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**Enhanced Oil Recovery by CO<sub>2</sub> Flooding**  
**Louisiana Project and Pipeline Regulations, Expropriation**  
**Authority and Severance Tax Incentives**

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**Introduction**

Carbon dioxide (“CO<sub>2</sub>”) is a gas under normal atmospheric temperature and pressure. When sufficiently compressed, however, it reaches a point where it becomes a “dense phase gas” or a “supercritical fluid.” In this state, the substance exhibits certain characteristics of both a gas and a liquid and is more economical to ship by pipeline. This allows it to be used in an enhanced recovery operation for oil reservoirs called a “CO<sub>2</sub> flood.”

The particular physical qualities of CO<sub>2</sub> in this state allow it, when injected into a production reservoir, to approach or enter a miscible state with oil that remains trapped in reservoir pore spaces, causing the oil droplets to expand and become detached from the adjoining rock. This mixture of oil and some of the injected CO<sub>2</sub> more easily flows through reservoir pore spaces to a production well. The oil/CO<sub>2</sub> mixture can be brought to the surface through the wellbore and then separated. The oil is sold and the extracted CO<sub>2</sub> may then be re-compressed and re-injected into the reservoir. Under present techniques, some of the CO<sub>2</sub> injected for enhanced oil recovery (“EOR”) purposes stays in the formation.

Successful implementation of CO<sub>2</sub> floods has the potential to dramatically increase domestic oil reserves. Denbury Resources, Inc. (“Denbury”), the leading player in implementing CO<sub>2</sub> floods in the Gulf Coast states, estimates that, on average, an additional seventeen (17%) percent of original oil-in-place can be recovered by this method, based on its experience in Mississippi.<sup>1</sup> It estimates that an additional seven billion barrels of trapped oil are potentially recoverable with current CO<sub>2</sub>-EOR techniques from identified oil fields in Louisiana, Mississippi, Alabama and Florida alone.<sup>2</sup>

CO<sub>2</sub> floods for EOR have been in operation in the United States for more than thirty years, located primarily in West Texas and some of the

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<sup>1</sup> Denbury Resources Inc., *CO<sub>2</sub>Tertiary Operations* at <http://www.denbury.com/CO2Assets.htm> (updated March 26, 2009).

<sup>2</sup> Denbury Resources Inc., *Infrastructure for CO<sub>2</sub>-EOR & CCS* at [https://www.purdue.edu/discoverypark/energy/cctr/event/cctr\\_meetings\\_mar2009/CCTR-Tucker-03-05-09.pdf](https://www.purdue.edu/discoverypark/energy/cctr/event/cctr_meetings_mar2009/CCTR-Tucker-03-05-09.pdf).

western states.<sup>3</sup> In the early 1980s, Shell Oil Company (“Shell”) constructed a major CO<sub>2</sub> pipeline for a potential CO<sub>2</sub> flood from Jackson, Mississippi southward through Donaldsonville, Louisiana, and then southwesterly to the Weeks Island Field in Iberia Parish. Although Shell completed the pipeline, the CO<sub>2</sub> flood apparently was never initiated. The portion of this line from near Donaldsonville to Weeks Island has either been abandoned or is being utilized for other purposes. However, the portion of the line from Jackson to Donaldsonville was acquired by Denbury, who is currently using it for CO<sub>2</sub> floods in Mississippi and in the Lockhart Crossing Field in Livingston Parish, Louisiana.

The Office of Conservation approved twenty-four CO<sub>2</sub> injection projects between 1976 and 1995. However, there was a lapse of over ten (10) years before the next project, Denbury’s Lockhart Crossing CO<sub>2</sub> flood, was approved to be implemented in Louisiana. At Lockhart Crossing, Denbury currently is effectuating phase one of a planned four phase development. It commenced CO<sub>2</sub> injection into the First Wilcox Sand on December 7, 2007, which has resulted in increased production from less than 100 barrels to approximately 1,100 barrels per day. Denbury also has plans to initiate a second Louisiana CO<sub>2</sub> flood in the Delhi Field in Richland, Franklin and Madison Parishes later this year, and has plans for a possible third Louisiana project for the Lake St. John Field in Concordia and Tensas Parishes some time thereafter. Marlin Resources, LLC, recently began CO<sub>2</sub> injection for its approved flood of the Buckhorn Sand in the Buckhorn Field in Tensas Parish.

This paper will address the Louisiana statutory and regulatory provisions applicable to implementing a CO<sub>2</sub> flood in Louisiana, including construction of a CO<sub>2</sub> pipeline, and review the Louisiana severance tax incentives available to operators considering such operations. It will also very briefly address the CO<sub>2</sub> disposal or storage aspects of a CO<sub>2</sub> flood as a segue to Michael Donald’s paper on Carbon Sequestration, which will be presented in conjunction with this paper.

### **I. Louisiana Regulatory Requirements – Project Approval**

The Louisiana legislature has delegated to the Commissioner of Conservation (“Commissioner”) the authority to regulate any enhanced recovery project for oil or natural gas, including a CO<sub>2</sub> flood.<sup>4</sup> The Commissioner’s regulations, at least since January 13, 1982, have specifically provided that an enhanced recovery project will be permitted only by order of the Commissioner after notice and hearing.<sup>5</sup> The Com-

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<sup>3</sup> Philip M. Marston and Patricia A. Moore, *From EOR To CCS: The Evolving Legal and Regulatory Framework for Carbon Capture and Storage*, 29 ENERGY L.J. 421, 428 (2008).

<sup>4</sup> La. R.S. 30:4.

<sup>5</sup> Louisiana Office of Conservation Statewide Order 29-B (LAC 43:XV.4.A).

missioner has applied this regulation by requiring compliance with the thirty (30) day notice provisions of La. R.S. 30:6 and the Rules of Procedure for Conducting Hearings Before the Commissioner of Conservation of the State of Louisiana, dated October 11, 1983 ("Rules of Procedure" which can be found at LAC 43:XIX, Subpart 17).<sup>6</sup> Where the pool involved underlies more than one tract, the Commissioner will not approve an enhanced recovery project until a reservoirwide unit for the pool in question is formed pursuant to La. R.S. 30:5.C.<sup>7</sup>

### Section 5.C Units

Where a reservoir is of sufficient size and characteristics that an enhanced recovery project is appropriate, or where a single unit operation of the entire reservoir will increase the ultimate recovery of primary reserves and prevent waste and the drilling of unnecessary wells, La. R.S. 30:5.C authorizes the Commissioner to create a single reservoirwide unit under certain circumstances. This provision was added to the Conservation Act by Act 441 of 1960, and many practitioners still refer to these units as "Act 441 units." The Commissioner of Conservation had no authority under the Conservation Act to create such a reservoirwide unit until the adoption of Act 441 of 1960.<sup>8</sup> These Section 5.C, or "Act 441", reservoirwide units are distinguishable from the more prevalent drilling and production units created by the Commissioner under La. R.S. 30:9.B and 10.A.1, which were authorized by Act 157 of 1940, some of which in fact apply to an entire reservoir.<sup>9</sup>

A Section 5.C reservoirwide unit authorizes the operator to complete as many unit wells as he deems necessary in the unit, without the necessity of obtaining a subsequent order from the Commissioner for substitute or alternate unit well approval. Generally wells drilled to a Section 5.C unit are exempt from spacing requirements, and its operator is given great flexibility with regard to allowables for unit wells.

The statute authorizes formation of such a unit only upon the Commissioner finding *all* of the following:

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<sup>6</sup> See Memorandum of Commissioner Herbert W. Thompson, dated January 15, 1985, hereinafter "Thompson".

<sup>7</sup> The Commissioner of Conservation does issue a temporary, six-month approval of enhanced recovery projects (called a "pilot project") to allow the operator a period of time to determine if the project is successful enough to warrant establishment of a reservoirwide unit.

<sup>8</sup> *Eads Operating Co., Inc. v. Thompson*, 93-2155 (La. App. 1st Cir. 1994), 646 So.2d 948, writs denied, 95-0226 (La. 1995), 652 So.2d 1345.

<sup>9</sup> Though rarely used, another kind of reservoirwide unit can be created pursuant to La.R.S. 30:5.B, which authorizes the Commissioner to form a single, reservoirwide unit, without the statutory requirements found in Section 5.C, if he determines (after notice and a public hearing) that gas recycling is feasible for a reservoir.

1. the proposed unit is reasonably necessary for the prevention of waste and the drilling of unnecessary wells;
2. the proposed unit will appreciably increase ultimate recovery of oil or gas from the affected pool;
3. the proposed unit operation is economically feasible;
4. the Order will provide for the allocation to each separate tract within the proposed unit of a proportionate share of the unit production which shall insure the recovery by the owners of that tract of their just and equitable share of the recoverable oil or gas in the unitized pool; *and*
5. at least 3/4ths of the royalty owners and 3/4ths of the working interest owners have approved the plan and terms of unit operations by written contract.<sup>10</sup>

Because the Conservation Act requires a finding that all these factors exist, the Commissioner has no authority to form such a reservoir-wide unit without the necessary approvals of royalty owners and working interest owners. This is true even if the evidence is clear and undisputed that such a unit is necessary to prevent waste or avoid the drilling of unnecessary wells. In such a case, the Commissioner's authority is limited to persuading the parties to reach an agreement, though he likely can minimize the negative effects of lack of a single unit operation by restricting well allowables and denying new well permits.

Section 5.C units can be formed either before or after the formation of drilling and production units for the reservoir. A common, though not mandatory, practice has been to form drilling and production units and later revise them after full development of the reservoir to establish the geological boundaries of the reservoir prior to attempting reservoirwide unitization.

The statutory requirement of a written contract containing the plan and terms of unit operation approved by 3/4ths in interest of royalty and working interest owners is accomplished by the execution of a Unit Agreement, which is approved by the Commissioner in the order creating the Section 5.C unit. The Unit Agreement generally will contain provisions expressly addressing the operator's right to inject extraneous substances and the operator's flexibility to implement various enhanced recovery practices to maximize the recovery of hydrocarbons from the reservoir. The working interest owners generally also execute a Unit Operating Agreement, which, *inter alia*, includes the consents necessary for various operations and addresses cost sharing and accounting among the working interest owners.

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<sup>10</sup> La. R.S. 30:5.C(2)

### **Analysis of Unit(s) in Place**

The initial step in determining the necessary regulatory action needed to obtain authority to conduct a CO<sub>2</sub> flood is analysis of the existing unit or units applicable to the reservoir in question. If a Section 5.C unit is already in place and the Unit Agreement has not terminated, the regulatory process is greatly simplified. Even if a Commissioner's order appears to create a reservoirwide unit, care must be taken to scrutinize it, as well as the application and transcript of the unit hearing, to determine if the unit was created pursuant to Section 5.C.<sup>11</sup>

### **Additional Steps for Regulatory Approval**

If a Section 5.C unit is not in place, creating one will be the first order of business. This can be a time consuming and difficult process, particularly if it is necessary to obtain the requisite statutory consents on a new Unit Agreement. If a Unit Agreement was previously signed by the requisite number of owners and, if it can be established that the Unit Agreement was recorded and has been continuously maintained in force and effect, one may be able to have the Commissioner create a Section 5.C unit based upon those previous signatures, thereby avoiding having to get a new Unit Agreement executed. A thirty (30) day notice hearing pursuant to La. R.S. 30:6 will be required in either case, subject to the provisions of the Rules of Procedure.<sup>12</sup>

If a Section 5.C unit is in place, the terms of the unit order and Unit Agreement should be analyzed to determine if they authorize injection of CO<sub>2</sub>. Very few, if any, of the prior unit orders will specifically authorize a CO<sub>2</sub> flood, but some may authorize enhanced recovery methods generally and then particularly authorize a different specific method of enhanced recovery (e.g. a waterflood). Some Section 5.C unit orders may have been for primary recovery, and may not contain any enhanced recovery language. In most cases, notice and hearing are required to obtain a supplemental order from the Commissioner specifically authorizing the CO<sub>2</sub> flood.<sup>13</sup> Under certain circumstances, depending upon the language in the unit order and Unit Agreement, the Commissioner will issue the supplemental order authorizing the CO<sub>2</sub> flood administratively, after application and notice without the necessity of a hearing.<sup>14</sup>

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<sup>11</sup> If the unit order is dated prior to the effective date of Act 441 of 1960, the unit created therein cannot be a valid Section 5.C unit. *See Eads, supra*. Some orders which validly create Section 5.C units make no specific reference to the statute. Other orders which do not validly create a Section 5.C unit may approve the Unit Agreement, attach a plat depicting the unit boundaries, and authorize the operator to conduct the enhanced recovery project, but do not unitize the interests of non-signatories to the Unit Agreement.

<sup>12</sup> Thompson, *supra*.

<sup>13</sup> *Id.*

<sup>14</sup> *See, e.g.*, Supplement to Office of Conservation Order No. 1084-B-11, effective

### Approval of Injection Wells

Each injection well for a CO<sub>2</sub> flood must be approved by the Office of Conservation pursuant to regulations in Statewide Order 29-B (LAC 43:XIX, Subpart 1).<sup>15</sup> Injection wells for a CO<sub>2</sub> flood are treated as Class II wells under the EPA-approved Underground Injection Control regulatory and permit program. The Office of Conservation received primacy enforcement authority from the EPA for the regulation of injection and disposal wells in 1982 and implements these programs through its Injection and Mining Division.

Initial injection wells should be included in the application process for a supplemental order approving the CO<sub>2</sub> flood, if one is required. Thereafter, subsequent injection wells may be approved administratively without the necessity of a hearing, subject to the procedural requirements of Statewide Order 29-B.<sup>16</sup>

### II. Louisiana Regulatory Requirements – Pipelines

In most cases, CO<sub>2</sub> will need to be transported via pipeline from the CO<sub>2</sub> source, whether natural or anthropogenic, to a plant facility near the reservoir. We note, however, that the Commissioner recently approved a CO<sub>2</sub> flood project in which the operator testified that CO<sub>2</sub> would be brought to the field via truck rather than a pipeline.<sup>17</sup> The Office of Conservation is the agency with jurisdiction to authorize the construction of the portion of CO<sub>2</sub> transmission pipelines within the State of Louisiana.<sup>18</sup>

The Commissioner was given jurisdiction to regulate CO<sub>2</sub> pipelines by Act 760 of 1981, adopting La. R.S. 30:4.C.(17). Initially, this jurisdiction was limited to CO<sub>2</sub> pipelines used to serve enhanced recovery projects for reservoirs located in Louisiana. By Act 428 of 2007, this statute was broadened to authorize the Commissioner to regulate the Louisiana portion of CO<sub>2</sub> transmission lines serving enhanced recovery projects in other states and jurisdictions.

The Commissioner has promulgated an extensive set of regulations applicable to CO<sub>2</sub> transmission pipelines, including very specific requirements concerning design and construction, operation, maintenance,

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April 18, 2006, applicable to the Lockhart Crossing Field.

<sup>15</sup> Thompson, *supra*.

<sup>16</sup> *Id.*

<sup>17</sup> See Office of Conservation Order No. 542-B-3, effective June 25, 2008, regarding the CO<sub>2</sub> flood approved for Marlin Resources, LLC, for the Buckhorn Sand, Reservoir A, in the Buckhorn Field in Tensas Parish.

<sup>18</sup> See Marston & Moore at 451-54 for a discussion of jurisdictional issues. The Pipeline and Hazardous Materials Safety Administration of the United States Department of Transportation is responsible for pipeline safety unless a state agency takes primacy for these regulations. *Id.* at 449-51.

safety, testing, and accident reporting.<sup>19</sup> They are implemented and enforced by the Commissioner through the Office of Conservation Pipeline Division.

These regulations require that an order of the Commissioner authorizing the enhanced recovery project be in force and effect BEFORE anyone can:

- (a) engage in the transmission of CO<sub>2</sub>,
- (b) undertake the construction or extension of any facility for the CO<sub>2</sub> pipeline, or
- (c) acquire or operate any CO<sub>2</sub> pipeline or extension thereof, to serve secondary or tertiary recovery projects for the enhanced recovery of liquid or gaseous hydrocarbons.<sup>20</sup>

They are similar to the Commissioner's regulations regarding intra-state natural gas pipelines in that an order must be obtained, after notice and hearing, to (a) construct and operate, (b) acquire and operate, or (c) abandon a CO<sub>2</sub> pipeline, as well as to interconnect a CO<sub>2</sub> system with any other CO<sub>2</sub> system, even one owned by the same person or entity.<sup>21</sup> Specific details are included in the regulations for the applications, notices, conferences, hearings and evidence necessary to obtain these orders. The regulations apply only to the transmission portion of the CO<sub>2</sub> pipeline; the gathering system of pipelines connecting the plant facility in the field to each individual injection and producing well are specifically excluded.<sup>22</sup>

### III. Expropriation Authority for CO<sub>2</sub> Pipelines

By the same legislative acts which delegated jurisdiction over CO<sub>2</sub> pipelines to the Commissioner, the Louisiana legislature authorized the expropriation of property by entities engaged in "the piping or marketing of carbon dioxide for use in connection with a secondary or tertiary recovery project for the enhanced recovery of liquid or gaseous hydrocarbons ...".<sup>23</sup> The 2007 amendment broadened the statute to specifically authorize expropriation of property for the Louisiana portion of an interstate CO<sub>2</sub> transmission line serving an enhanced recovery project in another state or jurisdiction.

This expropriation authority is limited by La. R.S. 30:4.C.(17)(b), which requires the Commissioner to "approve" the enhanced recovery project and issue a certificate of public convenience and necessity before any expropriation rights are exercised, and by language in La. R.S.

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<sup>19</sup> LAC 43:XI, Subpart 4, Chapters 7-19.

<sup>20</sup> LAC 43:XI.703.

<sup>21</sup> *Id.*

<sup>22</sup> LAC 43:XI.701, 903.

<sup>23</sup> See Acts 760 of 1981 and 428 of 2007, adopting and amending La. R.S. 19:2(10).



19:2(10) itself which requires the project to be “approved by the commissioner of conservation.” Where the CO<sub>2</sub> flood is for a reservoir in Louisiana, the Commissioner’s approval will be accomplished as outlined in Section I of this paper. Where the CO<sub>2</sub> flood is for a reservoir in another state or jurisdiction, La. R.S. 30:4.C.(17)(b) specifically provides that the Commissioner’s approval “shall consist of confirmation that the applicable regulatory authority of that state or jurisdiction has approved or authorized the injection of carbon dioxide in association with such project.”

Satisfaction of the “certificate of public convenience and necessity” prerequisite is normally done in conjunction with the process for obtaining an order from the Commissioner authorizing the entity to “construct and operate” or “acquire and operate” the CO<sub>2</sub> transmission pipeline. However, these matters are filed as separate applications, are assigned separate docket numbers by the Pipeline Division of the Office of Conservation, and are the subject of separate orders. Typically all dockets related to the same pipeline are scheduled for public hearing on the same day and are consolidated for the purpose of taking testimony and receiving exhibits. Specific details are included in the Commissioner’s regulations for the applications, notices, conferences, hearings and evidence necessary to obtain a certificate of public convenience and necessity for a CO<sub>2</sub> pipeline.<sup>24</sup>

Once the CO<sub>2</sub> pipeline has been approved by the Commissioner and the certificate of public convenience and necessity is issued, the pipeline entity then has procedural standing to file an expropriation lawsuit. However, this “right to expropriate” is subject to all of the normal limitations established by the jurisprudence and the Louisiana and U.S. Constitutions applicable to expropriation by private entities.

Most significantly, the Louisiana Constitution expressly provides that there must be a “public and necessary purpose” for the expropriation and that whether the purpose for any particular expropriation is public and necessary “shall be a judicial question.”<sup>25</sup> Thus, in an expropriation lawsuit, introduction into evidence of a certificate of public convenience and necessity issued by the Commissioner is not conclusive proof of public and necessary purpose; it must be accompanied by independent evidence to satisfy the court that the constitutional standards are satisfied.<sup>26</sup>

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<sup>24</sup> LAC 43:XI, Chapter 7.

<sup>25</sup> La. Const. Art. I, Section 4.(B)(4).

<sup>26</sup> *Tenneco, Inc. v. Harold Stream Investment Trust*, 394 So.2d 744 (La. App. 3 Cir. 1981); *Louisiana Resources Co. v. Greene*, 406 So.2d 1360 (La. App. 3 Cir. 1981), *writ denied*, 412 So.2d 84 (1982).

Public and necessary purpose should be obvious in cases involving CO<sub>2</sub> floods for Louisiana reservoirs. Even where the pipeline is for a CO<sub>2</sub> flood for a reservoir in another state or jurisdiction, proving such purpose should not be terribly difficult. Louisiana jurisprudence has consistently recognized that supplying oil or natural gas to the public generally will satisfy this constitutional requirement, even if the pipeline delivers the product to customers outside of Louisiana.<sup>27</sup> The Commissioner recently recognized this principle by issuing a certificate of public convenience and necessity for Denbury's Green Pipeline, commencing near Donaldsonville, Louisiana, to deliver CO<sub>2</sub> to a flood in Texas.<sup>28</sup>

#### IV. Louisiana Severance Tax Incentives

La. R.S. 47:633.4 provides an economic incentive to producers to invest in tertiary recovery projects in Louisiana to enhance Louisiana's crude oil production. The statutory preamble recognizes that tertiary recovery methods are experimental and more costly than traditional enhanced recovery operations. The preamble states that encouragement of tertiary recovery methods is "essential to the continued growth and development of the mineral resources of the state and the continued prosperity and welfare of the people of the state."<sup>29</sup>

The statute grants a total severance tax exemption on all production from a "qualified tertiary recovery project" during its payout period.<sup>30</sup> A qualified tertiary recovery project is defined as "an enhanced crude oil recovery project conducted in accordance with sound engineering principles as used in the industry, **subject to the approval of the commissioner...**"<sup>31</sup> The statutory definition specifically requires that the project employs one of the following methods:

1. Miscible gas floods involving the injection of hydrocarbons, carbon dioxide, or nitrogen.
2. Near-miscible fluid floods involving the injection of alkaline, surfactant, hydrocarbons, carbon dioxide, or nitrogen.
3. Immiscible floods involving the injection of carbon dioxide.<sup>32</sup>

The Commissioner is authorized by the statute to adopt rules, regulations, and orders for the proper administration of the severance tax incentive. He has exercised this authority by the promulgation of Rules of Procedure for Application of Tertiary Recovery Incentive dated Novem-

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<sup>27</sup> See, e.g., *Texas Eastern Transmission Corporation v. Bowman*, 238 La. 399, 115 So.2d 797 (La. 1959); *Louisiana Resources Company*, *supra*.

<sup>28</sup> Office of Conservation PL Order No. 6047, effective January 30, 2008.

<sup>29</sup> La. R.S. 47:633.4(A).

<sup>30</sup> La. R.S. 47:633.4(B).

<sup>31</sup> La. R.S. 47:633(C) [*Emphasis added*].

<sup>32</sup> *Id.*

ber 20, 1986 (“Tertiary Rules”). Qualification of a project for this incentive is accomplished by order (“Qualification Order”) after notice and a thirty (30) day notice hearing (“Qualification Hearing”), and a minimum list of exhibits and testimony is established.<sup>33</sup>

The severance tax exemption commences with first tertiary production. If the reservoir is no longer producing primary or secondary reserves when injection begins, then first production will be first tertiary production. However, if the reservoir is still producing primary or secondary reserves when the project begins, first tertiary production will begin only after production of the remaining primary and secondary reserves which would have been produced without the tertiary project.<sup>34</sup> The amount of the remaining primary and secondary reserves are considered at the Qualification Hearing and established in the Qualification Order.

The Commissioner also requires the operator to file, immediately after actual injection commences, an application for a supplemental order establishing the date of first tertiary production. After production of the volume of primary and secondary reserves established in the Qualifying Order (or immediately after filing if there are no remaining primary and secondary reserves), the Commissioner issues a supplemental order establishing the date of first tertiary production, which activates the severance tax exemption and establishes the beginning of the payout time period.<sup>35</sup>

The statute lists the types of expenses which can be included in the payout calculation (including “interest at commercial rates”), and requires that payout be determined at a public hearing before the Commissioner.<sup>36</sup> The Tertiary Rules specify that this should be accomplished within sixty (60) days of achieving payout by a ten (10) day notice hearing under the Rules of Procedure.<sup>37</sup>

The Commissioner requires the operators of all enhanced recovery projects to file an Enhanced Recovery Annual Data Sheet reporting on the current status of the project. Operators of qualified tertiary recovery projects also are required to file an Annual Report, which must include annual and cumulative values for investment, expenses, interest, tertiary gross revenue, tertiary net revenue, and tertiary production. The Annual Report also must contain a current estimate of the total tertiary recovery anticipated from the project and note any difference from the original estimate made in the Qualifying Hearing.<sup>38</sup>

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<sup>33</sup> Rule 1 of Tertiary Rules.

<sup>34</sup> La. R.S. 47:633.4(D).

<sup>35</sup> Rule 2 of the Tertiary Rules.

<sup>36</sup> La. R.S. 47:633.4(B).

<sup>37</sup> Rule 3 of Tertiary Rules.

<sup>38</sup> Rule 4 of Tertiary Rules.

In addition, if the operator uses an existing well as a producing well for the CO<sub>2</sub> flood, and that existing well meets the qualifications of the “Inactive Well” severance tax provisions, that particular well also can qualify for a five (5) year severance tax exemption.<sup>39</sup> The operator will need to select which exemption to utilize, as it will be unable to utilize both exemptions in a sequential manner.

## V. From Enhanced Recovery to CO<sub>2</sub> Storage

As noted in the introduction, under present techniques, some of the CO<sub>2</sub> injected for EOR purposes can be recycled, but the remainder stays in the formation and is effectively stored indefinitely as a natural result of the enhanced oil recovery operation. This storage of CO<sub>2</sub> is *incidental* to the production of oil during EOR operations. It is physically indistinguishable from the *incremental* storage of CO<sub>2</sub> that would occur if the depleted oil formation were to be later used for storing CO<sub>2</sub>. In all such cases the CO<sub>2</sub> would be injected through the same wellbore into the same formation and at pressures (and depths) that ensure that it remains in the supercritical state.<sup>40</sup>

While physically indistinguishable from storage that already occurs during EOR operations, the incremental storage of CO<sub>2</sub> in excess of what is required for the production of oil raises numerous legal and regulatory questions. Excellent general discussions of these issues can be found in Marston & Moore, *supra.*, and a 2007 final report of a Geological CO<sub>2</sub> Sequestration Task Force established by the Interstate Oil and Gas Compact Commission.<sup>41</sup> We are privileged to have a paper by Michael Donald, to be presented in conjunction with this paper, which will address carbon sequestration with a view towards its implementation in Louisiana.

## Conclusion

In Louisiana, successfully obtaining regulatory approval of a CO<sub>2</sub> flood and its associated pipeline, and the qualification for state severance tax incentives, requires several administrative steps at the Office of Conservation which must be accomplished sequentially. Advanced consideration of all of the factors affecting the satisfaction of these requirements should take place in the very early stages of project planning. Given the dynamic nature of developments in this field, one also would

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<sup>39</sup> La. R.S. 47:633(7)(C)(iv).

<sup>40</sup> Marston & Moore at 426-8.

<sup>41</sup> The Interstate Oil and Gas Compact Commission Task Force on Carbon Capture And Geologic Storage, *Storage of Carbon Dioxide in Geologic Structures: A Legal and Regulatory Guide for States and Provinces* (Sept. 25, 2007) at <http://iogcc.publishpath.com/Websites/iogcc/PDFS/2008-CO2-Storage-Legal-and-Regulatory-Guide-for-States-Full-Report.pdf> [hereinafter IOGCC Model Statute and Rules for CCS].

be wise to check with the Office of Conservation website and his Louisiana conservation practitioner for new or revised requirements.

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