) (2012). However, the MRV plan must be approved by the EPA before the project may report geologic sequestration of CO₂ under Subpart RR. 40 C.F.R. § 98.440(c)(1) (2012).

In your case, Company clearly failed in Year to satisfy the primary requirement for claiming the I.R.C. § 45Q credit for CO₂ sequestration – disposal of the CO₂ in secure geological storage. For CO₂ injected after December 31, 2010, Notice 2009-83 required an owner or operator of an EOR project to meet EPA’s geologic sequestration reporting requirements under Subpart RR, Part 98 of Title 40, Code of Federal Regulations (2012). Company could have remedied this by obtaining an EPA approved MRV plan for each of its Location 2 EOR projects and following the reporting requirements of Subpart RR. Because the taxpayer did not obtain an MRV plan while operating as a Class II injector, Company does not meet the requirements of I.R.C. § 45Q(a)(2)(C) with respect to its Year CO₂ production at the Property. Consequently, Company’s Year I.R.C. § 45Q credit claim for CO₂ sequestration should be disallowed.⁴

This writing may contain privileged information. Any unauthorized disclosure of this writing may undermine our ability to protect the privileged information. If disclosure

⁴ The preamble to the final regulations on establishing GHG reporting requirements for geologic sequestration clearly outlines this result. Mandatory Reporting of Greenhouse Gases: Injection and Geologic Sequestration of Carbon Dioxide, 75 Fed. Reg. 75060, 75064 (December 1, 2010).

is determined to be necessary, please contact this office for our views. Please contact
at if you have any questions.

Senior Counsel
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