RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

PROPOSAL FOR DECISION

OIL AND GAS DOCKET NO. 7C-0293476

THE APPLICATION OF TEXAS SWD CO., INC., PURSUANT TO STATEWIDE RULE 46 FOR A COMMERCIAL PERMIT TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL OR GAS, HARRISON SWD LEASE, WELL NO. 1, MERTZON (CLEAR FORK, LOWER) FIELD, IRION COUNTY, TEXAS.

HEARD BY: Paul Dubois – Technical Examiner
Terry Johnson – Hearings Examiner

HEARING DATE: January 16, 2015

APPEARANCES:	**REPRESENTING:**
APPLICANT	
John Hicks John F. Miller, III, P.E. Donna Chandler, P.E. H. Wayne Smith	Texas SWD Co., Inc.
PROTESTANTS	
Mayor Carol Shaw	City of Mertzon
Clark Jobe Worth Thornton Kenneth Toudouze	Optimum Disposal, LLC
Walter McCullough, P.E.	Self
Stephen Shaw, P.G.	Firstview Resources, LLC
INTERESTED PARTY	
Scott Holland	Irion County Water Conservation District

PROCEDURAL HISTORY

Application Filed:	August 28, 2014
Protest Received:	September 10, 2014
Request for Hearing:	October 16, 2014
Notice of Hearing:	December 12, 2014
Date of Hearing:	January 16, 2015
Transcript Received:	January 30, 2015
Proposal For Decision Issued:	June 17, 2015

STATEMENT OF THE CASE

Pursuant to Statewide Rule 46 (16 Tex. Admin. Code §3.46), Texas SWD Co., Inc. (Texas SWD), (P-5 Operator No. 848183) seeks a commercial permit to inject fluid into a reservoir productive of oil or gas, Harrison SWD Lease, Well No. 1, in Irion County, Texas. The well will be located about four miles southwest of Mertzon, Texas, the Irion County seat. The proposed well will inject produced water and non-hazardous oil and gas waste into the Clear Fork and Sprayberry Formations. The well will be administratively assigned to the nearby Mertzon (Clear Fork, Lower) Field.

On its initial application, Texas SWD requested an injection interval of 2,000 feet to 5,000 feet. At the start of the hearing, Texas SWD amended the injection interval by lowering the top of the interval to 2,200 feet. During its rebuttal case, Texas SWD amended the injection interval by again lowering the top of the interval to 3,333 feet. The bottom of the injection interval remained at 5,000 feet. Well completion details (casing, cement, and tubing) and maximum surface operating pressure were amended correspondingly to the revised top of the injection interval. These changes were formalized by receipt of late filed Exhibit No. 3A, a revised Form W-14, received on January 21, 2015, at the Examiners' request.

Applicable Law

The Railroad Commission may grant a permit under Chapter 27 of the Texas Water Code, Subchapter D[1] in whole or part and may issue a commercial permit to dispose of fluids by underground injection if it finds:

1. The use or installation of the injection well is in the public interest;

2. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation;

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[1] Tex. Water Code § 27.051(b)(1-4).

3. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution; and

4. The applicant has made a satisfactory showing of financial responsibility if required by Section 27.073.

The Examiners conclude Texas SWD has met its burden of proof and recommend the permit be granted.

Notice

Rule 46 requires notice be given to affected persons who include the owner of record of the surface tract on which the well is located, each commission-designated operator of any well located within one half mile of the proposed injection well, the county clerk of the county in which the well is located, and the city clerk or other appropriate city official of any city where the well is located within the corporate limits of the city. In addition, for a commercial disposal well application, Rule 46 requires notice be given to owners of record of each surface tract that adjoins the proposed injection tract (but the rule does not identify these to be affected persons).[2]

Notice of the application was published on August 22, 2014, in the *San Angelo Standard-Times*, a newspaper of general circulation in Irion County. On August 28, 2014, notice was sent to surface owners of the injection well tract, adjacent surface owners, and the Irion County Clerk in Mertzon; there are no offset operators of wells within the one-half mile area of review. The well is not located with the limits of a city.

The amended wellbore construction and operation details are within the scope and content of the elements noticed for the original application; additional notice is not required.

Standing to Protest

A Rule 46 application may be approved administratively if there is no protest from an affected person. The pending application would have been approved, and the permit issued, but for protests filed by the City of Mertzon, Walter McCulloch, Stephen Shaw and Optimum Disposal, LLC (Optimum). Scott Holland, representing the Irion County Ground Water Conservation District, was present at the hearing in support of Mr. McCulloch's protest. At hearing, the applicant challenged their standing to protest, asserting that none met the affected-person threshold. At the outset of the hearing it was not clear which, if any, of the parties had standing as affected persons. As such, the Examiners deferred ruling on the issue and conducted a hearing on the merits of the application.

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[2] 16 Tex. Admin. Code 3.46(c)(1) and (2)

After consideration of the record and arguments of the parties, the Examiners conclude that the record evidence is sufficient to find that the City of Mertzon, Walter McCulloch and Stephen Shaw are affected persons under Rule 46. However, the Examiners conclude that the record evidence is insufficient to find that Optimum Disposal, LLC is an affected person under Rule 46.

Rule 46 provides two descriptions of an affected person. First, in terms of notice and opportunity for hearing, the rule states:

> *"The applicant shall give notice... to affected persons who include the owner of record of the surface tract on which the well is located; each commission-designated operator of any well located within one half mile of the proposed injection well; the county clerk of the county in which the well is located; and the city clerk or other appropriate city official of any city where the well is located within the corporate limits of the city."*[3]

Second, with regard to protested applications, the rule states:

> *"...'affected person' means a person who has suffered or will suffer actual injury or economic damage other than as a member of the general public or as a competitor, and includes surface owners of property on which the well is located and commission-designated operators of wells located within one-half mile of the proposed disposal well."*[4]

After consideration of the plain language of Rule 46, the examiners conclude that, with the exception of the surface owner of the injection well tract and operators of wells located within a one-half mile radius, an entity or individual entitled to direct notice of an application is not necessarily an "affected person" under the rule. To the contrary, an "affected person" determination must be supported by proof that the proposed operations may cause actual injury or economic damage to a potential protestant that is distinguishable from any claim of harm that may lie with the public at large. [5] Moreover,

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[3] 16 Tex. Admin. Code 3.46(c)(1)

[4] 16 Tex. Admin. Code 3.46(c)(5)(B)

[5] See November 13, 2014 Railroad Commission of Texas Open Conference video clip for Items 3 and 4 at http://www.texasadmin.com/agenda.php?confid=RRC_OC111314&dir=txrail; O&G 04-0286726: Application of Surface Equities Environmental, L.L.C., pursuant to 16 TAC §3.8for; O&G 04-0286186: Application of Sable Environmental II, L.L.C., pursuant to 16 TAC §3.8. Commissioners discussed distinction between person's right to notice under Statewide Rules and right to affected party status.

where the applicant would be a competitor, the proof must show that the harm is not related to commercial rivalry.

Walter McCulloch owns mineral interests in the general area including mineral interests under acreage that adjoins the subject tract. Similarly, Stephen Shaw owns mineral interests in the general area including mineral interests under acreage that adjoins the subject tract. The City of Mertzon relies on groundwater as its sole source of supply. The City of Mertzon is located about four miles to the northeast, and the City's water wells are located about two miles to the northeast of the proposed disposal well. The Examiners conclude Mr. McColloch, Mr. Shaw, and the City of Mertzon are affected persons under Rule 46.[6]

Optimum Disposal, LLC (Optimum) is a commercial disposal operation in Irion County with a permitted injection interval of 8,500 feet to 10,000. The Examiners hold that for purposes of Rule 46, Optimum is a competitor of the Applicant. At hearing on the merits, the Applicant challenged Optimum's protestant status, asking its principal about the harm Optimum would suffer if the pending application is granted. His answer is the only record proof on that issue.

> Q (by Mr. Hicks): Mr. Toudouze, what is your interest, and how would you be injured by this application?
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> A: I came for two reasons. One, to discuss the demand [. . .]. And the second issue is, given that I have a disposal well in the immediate proximity, that it–my harm would be that if there was any pollution created by a shallow well, it could be harmed and be shut down until the Commission could figure out, you know, who's at fault. That would injure me because, you know–if we get an opportunity to discuss it, my well is the pristine wellbore in Irion County, and I think your experts will agree with me.

In other words, Optimum status as a protestant is based on the claim that its well might be shut in due to an investigation that might result arise from a spill caused by the applicant. In the Examiners' opinion, Rule 46 sets a higher threshold of proof than this. The possibility of the harm seen by Optimum is too remote to be persuasive, requiring the convergence of multiple contingencies. First, that there is a spill. Next, that the nature of the spill implicates Optimum. Third, that Commission requires Optimum's well to be shut in while the spill is investigated. In the Examiners' opinion, this is insufficient evidence to

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6 See April 28, 2015 Railroad Commission of Texas Open Conference video clip for Item 10 at http://www.texasadmin.com/agenda.php?confid=RRC_OC042815&dir=txrail; O&G 08-0294458: Application of High Roller Wells, LLC pursuant to 16 TAC §3.9. Commissioners found operator with adjacent non-producing leasehold and producing wells approximately 2.5 miles from proposed disposal site that included injection zone was "affected person."

support a finding that Optimum is an affected person under Rule 46. Nevertheless, Optimum's statements at the hearing are summarized as public comments following discussion of the evidence offered by parties in this case.

DISCUSSION OF EVIDENCE

Texas SWD's Evidence

Texas SWD's Harrison SWD Lease, Well No. 1 is proposed to be a newly drilled commercial disposal well located on a 4.65 acre tract on the north side of U.S. Highway 67 about 4 miles southwest of the City of Mertzon, Texas. Texas SWD proposes–through its initial application and amendments made during the hearing–to construct the proposed disposal well and to operate it as follows:

- Drilled to a depth of 5,000 feet;
- Set surface casing (13 3/8 inch) to a depth of 500 feet, with cement circulated to the surface;
- Set production casing (8 5/8 inch) to a depth of 3,333 feet, with cement circulated to the surface;
- Set injection tubing (3 ½ inch) with a packer at a depth of 3,233 feet;
- Inject salt water and Resource Conservation and Recovery Act (RCRA)-exempt non-hazardous oil and gas waste into the Clear Fork and Spraberry Formations in the depth interval from 3,333 feet to 5,000 feet;
- Surface injection pressure will not exceed 1,666 pounds per square inch (psi);
- Daily injection rate will not exceed 25,000 barrels per day (BPD), and the average daily injection rate will be 15,000 BPD; and
- Surface facilities will comply with standard permit conditions for commercial disposal well facilities, including secondary containment.

The Commission's Groundwater Advisory Unit (GAU) determined the base of usable quality groundwater (BUQW) to be at a depth of 375 feet, and the base of underground sources of drinking water (USDW) to be at a depth of 800 feet. The GAU indicates the BUQW to be equivalent to the base of the Santa Rosa Formation. The GAU requests Texas SWD provide an electric log of the well.

A cross-section of three well logs was provided by Texas SWD.[7] The wells are located approximately 6,000 feet to the northwest, 3,000 feet northwest, and 5,000 feet to the southeast. The gamma ray and resistivity well logs are consistent in that all three indicate a thick continuous shale interval in the upper Clear Fork Formation in the depth interval from 2,300 feet to 3,300 feet.

The closest historical production from the Clear Fork Formation is about 6,000 feet west-northwest of the proposed well. The Mertzon (Clearfork, Lower) Field carried two oil wells, both of which are now plugged and abandoned. The wells produced from a thin porosity development in the upper Clear Fork Formation at a depth of about 2,850 feet. The producing interval was not continuous across the other two logs of the cross-section. Three dry holes define the field boundary to be more than a mile west of the proposed disposal well location.

There are no wellbores within a one-quarter mile area of review around the proposed well location. Two wellbores have been identified on Commission records between one-quarter and one-half mile of the proposed well location. The Farrington Lease Well No. 1-A (API No. 42-235-32014) was completed in the Sixty-Seven (Canyon) Field and was drilled in 1982 and was plugged and abandoned in 1996. This well is about 1,750 feet northwest of the proposed well location. The Canyon Formation was encountered at this location at a depth of about 6,600 feet. The Lindley Lease Well No. 1 (API No. 42-235-00502) is a dry hole located about 2,150 feet northeast of the proposed well location. The Lindley Lease No. 1 was drilled in about 1930 to a depth of 3,283 feet. No other information on the wellbore status was provided.

In addition, Texas SWD identified three wells from non-Commission records. These wellbores–indicated as two dry holes and one producing well–were located about one-half mile east of the proposed location (API Nos. 42-235-00517, 42-235-00518, and 42-235-00137). Texas SWD was not able to identify any additional information on these wellbores.

Irion County is in the southeastern portion of the Midland Basin. Several oil and gas developments are active in the area. In the immediate area of the proposed well is historical development of the Canyon Formation at depths of greater than 6,000 feet and the San Angelo Formation at depths of less than about 2,000 feet. About five miles west of the proposed location is the very active frontier of horizontal development of the Wolfcamp Formation, primarily the Lin (Wolfcamp) Field. Beyond that to the west is the Spraberry (Trend Area) Field and development of the Clear Fork, Spraberry, and Wolfcamp Formations. Development to the east is less dense, although Canyon Formation fields extend for about 10 miles, to the Eastern Shelf of the Permian Basin. Further development to the east is sporadic.

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[7] Texas SWD Exhibit No. 10.

Texas SWD asserts that the proposed disposal well is necessary to meet the current and future oil and gas waste disposal needs of the industry in the area. Within a 20 mile radius an average of 350 drilling permits were issued in each of the last four years. Most of these permits, by far, are located on the western half of a 20-mile radius circle drawn around the proposed well and represent the active Clear Fork, Spraberry, and Wolfcamp development. Development of the Wolfcamp Formation with horizontal wells is progressing from west to east, toward the proposed well and the City of Mertzon. Hydraulic fracturing of horizontal wells typically requires from 100,000 to 500,000 barrels of water, much of which flows back after stimulation and requires disposal. There are 1,468 wells within a 20 mile radius of the proposed disposal well. Producing wells can produce from 1 to 5,000 barrels of water per day, with the newest horizontal wells producing the most. Based on the current oil proration schedule, Texas SWD estimates that wells within a 20-mile radius of the proposed well produce 267,199 barrels of water per day.

Within a 20-mile radius of the proposed well there are 10 active commercial disposal wells, and additional 12 wells have been permitted but have not been drilled or are not yet active. Texas SWD provided letters from four waste haulers expressing support for the proposed well.[8] The letters of support indicated long wait times and the need for additional disposal wells in the area.

Texas SWD is an operator in Texas and has an active Form P-5. Texas SWD has filed a $25,000 letter of credit as financial assurance.

Protestants' Evidence

Walter McCullough, P.E., is a mineral interest owner on an adjoining tract to the proposed disposal well tract. Mr. McCullough is concerned about shallow wells (less than 1,700 feet deep) in the nearby Irion Field on the Gonzales County School Lands east and southeast of the proposed Texas SWD location. Many of these wells were drilled in the 1930s and abandoned in the 1950s. The nearest was more than one mile southwest of the proposed Texas SWD location. Mr. McCullough stated that he has observed old wells in the area that have no visible evidence of ever having been plugged. He did not provide evidence of specific wells or locations with respect to the proposed Texas SWD well location.

Stephen Shaw, P.G., of Firstview Resources, LLC, is a mineral interest owner on an adjoining tract to the proposed disposal well tract. Mr. Shaw is concerned that the disposal well may harm the shallow fresh water aquifer, which also drains to Spring Creek. The source spring for Spring Creek is about 3 miles northeast of the proposed disposal well location; the proposed well is located adjacent to the upper reaches of the Spring Creek draw. The shallow groundwater flow direction is generally from the well location to

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[8] Texas SWD Exhibit No. 23.

the spring. Source springs for Spring Creek drain from the Cretaceous Edwards-Trinity (limestone) Aquifer, which, in the subject area, is in hydraulic communication with the Cretaceous Santa Rosa Formation. Spring Creek has exhibited historical flows at an average rate of 8.12 cubic feet per second, which is equivalent to 5.2 million gallons per day. Spring Creek flows north by Mertzon and ultimately comprises a portion of the water supply for the City of San Angelo.

There are many old wellbores in the vicinity of the proposed well, especially between the proposed location and Spring Creek. Mr. Shaw asserts these historical wellbores present a significant risk of contamination of the shallow groundwater, with only about 500 feet of thinning evaporite beds providing vertical containment.

Mr. Shaw interpreted the surface topography to be indicative of deep-seated fracture and fault patterns that extend through the sedimentary deposits into the basement. These fractures, according to Mr. Shaw, may create natural conduits for the vertical migration of injected fluids into shallow fresh-water bearing zones.

Mr. Shaw requests that, if the permit is granted, that the Commission adopt a permit condition requiring Texas SWD to find, re-enter, and plug the the Lindley Lease Well No. 1 (API No. 42-235-00502), the dry hole located about 2,150 feet northeast of the proposed well location. The Lindley Lease No. 1 was drilled in about 1930 to a depth of 3,283 feet. No other information on the wellbore status was provided by Mr. Shaw or by Texas SWD.

Mr. Shaw further noted that in about 1982 a protested injection well application was denied by the Commission because of a shallow injection interval of about 2,000 feet. Mr. Shaw indicated the 1982 application was for a well located about 1 to 2 miles northeast of the proposed Texas SWD well. Mr. Shaw did not provide a docket number for this case.

Finally, Mr. Shaw testified that injecting waste fluids into the Clear Fork and Spraberry Formation may harm his economic interests from potential future production in these zones, particularly the Spraberry Formation. Mr. Shaw does not believe the proposed disposal interval is capable of accepting the requested 25,000 BWPD, and that a deeper interval would be preferable.

The **City of Mertzon**, represented by Mayor Carol Shaw, protests the subject Texas SWD well because it may pose a threat to the City's groundwater supplies. The City's sole source of municipal water supply are the Cretaceous-age aquifers in the area. Mayor Shaw entered into the record a resolution of the Mertzon City Council opposing the disposal well. Mayor Shaw stated that while the City of Mertzon is located about four miles to the northeast, the City owns and operates water supply wells located about 2 miles northeast of the proposed disposal well.

Public Comments

Optimum Disposal LLC is an operator of a commercial disposal well located on U.S. Highway 67 about one mile east of the proposed Texas SWD well. Optimum opposes Texas SWD's proposed well for three reasons: (1) there is no need for additional disposal well capacity in the area; (2) Optimum may experience actual injury in the event operation of the Texas SWD causes contamination of fresh water; and (3) Optimum believes its own disposal well design and construction to be superior to that of Texas SWD.

Optimum disputes the need for additional disposal capacity. Optimum's Kenneth Toudouze testified that many operators in the area utilize non-commercial disposal options, which were not represented on Texas SWD's Exhibit No. 19. Though, Optimum did not attempt to quantify the amount of non-commercial disposal capacity. Further, Optimum stated that its own well was operating at about 50 percent capacity due to the current need, and it would be able to increase capacity within its current permit if the need were present.

Optimum is concerned that, in the event the Texas SWD well causes pollution of fresh groundwater, the Commission may shut-in all disposal wells in the area, including its own, until investigation and/or remedial actions were conducted. This scenario, according to Optimum, would cause it actual economic injury.

The Optimum well injects fluids into the deepest sediments in the area–the Cambrian sands that overlie the basement granite–in the depth interval from 8,376 to 8,860 feet. Optimum's permit (No. 14298, Final Order 7C-0283759, dated November 12, 2013) authorizes disposal into the Cambrian Formation from 8,500 feet to 10,000 feet. Optimum's well is completed with three casing strings, each cemented to the surface, and chrome injection tubing to reduce corrosion, exceeding Commission requirements. Optimum's Kenneth Toudouze stated its well was the "pristine" disposal well in the area.[9]

The **Irion County Groundwater Conservation District**, represented by Scott Holland, was present at the hearing in support of Mr. McCullough's protest. Mr. Holland stated that on its request, Texas SWD agreed to extend its original surface casing design to a depth of 500 feet to protect the shallow groundwater.

EXAMINERS' OPINION

In its rebuttal case, Texas SWD amended the top of its disposal interval from 2,200 feet to 3,333 feet. The Examiners find this amendment to be a proper safeguard for the adequate protection of ground and surface fresh water from pollution and effectively addresses the ground-water related issues raised by the Protestants. Further, the Examiners conclude that Texas SWD has met its burden of proof with regard to the

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[9] Tr. pg. 122, ln. 12.

requirements of Statewide Rule 46 and Texas Water Code §29.051. The Examiners recommend Texas SWD's application be granted and a permit issued for its Harrison SWD Lease Well No. 1. The specific requirements of Texas Water Code §29.051 are discussed below.

Public Interest

Under the provisions of the Texas Water Code, the Commission cannot approve an injection well unless it finds, "that the use or installation of the injection well is in the public interest." Texas Water Code § 27.051(b)(1). This is a separate, and independent, prerequisite from the required findings that the injection well will not endanger or injure oil or gas formations, that both ground and surface fresh water will be adequately protected, and that the Applicant has shown financial responsibility.

The production of hydrocarbons is in the public interest, and salt water and other wastes are generated as a result of hydrocarbon production. Therefore, the safe and efficient disposal of produced salt water and oil field waste is in the public interest. For a particular disposal well in a contested case, however, the public interest has traditionally been established through evidence that there is a particular need for a particular well in a particular location and at a particular time. Texas SWD has demonstrated this public interest need by: (1) demonstrating the drilling permit activity in the region and its progression towards the subject SWD; (2) demonstrating the associated water production rates from exploration and production activities in the area; and (3) providing statements from licensed waste haulers detailing the need for additional SWD capacity in the area.

Protestant Optimum is a competitor to Texas SWD. Mr. Toudouze testified that his business recently experienced a decline in activity due to the recent completion of a commercial disposal well in Barnhart, about 20 miles to the west. A decline in business activity may be unfortunate for an individual operator, but it does not demonstrate that additional capacity is not needed or beneficial for the industry as a whole . To the contrary, Texas SWD provided uncontested statements from four waste haulers in the area expressing a need for additional commercial disposal capacity.

Further, Mr. Toudouze's statements that Optimum's disposal facility is "pristine" represent a commendable concern for facility integrity–one which the Commission recognized by issuing it a permit (Oil & Gas Docket No. 7C-0283759, dated November 12, 2013. However, the Commission has not been in the practice of issuing commercial disposal well permits based on competitive technical design. With regard to the Harrison SWD Lease Well No. 1, the Examiners find Texas SWD has demonstrated that its proposed well is, also, in the public interest.

Likewise, Optimum's design choice to dispose of fluids into the deeper Cambrian sands over the shallower Clear Fork and Spraberry Formation represents its own

preference and not a policy preference that the Commission has adopted or that industry has expressly favored.

Finally, Optimum argues that it may be harmed if groundwater contamination were to occur as a result of the Texas SWD well, and Optimum were forced to suspend disposal activities. The Examiners find this argument is speculative and carries no weight. Additionally, Texas SWD carries the same risk of harm were Optimum's activities to result in groundwater contamination. This is solidly a competitor's argument, and therefore does not carry any weight.

Injury to Any Oil, Gas, or Other Mineral Formation

The evidence in the record demonstrates no oil, gas or other mineral formations will be harmed by the proposed disposal well. There are no active wells within one-half miles of the proposed disposal well. Therefore, there were no offset operators entitled to notice of the application. The nearest historical production from the Clear Fork Formation is about one mile west of the proposed well. Two wells completed in the Mertzon (Clear Fork, Lower) Field are both now plugged and abandoned. The two wells produced from a very thin porosity development in the upper Clear Fork Formation at a depth of about 2,850 feet. The producing interval was not continuous across the other two logs of the cross-section. Three dry holes define the field boundary to be more than a mile west of the proposed disposal well location. There are no active or historical wells in the Spraberry Formation within a two-mile radius of the proposed well. The nearest active production is from Canyon Formation, about 1,500 feet below the base of the proposed disposal interval.

Protestants McCullough and Shaw, as mineral interest owners of adjacent tracts, expressed concern that injection into the Clear Fork and Spraberry Formations may harm their ability to recover hydrocarbon reserves in the future, especially from the Spraberry Formation. However, there is no production from the Spraberry Formation within five miles of the proposed well. Below the Spraberry, the nearest Wolfcamp Formation horizontal development is five miles to the west. The Protestants provided no evidence that their mineral interests contain any recoverable hydrocarbons in these formations. The Protestants' argument requires the Examiners to rely on supposition and speculation of the potential for unspecified future harm, and therefore carries no weight.

Adequate Protection of Ground and Surface Fresh Water

The evidence in the record demonstrates the proposed commercial disposal well contains proper safeguards for the adequate protection of ground and surface freshwater from pollution. The well will include two casing strings, both cemented to the surface, that will isolate the BUQW at a depth of 375 feet. Further, at the hearing Texas SWD lowered the top of the injection interval to a depth of 3,333 feet. The amended interval into the middle of the Clear Fork Formation results in the disposal interval being directly overlain

by about 1,000 feet of shale, according to the gamma ray logs of three nearby wells. The Examiners conclude ground and surface freshwater will be protected from pollution.

Texas SWD demonstrated that no wellbores penetrated the disposal interval within a one-quarter mile area of review. The Lindley Lease Well No. 1 (API No. 42-235-00502) is a dry hole located about 2,150 feet northeast of the proposed well location and was drilled in about 1930 to a depth of 3,283 feet. No other information on the wellbore status was provided. Texas SWD's decision to lower the top of the injection interval places 50 feet of shale between the bottom of the Lindley dry hole and the top of the disposal interval. The application was protested by three parties (Optimum, Mr. McCullough, and Mr. Shaw, a disposal well operator, a professional engineer, and a professional geoscientist, respectively) who, presumably, are capable of presenting a competent technical argument based on an injection pressure front and the potential for an adverse impact of injection activities through the Lindley dry hole. These parties failed to do so. The Applicant, on the other hand, is not required to present this evidence, and as an extra measure of caution reduced the top of its injection interval to 50 feet below the bottom hole depth of the nearby Lindley well, 2,150 feet to the northeast.

Mr. Shaw testified that groundwater flow in the Cretaceous aquifers–the Edwards -Trinity and the Sant Rosa Formation–is to the east, from the location of the proposed well towards its outfall in the source spring of Spring Creek. Mr. Shaw argues that Spring Creek is a sensitive resource that must be protected, and the Examiners agree. However, the Examiners find that the proposed disposal well will be constructed and operated in compliance with Rule 46 and the Texas Water Code, and that such compliance will be protective of the Spring Creek resource.

Mr. Shaw interpreted subsurface fractures and faults based on their surface topographic expression. This is a reasonable means to begin to identify subsurface structure. However, in and of itself it is not sufficient to posit the location or connective hydraulic characteristics of subsurface structure, and therefore carries little weight as evidence. Finally, Mr. Shaw identified a number of old well locations in the Irion Field–most of which are shallower than 2,000 feet deep–as potential conduits for migration that might harm Spring Creek. The Examiners note that the shale in the upper Clear Fork Formation will prevent the upward migration of fluids from the disposal interval.

Financial Responsibility

Texas SWD has made a satisfactory showing of financial responsibility as required by the Texas Water Code §27.073. Railroad Commission records indicate Texas SWD has an active Organization Report (Form P-5) on file, and Texas SWD has filed a letter of credit on file in the amount of $25,000.

FINDINGS OF FACT

1. Notice of this hearing was given to all parties entitled to notice at least ten days prior to the date of hearing.

2. Notice of the application was published on August 22, 2014, in the *San Angelo Standard-Times*, a newspaper of general circulation in Irion County. On August 28, 2014, notice was sent to surface owners of the injection well tract, adjacent surface owners, and the Irion County Clerk in Mertzon; there are no offset operators of wells within the one-half mile area of review.

3. The amended wellbore construction and operation details requested by Texas SWD at the hearing are within the scope and content of the elements noticed for the original application; additional notice is not required.

4. The following Protestants have standing as affected persons: Walter McCullough, Stephen Shaw, and the City of Mertzon.

5. There is insufficient evidence to support a finding that Optimum Disposal, LLC is an affected person under Statewide Rule 46.

6. Texas SWD's Harrison SWD Lease, Well No. 1 is proposed to be a newly drilled commercial disposal well located on a 4.65 acre tract on the north side of U.S. Highway 67 about 4 miles southwest of the City of Mertzon, Texas.

7. The Harrison SWD Well No. 1 will be built in accordance with the requirements of Statewide Rule 46 and the Texas Water Code, including:

   a. Set surface casing (13 3/8 inch) to a depth of 500 feet, with cement circulated to the surface;

   b. Set production casing (8 5/8 inch) to a depth of 3,333 feet, with cement circulated to the surface;

   c. Set injection tubing (3 ½ inch) with a packer at a depth of 3,233 feet;

   d. Surface injection pressure will not exceed 1666 pounds per square inch (psi);

8. The base of usable quality groundwater (BUQW) at a depth of 375 feet will be protected by surface casing set to 500 feet and cemented to the surface.

a. The BUQW corresponds to the base of the Santa Rosa Formation, which is in hydraulic communication with the overlying Edwards-Trinity Aquifer, all of which are of Cretaceous-age.

b. The Cretaceous-age aquifers supply the source spring for Spring Creek, three miles east of the proposed disposal well.

9. The injection interval from 3,333 feet to 5,000 feet will be into the Clear Fork and Spraberry Formations.

10. The injection interval is directly overlain by 1,000 feet of shale, isolating the Permian-aged disposal interval from the Cretaceous-aged aquifers.

11. No wellbores penetrate the disposal interval within a one-quarter mile area of review, and no wellbores penetrate the disposal interval within one-half mile of the proposed disposal well.

12. The nearest historical hydrocarbon production from an interval correlative to the disposal interval is from the Mertzon (Clear Fork, Lower) Field, one mile west of the proposed disposal well.

a. Two wells were completed in the Mertzon (Clear Fork, Lower) Field, and both have been plugged and abandoned.

b. The boundaries of the Mertzon (Clear Fork, Lower) Field are delineated by dry holes between the two historical field wells and the proposed disposal well.

13. Texas SWD has made a satisfactory showing of financial responsibility as required by the Texas Water Code §27.073. Railroad Commission records indicate Texas SWD has an active Organization Report (Form P-5) on file, and Texas SWD has filed a letter of credit on file in the amount of $25,000.

CONCLUSIONS OF LAW

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. Tex. Nat. Res. Code § 81.051

2. All notice requirements have been satisfied. 16 Tex. Admin. Code § 3.46(c)

3. The use or installation of the injection well is in the public interest. Texas Water Code 27.051(a)

4. The use or installation of the injection well will not endanger or injure any oil, gas, or other mineral formation. Texas Water Code 27.051(b)

5. With proper safeguards, both ground and surface fresh water can be adequately protected from pollution. Texas Water Code 27.051(c)

6. The applicant has made a satisfactory showing of financial responsibility if required by Section 27.073. Texas Water Code 27.051(d)

7. Texas SWD has met its burden of proof under Statewide Rule 46 and Chapter 27 of the Texas Water Code.

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend that Texas SWD's application for a commercial disposal well into a porous formation productive of hydrocarbons for its Harrison SWD Lease Well No. 1, be granted.

Respectfully submitted,

Paul Dubois
Technical Examiner

Terry Johnson
Hearings Examiner