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Geothermal and its Association with Oil & Gas Development:

*TX Precedence Regarding Trespass by Fracture,
Rule of Capture & its Effect on the Geothermal
Industry*

Overview

- CONFERENCE GOALS/RELEVANCE
- GEOTHERMAL ENERGY RESOURCE (INCENTIVES AND ADVANTAGES)
- THE TEXAS DEFINITION & THE OBSTACLES
- RULE OF CAPTURE & SUBSURFACE TRESPASS BY FRACTURE IN TEXAS
- EFFECT OF *GARZA* & TX PRECEDENT ON GEOTHERMAL PRODUCTION ACTIVITIES
- CONCLUSION

CONFERENCE GOALS

“An ounce of prevention is worth a pound of cure.”

- **Collective goal**

- Learn about developing a geothermal energy portfolio and understanding its associations with oil and gas development

- **My goals**

- Explain how these associations should effect your decisions, transactions and contractual terms in regards to Texas law
- Importance of remaining cognizant of the ever developing legal jurisprudence of your State
 - The settled precedent, its relevance, but most importantly the unsettled precedent and its potential effect on your company, in your development of geothermal energy, alone or in association with oil and gas development

Relevant Agreements

- Exploration and Seismic Agreements
- Drilling Agreements
- Farmouts & Carried Interest Transactions
- Processing & Refinancing Agreements
- Master Service Agreements
- Joint Operating Agreements
- Production Contracts
- Restructuring Contracts
- Choice of Entity & Lien Questions
- Operator Liens

THE TEXAS DEFINITION

- **How Defined:** Geothermal energy is energy captured as a result of the natural, internal, heat stored in rock and fluid produced within the Earth. TX categorizes geothermal energy as a mineral....
- **General Application of TX Law to Systems that Need Enhancement through Hydraulic Fracturing**

OBSTACLES FROM A LITIGATION STANDPOINT

- **The Categorization as a Mineral and the Similarities with O&G**
- **The Categorization as a Mineral and the Differences with O&G**
 - Flow of the Resource/Mineral
 - Value of Resource
 - Source of Resource
 - Energy State of Resource
 - Storage of Resource

RULE OF CAPTURE & SUBSURFACE TRESPASS BY FRACTURE IN TEXAS

- **Garza History/ Subsurface Trespass**
 - May 5, 2005, Corpus Christi Court of Appeals held that hydraulic fracturing across property lines constitutes actionable trespass
 - August 29, 2008 TX Supreme Court reversed
 - Majority began by stating that it need not decide the broader issue, whether fracturing and other subsurface encroachments can ever be actionable in trespass. The court concluded that the family's trespass action was precluded by the rule of capture.
 - Rule of capture protected Defendant, Coastal
 - The TX Supreme Court's decision was not unanimous
- **Rule of Capture/ A Century of Texas Cases**
 - May know it as: "The English Rule", "Absolute Ownership Rule", "Texas Capture Rule", "Texas Rule", "Law of the Biggest Pump", "Big Pump Theory"
 - Legal Definition: Essentially, non-liability for drainage b/c drainage is non-actionable
- **Negative Rule of Capture**
 - The TX court has suggested, in *Manziel* that a "negative" rule of capture may be developing
 - *Garza* supports the theory that a negative rule of capture has developed in TX

EFFECT OF GARZA & TX PRECEDENT ON GEOTHERMAL PRODUCTION ACTIVITIES

■ Application: Sword & Shield

- If Rule of Capture applies:
 - A subsurface trespass by frac action may be precluded; HOWEVER, Arguably, another could drain migrated thermal energy (via frac) from a lawful well OR ruin well as a result of drainage from a lawful well b/c **drainage is not actionable**
- If Rule of Capture does not apply:
 - Drainage could be an actual harm/subsurface trespass by frac an actionable tort; HOWEVER, migration of thermal energy would not effect ownership AND damages available if well ruined as a result of drainage b/c **drainage is actionable**

RULE OF CAPTURE & SUBSURFACE TRESPASS BY FRACTURE IN TEXAS

- **Subsurface Trespass: Variety of Allegations (all require entering another's property)**
 - Directionally drilled or horizontal wells
 - Enhanced oil recovery methods resulting in injected fluids
 - Reinjection of hydrocarbons for storage that migrates
 - Seismic exploration
 - Hydraulic fracturing
- **Trespass/*Garza* was not the First Time**
 - TX Supreme Court unanimously concluded in previous cases that equitable relief against a frac trespass was appropriate. In *Gregg*, Plaintiff sought to prevent a frac operation.
 - However, the Court ultimately retreated from its decision in *Gregg*. In *Geo-Viking*, where an operator recovered damages from a well-service company that had botched a frac operation. The court of appeals rejected Defendant's argument that damages should not be based on oil and gas the Plaintiff may have recovered from an adjacent property if the frac job had been properly performed, stating that the "argument is in direct opposition to the rule of capture." The TX Supreme Court initially reversed, finding that fracturing the subsurface of another's land is trespass, precluding application of the Rule and limiting the Defendant's damages. However, at the request of the parties, the Court subsequently withdrew its opinion stating that the "application was improvidently granted. Moreover, the court concluded, "we should not be understood as approving or disapproving the opinions of the court of appeals analyzing the rule of capture or trespass as they apply to hydraulic fracturing."
 - Whether fracturing across property lines constituted a trespass or was protected by the rule of capture was not revisited by the Texas Supreme Court until *Garza*.

RULE OF CAPTURE & SUBSURFACE TRESPASS BY FRACTURE IN TEXAS

- **The TX Supreme Court in *Garza*, DID NOT:**
 - Decide that trespass by frac is a non-actionable tort
 - (From a trespass perspective) distinguish b/n physical encroachment of a well bore and a man-made encroachment by fracture:
 - Man-made fractures not physically different from a man-made well bore encroaching beneath another's subsurface
 - Drill bit v. injected fluids ≠ meaningful distinction
 - Continued presence of production tubing v. continuing presence of proppants ≠ meaningful distinction
 - Controlled v. uncontrolled ≠ meaningful distinction
- **More Convincing Justification:**
 - Practical necessity (fracing is a necessary well-completion technique)
 - Common sense (cannot be fully controlled)

RULE OF CAPTURE & SUBSURFACE TRESPASS BY FRACTURE IN TEXAS

- **First Impression: Does it Apply?**
 - *Murchinson*: Natural gas injected for storage remains personal property of injecting party
 - Meaning: Not subject to capture *even if* gas migrates beneath neighboring tracts
 - Legal distinction: Tangible ownership, surface, or acknowledgement of value?
 - **Legal Conundrum: If Heat = migratory gas; And Heat ≠ be stored; THEN thermal energy is NOT subject to the rule of capture**
 - *Manziel*: Trespass is not committed when secondary recovery waters from an authorized secondary recovery project cross lease lines
 - Meaning: Court indicated trespass has “no place” in proceeding to determine validity of a RRC order; however, trespass may have a place in a private tort COA.
 - Legal distinction: Court recognized this distinction, but discussed trespass in some detail, and was strongly sympathetic to the view that traditional rules of trespass may not be appropriate for subsurface invasions for the greater public good—such as enhanced oil recovery and, by analogy, perhaps hydraulic fracturing.
- **Summary: *Murchinson*** (Rule does not apply to reinjection/storage of gas); ***Manziel*** (Trespass does not occur when injected, secondary recovery forces move across lease lines)
 - **Issue**: Is the injection of fluid/gas for heat transmission more like salt water injected for secondary recovery operations or natural gas injected for future recovery from the injecting party’s own wells?

CONCLUSION

- **Examples of Other Identifiable Legal Issues**
 - Does it matter what the drainage consists of?
 - Is it still categorized as drainage if other valuable minerals are extracted from the fluid or gas but the remaining fluid or gas continues through the binary system?
 - What if the valuable mineral is really defined as a waste in TX but is now being used productively—still drainage?
 - Tax Implications?
 - If CO₂ is utilized as a heat transmitter, and not emitted when extracted from the hydrocarbons is it considered a “waste”?
 - If CO₂ in above scenario is not a waste and not taxed, should it be if it drains and escapes into the atmosphere?
 - How would those damages be measured/whose CO₂ is it?
 - How is a mineral’s fugacious nature determined?
 - Should geothermal energy be viewed as “fugacious?”
 - Which part is fugacious—the fluid/gas or the rock formation containing the heat/energy?
 - Does it matter?
 - B/c these questions and inconsistencies have not been answered or reconciled, litigators and the industry are in a unique position to foresee the future legal outcomes, legal concerns in the geothermal forecast, and draft documents/contracts, field litigation, etc. that begin to mold the law into what the industry or the case dictates it should be.

CONCLUSION (cont.)

- **Forecast**
 - Big Picture: Forest through the trees
 - Litigation Road Map/Flux
 - Know detours
 - Identify forks
 - Stay the course
 - Reroute the journey
- **What can we Do?**
 - Anticipate: 1) when and why O&G precedent may likely apply to geothermal energy litigation; 2) when and why it may not; and 3) the affect this could have on you re time, energy, & money.
 - Can't control the facts; can't control the filing of lawsuits against your company.
 - We **can** anticipate the facts and their application to the law. We **can** begin implementing your war strategy before a battle ever even begins.

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