Wastewater Injections and Nearby Production
Examining underground injection wastewater disposal near production

Michael K. Reer

I. INTRODUCTION

Oil and gas operations result in the production of three substances: oil, gas, and produced water. Produced water is generally considered a waste, and must be recycled or disposed of through reinjection into an underground formation. With respect to shale formations, reinjection into the same formation from which the produced water came is either not feasible economically or entirely impossible. Therefore, many commercial disposal well operators choose to reinject into shallower formations with adequate permeability and porosity to accept large volumes of produced water.

Shallower formations with significant permeability and porosity (such as the Delaware Mountain Group and Bone Spring formations) are at times also productive of oil and gas. The injection of commercial quantities of non-native wastewater into productive oil and gas formations can negatively impact or harm the productive reservoir. The displacement of oil and gas by wastewater injection such that the oil and gas cannot be economically recovered in the future is considered waste under Texas law. This paper considers the legal principles governing the interaction between producing operators, on the one hand, and commercial injectors disposing of wastewater into a productive formation on the other.

Among other items, this paper examines: (1) Texas Railroad Commission permitting and oversight of commercial injection wells; (2) traditional principles regarding ownership of pore space (*i.e.*, the underground formation) and minerals in place; (3) questions concerning the jurisdiction of district courts to adjudicate disputes concerning possible impacts to production by commercial injection; (4) obstacles and opportunities available to the producing operator to demonstrate liability and damages; and (5) affirmative defenses available to the commercial injector to shield liability.

II. RRC PERMITTING AND OVERSIGHT

The U.S. Environmental Protection Agency has delegated the authority to regulate injection and disposal operations related to oil and gas wastes and fluids to the State of Texas. Specifically, the Railroad Commission of Texas is charged with the permitting, oversight, and regulation of commercial disposal wells in the State. *Ring Energy v. Trey Res., Inc.*, 546 S.W.3d 199, 205 (Tex. App.—El Paso 2017, no pet.); TEX. WATER CODE § 27.031. The Railroad Commission has published at least three statewide rules designed to prevent waste of oil and gas from fluids not native to the producing reservoir.

Statewide Rule 7 requires the confinement of oil and gas to the original stratum until they can be produced and utilized without waste. Operators must adequately protect producing stratums from "infiltrating waters" to prevent waste.

Statewide Rule 9 regulates fluid injection into porous formations not productive of oil and gas. A reservoir is productive if it has past or current production within two miles of the proposed injection well. Consistent with Rule 9, the Railroad Commission has adopted a permit application for proposed injection wells within non-productive formations—Form W-14.

Statewide Rule 46 specifically regulates fluid injection into productive reservoirs. Among other things, Statewide Rule 46 requires disposal operators seeking to inject water into productive reservoirs to apply for and receive a permit from the Railroad Commission. Consistent with Rule 46, the Railroad Commission has adopted a permit application for proposed injection wells within horizontal and vertical proximity to one or more productive reservoirs—Form H-1.

The instructions to Form H-1 require notification of the permit application to: (1) the record owner of the surface tract on which the well is located; (2) each Commission-designated operator of any well located within one-half mile of the proposed injection well; and (3) the clerk of the city and county in which the proposed well would be located. Further, if the permit application is the first application for fluid injection authority within the reservoir, copies of the application must be sent to all operators in the reservoir. The applicant must include a signed statement indicating the date the copies of the application were mailed or delivered and the names and addresses of the persons to whom copies were sent.

The applicant must also attach to the permit application a plat of leases showing producing wells, injection wells, offset wells, and identify ownership of all surrounding leases within one-half mile. Further, the applicant must review the data of public record for wells that penetrate the proposed disposal zone within a quarter-mile radius of the proposed disposal well to determine if all abandoned wells have been plugged in a manner that will prevent the movement of fluids from the disposal zone into freshwater strata. Based on such review of public records, the applicant must then identify to the Railroad Commission any wells that appear to be unplugged or improperly plugged of which the applicant has actual knowledge of.

If a Rule 46 application is approved, the Railroad Commission then grants authority to inject by issuing a *Permit to Inject Fluid Into a Reservoir Productive of Oil and Gas*. The permit includes several well parameters and standard conditions. The well parameters include top and bottom depth intervals and a maximum surface injection pressure for liquid. The conditions specify that "should it be determined that such injection fluid is not confined to the approved interval, then the permission given herein is suspended and the fluid injection operation must be stopped until the fluid migration from such interval is eliminated."

Further, Statewide Rule 46 permits the Railroad Commission to modify, suspend, or terminate a permit for just cause and after notice and a hearing if: (1) any material change of conditions occurs in the operation or the injection well, or if there are material changes in the information originally furnished; (2) fresh water is likely to be polluted as a result of continued operation of the well; (3) there are substantial violations of the terms and provisions of the permit or of commission rules; (4) the applicant has misrepresented any material facts during the permit issuance process; (5) injection fluids are escaping from the permitted injection zone; or (6) waste of oil, gas, or geothermal resources is occurring or is likely to occur as a result of the permitted operations.

III. OWNERSHIP OF THE PORE SPACE AND MINERALS IN PLACE

In the context of an oil and gas lease, the mineral lessee owns a property interest—a determinable fee—in the oil and gas in place in the subsurface minerals. *Brown v. Humble Oil & Ref. Co.*, 83 S.W.2d 935, 940 (Tex. 1935). Generally, when the lessor executes an oil and gas lease, the lessor leases the right to develop to the lessee. *Lightning Oil Co. v. Anadarko E&P Onshore, LLC*, 520 S.W.3d 39, 49 (Tex. 2017). The right to develop is a property right often described as "the exclusive right to possess, use, and appropriate gas and oil." *Stephens Cty. v. Mid-Kan. Oil & Gas Co.*, 254 S.W. 290, 293 (Tex. 1923).

In contrast, the surface overlying a leased mineral estate is the surface owner's property, and those ownership rights include the geological structures beneath the surface. *Humble Oil & Ref. Co. v. West*, 508 S.W.3d 812, 815 (Tex. 1974). The surface owner owns all non-mineral molecules of the land, including the "mass that undergirds the surface estate." *Dunn-McCampbell Royalty Interest, Inc. v. Nat'l Park Serv.*, 630 F.3d 431, 442 (5th Cir. 2011).

Another nuance to ownership issues related to the movement of wastewater concerns the rule of capture. *See R.R. Comm'n of Tex. v. Manziel*, 361 S.W.2d 560 (Tex. 1962); *see also Coastal Oil & Gas Corp. v. Garza Energy Tr.*, 268 S.W.3d 1 (Tex. 2008). For example, in *Garza* the mineral owners of the tract at issue sued their lessee—an entity that leased ***both*** the mineral interests at issue and the mineral interests on an adjacent tract—for trespass based on the underground invasion of their reservoir by injected proppant used during hydraulic fracturing. 361 S.W.2d at 6–7. Because the mineral owners had leased the minerals to the lessee, the mineral owners only had a royalty interest and possibility of reverter—but did not possess the minerals. *Id.* at 9. Although the mineral owners had standing to sue for a form of trespass, the Texas Supreme Court held that because the mineral owners were not in possession of the mineral rights, they were not entitled to sue for trespass based on nominal damages and instead were required to prove actual injury. *Id.* Further, the Texas Supreme Court held that the rule of capture precluded damages for drainage by fracturing. *Id.* at 17.

However, *Garza* seems unlikely to preclude recovery for damage to the mineral rights for at least two reasons. First, the lessee has actual possession of the mineral rights and can likely demonstrate actual injury to the reservoir to the extent that waste has occurred. Second, because "injecting substances to aid in the extraction of minerals serves a different purpose than does injecting wastewater," the Texas Supreme Court has held that "the rule of capture is not applicable to wastewater injection." *FPL Farming Ltd. v. Envtl. Processing Sys., L.C.*, 351 S.W.3d 306, 314 (Tex. 2011).

IV. WASTE – JURISDICTION

Some defendants have contested the jurisdiction of Texas district courts to determine issues pertaining to liability and damages related to waste created by commercial disposal wells, arguing that exclusive or primary jurisdiction to resolve such issues belongs to the Texas Railroad Commission. Texas appellate courts have generally rejected such challenges. *See*, *e.g.*, *In re Discovery Operating, Inc.*, 216 S.W.3d 898 (Tex. App.—Eastland 2007, no pet.).

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