



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 06-0282997

**THE APPLICATION OF CHEVRON U. S. A. INC. FOR DISPOSAL AUTHORITY
PURSUANT TO STATEWIDE RULE 46 FOR THE KATE MCMILLAN SWD LEASE,
WELL NO. 1, CARTHAGE (PETTIT, LOWER) FIELD, PANOLA COUNTY, TEXAS**

HEARD BY: Richard D. Atkins, P.E. - Technical Examiner
Michael Crnich - Legal Examiner

APPEARANCES:

REPRESENTING:

APPLICANT:

Brian R. Sullivan
William Hayenga
Eric Grossman
Larry Stone
Claire Ross
Chuck Treska
Daniel D. Kennedy
Mike Milliorn

Chevron U. S. A. Inc.

PROTESTANTS:

Keith Coleman

Himself

Jesse Landreneau

Himself

Larry D. McMillan

Himself and Dennis McMillan

Bobby Langford

Himself

OBSERVERS:

John Buxie

State Representative Chris D. Paddie

Pattie Landreneau

Herself

PROCEDURAL HISTORY

Application Filed:	March 4, 2013
Protest Received:	December 21, 2012
Request for Hearing:	May 28, 2013
Notice of Hearing:	June 28, 2013
Hearing Held:	August 28 & September 11, 2013
Transcript Received:	September 13, 2013
Proposal for Decision Issued:	October 2, 2013

EXAMINERS' REPORT AND PROPOSAL FOR DECISION**STATEMENT OF THE CASE**

Chevron U. S. A. Inc. ("Chevron") requests disposal authority pursuant to Statewide Rule 46 for the Kate McMillan SWD Lease, Well No. 1, Carthage (Pettit, Lower) Field, Panola County, Texas.

Notice of the subject application was published in *The Panola Watchman*, a newspaper of general circulation in Panola County, on February 13, 2013. Notice of the application was sent to the Panola County Clerk, offset operators within 1/2 mile, the surface owners of the disposal tract and of each tract which adjoins the disposal tract on February 14, 2013.

The application was determined to be administratively complete by Commission staff, but the application is protested by surface owners adjacent and nearby to the tract on which the proposed disposal well is located.

DISCUSSION OF THE EVIDENCE**Applicant's Evidence**

The proposed Kate McMillan SWD Lease, Well No. 1, and disposal facility are located on a 96 acre tract that is adjacent to, and west of, the intersection of State Highway 461 and 462. The tract is owned by Chevron and is situated in a rural area approximately 14 miles southeast of the town of Carthage, Texas. Chevron plans to drill a new disposal well down to 6,500 feet. The well will have 13 3/8" surface casing set at 2,000 feet that will be cemented to the surface with 220 sacks of cement and 9 5/8" intermediate casing set at 5,200 feet that will be cemented to the surface with 900 sacks of cement. Chevron proposes to run a 7" liner from 4,900 feet down to 6,500 feet that will be cemented from total depth up to the top of the liner with 300 sacks of cement. The well will be equipped with 3 1/2" tubing and packer set at 5,750 feet (See attached Chevron Exhibit No. 16 - Wellbore Diagram).

The Commission Groundwater Advisory Unit ("GAU") recommends that usable-quality groundwater be protected down to a depth of 475 feet below the land surface. The base of the underground source of drinking water ("USDW") in this area occurs at a depth of 575 feet. There is one plugged well located within the 1/4 mile radius of review and two producing gas wells located within the 1/2 mile radius of review. All three wells are cased and cemented to protect usable-quality groundwater and the plugged well has been properly plugged and abandoned.

The proposed disposal interval is the productive Upper and Lower Pettit formations between 5,800 feet and 6,300 feet. There are two impermeable shales and an anhydrite layer which are over 600 feet thick above the injection zones, which will serve to prevent the migration of injected fluids out of the Upper and Lower Pettit formations. Chevron requests authority to dispose of a maximum of 10,000 barrels of saltwater and RCRA¹ exempt waste per day with a maximum surface injection pressure of 2,900 psig.

Chevron submitted a pressure test that showed that the disposal interval will take produced saltwater on a vacuum. Chevron compared the Pettit formation to the modern day Bahama Island area, which has similar geologic characteristics, specifically that the formations are permeable. The Pettit formation has produced since the early 1950s and the reduction in pressure in the formation indicates that it is depleted. Chevron opined that the Upper and Lower Pettit formations were ideal formations that are suitable for disposal.

The produced saltwater will come from Chevron's current and future development in the area and the majority of the saltwater will arrive at the facility via pipeline. Chevron stated that the current disposal options in the area have been unreliable, as disposal is into the Rodessa and Goodland Lime formations, which have become over-pressured. The current disposal capacity in the area is approximately 6,000 barrels of saltwater per day. Based on drilling between 6 and 10 development wells per year, Chevron forecasted a need for a disposal capacity of 12,000 to 18,000 barrels of saltwater per day.

Chevron proposes that the disposal permit be granted to prevent waste due to the lack of disposal wells in the area, which is hindering development on its leases. Chevron contends that the use of the proposed disposal well will reduce truck traffic, travel time and miles traveled, resulting in reduced costs. The reduced disposal costs will lower the economic limit of the producing wells and, thereby, ultimately increase total production.

The Facility

The area surrounding the proposed injection facility is rural ranching and farming land. Access to the disposal facility will be at the intersection of State Highway 461 and 462 which are paved two lane public highways. The surface facility will be on a 96 acre tract owned by Chevron. The surface facility will comply with all permit conditions

¹ Resource Conservation and Recovery Act: Examples of RCRA exempt oil and gas waste includes produced water, drilling fluids, frac flowback fluids, rigwash and workover wastes.

requested by the Commission staff. Chevron plans to deliver the produced saltwater via pipelines and, unless there is a disruption in the pipeline system, Chevron expects to operate only two trucks daily to remove oil at the proposed facility. The facility will have a circular driveway and will be of sufficient size to allow trucks access without having to wait on the highway.

Chevron submits that it has the expertise to build and manage the proposed facility. Chevron has a current approved Form P-5 (Organization Report), a posted \$250,000 financial assurance bond and no pending Commission enforcement actions.

Protestants' Evidence

The protestants are surface owners adjacent and nearby to the proposed disposal tract. In addition, many letters were received from other protestants who expressed concerns with the proposed disposal well. All of the protestants believe that the application for the proposed disposal facility should be denied, because of the long term impact the disposal well will have in the area.

Mr. Coleman protested the application because ultimately he was concerned with the possibility of an industrial accident close to his property. Mr. Coleman, relying on his experience in accident prevention and causation, engaged in a human factors analysis. He defined a human system as an entity that requires multiple levels of organization or hierarchy, which would include Chevron. The Swiss cheese model of human factors analysis analyzes the human system's organizational policy and procedures including the leadership philosophy and actions at different levels. The model includes pre-existing conditions and a review of historical data in order to identify what could be unsafe acts or conditions.

Mr. Coleman believed that each of the model's levels represented layers of protection that exist to protect people, investments of time, wealth and resources. Each of the layers, like Swiss cheese, have holes in them and when the holes line up, a failure of the system occurs. However, if the factors are analyzed in detail, patterns become evident and the levels of protection can be improved or reorganized, blocking the holes in order to mitigate loss of assets, man hours or personnel.

It was Mr. Coleman's contention that, even with the limited access that he had to some of the systems, he found distinct hazards that needed to be addressed to prevent a risk to people, property and the environment. He believed that leadership failures at Chevron were responsible for certain publicized industrial accidents. He also argued that the Carthage area has seen an inordinate amount of property damage from the oil and gas industry and that Panola County has witnessed a relatively high number of accidents such as well blowouts.

Mr. Landraneau was concerned with the environmental impact that a surface spill would have. He believes that because the Panola County aquifer providing drinking water is unconfined, the aquifer is more susceptible to groundwater contamination from a surface spill. Further, he did not believe that there exists enough oversight and inspection to detect preemptively a problem with an injection well.

The protestants' evidence fell into several general categories: 1) potential of pollution to groundwater and surface waters, since a spill will flow down toward wetlands; 2) noise, dust and odor nuisances which would result from the operation of the facility; 3) increased trash and crime in the area; 4) health effects on persons with breathing problems; and 5) increased heavy truck traffic on State Highways 461 and 462, causing road deterioration and public safety issues. Collectively, the testimony and statements in opposition to the facility assert that the proposed commercial disposal facility will have adverse effects on traffic safety, property values and the quality of life in and around the area.

EXAMINERS' OPINION

The examiners recommend that the application for disposal authority be approved. Chevron has established:

1. The freshwater resources (surface and sub-surface) will be adequately protected from pollution;
2. The proposed injection well will not endanger or injure any oil, gas, or mineral formations;
3. The proposed injection is in the public interest; and
4. The applicant has made a satisfactory showing of financial responsibility, as required under State statutes and Commission regulatory requirements.

The well will be completed in a manner which will protect usable-quality groundwater resources and injected fluids will be confined to the injection interval. The proposed disposal well will have cement behind the production casing to the surface and there is over 600 feet of an impervious shale an anhydrite above the proposed disposal interval, which will serve to prevent the migration of injected fluids out of the Upper and Lower Pettit formations. Injection will be through tubing set on a packer to confine injected fluids to the Upper and Lower Pettit formations between 5,800 feet and 6,300 feet. Finally, there is one plugged well located within the 1/4 mile radius of review and two producing gas wells located within the 1/2 mile radius of review. All three wells are cased and cemented to protect usable-quality groundwater and the plugged well has been properly plugged and abandoned.

Approval of the requested disposal permit is in the public interest. The current disposal options in the area have been unreliable, as the current disposal is into the Rodessa and Goodland Lime formations, which have become over-pressured. The current disposal capacity in the area is approximately 6,000 barrels of saltwater per day. Based on drilling 6 to 10 development wells per year, Chevron forecasted a need for a disposal capacity of 12,000 to 18,000 barrels of saltwater per day.

The examiners believe that the disposal permit will prevent waste due to the lack of disposal wells in the area, which is hindering development on Chevron's leases. Use of the proposed disposal well will reduce truck traffic, travel time and miles traveled, resulting in reduced disposal costs. The reduced disposal costs will lower the economic limit of the producing wells and, thereby, ultimately increase total production.

The surface facility will be newly constructed and is of sufficient size to accommodate trucks hauling water to the facility without backing up onto the highway that provides access to the facility. The produced saltwater will come from Chevron's current and future development in the area and the majority of the saltwater will arrive at the facility via pipeline. Unless there is a disruption in the pipeline system, Chevron expects to operate only two trucks daily to remove oil at the proposed facility. Compliance with permit conditions will minimize the risk of spills at the facility and will prevent the migration of any spills that occur, thereby protecting both groundwater and surface waters. The protestants' traffic safety, property value and nuisance concerns are not within the Commission's jurisdiction to address.

Although Mr. Coleman asserted that he had found "distinct hazzards that needed to be addressed", he did not identify any specific problems or hazzards with the proposed disposal well. The testimony of Mr. Coleman did not alter the examiners' determination that Chevron established that freshwater resources will be adequately protected from pollution, that the well will not endanger oil or gas formations, and that the proposed injection is in the public interest. By the Protestant Coleman's own admission, he knows "very little about geology and the oil and gas industry," and he testified that he has never designed an injection well, studied casing or cement, operated a saltwater disposal well, or looked at the geology as an expert.

Protestant Coleman clearly is a person with knowledge of and experience in safety coordination, accident prevention, and consequence mitigation. However, without a specialized knowledge of the oil and gas industry, and specifically injection wells or evidence regarding problems with the construction and operation of the proposed disposal well, the Protestant was unable to persuasively use human factors analysis to demonstrate risks of harm to resources or public safety due to the proposed disposal well.²

² The Texas Supreme Court has instructed that an expert must be shown to have specialized knowledge regarding the precise subject about which he is offering an expert opinion. *Gammill v. Jack Williams Chevrolet, Inc.*, 972 S.W.2d 713, 719-20 (Tex. 1998). For expert testimony to be relevant, it must "be sufficiently tied to the facts of the case" that it will aid the fact-finder in resolving a fact in issue. *E.I. du Pont de Nemours and Co., Inc. v. C.R. Robinson*, 923 S.W.2d 549, 555 (Tex. 1995).

FINDINGS OF FACT

1. Notice of the application and hearing was provided to all persons entitled to notice. Notice of the application was sent to the Panola County Clerk, offset operators within 1/2 mile, the surface owners of the disposal tract and of each tract which adjoins the disposal tract on February 14, 2013.
2. Notice of the subject application was published in *The Panola Watchman*, a newspaper of general circulation in Panola County, on February 13, 2013.
3. The proposed injection into the Kate McMillan SWD Lease, Well No. 1, will not endanger useable-quality groundwater.
 - a. The Commission Groundwater Advisory Unit ("GAU") recommends that usable-quality groundwater be protected down to a depth of 475 feet below the land surface. The base of the underground source of drinking water ("USDW") in this area occurs at a depth of 575 feet.
 - b. The well will have 13 3/8" surface casing set at 2,000 feet that will be cemented to the surface with 220 sacks of cement and 9 5/8" intermediate casing set at 5,200 feet that will be cemented to the surface with 900 sacks of cement.
 - c. There are two impermeable shales and an anhydrite layer which are over 600 feet thick above the injection zones, which will serve to prevent the migration of injected fluids out of the Upper and Lower Pettit formations.
4. The proposed injection into the Kate McMillan SWD Lease, Well No. 1, will not endanger production from other oil, gas or mineral bearing formations.
 - a. Chevron U. S. A. Inc. ("Chevron") plans to drill a new injection well down to 6,500 feet.
 - b. Chevron proposes to run a 7" liner from 4,900 feet down to 6,500 feet that will be cemented from total depth up to the top of the liner with 300 sacks of cement.
 - c. The well will be equipped with 3 1/2" tubing and packer set at 5,750 feet.
 - d. There is one plugged well located within the 1/4 mile radius of review and two producing gas wells located within the 1/2 mile radius of review. All three wells are cased and cemented to protect usable-

quality groundwater and the plugged well has been properly plugged and abandoned.

5. Use of the Kate McMillan SWD Lease, Well No. 1, as disposal well is in the public interest because it will reduce hauling distances and will provide needed disposal capacity for wells to be drilled, completed and produced in the area of the proposed facility.
 - a. The current disposal options in the area have been unreliable, as the current disposal is into the Rodessa and Goodland Lime formations, which have become over-pressured.
 - b. The disposal permit will prevent waste due to the lack of disposal wells in the area, which is hindering development on Chevron's leases.
 - c. The current disposal capacity in the area is approximately 6,000 barrels of saltwater per day.
 - d. Based on drilling between 6 and 10 development wells per year, Chevron forecasted a need for a disposal capacity of 12,000 to 18,000 barrels of saltwater per day.
 - e. Use of the proposed disposal well will reduce truck traffic, travel time and miles traveled, resulting in reduced disposal costs.
 - f. The reduced disposal costs will lower the economic limit of the producing wells and, thereby, ultimately increase total production.
6. Chevron U. S. A. Inc. has a current approved Form P-5 (Organization Report), a posted \$250,000 financial assurance bond and no pending Commission enforcement actions.

CONCLUSIONS OF LAW

1. Proper notice was issued in accordance with the applicable statutory and regulatory requirements.
2. All things necessary to give the Railroad Commission jurisdiction to consider this matter have occurred.
3. Approval of the application will not harm useable-quality groundwater resources, will not endanger oil, gas, or geothermal resources, will promote further development in this area of Panola County and is in the public interest pursuant to Sec. 27.051 of the Texas Water Code.

4. Chevron U. S. A. Inc. has met its burden of proof and its application satisfies the requirements of Chapter 27 of the Texas Water Code and the Railroad Commission's Statewide Rule 46.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission approve the application of Chevron U. S. A. Inc. for disposal authority pursuant to Statewide Rule 46 for the Kate McMillan SWD Lease, Well No. 1, as set out in the attached Final Order.

Respectfully submitted,



Richard D. Atkins, P.E.
Technical Examiner

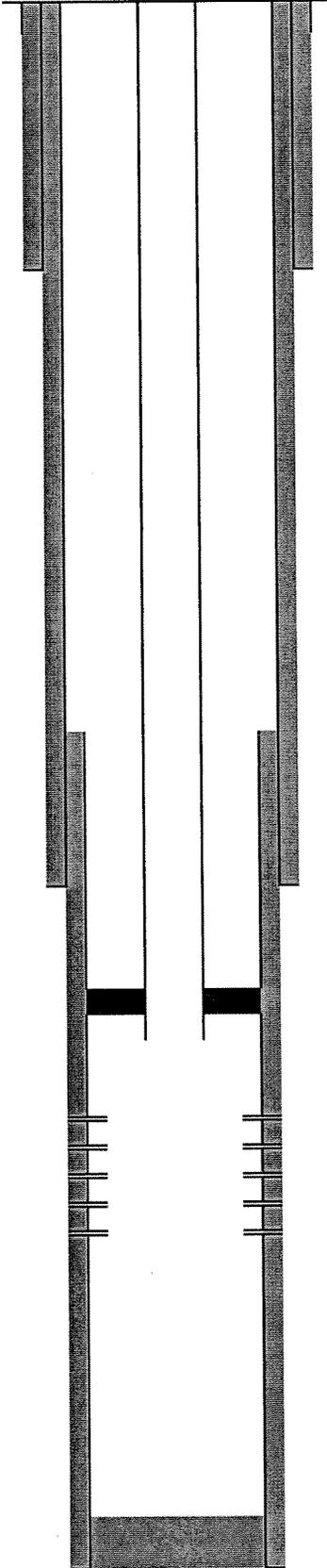


Michael Crnich
Legal Examiner

by


CHEVRON

Proposed Wellbore Diagram
Kate McMillan SWD #1
Carthage Field
Panola County, Texas



Surface Casing Details

13-3/8" 54.5#/ft J-55 Casing @ ~2000'
Cemented w/ 220 Sx Class 'A' Cmt
17-1/2" Hole Size - TOC @ Surface (Circ)

Intermediate Casing Details

9-5/8" 36#/ft J-55 Casing @ ~5200'
Cemented w/ 900 Sx Class 'H' Cmt
12-1/4" Hole Size - TOC @ Surface (Circ)

7" 23#/ft FS-80 Liner Top @ ~4,900'

Tubing Details

3-1/2" 9.3#/ft L-80 IPC Tubing To Surface
1 - 4' x 3-1/2" 9.3#/ft L-80 Pup Joint
2 Jts 3-1/2" 9.3#/ft L-80 IPC Tubing
On/Off Tool w/ X-Profile Nipple
7" Retrievable packer @ ~5,750'
1 - 6' x 3-1/2" 9.3#/ft L-80 IPC Pup Joint
X-Nipple
1 - 6' x 3-1/2" 9.3#/ft L-80 IPC Pup Joint
XN-Nipple
Wireline Re-Entry Guide

7" Retrievable Packer @ ~5,750'

Pettit Formation

~5,875' - 6,250'

CHEVRON, U. S. A., INC.
Docket No. 06-0282997
August 28, 2013
EXHIBIT NO. 16

Liner Details

7" 23# FS-80 Liner @ ~6,500'
Cemented w/ 300 Sacks
8-3/4" Hole Size - TOC @ ~4,900' (Liner Top)

PBSD 6,450'
Total Depth 6,500'