ENERGY AND MINERALS DEPARTMENT

of the earlier submittal.

OIL CONSERVATION DIVISION

PUST OFFICE BOX 2008

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO 87501

FORM C-108 Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT Pressure Maintenance Disposal Storage L Secondary Recovery Application qualifies for administrative approval? X yes Exploration II. dams ompany Midland, Texas 10585 Phone: 915-683-3303 Contact party: Douglas Hì. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary. IV. Is this an expansion of an existing project? ____ yes X no If yes, give the Division order number authorizing the project Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review. VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail. VII. Attach data on the proposed operation, including: Proposed average and maximum daily fate and volume of fluids to be injected; 2. Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with 4. the receiving formation if other than reinjected produced water; and If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.). *VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval. IX. Describe the proposed stimulation program, if any. Χ. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.) XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water. Applicants must complete the "Proof of Notice" section on the reverse side of this form. XIII. XIV. Certification I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief. Jouglas Title Date: 11-24-8 * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance

III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
 - Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
 - (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
 - (3) A description of the tubing to be used including its size, lining material, and setting depth.
 - (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

- B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
 - (1) The name of the injection formation and, if applicable, the field or pool name.
 - (2) The injection interval and whether it is perforated or open-hole.
 - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
 - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
 - (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

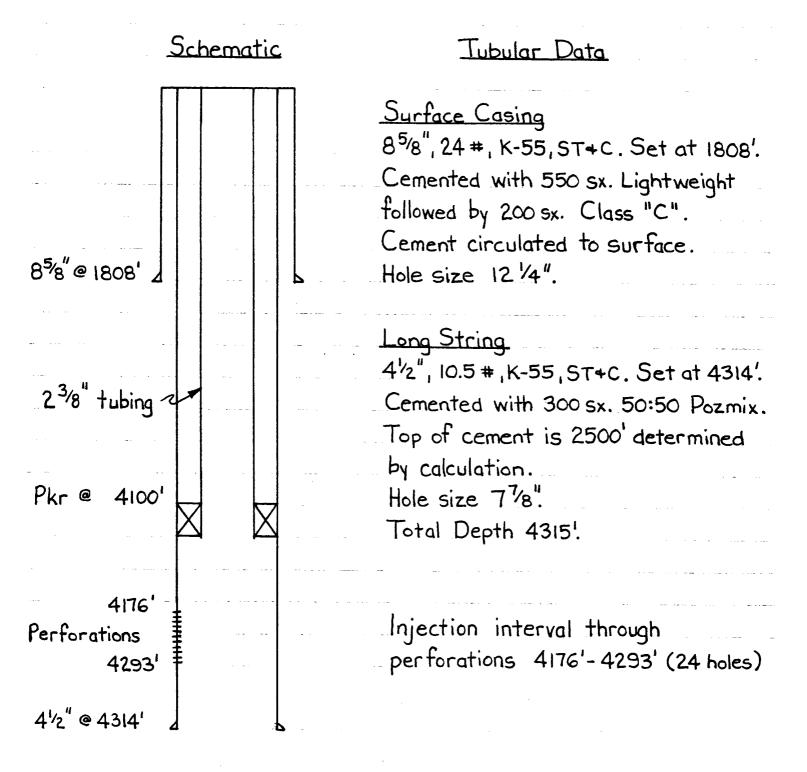
- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III. INJECTION WELL DATA SHEET

Adams Exploration Company Griffin Well No. 4 660' FNL + 660' FEL, Section 10, T-8-5, R-32-E Chaves County, New Mexico



Tubing size is $2^{3/8}$ " which will be lined with a powered epoxy coating (Tuboscope TK-75 coating). Tubing will be set in a Baker AD-1 tension packer set at approximately 4100'.

INJECTION WELL DATA SHEET PAGE 2

- 1. The name of the injection formation is San Andres.
- 2. The name of the field is Chaveroo San Andres.
- 3. This is not a new well drilled for injection. This well was originally drilled as a San Andres oil well. The original permit to drill is dated 7-7-81.
- 4. This well has never been perforated in any zone other than the San Andres Formation 4176'-4293'.
- 5. The underlying oil or gas pools in this area are listed below. There are apparently no overlying pools in this area.

| Pool | Average Producing Depth | Township | Range |
|--------------|-------------------------|----------|-------|
| Sqyers Penn | 83801 | 75 | _ |
| Flying M Abo | 86031 | 95 | 33 E |
| Bar U Penn | 92101 | 95 | 32E |
| Tobac Penn | 9061 | 85 | 33 E |

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| TEVERNON SERVICE TENTON | 6 · 82 | 0392502 18646 | | Emma Jones (MI) Pion | | |
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WELLS WITHIN AREA OF REVIEW (1/2 MILE RADIUS)

OPERATOR: Adams Exploration Company

LEASE NAME: Griffin

WELL NO.: 1

FIELD NAME: Chaveroo San Andres

LOCATION OF WELL: Unit Letter B, 330' FNL 4 1980' FEL,

Sec. 10, T-8-5, R-32-E, Chaves County, New Mexico

TYPE OF LEASE: Fee

WELL STATUS: Pumping oil well

PRODUCING FORMATION: San Andres

SPUD DATE: 11-9-80

COMPLETION DATE: 12-21-80

TOTAL DEPTH: 4400' PLUG BACK DEPTH: 4355'

_CASING RECORD:

| SIZE | WEIGHT | DEPTH | CEMENTING RECORD & TOP OF CEMENT |
|-------|--------|-------|----------------------------------|
| 85/8" | 24 # | 1842' | 450 sx. "LW" + 200 sx. Class"C" |
| | | | Top of cement at surface |
| 41/2" | 10.5# | 4400' | 300 sx. Class "C" |
| ÷ | - | | Top of cement at 2660' |

TUBING RECORD:

| SIZE | DEPTH | PACKER DEPTH |
|-------|-------|--------------|
| 23/8" | 4180' | None. |

PERFORATIONS AND TREATMENT:

INTERVAL TREATMENT 4176'-4199' (4 holes) Acidized w/ 250 gals. 20% HCI 4242'-4313' (7 holes) Acidized w/ 1250 gals. 20% HCI

POTENTIAL TEST:

DATE

PRODUCTION

12-23-80

Pumped 55 BBLS. OIL + 10 BBLS. WATER in 24 hours

VI WELLS WITHIN AREA OF REVIEW (1/2 MILE RADIUS)

OPERATOR: Adams Exploration Company

LEASE NAME: Hooper

WELL NO.: 1

FIELD NAME: Chaveroo San Andres

LOCATION OF WELL: Unit Letter G, 1650' FNL & 2310' FEL,

Sec. 10, T-8-S, R-32-E, Chaves County, New Mexico

TYPE OF LEASE: Fee

WELL STATUS: Pumping oil well

PRODUCING FORMATION: San Andres

SPUD DATE: 3-27-81

COMPLETION DATE: 5-14-81

TOTAL DEPTH: 4338' PLUG BACK DEPTH: 4330'

CASING RECORD:

| | WEIGHT | | CEMENTING RECORD & TOP OF CEMENT |
|-------|--------|-------|----------------------------------|
| 85%" | 24 # | 1810' | 600 sx. "LW" + 200 sx. Class "C" |
| | | = | Top of cement at surface |
| 41/2" | 10.5# | 4338' | 400 sx. 50:50 Pozmix |
| | | • • | Top of cement at 2500' |

TUBING RECORD:

DEPTH PACKER DEPTH 23/8" 4283' None

PERFORATIONS AND TREATMENT:

INTERVAL TREATMENT 4175'-4195' (8 holes) Acidized w/ 4300 gals. 15% HCI 4234'-4248' (10 holes) Acidized w/4300 gals. 15% HCI

POTENTIAL TEST:

DATE

PRODUCTION

8-24-81

Pumped 8 BBLS, OIL + 30 BBLS, WATER

+ 2.6 MCF in 24 hours

WELLS WITHIN AREA OF REVIEW (1/2 MILE RADIUS)

OPERATOR: Adams Exploration Company

LEASE NAME: Hooper

WELL NO.: 2

FIELD NAME: Chaveroo San Andres

LOCATION OF WELL: Unit Letter H, 1980' FNL + 660' FEL,

Sec. 10, T-8-S, R-32-E, Chaves County, New Mexico

TYPE OF LEASE: Fee

WELL STATUS: Pumping oil well

PRODUCING FORMATION: San Andres

SPUD DATE: 7-26-81

COMPLETION DATE: 9-2-81

TOTAL DEPTH: 4294'

PLUG BACK DEPTH: 4290'

CASING RECORD:

SIZE WEIGHT DEPTH CEMENTING RECORD & TOP OF CEMENT

85/8" 24# 1861' 500 sx. "LW" + 200 sx. Class "C"

To of the board of the control of the c

Top of cement at surface

1¹/2" 10.5# 4294' 300 sx. Class "H"

Top of cement at 2700'

TUBING RECORD:

SIZE DEPTH PACKER DEPTH

2³/8" 4239'

None

PERFORATIONS AND TREATMENT:

INTERVAL TREATMENT

4180'-4206' (10 holes) Acidized w/300 gals. 15% HCI

4232'-4278' (18 holes) Acidized w/500 gals. 15% HCI

POTENTIAL TEST:

DATE

PRODUCTION

9-27-81

Pumped 5 BBLS. OIL + 70 BBLS. WATER

+ 1.2 MCF in 24 hours

WELLS WITHIN AREA OF REVIEW (1/2 MILE RADIUS)

OPERATOR: El Ran, Inc.

LEASE NAME: Sarah WELL NO.: 1

FIELD NAME: Chaveron

LOCATION OF WELL: Unit Letter 0, 990' FSL + 2200' FEL,

Sec. 3, T85, R32E, Chaves County, New Mexico

TYPE OF LEASE: Fee.

WELL STATUS: Pumping oil well

PRODUCING FORMATION: San Andres

SPUD DATE: 4-8-80

COMPLETION DATE: 4-23-80

TOTAL DEPTH: 4390' PLUG BACK DEPTH: 4387'

. CASING RECORD:

SIZE WEIGHT DEPTH CEMENTING RECORD & TOP OF CEMENT 85/8" 1682 550 Sx.

41/2" 4389' 175 sx.

TUBING RECORD:

SIZE PACKER DEPTH DEPTH

2³/₈" 4285'

PERFORATIONS AND TREATMENT:

INTERVAL TREATMENT

4172'- 4284' Acidize W/ 6000 gals. 20% HCI

POTENTIAL TEST:

DATE

PRODUCTION

Pumped 82 BBLS. OIL + 10 BBLS. WATER in 24 hours. GOR TSTM

WELLS WITHIN AREA OF REVIEW (1/2 MILE RADIUS)

OPERATOR: El Ran, Inc.

LEASE NAME: Carroll WELL NO.: 2

FIELD NAME: Chaveroo

LOCATION OF WELL: Unit Letter P, 990' FSL + 990' FEL,

Sec. 3, T85, R32E, Chaves County, New Mexico

TYPE OF LEASE: Fee

WELL STATUS: Flowing oil well

PRODUCING FORMATION: San Andres

SPUD DATE: 10-17-80 COMPLETION DATE: 10-31-80
TOTAL DEPTH: 4313' PLUG BACK DEPTH: 4312'

CASING RECORD:

SIZE WEIGHT DEPTH CEMENTING RECORD & TOP OF CEMENT 1665 575 sx.

4 %" 4312' 175 sx.

TUBING RECORD:

SIZE DEPTH PACKER DEPTH

4263' None

PERFORATIONS AND TREATMENT:

INTERVAL TREATMENT

4193' - 4281' Acidize W/ 6000 gals. 20% HCI

POTENTIAL TEST:

DATE

PRODUCTION

Flowed 45 BBLS. OIL + O BBLS. WATER +28.8 MCF in 24 hours through 1" choke. Tubing press. 135 psi. Casing press. 385 psi.

VI. WELLS WITHIN AREA OF REVIEW (1/2 MILE RADIUS)

OPERATOR: MWJ Producing Co.

LEASE NAME: Chaveroo State WELL No.: 8

FIELD NAME: Chaveron

LOCATION OF WELL: Unit Letter M, 990' FSL & 330' FWL,

Sec. 2, T85, R32E, Chaves County, New Mexico

TYPE OF LEASE: State

WELL STATUS: Pumping oil well

PRODUCING FORMATION: San Andres

SPUD DATE: 4-2-81

COMPLETION DATE: 7-23-81

TOTAL DEPTH: 4330'

PLUG BACK DEPTH: 4322'

CASING RECORD:

| | WEIGHT DEPTH | CEMENTIN | G RECORD 4 TOP OF CEMENT | - |
|-------|--------------|----------|--------------------------|---|
| | 1785' | 625 sx. | | |
| 41/2" | 4330' | 325 sx. | | |

TUBING RECORD:

SIZE DEPTH PACKER DEPTH None

PERFORATIONS AND TREATMENT:

INTERVAL TREATMENT

4202'-4318' Acidize W/ 1500 gals.

POTENTIAL TEST:

DATE

PRODUCTION

Pumped 31 BBLS. OIL + 55 BBLS. WATER + 41 MCF in 24 hours

Proposed Operation

Adams Exploration Company proposes to utilize this injection well to dispose of water produced from our Hooper Lease Well Nos. I and 2 and our Griffin Lease Well Nos. I and 2. Present water production from the Hooper Lease is 70 bbls. per day and from the Griffin Lease is 90 bbls. per day. The proposed average volume of water to be injected is 160 bbls. per day. Maximum anticipated volume of water to be injected is 200 bbls. per day. The average anticipated injection rate is 1/2 bbl. per minute at an average pressure of 50 psi. Maximum anticipated rate is 1 bbl. per minute at a maximum pressure of 200 psi. This proposal is to reinject water produced from the San Andres formation back into the San Andres formation.

VIII. Geological Data

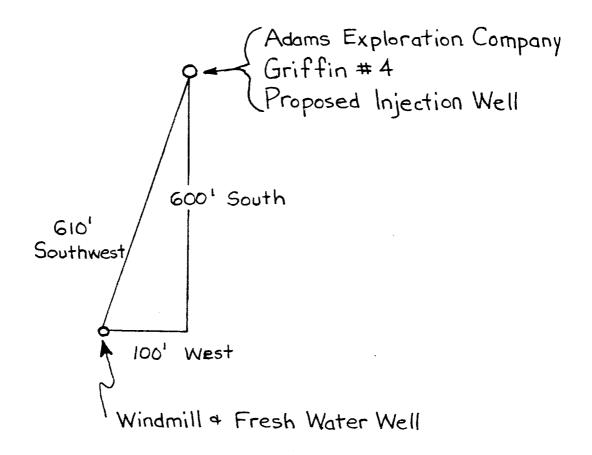
The injection zone in this proposed well is the San Andres formation which is composed of dolomite. The gross thickness of the injection zone is 117 feet with perforations from 4176' to 4293'. The top of the San Andres formation in the proposed injection well is 3449' and the well was still in the San Andres at 4315' total depth.

The depth to the bottom of the underground source of drinking water would be 380', which is the base of the Tertiary formations in this well. There is only one water well within a one mile radius of the proposed injection well. The water well is located approximately 610 feet southwest from the proposed injection well. It is pumped by a windmill and used for livestock water only.

IX. Proposed Stimulation

The San Andres perforations (4176'-4293') in the Griffin #4 have been stimulated with 5500 gals. of acid. The well has produced an average of 140 bbls. of water per day with no oil during production testing. The only additional stimulation anticipated would be an occassional acid job after the well has been utilized for injection.

There is only one fresh water well within a one mile radius of this proposed injection well. The location of the well is shown below. The water well is pumped by a windmill and the water is used for livestock consumption.



.ALLIBURTON DIVISION LABORATOR.

XI. CHEMICAL ANALYSIS OF FRESH WATER FROM WATER WELL

HALLIBURTON SERVICES MIDLAND DIVISION HOBBS, NEW MEXICO 88240

LABORATORY WATER ANALYSIS

No. W81-966

| ToAdams Explorat | ion | - | Date11281 | | | | |
|----------------------------------|-----------|---|----------------|-----------------------|--|--|--|
| P.O. Box 10585 Midland ,Tx 79 | | This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company. | | | | | |
| Submitted by <u>Danny S</u> | Cooter | | Date Rec | 10-27-81 | | | |
| Well No. Water Well | | | | | | | |
| CountyChaves | | | | | | | |
| | | | | | | | |
| Specific Gravity | 1.000 | | | | | | |
| рН | | | | | | | |
| Calcium (Ca) | | | | *MPL | | | |
| Magnesium (Mg) | Mal | | | | | | |
| Chlorides (Cl) | Nil | | | | | | |
| Sulfates (SO ₄) | Nil | | | | | | |
| Bicarbonates (HCO ₃) | Nil | | | | | | |
| Soluble Iron (Fe) | Nil | | | | | | |
| | Sample ap | peared to | be fresh water | | | | |
| Remarks: | | · · · · · · · · · · · · · · · · · · · | | *Milligrams per liter | | | |
| | Respecti | fully submitte | d, | | | | |
| Analyst: R. K. Grir | | _ | , HALLIBURTON | | | | |
| , cc: | | Ву | CHEMIS | | | | |

NOTICE

THIS REPORT IS LIMITED TO THE DESCRIBED SAMPLE TESTED. ANY USER OF THIS REPORT AGREES THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER IT BE TO ACT OR OMISSION, RESULTING FROM SUCH REPORT OR ITS USE.

Adams Exploration Company geologic and engineering personell have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

Steve A. Douglas
Division Engineer

Mark Schweinfurth Exploration Manager





A Baker Oil Tools Company

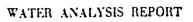
| Adams Exploration | n | | | | ANALYSIS NUMBER |
|---|---------------------------------|----------------------------------|---|--|--|
| COMPANY ADDRESS | • | | | | DATE |
| | | | | | 8/27/81 |
| Midland, Texas | | · | COUNTY OR PARI | <u>сы</u> | STATE |
| | | | ! | | |
| Chaveroo | WELL(S) NAM | 45 OR NO | ROOSEVELT | | N.M. |
| | 1 | ME OR NO. | 1 | , Citimat Total | |
| Hooper | #1 | TEMP. OF | S.A. | OIL BBL DAY | GAS MMCF/DAY |
| DEPTH. FT. BHT. °F | SAMPLE SOURCE | IEMPF | WATER, BBC/DAY | OIL. BBC DAT | GRS. MMCF/URY |
| DATE SAMPLED | TYPE OF WATER | | | | |
| 8/20/81 | X PRODUCED | SUPPLY | ☐ WATER | LOOD SAL | T WATER DISPOSAL |
| 100 _{Na} + 20 15 | | ATER ANALYS FION SYMBOL IN 5 0 | IS PATTERN IDICATES me/I* SCA | LE UNI;;) | 15 20 cr - 1000 |
| 100 ca++ | | | | +++++ | нсо ₃ 1 |
| 100 Mg++ | | Linate and | 201 | ++++ | so ₄ = 1 |
| 0.1 _{Fe} +++ | | | | | co ₃ *0 |
| DISSOLVED SOLIDS | - | | DISSOLVE | D GASES | |
| CATIONS Total Hardness Calcium. Ca ++ Magnesium, Mg++ Iron (Total) Fe+++ | 2220 1560 660 0.7 | 31200 8052 13 | Carbon Di Oxygen, C | Sulfide, H2S oxide, CO2)2 PROPERTIES | mg/l* mg/l* mg/l* |
| Barium, Ba ⁺⁺ Sodium, Na ⁺ (calc.) | 1147.5 | 26392.5 | Specific G | ravity olved Solids (calc.) | 5.55 18 <u>5500</u> mg/l* |
| ANIONS Chloride, CIT Sulfate, SO4 = Carbonate, CO3 = Bicarbonate, HCO3 = Hydroxyl, OH = Sulfide, S= | 3352.1 10.9 0 5.2 0 | 119,000 525 0 317. 0 | CaSO4 Solu CaSO 4 Solu Max. CaSO Max. CaSO Residual H | ndex @°C | +0.67 6.42 me/l* me/l* 10.9 me/l* ppm{Vol/Vol} |
| TOTAL SOLIDS (QUANTITA | ATIVE) | 185499 | . 7 | | |
| | | | | | |

REMARKS AND RECOMMENDATIONS

@ 20 C Carbonate scaling is indicated. Sulfate scaling is indicated.

*NOTE: me/I and mg/I are commonly used interchangeably for epm and ppm respectively. Where epm and ppm are used, corrections should be made for specific gravity.

| MAGNA REPRESENTATIVE | ADDRESS | | TELEPHONE | |
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| W.H. Fort | | | OFF | RES |
| ANALYZED BY | DATE | DISTRIBUTION | | |





| COMPANY | | | | | | ANALYSIS NUMBER |
|---------------------------------|-------------------|-------------|---------------|--|--------------------|---|
| Adams Exploration | | | | | | 1019 |
| COMPANY ADDRESS | | | | | | DATE |
| Midland, Texas | | | | | | 8/28/81 |
| FIELD | | | | COUNTY OR PARI | SH | SYATE |
| Chaveroo | | | | Roosevelt | t | N.M. |
| LEASE OR UNIT | WEL | L(S) NAME | OR NO | WATER SOURCE | FORMATION) | |
| Griffin | # | 2 | | San Andre | es | |
| DEPTH. FT. BHT, OF S | AMPLE SOURCE | 7 | EMP, OF | WATER BBL/DAY | OIL BBL DAY | GAS. MMCF/DAY |
| | TYPE OF WATER | | | | 1 | |
| DATE SAMPLED | | | SUPPLY | ☐ WATERI | FLOOD [| SALT WATER DISPOSAL |
| 8/20/81 | PRODUCE | | | | | |
| | | WA | TER ANALYSI | S PATTERN | | |
| 1000 _{Na} + 20 15 | (NUMBE | R BESIDE | ON SYMBOL IN | DICATES me/1° SCA 5 | 10 | 15 20 _{Cl} - 1000 |
| Na. Torrita | 111] 1 | TT | 1 | | 1111 | |
| | | | | | | |
| 100 ca** | | | | THE RESERVE OF THE PARTY OF THE | | HCO3 |
| | | | | | | |
| 100 Mg++ | | 1 | | | | + |
| | | 1 1 1 1 | | | | 1 1 1 1 1 1 1 |
| 0 01 44 | | · | | | | co ₃ 0 |
| 0.01fe+++ | | | | | | |
| | | | | 01000114 | ED 04656 | |
| DISSOLVED SOLIDS | | | | DISSOLV | ED GASES | |
| | | _ | | | | 44.0 |
| CATIONS | n a c ō | ne/l* | <u>mg/l</u> • | = | Sulfide, H2S | mg/l* |
| Total Hardness | <u> 160</u> | | 06000 | | ioxide, CO2 | mg/1° |
| Calcium. Ca ++ | 130 | | <u> 26000</u> | Oxygen, (| D2 | mg/l* |
| Magnesium, Mg++ | 30 | 0.06 | <u>3660</u> | 2 PHYSICA | | |
| Iron (Total) Fe+++ | | | | PHYSICA | L PROPERTIE | 2 |
| Barium, Ba ⁺⁺ | | 9.5 | 55648 | .5_ pH | | 5.95 |
| Sodium, Na ⁺ (calc.) | <u> 24</u> . | -9.9 | | Specific C | Se suiese | |
| | | | | | solved Solids (i | calc.) 228384 mg/1° |
| ANIONS | | | | | Index @ | |
| Chloride, CI | 400 | 00 | 142000 | | @ 20 | |
| Sulfate, SO4 = | | 9.17 | 440 | CaSO ₄ Sol | ubility @ | - · |
| Carbonate, CO3 ⁼ | | 0 | 0 | | @ <u>20</u> | _°C |
| Bicarbonate, HCO3 | | LO.4 | 634 | • 4 Max. CaSC |)4 Possible (calc. | |
| Hydroxyl, OH | | 0 | 0 | | 04 Possible (calc. | |
| Sulfide, S= | | | | | Hydrocarbons | ppm(Vol/Vo |
| | | | | | | , , , , , , , , , , , , , , , , , , , |
| | | | | Residual I | Hydrocarbons | ppm(VoI/Vo |
| | | | 220204 | 1 | | |
| TOTAL SOLIDS (QUANTITA | ATIVE) | | 228384 | • <u>T</u> | | |
| REMARKS AND RECOMME | NDATIONS: | | | | | me/l and mg/l are commor |
| @ 20 C Carbonate | | ie ind | icated | | | nterchangeably for epm and pritively. Where epm and ppm a |
| - | _ | | | : | | corrections should be made if |
| Sulfate s | caring 1 | e TIKET | Y • | | | ic gravity. |
| | | | | | • | |
| | | | | | | |
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| ANALYZED BY | | DATE | DISTRIBUTION | | | |



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ADAMS EXPLORATION COMPANY

WATER ANALYSIS REPORT

TELEPHONE

RES

OFF

| COMPANY | | | | | ANALYSIS NUMBER |
|---|----------------|------------------------------|-------------------|--------------------------------|-----------------------------------|
| Adams Exploration | | | | | 1018 |
| COMPANY ADDRESS | | | | | DATE |
| Midland, Texas | | | | | 8/27/81 |
| FIELD | | | COUNTY OR PARI | SH | STATE |
| Chaveroo | | | Roosevel | | N.M. |
| LEASE OR UNIT | WELL S NAM | E OR NO. | WATER SOURCE (| FORMATION) | |
| Griffin / | #1 | | San Andr | | |
| DEPTH. FT BHT. OF SAMPLE S | OURCE | TEMP, ⇒F | WATER, BBL/DAY | OIL BBL DAY | GAS. MMCF/DAY |
| DATE SAMPLED TYPE OF | WATER | | \ | | |
| 8/20/81 💆 PR | ODUCED | SUPPLY | ☐ WATERF | LOOD SALT | WATER DISPOSAL |
| , | 10/ | ATED ANALVE | IC DATTERN | | |
| (N | | ATER ANALYS ION SYMBOL IN | DICATES me/I* SCA | LE UNIT) | |
| 000 Na+ 20 15 | 10 | 5 0 | 5 | 10 1 | 5 20 ci -1 000 |
| 1 | | | | ' ' ' ' ' ' | 1 ' ' ' ' |
| 100 Ca++ | OF THE PARTY. | | | | нсо3-1 |
| | | | | | |
| 100 | | | | | |
| 100 Mg++ | ++++ | | | | so ₄ * _1_ |
| | | l Valence (| | | |
| 0.01e+++ | | | | <u> </u> | CO ₃ =_0 |
| | | | | ., | |
| DISSOLVED SOLIDS | | | DISSOLVE | D GASES | |
| | | | | | |
| CATIONS | me/l* | mg/l° | Hydrogen | Sulfide, H2S | mg/l* |
| Total Hardness | 1780 | | Carbon Di | oxide, CO2 | mg/1° |
| Calcium, Ca ++ | 1440 | 28800 | Oxygen, O |)2 | mg/l * |
| Magnesium, Mg ⁺⁺ | 340 | _4148 | | | |
| Iron (Total) Fe ⁺⁺⁺ | 0.03 | 0, | 6 PHYSICAL | PROPERTIES | |
| Barium, Ba ⁺⁺ | 2540 43 | 50633 | | | 6 1 |
| Sodium, Na ⁺ (calc.) | <u>2548.42</u> | <u>58613.</u> | | •• | 6.1 |
| | | | Specific G | ravity olved Solids (calc.) | 2 <u>45580</u> mg/l* |
| ANIONS | | | | ndex @°C | 2 <u>+3300</u> mg/1 |
| Chloride, Cl | 4309.9 | 153000 | olubarity i | @_20_°c | +2.11 |
| Sulfate, SO4 = | 8.75 | | CaSO4 Solu | ubility @°C | me/l* |
| Carbonate, CO3 = | 0 | 0 | | <u>@_20_</u> ℃ | 6.29 me/1. |
| Bicarbonate, HCO3 | 9.8 | 597 | 8 Max. CaSO | 4 Possible (calc.) | |
| Hydroxyl, OH | 0 | 0 | Max. CaSO | 4 Possible (catc.) | me/1° me/1° |
| Sulfide, S= | | | Residual H | ydrocarbons | ppm(Vol/Vol) |
| | | | | | |
| | | | Residual H | lydrocarbons | ppm(Vol/Vol) |
| TOTAL SOLIDS (QUANTITATIVE) | | 2 <u>45580</u> | .1 | | |
| REMARKS AND RECOMMENDATION | NS | | | | and mg/l are commonly |
| | | | | used interch | angeably for epm and ppm |
| @ 20 C Carbonate sca | - | | | | Where epm and ppm are |
| Sulfate scali | ng is lik | ely. | | used, correct specific grav | tions should be made for rity. |

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