WATSON & WATSON

NEIL B. WATSON FRED A. WATSON AMERICAN HOME BUILDING
P. O. DRAWER E
ARTESIA, NEW MEXICO 88210

AREA CODE 505
746-4151 · 746-2201
John W. Fisk,
Associate

August 11, 1978

Oil Conservation Commission State of New Mexico P. O. Box 2088 Santa Fe, New Mexico 87501

Gentlemen:

Re: Application of Anne Burnett Tandy, dba Windfohr Oil Company, for administrative authority to inject water into the following proposed wells to be drilled for the Grayburg-Jackson (San Andres) Unit, to wit:

Unit Well No. 45 - NW4NE4 Section 13, T-17-S, R-30-E; and Unit Well No. 46 - NW4NE4 Section 12, T-17-S, R-30-E.

The above application by the Unit Operator of the Grayburg-Jackson (San Andres) Unit in Eddy County, New Mexico, was submitted to the Commission by mail on August 2, 1978.

The purpose of the application was to obtain administrative authority to inject water at pressures up to 1640 psi (wellhead) into the two proposed injection wells to be drilled as described in the caption.

As mentioned in the application, the applicant had completed running radioactive tracer and temperature surveys in Unit Wells Nos. 6 and 8 and found no escape of water from the zone being flooded, and it was further mentioned that Unit Well No. 8 had previously been injected at pressures up to 1640 psi. As further set forth in the application, copies of the survey logs would be submitted to the Commission at such time as they had been received by the applicant. Pursuant to the application, we are now submitting and herewith enclose copies of the survey logs as to the survey run on July 28, 1978 on Unit Well No. 6 and on July 27, 1978 on Unit Well No. 8.

Applicant requests that the enclosed logs be considered along with all other information and exhibits heretofore submitted with the subject application.

bу

Very truly yours,

WATSON & WATSON

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Attorneys for Applicant,
Anne Burnett Tandy, dba
Windfohr Oil Company

FAW:js Enc.

cc: U.S.G.S., Artesia, NM

cc: Atlantic Richfield Company, Midland, TX

cc: Windfohr Oil Company, Ft. Worth, TX

cc: Windfohr Oil Company, Loco Hills, NM

cc: Mr. Ralph L. Gray, Artesia, NM

LAW OFFICES

# WATSON & WATSON

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746-4151 · 746-2201

John W. Fisk,
Associate

August 2, 1978

Oil Conservation Commission State of New Mexico P. O. Box 2088 Santa Fe, New Mexico 87501 101 - 467

# Gentlemen:

Re: Application of Anne Burnett Tandy, dba Windfohr Oil Company, for administrative authority to inject water into the following proposed wells to be drilled for the Grayburg-Jackson (San Andres) Unit, to wit:

Unit Well No. 45 - NW\(\frac{1}{2}\)NE\(\frac{1}{2}\) Section 13, T-17-S, R-30-E; and
Unit Well No. 46 - NW\(\frac{1}{2}\)NE\(\frac{1}{2}\) Section 12, T-17-S, R-30-E.

Application is hereby made on behalf of Anne Burnett Tandy, dba Windfohr Oil Company, Unit Operator of the Grayburg-Jackson (San Andres) Unit in Eddy County, New Mexico, for administrative authority to inject water at pressures up to 1640 psi (wellhead), at an estimated rate of 200 barrels per well per day, same to be injected into the San Andres Formation at a depth of 3,200 feet to 3,400 feet, in the two wells proposed to be drilled and located as described in the caption.

The locations of the two injection wells proposed to be drilled are within the Unit boundaries and are presently undrilled locations which will improve the flood performance of the Grayburg-Jackson (San Andres) Unit Waterflood Project, and the proposed footage locations of said two wells are as follows:

No. 45, 760' FNL and 1980' FEL of Section 13, T-17-S, R-30-E.

No. 46, 660' FNL and 1980' FEL of Section 12, T-17-S, R-30-E.

Anne Burnett Tandy, dba Windfohr Oil Company, is the operator of the Grayburg-Jackson (San Andres) Unit. The waterflood project was initiated in Case No. 3592 before the New Mexico Oil Conservation Commission, which issued Order No. R-3257 in said case. Further, the waterflood project was expanded in Case No. 5663 in which the New Mexico Oil Conservation Commission issued Order No. R-5206 expressly providing that the Secretary-Director of the Commission should have authorization for administrative approval of additional producing and injection wells, both as to orthodox and unorthodox locations. We are attorneys for Anne Burnett Tandy, dba Windfohr Oil Company, and are expressly authorized to make this application.

In support of said application, the following exhibits, with the applicant's comments where appropriate, are hereby tendered to the Commission:

EXHIBIT "A" is a map, as of May 1978, showing the unit boundary of the Grayburg-Jackson (San Andres) Unit and further showing well data for injection and producing wells, both within and offsetting said unit.

Data shown within squares by the respective wells are

(a) as to injection wells, top left figure is barrels of
water injected per day; top right figure is injection
pressure (psi); and bottom figure is cumulative barrels
of water injected; and (b) as to producing wells, top
left figure is barrels of oil produced per day; top
right figure is barrels of water produced per day; and
bottom figure is cumulative oil (secondary) recovered.

Proposed Injection Wells No. 45 and No. 46 (the wells for which administrative authority to inject water is hereby sought) are indicated on Exhibit "A" by red circles and arrows.

By way of comment, the injection pressure sought for the two proposed wells, 1640 psi (wellhead), is lower than the injection pressures of some of the other wells in the unit which inject water at pressures up to 1660 psi. Further, injection pressures on the Grayburg-Jackson (San Andres) Unit are lower than offset operators are injecting, e.g., on the east, Atlantic Richfield Company is injecting water at 1850 psi and, on the west, Shenandoah Oil Company is injecting water at 1900 psi.

Applicant has just completed running radioactive tracer and temperature surveys in Unit Wells No. 6 and No. 8, and has found no escape of water from the zone being flooded. Unit Well No. 8 is injecting at 1640 psi. As soon as survey logs have been received by applicant, copies of the same will be furnished to the Commission.

EXHIBIT "B" is a map showing the general area in which the two proposed injection wells will be located and the leases operated by applicant are outlined in yellow and the two proposed injection wells are located by red dot and arrow.

EXHIBIT "C" is a diagramatic sketch of the two proposed injection wells showing the manner in which it is proposed to complete and equip the same.

EXHIBIT "D" is a tabular summary of all wells within one-half mile of the two proposed injection wells which penetrate the injection zone, said exhibit showing casing strings, setting depths, sacks of cement used, cement tops, total depths, producing intervals, well identifications and locations.

EXHIBIT "E-1" is a narrative statement as to the Windfohr Oil Co. - Grayburg-Jackson (San Andres) Unit Well No. 18, being the only plugged and abandoned well within the one-half mile radius of the two proposed injection wells, and EXHIBIT "E-2" is a schematic diagram of said plugged and abandoned well.

Exhibits "A" through "E-2", inclusive, to this application were prepared by Ralph L. Gray, Consulting Petroleum Engineer, of Artesia, New Mexico.

In summary, the proposed locations for the two subject injection wells are within the boundaries of the Grayburg-Jackson (San Andres) Unit and are presently undrilled locations, and the drilling of said wells and authorized injection of water therein will result in improved performance of the waterflood project. The injection pressure sought, to wit, up to 1640 psi (wellhead), is well within limits presently established in the project and in the area. Radioactive tracer and temperature surveys at Unit Wells No. 6 and 8 reveal no escape of water from the flooded zone, and copies of the logs will be furnished at such time as operator receives the same. Accordingly, administrative approval to inject water into the two proposed unit wells, all as more particularly set forth hereinabove, is hereby requested.

A copy of this application for administrative approval is being sent, certified mail, return receipt requested, to Atlantic Richfield Company, the only operator offsetting locations of the two proposed injection wells.

Very truly yours,

WATSON & WATSON

by

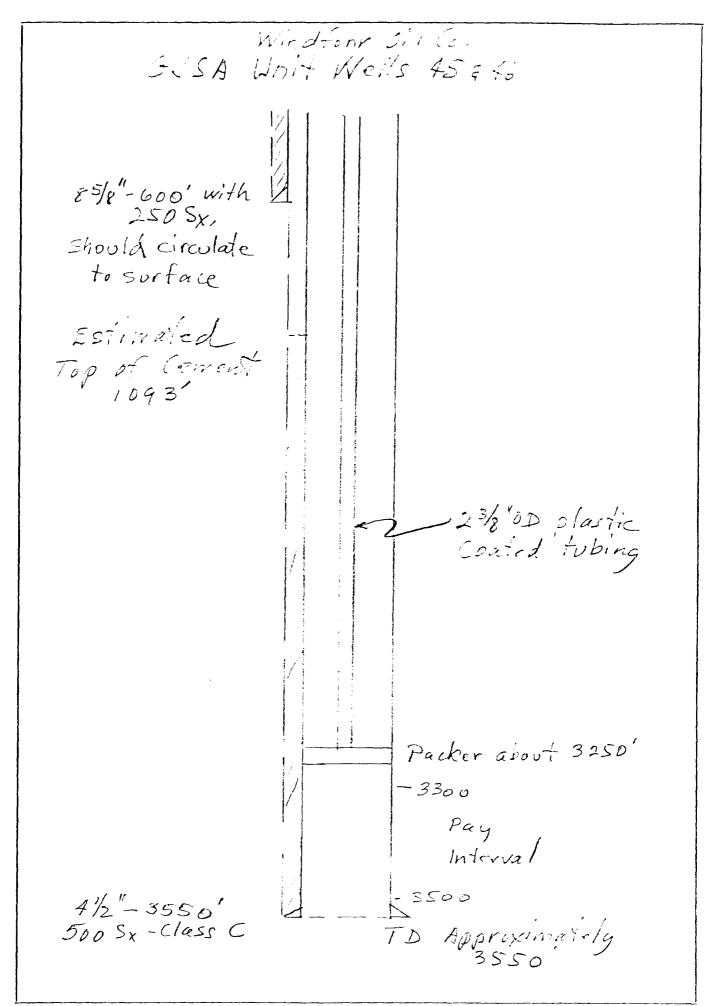
Attorneys for Applicant, Anne Burnett Tandy, dba Windfohr Oil Company

FAW: is

cc: Atlantic Richfield Company
P. O. Box 1610
Midland, Texas 79701
via Certified Mail, R.R.R.

cc: United States Geological Survey
Oil and Gas Division
American Home Building
Artesia. New Mexico 88210

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PRODUCING INTERVAL		OH-3110-3164	Perf. 3030-50, 3898-3906 & 2938-48	2850-3161 2083'-7" pulled	Perf. 2980-86, 2916-30,3173-83, 3044-3056,3026-32	Perf. 3164-72, 2899-2914,2864-72	Perf. 3140-49,3010-3021, 2883-95, 2852-58	2843-50, 2874-85, 2972-3008,3124-36	2871-75, 2903-18, 3033-46, 3163-75		OH-3491-3540 Perf.3386-3402, 3422-38	Perf.3004-10, 2907-13 OH-3403-3509	Perf.3203-25 OH 3397-3510	OH 3415-3482	OH 2935-3539		•
TOTAL		3164	3086	3161	3224	3197	3188	3190	3220		3540	3509	3510	3482	3539		
ESTIMATED CEMENT TOP		2124	1566'	2330	2702	2677	2668	1800	2000		2971	103	2057	1866	1865		
DEPTH		3110	3086	2850	3222	3197	3188	3173	3220		3491	3403	3397	2936	2935		
PRODUCTION CASING & CEMENT		521- 65 sx.***	52"-300 sx.	5½"-100 sx.	5½11=100 sx.	5½"-100 sx.	5½"-100 sx.	4½11−775 sx.	4½11-700 sx.		5½"-100 sx.	7" -300 sx.	7" -125 sx.	7" -100 sx	7" -100 sx.		> \
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SURFACE CASING & CEMENT		8-5/8"- 75 sx	8-5/8"- 50 sx.	8-5/8"- 50 sx.	8-5/8"- 50 sx.	8-5/8"- 50 sx	8-5/8"- 50 sx	8-5/8"-250 sx	8-5/8"-250 sx		8-5/8"- 50 sx	8-5/8"- 50 sx	8-5/8"- 50 sx	8-5/8"- 50 sx	8-5/8"- 50 sx		
COMPANY & WELL	SEC. 1-17S-30E	W. H. McKinley Artesia Pet.#1		Windtohr Uil Co. Jackson B #15	" " #18	" "#19	" #20	#29Y	11 #30	SEC. 12-17S-30E Windfohr Oil Co.		11 11 #36	#37	11 #32**	" " #34		

RALPH L. GRAY PETROLEUM ENGINEERING

Exhibit "O"

LOCATION	440' f.S. 2200' f.W.	660' f.N. 1980' f.W.	440' f.N. 440' f.E.	1320' f.N. 1320' f.E.	660' f.N. 1980' f.W.	660' f.N. 660' f.W.	1980' f.N. 1980' f.W.	2200' f.N. 2200' f.E.	2080' f.N. 660' f.E.	1980' f.S. 2000' f.E.
PRODUCING INTERVAL	ОН 3332-3615	Perf. 3193-3210, 3044-78, 2894-2952	OH 2950-3541	Old records missing	ОН 2950-3500	Perf. 3404-51	OH 3384-3502	ОН 2995-3511	OH 3453-3574	ОН 3288-3510
TOTAL	36151	3240	3541	3560	3500	3513	3502	3511	3574	3510
ESTIMATED CEMENT TOP	Surface	1295'	1880	1180	1880	2710	1877	2460	1925	1898
DEPTH	28601	32351	2950	1340	2950	3513	2947	2995	2995	2968
PRODUCTION CASING & CEMENT	7" - 360 sx.	4½"- 500 sx.	7" - 100 sx	10" - 40 sx.	7" - 100 sx.	4½"- 225 sx.	7" - 100 sx.	7" - 50 sx.	7" - 100 sx.	7" - 100 sx.
ESTIMATED CEMENT TOP	4771	Surface	447	435	442	Surface	439 from 3384° to	442	580 472 cemented from 3453' to	50 sx. 563 365 42" liner was cemented from 3288"
DEPTH	5851	523	555	498	550	540	547 4½" liner	5501		563 was cemen
SURFACE CASING & CEMENT	12-1/2"-20 sx	8-5/8"-250 sx	8-5/8"- 50 sx	12" 20 sx.	8-5/8"- 50 sx	8-5/8"-200 sx.	8-5/8"- 50 sx Note: Cemented	8-5/8"- 50 sx	8-5/8"- 50 sx Note: 4½" liner	10" - 50 sx. Note: 4½" liner
COMPANY & WELL	Sec. 12-17S-30E Windfohr Oil Co. GJSA Unit #33*	Gissler B #14 Sec. 13-17S-30E	Windfohr Oil Co. GJSA Unit #30	1 #29***	" "#31	" #32	" #26	" #27	11 11 #28	11 11 11

WELL DATA FOR WELLS LOCATED WITHIN 1/2 MILE OF WINDFOHR PROPOSED WATER INJECTION WELLS (Continued)

underlined is reported measured depth.

Note: Cement top

<sup>\* \* \* \*</sup> \* \* \* \*

<sup>42&</sup>quot; liner from 3332' to 2792' w/100 sx. 42" liner from 3415 to 2842' w/120 sx. Cemented to 2124' through perforations at 2500'. Reports show 52" casing at 3428' but doesn't report cement.

# WINDFOHR OIL CO. - GRAYBURG JACKSON SAN ANDRES UNIT WELL #18 (Only P&A well within ½ mi.)

### Well Data:

10-3/4" casing cemented at 480' with 25 sx. Estimated top of cement - 356'.

8-5/8" casing cemented at 2697' with 371 sx. Estimated top of cement - 917'.

7" casing landed at 3240'. No cement.

2" tubing at 3300'.

Total depth - 3464'.

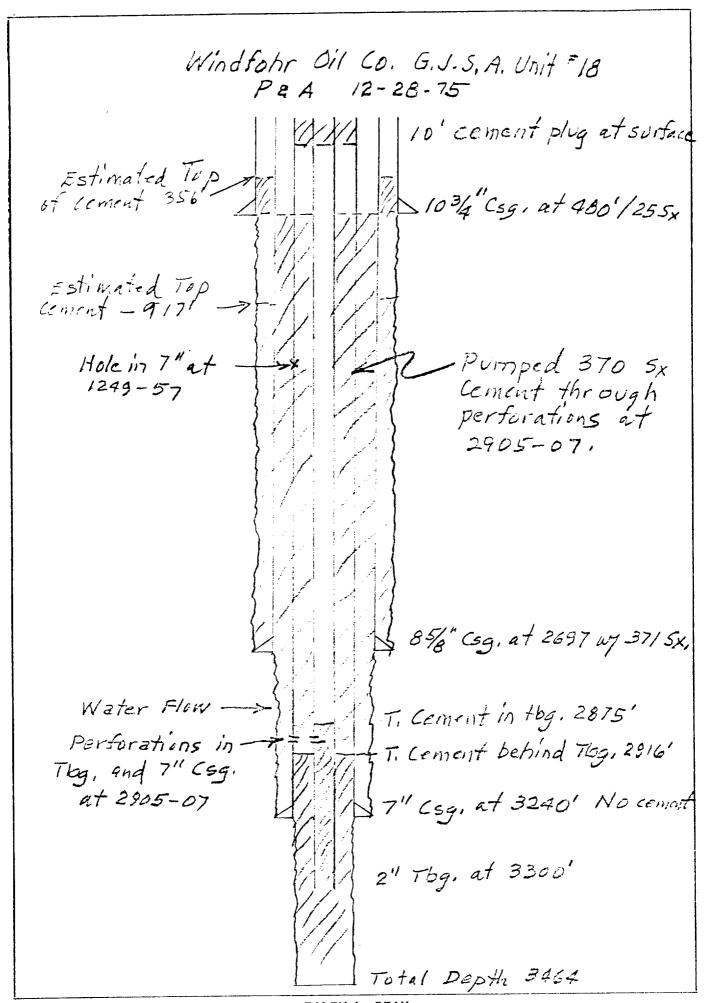
There is a hole in 7" casing at 1249-57.

A high pressure water flow appeared between the 7" and 8-5/8" casing and it was necessary to abandon well.

Cement was pumped around 2" tubing to 2916'.

2" tubing and 7" casing were perforated at 2905-07 and 370 sacks of cement were pumped down tubing, leaving top of cement inside tubing at 2875'. Temperature survey indicated top of cement inside 7" and 8-5/8" at 480'.

On Dec. 28, 1975, a 10' plug of cement was placed at surface and a marker set.



RALPH L. GRAY
PETROLEUM ENGINEERING

Exhibit "E-2"

# LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE