

THE APPLICATION OF TALCO GAS GATHERING COMPANY TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A POROUS FORMATION NOT PRODUCTIVE OF OIL OR GAS, WILBORN LEASE WELL NO. 1SW, WOODLAWN FIELD, HARRISON COUNTY, TEXAS

HEARD BY: Thomas H. Richter, P.E., Technical Examiner
Mark Tittel, Hearings Examiner

APPLICANT:

George C. Neale, Attorney
Phillip Baldwin
Steve Greber
Alan Matysiak
Greg Cloud

REPRESENTING:

Talco Gas Gathering Company

PROTESTANT:

Mickey Olmstead, Attorney
Tony W. Clemons

Tony W. Clemons

PROCEDURAL HISTORY

Date of Application:	July 17, 2001
Date of Notice:	August 13, 2001
Date of Hearing:	October 25, 2001
Date of Transcript:	November 30, 2001
Record Closed:	May 15, 2002

EXAMINERS' REPORT AND PROPOSAL FOR DECISION
STATEMENT OF THE CASE

This is the application of Talco Gas Gathering Company (herein after referred to as "Talco Gas") to dispose of field produced saltwater into the Wilborn Well No. 1 ("subject well") in the Woodlawn Field area (specifically the Blossom Formation). The unique feature of this case is the subject well was plugged and abandoned in 1977. The application is protested by Tony W. Clemons (herein after referred to as "Clemons") because he asserts he is the operator of the subject lease, and hence the subject wellbore, down to a depth of 6,000 feet.¹ Further, Clemon's believes that the Blossom Formation underlying his lease in the subject well was never tested for production and granting disposal authority would cause the waste of otherwise recoverable reserves from the Blossom Formation as well as reserves he may be able to recover from other proven productive formations within his assigned depth interval.

¹ Amoco Production Company owns the deeper rights.

DISCUSSION OF THE EVIDENCE**WELL COMPLETION HISTORY**

The subject well was originally drilled by Wilson Oil and Gas as the Frank Davis Estate Unit No. 2 Well No. 2A and completed January 4, 1967 in the Woodlawn (Rodessa) Field through perforations from 5,636' to 5,638' subsurface depth. The well is completed as follows:

- Surface casing (8-5/8") is set at 535' and cemented from the casing shoe to the ground surface.
- Longstring casing (4-1/2") is set at 5,737' and cement with 200 sacks of cement.

The well was properly plugged and abandoned on September 3, 1977 by Wilson-Owens Production Company. The surface casing remained in the well and 2,727' of 4-1/2" of longstring casing were left in the well when it was plugged .

Clemons obtained an assignment of the oil, gas and mineral leasehold interest in the Frank Davis Estate Unit No. 2 in 1983. A saltwater disposal and surface agreement was executed on July 31, 2001 between Talco Gas and the surface owners, Wenford W. Wilborn and Lanell Wilborn Smith.

APPLICANT'S EVIDENCE**CURRENT STATUS AND PROPOSAL**

Talco Gas entered into a contract with Amoco Production Company in 1993 to gather and compress all of Amoco's produced gas from its leases (170 to 200 wells) in the Woodlawn Field area. This contract included the requirement that Talco Gas collect and dispose of all of Amoco's lease produced water without compensation for that disposal. All of Amoco's produced water is piped to a central receiving/separation facility (a closed system) and then pumped to its current disposal well, the Talco Gas, Amoco Chapman B Well No. 3-SWD (approximately 1.5 miles away). The disposal zone is the Goodland Lime Formation (± 3300 -3500'). There are no trucks, tanks or pits used. The proposed disposal well will not be a "commercial" disposal well/facility as usually understood. The disposal of Amoco's produced water is a contract agreement condition for gas gathering and compression. No other waste products from other operators are accepted.

The Blossom Formation is a blanket sand that is laterally continuous throughout the Woodlawn area with good porosity ($\pm 30\%$) and high permeability (50-100 md). There is not, nor has there ever been, any Blossom Formation production in the Woodlawn Field area. The Blossom Sand is an excellent sand for disposal containment. Immediately above the sand in the very tight Brownstone Morrow Shale and above that is the Annona Chalk. Below the subject sand in the very dense Austin Chalk Formation. The Blossom Formation in this area was used by a chemical plant facility for the disposal of hazardous chemical waste products in the Woodlawn Field area. Because of the great number of wells that have been drilled in the Woodlawn area, the Blossom Formation is easily recognized as non-productive and/or being "wet". The Blossom Formation can be

productive in northeast Texas. The Blossom Sand is productive in the following fields because there is a trapping mechanism (closure): the Waskom Field 30 miles to the southeast; the Bethany Field 40 miles to the southeast; the Carthage Field 60 miles to the southeast; and the Caddo Pine Island Field in Louisiana 50 miles to the northeast.

Talco Gas' current disposal well is the former Amoco Production Company, J.G. Chapman Gas Unit "B" Well No. 3 that was completed in the Woodlawn (Travis Peak) Field. The well was converted, recompleted, and permitted as a disposal well for Amoco by the Commission on January 23, 1993. It was permitted to inject into the interval from 3,340' to 3,440' (the Goodland Lime Formation) with a maximum injection volume of 4,000 BWPD at a maximum injection pressure of 1,500 psig. Amoco produces between 30,000 to 50,000 barrels of water per month from its wells in the Woodlawn Field area. If the current disposal well goes down for any reason, Amoco must either commence shutting-in its wells or the water must be trucked to another disposal well (the closest being operated by Woodlawn Pipeline) which injects into the Paluxy Formation at $\pm 3500'$ - $3800'$.

Talco Gas proposes using the subject well as a backup/secondary disposal well. It proposes re-entering the old surface casing, drilling out the cement plugs and then setting and cementing new 4 1/2" casing down to 3,000'. The casing will be perforated from 2,390' to 2,440' and then injection will be through 27/8th inch tubing set at 2,350'. The proposed maximum disposal volume is 2,000 BWPD at a maximum injection pressure of 1,000 psig. The water handling facilities and pump are located only 300 yards from the proposed well whereas these facilities are one and a half miles from the current Chapman Disposal well. Additionally, re-entering the proposed plugged well would be less expensive than drilling a "new" disposal well.² The other saltwater disposal well in the area, the Woodlawn Pipeline, Lane SWD does not have the capacity to handle all of Amoco's produced water.

A review was made of all well completions, producing or plugged, within a quarter mile of the subject well. There are three producing wells within the area and all have been completed in such a manner to prevent the vertical migration of fluids thus removing the possibility of endangering usable quality water i.e. all have sufficient surface casing cemented from below the base of the usable quality water to the ground surface. Two of the wells are operated by Amoco (Woodlawn Cotton Valley Field) and the third well is operated by Clemons (Woodlawn Pettit-Page Field). The Clemon's well, the Frank Davis Gas Unit 2 Well No. 1 has a current deliverability of 95 MCFD and a current monthly allowable of 372 MCF. The Texas Natural Resource Conservation Commission by letter dated April 12, 2001, recommends that the interval from the land surface to a depth of 500 feet should be protected.

Water displacement calculations show that at an average rate of 1,000 BWPD, the volume area displaced from the subject well would be 660 feet at 10 years (3.65 million barrels of water). The Clemon's well is 910 feet from the subject well. It would take 19 years for the displacement to reach the Clemon's well. Pressure front analysis, assuming a normal pressure gradient for the

² Talco Gas stated that if the Commission did not approved the re-entry of the plugged well, it would consider drilling a "new" disposal well in the near vicinity.

Blossom Formation, calculates an original reservoir pressure of 1,116 psi. At the referenced average rate of injection, the pressure at the Clemon's well would be raised 148 psi to 1,264 psi in 10 years. The Clemon's well does not have cement across the proposed disposal interval (nor do the other wells in the area). The well was drilled with 10.7 lb mud.³ This is equivalent to a hydrostatic pressure of 1,335 psi. This is greater than the 1,264 psi previously determined and thus the fluids would be confined to the subject interval. If there is communication, any pressure exerted would be observed at the surface (the longstring/surface casing annulus). In addition, corrosion inhibitor is used with the current disposal well and will be used in the proposed well to mitigate any adverse effects on other exposed casings. All the wells within the area have sufficient surface casing to protect the usable quality water.

Notice of the application was given to all affected persons and published in the *Marshall News Messenger*, a newspaper of general circulation in Harrison County, on April 6, 2001 and on June 17, 2001.

PROTESTANT'S EVIDENCE

Clemon's is the operator of the 704 acre Frank Davis Gas Unit that includes the 72 acre Wilson Oil & Gas Tract where the Allen Wilborn No. 1 (the subject plugged and abandoned well is located). The mineral interest is from the surface to the base Pettit Lime Formation ($\pm 6600'$). The subject well was P&A'd by Wilson and Owens.

The Blossom Formation has been or is productive in the Waskom, Bethany and Carthage Fields. It could be productive in the subject field or under this lease but it has not been tested. Also in the subject well are other zones above the Pettit Formation such as the Rodessa Hill (gas zones) which are productive in the Woodlawn Field area. These zones are within Clemon's lease rights, however, if the Commission grants Talco Gas' application to use this specific wellbore for disposal this would be violating Clemon's mineral interest rights.

In 1988 shortly after acquiring the lease and subject well, Clemon's considered re-entering the subject well. The cost for a re-entry and completion in the Pettit-Page zone was approximately \$86,600. Because of the economics and risks at that time, the re-entry was put off. The subject well was initially abandoned from the Rodessa-Hill zones by Wilson-Owens because of economics. There are still producible reserves from Rodessa-Hill Formation ($\pm 850,000$ MCF). Clemon's believes that if the Blossom Sand is productive underlying his lease, there could be anywhere from 200 MMCF to 4 BCF of gas present.⁴ Clemon's asserts that the burden of proof is on Talco Gas to prove the Blossom Formation underlying the subject tract in non-productive and that it has not done so.

³ The electric log of the Clemon's well, originally drilled by Hollandsworth Oil Company as the Frank Davis #2, show the mud weight density to be 10.7.

⁴ Clemon's did not present any calculations to substantiate its estimate only its belief.

EXAMINERS' OPINION

Although Talco Gas has a current saltwater disposal and surface agreement with the owners of the surface and mineral estate, Clemons contends that the application must be dismissed because Talco Gas has not demonstrated that it has a good faith claim to title. Clemons argues that a plugged wellbore is part of the mineral estate rather than the surface estate. Clemons believes that whatever rights were vested in the predecessor operators were acquired by him by virtue of his 1983 assignment of the oil, gas and mineral leasehold interest. Thus, according to Clemons, any abandoned well remains the exclusive property of the mineral lessee until the lease expires. Clemons contends that the Blossom Formation underlying the subject tract has not been adequately explored. Because the mineral estate is considered the dominant estate, Clemons argues that he retains the exclusive right to use any plugged wellbore to explore, investigate and prospect any formation whether proven productive or unproven. The mineral estate is the dominant estate.

Talco Gas asserts that because the well was plugged and all recoverable personal property had been previously removed, the "wellbore" and any casing remaining in the well became part of the real property and ownership vested in the surface owner. The subject well was plugged and abandoned in 1977, some 5 to 6 years before Clemons obtained his leasehold interest. Talco Gas argues that whatever right Clemons, as the mineral lessee, may have to the abandoned wellbore, such right is neither exclusive nor unlimited. Clemons has had the lease since the mid-1980's and has not re-entered the well.

In support of their arguments, the parties cited a number of cases dealing generally with the doctrine of abandonment. However, none of the authorities cited by the parties specifically addresses the issue of whether there is an exclusive right on the part of either the surface or the mineral owner to use a plugged and abandoned wellbore. While the Commission may determine whether an applicant has established a good faith claim to title, jurisdiction to conclusively adjudicate disputes concerning title to property lies with the courts. The examiners are of the opinion that Talco Gas has established a good faith claim to use the subject wellbore by virtue of the saltwater disposal and surface agreement executed on July 31, 2001 between Talco Gas and the surface owners, Wenford W. Wilborn and Lanell Wilborn Smith.

Talco Gas' proposed recompletion of the subject well for disposal is adequate to confine the injected produced saltwater into the intended zone, the Blossom Sand. The Blossom Sand represents a good candidate for injection i.e. high porosity, good permeability, adequate thickness and impermeable formations above and below for containment. Water front/pressure calculations demonstrate that other wells within the required area of review will not be adversely affected. Clemon's assertion that the un-cemented exposed casing across the proposed disposal interval would suffer adverse effects and/or would become an avenue for the migration of existing Blossom Formation water/or the proposed injected water to travel up or down into other formations is conjecture and speculation. The mere presence of other wells within the required area of review that do not have cement across an injection/disposal interval is not in and of itself grounds for denial of the application. Statewide Rule 9(7)(A) provides the criteria that must be investigated within 1/4 mile of the injection well. It states "... for wells that penetrate the proposed disposal zone ... 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.”⁵ Confirmation that plugged wells are properly plugged i.e. cement plugs placed properly to insure confinement, is necessary because it would be almost impossible to determine if there was fluid movement. Producing/shut-in wells may be monitored through the longstring-surface casing annulus to determine if communication occurs.

Clemon’s asserts that because the Blossom Sand is productive in other fields, it is potentially productive in the Woodlawn Field. The Woodlawn Field area is a very well developed field with completions in multiple horizons i.e. Cotton Valley, Rodessa, Travis Peak, Pettit, etc. Amoco alone currently operates in excess of 170 wells. The Woodlawn Field area has had multiple operators (major and independents) where numerous wells have been drilled and completed since the 1950’s, and therefore it is implausible that the Blossom Sand has not been previously examined. Clemon’s attempts to narrow the scope to his 72 acre lease proper. The Commission’s Underground Injection Control Reference Manual addresses such a situation. In the reference section’s *Injection/Disposal Well Permit Applications* “Summary of Standards and Procedures” Section I Basic filing requirements (A)(1) states in the NOTE: A productive reservoir is a reservoir with past or current production within a 2-mile radius of the proposed injection well. The burden of proof is Clemon’s to prove the Blossom Sand is productive and not Talco Gas’. A Formation is deemed non-productive until proven to contain hydrocarbons. To assert otherwise would be the example of saying the “Travis Peak” is productive where ever it is present. The fact is just the opposite (many an oil & gas operator would wish this were true). Formations productive in some areas do not by themselves represent oil & gas reservoirs in other areas.

Finally, there is no evidence to indicate that the operation of this well will adversely impact the water quality of any nearby surface water or subsurface usable quality water.

FINDINGS OF FACT

1. Notice of this hearing was given to all persons required to be given notice by the provisions of Statewide Rule 9. Notice of this hearing was given to all affected persons, at least ten (10) days prior to the date of the hearing. Notice of the application was given to all affected persons and published in the *Marshall News Messenger*, a newspaper of general circulation in Harrison County, on April 6, 2001 and on June 17, 2001.
3. The subject well was originally drilled by Wilson Oil and Gas as the Frank Davis Estate Unit No. 2 Well No. 2A and completed January 4, 1967 in the Woodlawn (Rodessa) Field through perforations from 5,636' to 5,638' subsurface depth.
4. The well is completed as follows:
 - a. Surface casing (8 5/8") is set at 535' and cemented from the casing shoe to the ground surface.

⁵ Statewide Rule 46(e)(1) states the same information.

- b. Longstring casing (4 ½") is set at 5,737' and cemented with 200 sacks of cement.
- 5. The well was properly plugged and abandoned on September 3, 1977 by Wilson-Owens Production Company. The surface casing was left in the well as well as 2,727' of 4-½" longstring casing.
- 6. Clemons obtained an assignment of the oil, gas and mineral leasehold interest in the Frank Davis Estate Unit No. 2 in 1983.
- 7. A saltwater disposal and surface agreement was executed on July 31, 2001 between Talco Gas and the surface and mineral owners, Wenford W. Wilborn and Lanell Wilborn Smith.
- 8. Talco Gas Gathering proposes re-entering the Frank Davis Estate Unit No. 2 Well No. 2A (renaming it as the Wilborn Well No. 1 SW) and re-completing the well for use as a backup/secondary disposal well for its existing Chapman Well No. 3 SWD.
 - a. The old surface casing will be re-entered, previously set cement plugs drilled out, and then new 4 ½" casing set and cemented down to 3,000'.
 - b. The casing will be perforated from 2,390' to 2,440', the Blossom Formation, and injection will be through 2 7/8th inch tubing set at 2,350'.
 - c. The maximum permitted disposal volume is 2,000 BWPD at a maximum permitted injection pressure of 1,000 psig.
- 9. A review has been made of all well completions, producing or plugged, within a quarter mile of the subject well.
 - a. There are three producing wells within the area and all have been completed in such a manner to prevent the vertical migration of fluids thus removing the possibility of endangering usable quality water i.e. all have sufficient surface casing cemented from below the base of the usable quality water to the ground surface.
- 10. The proposed disposal operations into the Wilborn Lease No. 1 will not endanger any oil, gas or other mineral formation and will not endanger useable quality water.
 - a. The Texas Natural Resource Conservation Commission recommends protection of useable quality water resources to a depth of 500 feet in this well.
 - b. The Blossom Formation is a blanket sand that is laterally continuous throughout the Woodlawn area with good porosity (± 30%) and high permeability (50-100 md).
 - c. There is not, nor has there ever been any Blossom Formation production in the

Woodlawn Field area. Because of the great number of wells that have been drilled in the Woodlawn area, the Blossom Formation is easily recognized as non-productive and/or being “wet”.

- d. The Blossom Sand is an excellent sand for disposal containment because immediately above the sand in the very tight Brownstone Morrow Shale and above that is the Annona Chalk and below the subject sand in the very dense Austin Chalk Formation.
 - e. The Blossom Formation in this area was used by a chemical plant facility for the disposal of hazardous chemical waste products in the Woodlawn Field area.
- 11 Use of the proposed disposal well is in the public interest because it will provide an economical means of disposing of produced salt water from producing wells in the Woodlawn Field Area, thereby increasing ultimate recovery from these wells.

CONCLUSIONS OF LAW

- 1. Proper notice was timely given to all parties entitled to notice pursuant to applicable statutes and rules.
- 2. All things have occurred and have been accomplished to give the Commission jurisdiction in this case.
- 3. Talco Gas has established a good faith claim to use the subject wellbore for saltwater disposal.
- 4. The use of the proposed injection well will not endanger oil, gas, or geothermal resources or cause the pollution of surface water or fresh water strata unproductive of oil, gas, or geothermal resources.
- 5. The applicant has complied with the requirements for approval set forth in Statewide Rule 9 and the provisions of Sec. 27.051 of the Texas Water Code.
- 6. The use of the proposed injection well is in the public interest pursuant to Sec 27.051 of the Texas Water Code.
- 7. Approval of the application will prevent waste of hydrocarbons that otherwise would remain unrecovered.

EXAMINERS' RECOMMENDATION

Based on the above findings and conclusions, the examiners recommend that the application of Talco Gas Gathering Company for authority to dispose of oil and gas waste into its Wilborn Lease No. 1 be approved as set out in the attached Final Order.

Respectfully submitted,

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