

LB&I Concept Unit

Knowledge Base – Corporate/Business Issues & Credits

Library Level	Number	Title
Shelf		General Business and Energy Credits
Book	277	Specific Industry Credits
Chapter	5	Enhanced Oil Recovery Credit
Section		

Unit Name	Overview of the Enhanced Oil Recovery Tax Credit	
Primary UIL Code	43.00-00	Enhanced Oil Recovery Credit

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Table of Contents

(View this PowerPoint in “Presentation View” to click on the links below)

[General Overview](#)

[Diagram of Concept](#)

[Detailed Explanation of the Concept](#)

[Examples of the Concept](#)

[Index of Referenced Resources](#)

[Training and Additional Resources](#)

[Glossary of Terms and Acronyms](#)

[Index of Related Practice Units](#)

General Overview

Overview of the Enhanced Oil Recovery Tax Credit

Congress enacted IRC 43 in 1990 to provide an investment credit for certain costs a taxpayer pays or incurs for qualified Enhanced Oil Recovery (EOR) projects. The amount of the credit is a maximum of 15 percent of the qualified expenditures the taxpayer makes, but can be less as described later in this Practice Unit. The EOR credit becomes part of the general business credit. The taxpayer claims the credit on Form 8830 - *Enhanced Oil Recovery Credit*. Large corporations and partnerships usually claim the credit.

Before further discussion, let's start with the definitions of some common terms:

- Crude Oil - A mixture of hydrocarbons that exist in a liquid phase in natural underground reservoirs and which remains liquid at atmospheric pressure after passing through surface separating facilities.
- Enhanced Oil Recovery (EOR) - Sophisticated recovery (production) methods for crude oil that go beyond the more conventional secondary recovery techniques of pressure maintenance and waterflooding. Analogous to tertiary recovery methods. See Treas. Reg. 1.43-2(e). EOR methods that taxpayers use widely include carbon dioxide (CO₂) miscible flood, steam drive, steam soak, and hydrocarbon miscible flood. EOR methods are not restricted to secondary or even tertiary projects. Some operators initiate an EOR method with the start of production from a reservoir for operational reasons or to maximize ultimate recovery.
- Horizontal Drilling - The process of boring a vertical hole into the ground, but at a predetermined depth directing the path of the bit so that the hole reaches a horizontal orientation at a depth that coincides with a specific geologic formation. The boring of the horizontal section continues until the desired length is achieved.
- Hydraulic Fracturing - The process of forcing a fluid, usually water laden with a "proppant" such as sand into a gas or oil bearing formation that has very low native permeability. Service companies use pumps to raise the injection pressure until such point that the formation "breaks down" or "fractures", which allows the fluid to carry the proppant into the small cracks and fissures that are created. The proppant is designed to keep them from completely closing shut when the injection ceases and the pressure is released. During the "flow back" or "clean-up" period most of the injected fluid and some proppant is recovered. The result of the process is to allow oil and gas to much more readily flow through the formation and into the well.
- Injection Well - A well the taxpayer uses to inject gas, water, liquefied petroleum gasses, or other foreign substances into a producing formation to maintain sufficient pressure and sometimes to improve oil displacement or fluid flow in the reservoir.
- Intangible Drilling and Development Costs (IDC) - Those expenditures which do not have a salvage value and which are incurred in the drilling and deepening of an oil and gas well. See Treas. Reg. 1.614-4(a).

General Overview (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

- Operating Mineral Interest - Legal owner of oil and gas rights, including revenues produced, but also responsible for operating costs.
- Operator - The individual or company responsible for conducting exploration and production activities in a defined area. In a joint venture, the operator is usually the holder of the largest operating mineral interest.
- Primary Recovery - Oil production the taxpayer recovers using the natural energy source in the reservoir. Also called primary production.
- Project - In general, an oil field project is the series of planned and coordinated activities designed to achieve a set of objectives (e.g., implementing a tertiary recovery process at an oil field that was already producing via the secondary recovery method of waterflooding). The specific objectives of such a project might be to inject a specific daily volume of CO₂ into ten new injection wells for five years. Steps to meet the objectives would include (1) arranging for a five-year supply of CO₂, (2) drilling and equipping injection wells, (3) installing an injection compressor and lines to distribute CO₂ to the injection wells, and (4) installing equipment to detect if CO₂ is being produced along with the normal reservoir fluids.
- Secondary Recovery - Oil recovered by a secondary recovery method used to recover oil from a field by a means other than the normal pumping or flowing methods. This will normally involve the flooding of the formations through injection wells with water to drive the recoverable oil to producing wells.
- Tertiary Recovery - A method used to recover oil after the taxpayer applies a secondary method, typically by injecting steam, solvents, or chemicals to modify the properties of the oil in the formation so that it will more readily flow towards production wells.
- Unitization - A term denoting the joint operation of separately owned producing leases in a pool or reservoir. Unitization makes it economically feasible to undertake cycling, pressure maintenance, or secondary and tertiary recovery programs. See Treas. Reg. 1.614-8(b)(6).
- Waterflooding - A method of secondary recovery, in which the taxpayer injects water into an oil reservoir to push the oil out of the reservoir rock and into the bore of a producing well.

General Overview (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

The EOR credit has a phase-out provision that reduces or eliminates the rate of the credit whenever oil prices in the U.S. rise above \$28 per barrel (adjusted for inflation after 1990). The "phase outs" occurred as follows:

- For the taxable years beginning in the 1991 through 2005 calendar years, there was no phase out and the full 15% was in effect.
- For the taxable years beginning in the 2006 through 2015 calendar years, there was a 100 percent phase-out and no credit was allowed.
- For the taxable years beginning in the 2016 and 2017 calendar years, there is no phase out and the full 15% is in effect.
- For the taxable years beginning in the 2018 calendar year, there is a slight phase-out and a credit rate of 13.931% is in effect.
- For the taxable years beginning in the 2019 calendar year, there is a 100 percent phase-out and no credit is allowed.

See IRS Notice 2019-36 for more information on how the IRS determined the above-listed credit rates.

Generally, the EOR credit is only available for EOR projects that employ certain tertiary recovery methods, unless the IRS approves an additional recovery method via a revenue ruling or a private letter ruling. A tertiary recovery method is a method a taxpayer uses to recover oil after it applies a secondary method. The taxpayer typically does this by injecting steam, solvents, or chemicals to modify the properties of the oil in the formation so that it will more readily flow towards production wells.

The EOR projects must be located within the U.S. and commenced after December 31, 1990. There is an exception for "significant expansions" of projects that began before 1991. If a taxpayer significantly expands a project after December 31, 1990, in which it first injected liquids, gases, or other matter before January 1, 1991, then the taxpayer can treat the expansion as a separate project that began after December 31, 1990. See Treas. Reg. 1.43-2(d)(1). The most common way for taxpayers to significantly expand a pre-1991 project is to inject the above-mentioned substances after December 31, 1990, into the reservoir volume that was substantially unaffected by injection before January 1, 1991. See Treas. Reg. 1.43-2(d)(2). Less common ways are:

1. Restart a tertiary recovery project that had terminated for at least 36 months, or
2. Change the tertiary recovery method on a project that had terminated for less than 36 months.

See Treas. Regs. 1.43-2(d)(3) and (d)(4) for the detailed requirements pertaining to the significant expansion of terminated projects.

General Overview (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

Starting in 2005, Congress extended the EOR credit to construction of gas treatment plants capable of processing certain Alaska natural gas for transportation through a pipeline with a capacity of at least two trillion British thermal units (BTU) of natural gas per day. To qualify, the gas treatment plant must also produce CO₂ which the taxpayer injects into a hydrocarbon-bearing geological formation. No taxpayers have built any of these plants. See IRC 43(c)(1)(D).

IRC 43 mandates a self-certification process. Before the taxpayer can claim the credit, the operator of each EOR project (or its designated owner) must file a certification from a registered petroleum engineer or engineer certified by a state stating that the project meets certain criteria. Afterwards, the operator (or its designated owner) must annually file a continuing certification. Form 8830 directs taxpayers to file all certifications with Large Business and International's (LB&I) Enterprise Activities Practice Area in Houston, Texas. The petroleum technical subject matter experts are responsible for maintaining the inventory of the certifications. When a certification appears to lack information required by the regulations, the technical subject matter experts will notify the examination team for taxpayers under audit, and may directly contact other taxpayers as appropriate.



CONSULTATION: Reviewing the qualification of an EOR project or the associated costs requires specialized knowledge of petroleum operations. Revenue Agents should consider requesting the services of a petroleum engineer.

Diagram of Concept

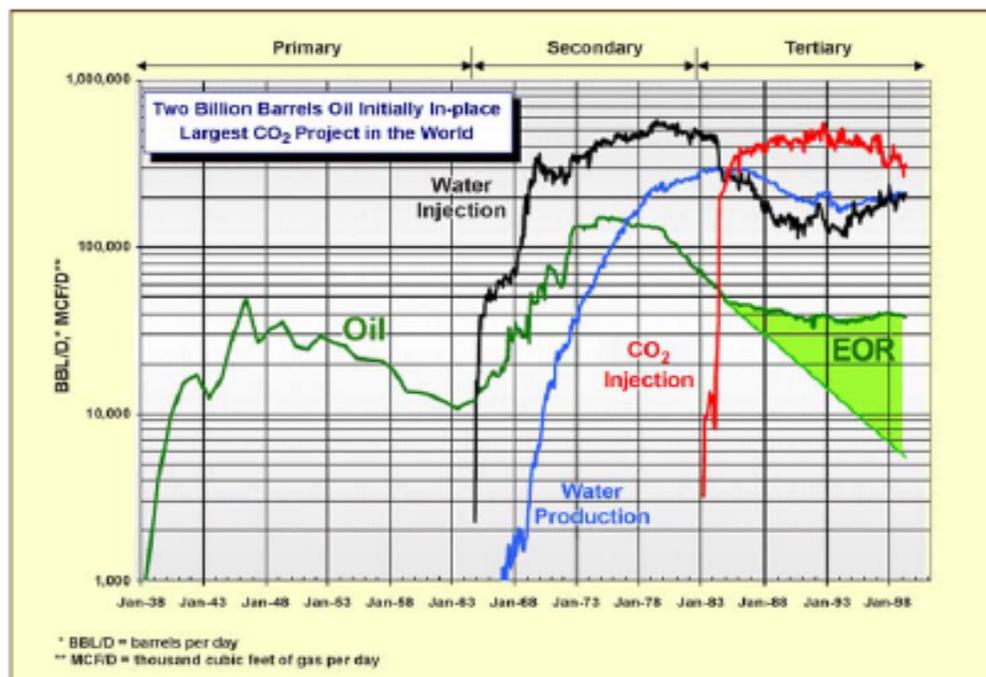
Overview of the Enhanced Oil Recovery Tax Credit

Diagram of Concept

Graphical Depiction of Production Versus Time for a Large Oil-Bearing Reservoir

Note how oil production increased due to water injection during the Secondary phase of recovery. Also, note how the decline in oil production was lessened by CO₂ injection during the Tertiary phase of recovery.

Plot showing oil production versus time for primary, secondary (waterflood) and tertiary (CO₂ EOR) oil production periods for the Denver Unit of the Wason Field in West Texas. Incremental oil production due to EOR is represented by the green area under the curve at right.



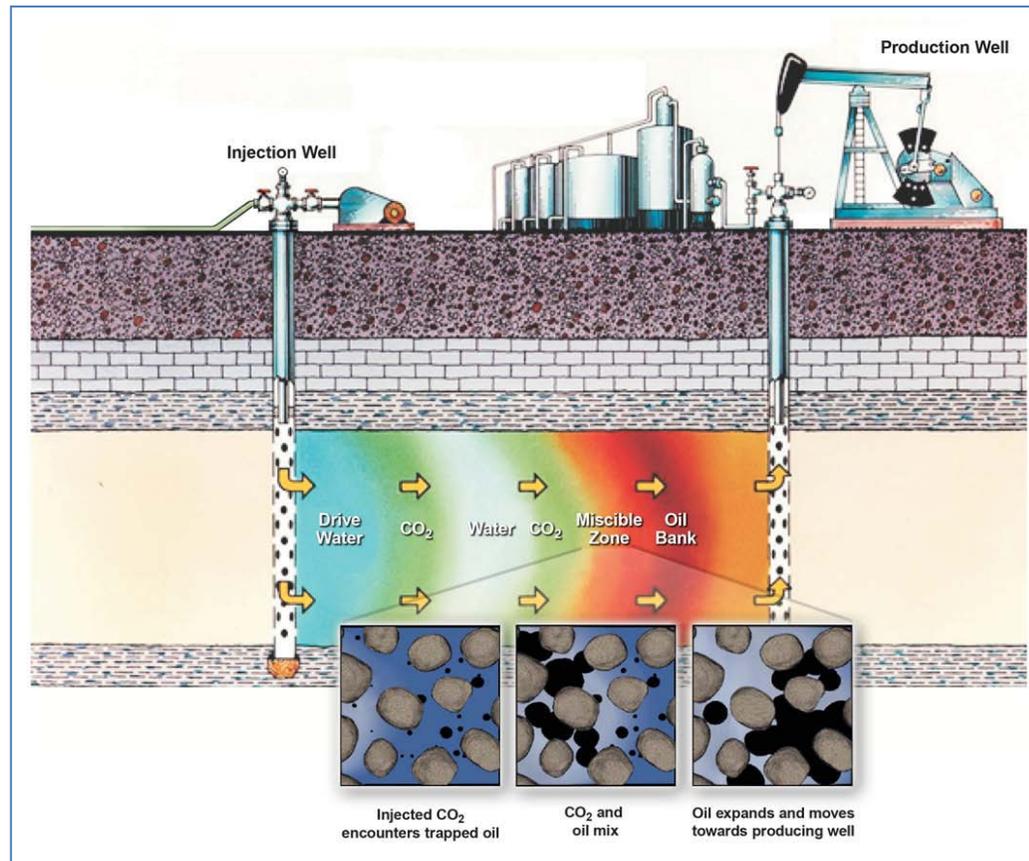
Taken from a U.S. government publication (Internet location [https://www.netl.doe.gov/file%20library/research/oil-gas/CO₂_EOR_Primer.pdf](https://www.netl.doe.gov/file%20library/research/oil-gas/CO2_EOR_Primer.pdf))

Diagram of Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

Diagram of Concept

Pictorial Representation of a Water-Alternating-Gas Flood of an Oil-Bearing Reservoir Using Carbon Dioxide



Taken from a U.S. government publication (Internet location [https://www.netl.doe.gov/file%20library/research/oil-gas/CO₂_EOR_Primer.pdf](https://www.netl.doe.gov/file%20library/research/oil-gas/CO2_EOR_Primer.pdf))

Detailed Explanation of the Concept

Overview of the Enhanced Oil Recovery Tax Credit

Qualifying for the EOR credit, and claiming and calculating the credit.

Analysis	Resources
<p><u>Qualifying for the EOR Credit</u></p> <p>IRM 4.41.1.3.3 states that the production of crude oil from an underground reservoir is accomplished by recovery methods that occur in phases (e.g., primary, secondary and tertiary recovery methods). According to the Merriam-Webster Dictionary, the term “tertiary” means occurring in or being a third stage, such as applying heat and chemicals underground to recover oil and gas from old wells.</p> <p>Primary recovery relies on the inherent energy in the reservoir to cause fluids in the reservoir to flow into wells and then to the surface. Primary recovery also relies upon the use of pumps to lift fluids from those wells when the reservoir energy is, or becomes, insufficient. Costs incurred during primary recovery do not qualify for the EOR credit.</p> <p>Secondary recovery methods generally involve the injection of water or natural gas into the reservoir to increase or maintain its pressure, or to displace oil towards producing wells without causing significant chemical or physical changes to the oil. Costs incurred during secondary recovery generally do not qualify for the EOR credit. See Treas. Reg. 1.43-4(c)(3) for an exception.</p>	<ul style="list-style-type: none"> ▪ Treas. Reg. 1.43-2(e)(1) and (2) ▪ Treas. Reg. 1.43-4(c)(3) ▪ IRM 4.41.1.3.3

Detailed Explanation of the Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit	
Analysis	Resources
<p><u>Qualifying for the EOR Credit (cont'd)</u></p> <p>Tertiary recovery methods generally cause a significant chemical or physical change to the oil (other than just an increase in pressure). An example is the introduction of heat into the reservoir to lower the viscosity (thickness) of the oil, which in turn allows it to more readily flow towards producing wells. "Tertiary recovery" is a term the industry has used informally for several decades.</p> <p>Treas. Reg. 1.43-2(e)(1) and (2) provide a list of methods qualifying for the EOR tax credit:</p> <ul style="list-style-type: none">▪ Thermal recovery methods including steam drive injection, cyclic steam injection, and in situ combustion.▪ Gas Flood recovery methods including miscible fluid displacement, carbon dioxide augmented waterflooding, immiscible carbon dioxide displacement, and immiscible nonhydrocarbon gas displacement .▪ Chemical flood recovery methods including microemulsion flooding and caustic flooding.▪ Mobility control recovery method including polymer augmented waterflooding. <p>To account for advances in enhanced oil recovery technology, the IRS may issue revenue rulings to prescribe additional qualified methods. However, the IRS has not done so to date. In addition, a taxpayer may request a private letter ruling (PLR) on whether a method not described in the regulations or a revenue ruling is a qualified tertiary recovery method. The IRS issued several such PLRs to specific taxpayers.</p>	<ul style="list-style-type: none">▪ IRC 43▪ Treas. Reg. 1.43-2(e)(1) and (2)

Detailed Explanation of the Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit	
Analysis	Resources
<p><u>Qualifying for the EOR Credit (cont'd)</u></p> <p>Treas. Reg. 1.43-2(e)(3) also prescribes certain recovery methods that do not qualify under IRC 43:</p> <ul style="list-style-type: none"> ▪ Waterflooding. ▪ Cyclic gas injection. ▪ Horizontal drilling. ▪ Gravity drainage. ▪ Any recovery method not specifically designated as qualified in the regulation, or in a revenue ruling or a Private Letter Ruling (PLR). <p>The use of horizontal drilling in conjunction with hydraulic fracturing of the reservoir has become very common in recent years and has resulted in very significant production of oil and natural gas. However, those activities constitute drilling and completion techniques that allow the taxpayer to produce gas via primary and other recovery methods. By themselves, the cost of those activities does not qualify for the EOR credit. See IRM 4.41.1.3.3.</p> <p>A taxpayer may begin secondary and tertiary recovery oil recovery methods at any time during the economic life of an oil field. The implementation usually occurs after the entire field has been developed and primary recovery has occurred for several years. Information gained during development and production operations is very important in optimizing the design of subsequent recovery methods. See IRM 4.41.1.3.3.</p>	<ul style="list-style-type: none"> ▪ Treas. Reg. 1.43-2(e)(3) ▪ IRM 4.41.1.3.3

Detailed Explanation of the Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

Analysis

Resources

Qualifying for the EOR Credit (cont'd)

A successful secondary or tertiary recovery program involves a plan wherein water, gas, or some other fluid is injected into the oil-bearing formations to force the oil into bore holes so that it may be pumped out to the surface. This may involve the drilling of injection wells and additional production wells. The injection wells may be located on the perimeter of or interspersed in a pattern throughout the oil field to drive the oil through the formation to the oil wells. Because of the need for a plan involving an entire field, several owners may be involved. The state conservation commission may require hearings with the owners to gain approval of the plan. The conservation commission will likely require the ownership interests to be unitized. See IRM 4.41.1.3.3.

Claiming and Calculating the Credit

Only an owner of an operating mineral interest may claim the EOR credit. See Treas. Reg. section 1.43-1(a)(2). See also Example 1 wherein a taxpayer produced steam from its generator but could not claim the credit on its investment in the generator because it did not own an operating mineral interest. See Example 2 which reaches the same conclusion even though a partner in an oil and gas partnership that owned the operating mineral interest owned the generator.

- Treas. Reg. 1.43-1(a)(2)
- IRM 4.41.1.3.3.

Detailed Explanation of the Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit	
Analysis	Resources
<p><u>Claiming and Calculating the Credit (cont'd)</u></p> <p>Because of the high cost and complexity of EOR projects, most taxpayers claiming the EOR credit are corporations or investors in large partnerships or joint ventures. Joint ventures operate many EOR projects. As part of its obligation to account for costs incurred by the joint venture, the operator will typically inform each non-operator of its share of annual expenditures for qualified costs. LB&I developed a procedure to minimize the burden on taxpayers and examination personnel in such a situation. See IRM 4.41.1.3.4.</p> <p>The EOR credit is unique in that it is calculated on both deductible expenses and capital expenditures. The costs that qualify for the EOR tax credit generally consist of tertiary injectant expenses, tangible property costs, and intangible drilling costs (IDC) associated with a qualified project.</p> <p>Tertiary injectant expenses must meet the definitions in IRC 193(b) and be deductible during the taxable year under any code section to qualify for the EOR credit. Refer to Rev. Rul. 2003-82. The term "qualified tertiary injectant expenses" means any cost the taxpayer paid or incurred (whether or not chargeable to capital account) for any tertiary injectant (other than a hydrocarbon injectant that is recoverable) the taxpayer used as part of a tertiary recovery method. See IRC 193(b)(1).</p>	<ul style="list-style-type: none"> ▪ IRC 43 ▪ IRC 193(b)(1) ▪ Treas. Reg. 1.43-0 through 1.43-7 ▪ Rev. Rul. 2003-82 ▪ IRM 4.41.1.3.4

Detailed Explanation of the Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

Analysis

Resources

Claiming and Calculating the Credit (cont'd)

The at-risk limitation rules of IRC 49(a)(1), 49(a)(2) and 49(b) apply to individuals and closely held corporations. See IRC 43(c)(3).

When the taxpayer claims the credit, it must reduce its deductions and/or basis of those items that comprise the qualified expenditures by the amount of the credit. See Treas. Reg. 1.43-1(d) and (e). See also Example 3 in Examples of the Concept later in this Practice Unit.

On a year-by-year basis, taxpayers can elect to not claim the credit. See IRC 43(e). A taxpayer with a large general business credit carryforward might forgo the credit to take a full deduction and/or not having to reduce basis for its qualified expenditures.

- IRC 43
- IRC 49
- Treas. Reg. 1.43-1(d) and (e)

Examples of the Concept

Overview of the Enhanced Oil Recovery Tax Credit

Examples

Example 1 - Credit for Operating Mineral Interest Owner

Company A is the owner of an operating mineral interest in a property. During its taxable year 2016, it begins a qualified enhanced oil recovery project using the cyclic steam process. Company B, who owns no interest in the property, purchases and places in service a steam generator. Company B sells steam to Company A, which Company A uses as a tertiary injectant described in section 193.

Because Company A owns an operating mineral interest in the property with respect to which the project is undertaken, Company A may claim a credit for the cost of the steam. Although Company B owns the steam generator used to produce steam for the project, Company B may not claim a credit for its costs because Company B does not own an operating mineral interest in the property.

Example 2 - Credit for Operating Mineral Interest Owner

Companies C and D are partners in CD, a partnership that owns an operating mineral interest in a property. During its taxable year 2016, CD begins a qualified enhanced oil recovery project using cyclic steam. Company D purchases a steam generator and sells steam to CD.

Because CD owns an operating mineral interest in the property with respect to which the project is undertaken, CD may claim a credit for the cost of the steam. Although Company D owns the steam generator used to produce steam for the project, Company D may not claim a credit for the costs of the steam generator because Company D paid these costs in a capacity other than that of an operating mineral interest owner.

Examples of the Concept (cont'd)

Overview of the Enhanced Oil Recovery Tax Credit

Examples

Example 3 - Reduction of Associated Deductions

Assume the facts in Example 2. Also assume that Partnership CD paid \$100 during taxable year 2016 for steam that it used in its qualified project. The amount of CD's EOR credit is \$15 (\$100 multiplied by 15%), which it claimed on its Form 8830. The cost of steam used as a tertiary injectant is deductible under IRC 193. Because CD claimed the EOR credit, it must reduce its allowable deduction to \$85 (\$100 minus \$15).

Index of Referenced Resources

Overview of the Enhanced Oil Recovery Tax Credit

IRC 43

IRC 49

IRC 193(b)

Treas. Reg. 1.43-0

Treas. Reg. 1.43-1

Treas. Reg. 1.43-2

Treas. Reg. 1.43-3

Treas. Reg. 1.43-4

Treas. Reg. 1.43-5

Treas. Reg. 1.43-6

Treas. Reg. 1.43-7

Rev. Rul. 2003-82

Form 8830 - *Enhanced Oil Recovery Credit*

IRM 4.41.1.3.3 - *Secondary and Tertiary Recovery Methods*

IRM 4.41.1.3.4 - *Enhanced Oil Recovery Tax Credit*

Notice 2019-36

Training and Additional Resources

Overview of the Enhanced Oil Recovery Tax Credit	
Type of Resource	Description(s)
Databases / Research Tools	<ul style="list-style-type: none"> ▪ Texas Railroad Commission: Oil & Gas Division (http://www.rrc.state.tx.us/oil-gas/) ▪ California Department of Conservation: Division of Oil, Gas, & Geothermal Resources (http://www.conservation.ca.gov/dog)
Reference Materials – Treaties	<ul style="list-style-type: none"> ▪ <i>Fundamentals of Carbon Dioxide-Enhanced Oil Recovery (CO₂-EOR) -A Supporting Document of the Assessment Methodology for Hydrocarbon Recovery Using CO₂ - EOR Associated with Carbon Sequestration</i> - U.S. Department of the Interior U.S. Geological Survey (https://pubs.usgs.gov/of/2015/1071/pdf/ofr2015-1071.pdf) ▪ <i>Untapped Domestic Energy Supply and Long Term Carbon Storage Solution</i> - U.S. Department of Energy National Energy Technology Laboratory (https://www.netl.doe.gov/sites/default/files/netl-file/CO2_EOR_Primer.pdf)
Other Training Materials	<ul style="list-style-type: none"> ▪ CCH - <i>Oil & Gas, Federal Income Taxation</i> Section 2802 ▪ KPMG - <i>Income Taxation of Natural Resources</i> Sections 15.219-15.224 ▪ Oil and Gas Unit II PPT - 2015-03 - Chapter 28 - Credits

Glossary of Terms and Acronyms

Term/Acronym	Definition
BTU	British thermal unit
CO ₂	Carbon dioxide
IRC	Internal Revenue Code
IRM	Internal Revenue Manual
LB&I	Large Business and International
PLR	Private Letter Ruling
Rev. Rul.	Revenue Ruling
Treas. Reg.	Treasury Regulation

Index of Related Practice Units

Associated UIL(s)	Related Practice Unit	DCN
	None at this time.	