| DATEIN | SUSPENSE | ENGINEER | LOGGEDIN | TYPE | APP NO. |
|--------|----------|----------|----------|------|---------|
| | | | | | |

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION



- Engineering Bureau -1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication] [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling] [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement] [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion] [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase] [EOR-Qualified Enhanced OI Recovery Certification] [PPR-Positive Production Response] [1] TYPE OF APPLICATION - Check Those Which Apply for [A] Location - Spacing Unit - Simultaneous Dedication [A] 🗌 NSL 🗌 NSP 🔲 SD Check One Only for [B] or [C] [B] Commingling - Storage - Measurement 🗌 DHČ 📋 CTB 🗌 PLC 🗌 PC 🗌 OLS 🗌 OLM [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery 🗌 WFX 🛄 PMX 🕱 SWD 🔲 IPI 🗌 EOR 🗌 PPR [D] Other: Specify_ NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply [2] Working, Royalty or Overriding Royalty Interest Owners [A] **[B] X** Offset Operators, Leaseholders or Surface Owner [C] X Application is One Which Requires Published Legal Notice [D] Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] Waivers are Attached

[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

| Sharon Hindman | Sharon Andman | Regulatory Analyst | 12/1 |
|--------------------|---------------|--------------------|------|
| Print or Type Name | Signature | Title | Date |

9/2002

e-mail Address

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

APPLICATION FOR AUTHORIZATION TO INJECT

| I. | PURPOSE: Secondary Recovery Pressure Maintenance XDisposal Storage Application qualifies for administrative approval? Yes No |
|--------|--|
| II. | OPERATOR:ENERGEN_RESOURCES_CORPORATION |
| | ADDRESS: 3300 NORTH "A" ST BLDG 4 STE 100, MIDLAND TEXAS 79705 |
| | CONTACT PARTY: |
| III. | 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?YesYooNoYesNo |
| V. | 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 rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with 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, nearb y wells, etc.). |
| *VIII. | Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources known to be immediately underlying the injection interval. |
| IX. | Describe the proposed stimulation program, if any. |
| *X. | 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 sources of drinking water. |
| XIII. | Applicants must complete the "Proof of Notice" section on the reverse side of this form. |
| XIV. | Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief. |
| | NAME: Sharon Hindman TITLE: Regulatory Analyst |
| | NAME: Sharon Hindman TITLE: Regulatory Analyst SIGNATURE: Sharon Andma DATE: 12/19/2002 |

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:

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:
 - (1) 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 the 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, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, 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.

Side 2

Attachment A

III. Well Data

Section A:

Lease Name: West Lovington Strawn Unit #19 1.

> Location: 330' FNL & 1000' FWL, Sec. 33, T15S, R35E, Lea County, NM

2. **Casing and Cement**

| <u>EXISTING</u> | | | | |
|--------------------|---------------|--------------|------------------|------------------|
| Casing Size | Setting Depth | Sacks Cement | <u>Hole Size</u> | Top of Cement |
| 13 3/8" | 402' | 400 | 17 1⁄2" | circ. to surface |
| 8 5/8" | 4818' | 1400 | 11" | circ. to surface |
| 5 1/2" | 11908' | 1500 | 7 7/8" | 2500' by CBL |

PROPOSED

| Casing Size | Setting Depth | Sacks Cement | <u>Hole Size</u> | Top of Cement |
|-------------|---------------|--------------|------------------|------------------|
| 13 3/8" | 402' | 400 | 17 ½" | circ. to surface |
| 8 5/8" | 4818' | 1400 | 11" | circ. to surface |
| 5 ½" | 11908' | 1500 | 7 7/8" | 2500' by CBL |

- NOTE: It is propsed to plug and abandoned existing Lower Strawn perforations from 11,848-11,974' with a Cast Iron Bridge Plug (CIBP) set at 11,800' with a 20' cement cap on top of the CIBP, set CIBP @ 9866' +- top of Wolfcamp w/20' cmt, set CIBP @ 6600' +- w/20' cmt.
- 2 7/8" PCID internally plastic coated set at 6100' +-3. **Tubing:**
- 4. Packer: Baker Lok-Set nickel plated or plastic coated set at 6100' +-

Attachment A-Continued

4

III. Well Data - Continued

Section B:

1. Injection Formation: San Andres

Field or Pool Name: Lovington, Strawn, West

- 2. Injection Interval: San Andres interval 4818 6300' perforated
- 3. Original purpose of well: Drilled as producer in Strawn formation
- 4. Other perforated intervals, bridge plugs, cement plugs: Perforations 11,848 – 11,974' CIBP @ 11,800' w/20' cmt.
- 5. Next higher oil & gas zone: Wolfcamp Next lower oil & gas zone: Cisco

See current and proposed wellbore schematic (Attachments B & C)

| CASING PROGRAM | NA | 13 3/8" SRF. CSG. @ 395', CMT W/440 SKS, CIRC. 8 5/8" INT. CSG. @ 4700', CMT W/700 SKS 5 1/2" PRD. CSG. @ 11,935', CMT W/600 SKS | 13 3/8" SRF. CSG. @ 390', CMT W/525 SKS, CIRC. 8 5/8" INT. CSG. @ 4721', CMT W/1580 SKS, CIRC. 5 1/2" PRD. CSG. @ 11,834' W/738 SKS | 13 3/8" SRF. CSG. @ 397', CMT W/490 SKS, CIRC. 8 5/8" INT. CSG. @ 4746', CMT W/1300 SKS, CIRC 5 1/2" PRD. CSG. @ 11,857' CMT W/700 SKS |
|-------------------|---------------|--|---|--|
| PROD. FORM. | NA | Strawn | Strawn | Strawn |
| COMP. INTERVAL | NA | 11,572-11,582' Strawn | 11,600-11,614' Strawn | 11,608-11,615 ['] Strawn |
| TD PBTD | NA | 11,935' 11,796' | 11,870' 11,761' | 11,857' 11,721' |
| COMP. DATE | AN | 3/31/1995 11,935' 11,796' | 11/3/1993 11,870 ¹ | 10/18/1999 11,857 |
| SPUD DATE | NA | 2/15/1995 | 8/17/1993 | 9/26/1999 |
| PE FL | it to :001 | J |] | |



TD: 11,870'



WLSU #011

(formerly Klein Fee No. 1)



GL Elevation: 3981'

KB Elevation: 3996.5' -- 15.5' above GL

Location: 760' FNL x 2090' FEL

ENERGEN RESOURCES CORP WLSU #14

Current Condition Flowing



GL Elevation: 3989' KB Elevation: 4009' -- 20' above GL Location: 1830' FNL X 610' FWL Sec 33-15S-35E Spud: 09/24/1999 API : 30-025-34684



ENERGEN RESOURCES CORPORATION



Cello Flake/sx TOC: 8836'

ENERGEN RESOURCES CORPORATION

GL Elevation: 3994'

West Lovington Strawn Unit #19ST



Leas w/ 500 sx Class H w/ a yield of 2.54

Tail w/ 1000' sx Batch Mix 50/50 Poz "H" w/ a yield of 1.41

TOC: 2500'

ENERGEN RESOURCES COR" ^RATION

West Lovington Strawn Unit #19ST



GL Elevation: 3994'

Leas w/ 500 sx Class H w/ a yield of 2.54

Tail w/ 1000' sx Batch Mix 50/50 Poz "H" w/ a yield of 1.41 TOC: 2500'

VII. Attach data on the proposed operation, including:

- 1. Proposed average daily injection volume: 4000 BWPD Proposed maximum daily injection volume: 5000 BWPD
- 2. This will be a closed system.
- 3. Proposed average daily injection pressure: 2000 psi Proposed maximum daily injection pressure: 3000 psi
- 4. Sources of injection water will be produced water from area San Andres wells that have been drilled and that are scheduled to be drilled on the West Lovington Strawn Unit (see list of source wells, Attachment G). A water analysis from nearby San Andres production (see Attachment H1, H2, H3) is attached that is taken from the WLSU #20 heater-(produced water), (raw water) pond, residence and adjacent Snyder water well, windmill, various water wells WLSU #11, 1, 8, 21.
- 5. Chlorides in all of the source well is expected to be similar to the water analysis in Attachment H1 and H2.

VIII. Describe the proposed stimulation program, if any.

Well will be acidized with 5,000 gallons of 15% HCL acid if required.

| COMPANY: Ene | ergen Resou | u rce s Co | 110. | | | | | | |
|---|--|-----------------------------|--------------------------------------|-------------------------------|--|--|--|--|--|
| WELL: West Lovington Strawn Unit #19 | | | | | | | | | |
| FIELD: LOV | vin <mark>gto</mark> n Stra | wn, Wes | | | | | | | |
| COUNTY: Lea | | STATE: | New N | lexico | | | | | |
| n, West + Vui Strawn Unit #19 See Coup | hlumberger | | M EXP RE I Laterolog GR | | | | | | |
| ea ovincitos Strawn, West 330 F.N. & Color Mi Mest Lovington Strawn Un Thergen Respondence Coup COCA NCN | NE 8 HUQU PWN | | Einer K.B. G.L. D.F | 4011 ft 3994 ft 4010 ft | | | | | |
| | easured ^p rom Kelly | und Lend | Elev 3994 17.01 abov | ft e Permi Datum | | | | | |
| Well: Compary | Measured From: <u>Kelly</u> API Seria: No. 30-025-35585 | SECTION | TOWNSHIP 15S | BANGE 35E | | | | | |
| Logging Date Run Number Depth Driller Schlumberger Depth Bonom Log Interva | 1-SEP-2001 One 11907 ft 11906 ft 11896 ft | | | | | | | | |
| Top Log Interval Casing Driller Size @ Depth Casing Schlumberger Bit Size Type Fluid In Hole | 482C ft 8.625 in 4820 ft 7.875 in LSND | @ 4818 ft | | @ | | | | | |
| Density Viscosity Fluid Loss PH Source Of Sample | 9.1 lbm/gal 6.2 cm3 Circulation Tank | 45 s 10 | | | | | | | |
| RM @ Measured Temperatur RMF @ Measured Temperatur RMC @ Measured Temperatur Source RMF RMC | e 0.754 ohm.m ire 0.566 ohm.m | @ 89 degF @ 89 degF @ | | @ @ | | | | | |
| RM @ MRT RMF @ M Maximum Recorded Temper Circulation Stopped Logger On Bottom | RT 0.446 @ 155 atures 155 degF Time 1-SEP-2001 | 3:00 | <u>@</u> | | | | | | |
| Logger On Bottom Unit Number Location Recorded By Witnessed By | Time 1-SEP-2001 on 3076 Hobbs, Charles Bartlett Dale Windle, Mar | | | | | | | | |

- VII. Attach data on the proposed operation, including:
 - 1. Proposed average daily injection volume: 4000 BWPD Proposed maximum daily injection volume: 5000 BWPD
 - 2. This will be a closed system.
 - 3. Proposed average daily injection pressure: 2000 psi Proposed maximum daily injection pressure: 3000 psi
 - 4. Sources of injection water will be produced water from area San Andres wells that have been drilled and that are scheduled to be drilled on the West Lovington Strawn Unit (see list of source wells, Attachment G). A water analysis from nearby San Andres production (see Attachment H1 & H2) is attached that is taken from the WLSU #20 heater-(produced water), (raw water) pond, residence and adjacent Snyder water well.
 - 5. Chlorides in all of the source well is expected to be similar to the water analysis in Attachment H1 and H2.

Attachment G

VII. Item 4.

List of Produced Water Source Wells:

West Lovington Strawn Unit Sections 1, 5, 6, 28, 33, 34, 35 T15S & 16-S, R35-E, Lea County, New Mexico Well Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21 and subsequent proposed wells to drill in these sections.

| <u>م</u> ه م | UL. | U4.4VF | martin | Waler | Labs | 91 |
|------------------|-----|--------|--------|-------|------|----|
| | | | | | | |

| P O. BOX 1468 | Martin Water Lat | boratories, Inc. | | |
|--|-----------------------|---------------------|--------------|---|
| MONAHANS, TEXAS 79756 | | · • | | 709 W. INDIANA MIDLAND, TEXAS 7970 |
| PH, 943-3234 OR 563-1040 | RESULT OF WAT | ER ANALYSES | | PHONE 663-4521 |
| | | | 1202-78 | |
| TO: Mr. Andy Cobb | | LABORATORY NO. | | |
| TO: | e 100, Midland, TX | | 12/18/0 | and the second se |
| | | | | |
| COMPANY Energen Resour | ces Corp. | LEASE West Lov | ington Straw | n Unit |
| FIELD OR POOL | West Lov | vington | | |
| SECTION BLOCK SURVE | COUNTY_ | LeaSTA | TENM | |
| SOURCE OF SAMPLE AND DATE TAK | (EN: | | | |
| NO.1 Produced water - | taken from WLSU #20 |) (heater). 12/ | 17/02 | |
| NO. 2 | | | | |
| NO. 3 | | | | |
| NO. 4 | | | | |
| | Strawn | . | | |
| REMARKS: | | | | |
| | CHEMICAL AND PHYS | | NO 0 | |
| Specific Gravity at 80° F. | 1.065 | NO. 2 | NO. 3 | NO. 4 |
| pH When Sampled | 1.00 | · | | |
| pH When Received | 6.5 | 56 | ļ. — | |
| Bicarbonale as HCO, | 61 | | | |
| Supersaturation as CaCO, | | | | |
| Undersaturation as CaCO, | | | | |
| Total Hardness as CaCO, | 13,60 | 0 | | |
| Calcium as Ga | 4,16 | | | |
| Magnesium as Mg | 77 | | | |
| Sodium and/or Potassium | 29,63 | 34 | | |
| Sulfate as SO, | 42 | 20 | | |
| Chloride as Cl | 54,67 | 10 | | |
| Iron as Fe | 67. | 9 | | |
| Barium as Ba | | | | |
| Turbidity, Electric | | | | |
| Color as Pt | | | | |
| Total Solids, Calculated | 90,27 | 2 | | |
| Temperature *F. | | | | |
| Carbon Dioxide, Calculated | | | | |
| Dissolved Öxygen. | | | | |
| Hydrogen Sulfide | 0. | | · | |
| Resistivity, ohms/m at 77* F. | 0.10 | 12 | | |
| Suspended Oil Filtrable Solids as mg/l | | | | |
| Volume Filtered, mt | | | | |
| | | | | |
| | | | | |
| | | | | |
| | Results Reported As M | illigrams Per Liter | | |
| Additional Determinations And Remarks | the undersigned cert | ifies the above | to be true | and correct |
| to the best of his knowl | edge and belief. | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | - I | / |
| | | <u> </u> | an | |
| orm No. 3 | | N | -1 11. | 1.2 |
| | | By | 0.11 | |
| | ATTACHMENT H1 | Waylan | C. Martin, | M.A. |

Martin Water Laboratories, Inc.

P. O. BOX 1468 MONAHANS, TEXAS 79756 PH. 943-3234 OR 563-1040

Undersaturation as CaCO₃ Total Hardness as CaCO₃

Calcium as Ca

Sulfate as SO,

Chloride as Cl

Barium as Ba Turbidity, Electric Color as Pt

Temperature °F.

Hydrogen Sulfide

Suspended Oil Filtrable Solids as mg/l Volume Filtered, ml Nitrate, as N

Iron as Fe

Magnesium as Mg

Sodium and/or Potassium

Total Solids, Calculated

Carbon Dioxide, Calculated Dissolved Oxygen,

Resistivity, ohms/m at 77° F.

Additional Determinations And Remarks

we can be of any additional assistance.

709 W. INDIANA MIDLAND, TEXAS 79701 PHONE 683-4521

NCD NOV 0 8 2002

224

77

47

90

37

0,10

478

0.0

3.9

17.65

300

300

0.3

1,000

10.0

8

RESULT OF WATER ANALYSES

| | LABORATORY NO. | 1002 | 1002-167 | | |
|--------------------------------------|-------------------|---------------------|-----------------|---------|--|
| TO: Mr. Andy Cobb | SAMPLE RECEIVED | 10/ | 10/00/00 | | |
| 3300 N. "A", Bldg 4, Ste 100, Mid1 | RESULTS REPORTED. | 117. | 7/02 | | |
| COMPANY Energen Resources Co | | LEASE | | | |
| FIELD OR POOL SURVEY | | Lea STAT | F NM | | |
| SOURCE OF SAMPLE AND DATE TAKEN: | | _ | <u> </u> | | |
| NO.1 <u>Raw water - taken from p</u> | | . 10/23/ | /02 | | |
| NO.2 Raw water - taken @ resi | dence. | 10/23/ | /02 | | |
| NO.3 Raw water - taken from S | | ell. 10/23/ | /02 | | |
| NO.4 Maximum contents for drinking | g water as recom | nended by the Texa: | s Department of | Health. | |
| REMARKS: | | | | | |
| СН | EMICAL AND PHYSIC | AL PROPERTIES | ···· | | |
| | NO. 1 | NO. 2 | NO. 3 | NO. 4 | |
| Specific Gravity at 60° F. | | | | | |
| pH When Sampled | | | | | |
| pH When Received | 7.56 | 7.13 | 7.23 | | |
| Bicarbonate as HCO, | 259 | 273 | 220 | | |
| Supersaturation as CaCO, | | | | | |

232

80

8

40

59

33

0.00

478

0.0

3.4

Results Reported As Milligrams Per Liter

Soil sample - Chloride, as Cl = 0.0014%

These results fail to reveal evidence that would indicate any produced water contamination in any of these waters or soil sample that was submitted. Contact us if

By -

19.05

312

106

12

48

115

51

0.00

605

0.0

8.8

14.30

Form No. 3

ATTACHMENT H2

Waylan C. Martin, M.A.

1120

1

XI

A.

| Р О ВОХ 1468 Маг | tin Water Labora | itories, Inc. | | 709 W INDIANA | | | | |
|--|-----------------------------|--|---|---|--|--|--|--|
| MONAHANS, TEXAS 79756 | | | | MIQLAND, TEXAS 797 PKONE 683-4521 | | | | |
| PH. 943-3234 OR 563-1040 RESULT OF WATER ANALYSES | | | | | | | | |
| | | | | | | | | |
| ro: <u>Mr. Paul Calloway</u> | s | AMPLE RECEIVED | 11/1 | .5/02 | | | | |
| 3300 N. "A", Bldg 4, Ste 100, Mi | dland, TX 79705 R | ESULTS REPORTED | 11/1 | .9/02 | | | | |
| COMPANY Energen Resources Cor | D. IF | ASE WLS | U | | | | | |
| | vington. West | | · · · · · · · · · · · · · · · · · · · | | | | | |
| SECTION 33/34 BLOCK SURVEY T-1558R-3 | 5E COUNTY Le | a sta | TF NM | | | | | |
| SOURCE OF SAMPLE AND DATE TAKEN: | | 011 | · · · | | | | | |
| NO.1 Raw water - taken from win | dmill located | 520' south of | E WLSU #11. | 11/14/02 | | | | |
| NO.2 Raw water - taken from wat | | | | 11/14/02 | | | | |
| NO.3 Raw water - taken from wat | | | | 11/14/02 | | | | |
| NO.4 Raw water - taken from wat | | | | 11/14/02 | | | | |
| REMARKS: | | | | | | | | |
| CHEM | ICAL AND PHYSICA | | | | | | | |
| <u></u> | NO. 1 | NO. 2 | NO. 3 | NO. 4 | | | | |
| Specific Gravity at 60" F. | 1.0016 | 1.0011 | 1.0019 | 1.0017 | | | | |
| pH When Sampled | | | | | | | | |
| pH When Received | 7.37 | 8.36 | 7.02 | 7.47 | | | | |
| Bicarbonate as HCO, | 224 | 71 | 171 | 146 | | | | |
| Supersaturation as CaCO, | | | | | | | | |
| Undersaturation as CaCO, | 102 | 26 | 100 | | | | | |
| Total Hardness as CaCO, | 192 | 36 | 188 | 120 | | | | |
| Calcium as Ca | 67 | 7 | 58 | 38 | | | | |
| Magnesium as Mg Sodium and/or Potassium | <u> </u> | <u>4</u> 32 | 11 | 6 | | | | |
| Sulfate as SO. | 69 | 0 | <u> </u> | <u>48</u> 59 | | | | |
| Chloride as Cl | 26' | 27 | 99 | | | | | |
| Iron as Fe | 1.5 | 6.5 | 24.4 | 0.69 | | | | |
| Barium as Ba | | | | 0.09 | | | | |
| Turbidity, Electric | | | | | | | | |
| Color as Pt | | | | · · · · · · · · · · · · · · · · · · · | | | | |
| Total Solids, Calculated | 438 | 146 | 448 | 327 | | | | |
| Temperature *F. | | | | | | | | |
| Carbon Dioxide, Calculated | | | | | | | | |
| Dissolved Oxygen, | | | | | | | | |
| Hydrogen Sullide | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Resistivity, ohms/m at 77 ° F. | 20.80 | 49.50 | 16.20 | 25.25 | | | | |
| Suspended Orl | | | | | | | | |
| Filtrable Solida as mg/l | | | | | | | | |
| Volume Filtered, mi Carbonate, as CO ₂ | | | | | | | | |
| Nitrate, as N | <u> </u> | 5 | 0 | 0 | | | | |
| Attace, as a | <u>J.J</u> | 0.0 | 0.1 | 0.1 | | | | |
| R | esults Reported As Milligra | ms Per Liter | ····· | | | | | |
| Additional Determinations And Remarks | | | | | | | | |
| 1. WLSU #11 located 760' FNL & : | 2,090' FEL of | Section 33. | | | | | | |
| 2. WLSU #1 located 330' FSL & 2 | 145' FEL of S | Section 33. | | | | | | |
| 3. WLSU #8 located 1,980' FSL & | 660' FWL of S | Section 34. | | | | | | |
| 4. WLSU #21 (OCD lease #027820). | | | | <u></u> | | | | |
| The underst | lgned certifie | s the above t | o he true and | correct to | | | | |
| | | and the second | باللبانية المحاصية والمحاصية والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصية والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصة والمحاصية والمحاصة و | اللطوي في المراجع الم | | | | |

The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By.

Waylan C. Martin, M.A.

ATTACHMENT H3

DEC 19 2002 15:00

915 563 1040

PAGE.02





VIII. Describe the proposed stimulation program, if any.

Well will be acidized with 5,000 gallons of 15% HCL acid if required.

 $\overline{}$

ATTACHMENT TO APPLICATION C-108

WLSU #19 Unit D, Sect. 33, T. 15 S., R. 35 E. Lea Co., NM

- VIII. Injection Zone: The San Andres formation from 4,500-6,300' will be used for water disposal. The San Andres lithology is composed primarily of dolostone and anhydrite with minor interbedded clastics. The dolomite porosity is compartmentalized intercrystalline and varied-sized vuggular. The porosity developed is diagnetic due to subaerial exposure and phreatic water dissolution of the rock matrix; hence, an irregular, areal distribution pattern. The shallow-water shelf-edge depositional environment was little impacted by tectonic activity (minor fracture development). The Ogallala fresh water aquifer occurs from 60' to 250' beneath the surface. It is protected by 2 strings of casing: 13 ³/₈" casing set at 400' and 85/8" casing set at 4,818'.
- XII. I, David Cromwell, have examined available geologic data and find no evidence of open, active faults which may connect this proposed disposal zone to an underground source of fresh, potable water aquifer.

Signature

18 Nov 02

Attachment J

XIII. Item A.

Proof of Notice

List of Surface Owners:

State of New Mexico Commissioner of Public Lands P. O. Box 1148 Santa Fe, NM 87504-1148 Hardin & Watson, Inc. Rte 2, Box 43N Lovington, NM 88260

Dan Field & Glenda Field Branch Ranch P. O. Box 1105 Lovington, NM 88260

List of Lease Operators Within ¹/₂ Mile:

Energen Resources Corporation 3300 N. "A" Street, Bldg. 4, Ste. 100 Midland, Texas 79705

A copy of the C-108 Application for Authorization to Inject/Dispose have been sent to each of the above listed parties on this the <u>19th</u> day of December, 2002.

Sharon Hindman Regulatory Analyst Energen Resources Corporation

| oloroo, KoButler 20, St. Englis 12(5) (PRB) Fed | TO FOAC MODILI | Sperior Cleveland Jean)C. Jones | "Sugar St. | im Sweet Com '' | Sn | l I ste | 9 . 14 | ume Pet zoas zoos zoas | 1039 State W.D. | R D. Goodrich. M I. McWhorter (5) | 0(A 10 21 54 ℃ Good-ich. <i>W.D. Me</i> | la. etal MJ. When the LS |
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| | Tract Information Summar | v WLSU Well #19 SWD / | Application | | |
|---------|--|---|----------------------|------------------------------------|--|
| | | | ppnoullon | | |
| | lile Radius | | | | |
| Map No. | Operator & Address | Surface Owner & Address | Leae Name | Well Name & Numbers | Comments |
| 1 | Energen Resources Corporation 3300 N. *A* St., Building 4, Suite 100 Midland, TX 79705 | State of New Mexico Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148 | WLSU Tract 4 | WLSU Weils #14 & #19 | State of NM OGL No V-4065 State Surface Surface Lease GO-151 (Watson Construction, attn Danny Watson Rte 2, Box 38 Lovington, NM 88260 Cell Ph 505-370-5637 |
| 2 | Energen Resources Corporation 3300 N. "A" St., Building 4, Suite 100 Midland, TX 79705 | State of New Mexico Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148 | WLSU Tract 15 | No Active Wells | State of NM OGL No VA-880 State of NM OGL No VA-880 State Surface Surface Lease GO-151 (Watson Construction, attn Danny Watson Rte 2, Box 38 Lovington, NM 88260 Cell Ph 505-370-5637 |
| 3 | Energen Resources Corporation 3300 N. *A* St., Building 4, Suite 100 Midland, TX 79705 | Dan Field & Glenda Field Branch Ranch P.O. Box 1105 Lovington, NM 88260 | WLSU Tract 14 | WLSU Well #13 | |
| 4 | Hanley OAD, Ltd. II C/o Eric Hanson Hanley Petroleum, Inc. 415 W. Wall, Suite 1500 Midland, TX 79701 | Dan Field & Glenda Field Branch Ranch P.O. Box 1105 Lovington, NM 88260 | | No Active Wells | Tract HBP by WLSU |
| 5 | Hanley OAD, Ltd. II C/o Eric Hanson Hanley Petroleum, Inc. 415 W. Wall, Suite 1500 Midland, TX 79701 | State of New Mexico Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148 | | No Active Wells | State of NM OGL No VA-880 State Surface Surface Lease GO-151 (Watson Construction, attn Danny Watson Rte 2, Box 38 Lovington, NM 88260 Cell Ph 505-370-5637 |
| 6 | Yates PetroleumCompany | Hardin & Watson, Inc. Rte 2, Box 43N Lovington, NM 88260 | Big BearATN Lease | #1 ATN, #2 ATN, #3 ATN, # 4 ATN | No Information other than Location on #2 & #4 Wells |
| 7 | Energen Resources Corporation 3300 N. "A" St., Building 4, Suite 100 Midland, TX 79705 | Hardin & Watson, Inc. Rte 2, Box 43N Lovington, NM 88260 | WLSU Tract 24 | No Active Unit Wells | |
| 8 | | Hardin & Watson, Inc. Rte 2, Box 43N Lovington, NM 88260 | Baer Lease | Bær #2 | |
| 9 | Energen Resources Corporation 3300 N. "A" St., Building 4, Suite 100 | Hardin & Watson, Inc. Rte 2, Box 43N Lovington, NM 88260 | Baer Lease | No Active wells | HBP by Unit and #2 Baer Well |
| 10 | Energen Resources Corporation 3300 N. "A" St., Building 4, Suite 100 | Hardin & Watson, Inc. Rte 2, Box 43N Lovington, NM 88260 | WLSU Tract 7 | No Active Unit Wells | |
| 11 | Energen Resources Corporation 3300 N. *A* St., Building 4, Suite 100 Midland, TX 79705 | Dan Field & Glenda Field Branch Ranch P.O. Box 1105 Lovington, NM 88260 | WLSU Tract 8 | WLSU Weil #10 | |
| 12 | Energen Resources Corporation 3300 N. "A" St., Building 4, Suite 100 Midland, TX 79705 | Dan Field & Glenda Field Branch Ranch P.O. Box 1105 Lovington, NM 88260 | WLSU Tract 10 | WLSU Well #11 | |
| 13 | Energen Resources Corporation 3300 N. *A* St., Building 4, Suite 100 Midland, TX 79705 | | WLSU Tract 1 | WLSU Wells #1, #2, #3 & #4 | |

| | a Two Mile Radius | | | | |
|---------|--|-------------------------|--------------------------------------|--|---|
| Map No. | Operator & Address | Surface Owner & Address | Leae Name | Well Name & Numbers | Comments |
| 14 | Energen Resources Corporation 3300 N. "A" St., Building 4, Suite 100 Midland, TX 79705 | | West Lovington Strawn Unit | | Energen Operates all active wells including those producing from outsid the Unitized Interval |
| 15 | Energen Resources Corporation 3300 N. *A* St., Building 4, Suite 100 Midland, TX 79705 | | State "B" | | |
| 16 | Energen Resources Corporation 3300 N. *A* St., Building 4, Suite 100 Midland, TX 79705 | | State "D" | Wells #1, #2, #4, #5, #6 & #8 | |
| 17 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | Chambers AQI State | One well on unit I | State Lease Number V-3917 |
| 18 | David Petroleum Corp 116 W. 1st St. Roswell, NM 88201 Ph 505-622-885- | | S/2 SE/4 and SE/4 SW/4 Section 27 | No Active Wells on Tract | (May only be partial owner) |
| 19 | ChevronTexaco 15 Smith Road Midland, TX 79705 915-687-7100 | | N/2 NE/4 & SE/4 NE/4 Section 28 | No Active Wells on Tract | State Lease Number E-2431 |
| 20 | Hanley OAD, Ltd. II C/o Eric Hanson Hanley Petroleum, Inc. 415 W. Wall, Suite 1500 Midland, TX 79701 | | NW/4 & SW/4 NE/4 | No Active Wells | State of NM OGL No VA-880 |
| 21 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | Barry ARD State | One well on Unit D | State of NM OGL No VA-1000 |
| 22 | Appears Open | | Section 22 | | Last Lease State VA-1549 appears to |
| 23 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | E/2 Section 21 | No Active Wells | have expired 1/1/2002 State of NM OGL No VA-2041 |
| 24 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | W/2 Section 21 | No Active Wells | State of NM OGL No VA-2050 |
| 25 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | NE/4 Section 20 | No Active Wells | State of NM OGL No VB-553 |
| | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | S/2 Section 20 | No Active Wells | State of NM OGL No V-5635 |
| | Exxon Mobil Corporation P.O. Box 4697 Houston, Texas 77210-4697 | | | Yates - Blue Suede St BAT | State of NM OGL No L-6690 ExxonMobil Record title holder per the State of NM |
| | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | 1 | N/2 SE/4 Section | | State of NM OGL No V-5610 |
| 29 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 Ph. 505-748-4489 | | S/2 SE/4 Section 1 19 | No Active Wells | State of NM OGL No V-5611 |
| 30 | Yates Petroleum Corporation 105 S. 4th St. Artesia, NM 88210 | 1 | | Permitted Well Yates - Pawn AWP St. unit D | State of NM OGL No V-5599 |

| 31 | David Arrington Oil & Gas, Inc. | | S/2 Section 30 | Permitted Well | Fee Lands Numerous leases shown |
|----|---------------------------------------|--|-----------------------|-------------------------------|---------------------------------------|
| | P.O. Box 2071 | | | EOG - John's Hopper No. 2 | County Map all of the parties listed |
| | Midland, TX 79702 | | | unit L | to be Lessees |
| | Ph. 915-682-6685; | | | Garc | IO DE LESSEES |
| | Yates Petroleum Corporation | | | | |
| | 105 S. 4th St. | | 2 | | |
| | Artesia, NM 88210 | | | | |
| | Ph. 505-748-4489; | | | | |
| | | | | | |
| | David Petroleum Corp | | | | |
| | 116 W. 1st St. | | | | |
| | Roswell, NM 88201 | | | | |
| | Ph 505-622-8850 | | | | |
| 32 | David Arrington Oil & Gas, Inc. | | N/2 Section 31 | No Active Wells | |
| | P.O. Box 2071 | | 14/2 000001 01 | NO ACTIVE WEIIS | Arrington may only own partial right |
| | Midland, TX 79702 | | | | |
| 33 | Devon Energy Production Company, L.P. | + | + | | |
| •• | 20 N. Broadway, Suite 1500 | | J. D. Price | Well #2 | |
| | | | | | |
| | Oklahoma City, OK 73102 | | | | |
| | Ph 405-552-4627 | | | | |
| 34 | David Arrington Oil & Gas, Inc. | | SW/4 Section 31 | No Active Wells | |
| | P.O. Box 2071 | | Conf Occuoit 31 | Ino Active Wells | Arrington may only own partial right: |
| | Midland, TX 79702 | | | | |
| | Ph. 915-682-6685 |] | | 1 | ł |
| 35 | | | | | |
| 55 | Energen Resources Corporation 3300 N. | | NW/4 NE/4 Sectio | n No Active Wells | May be additional parties |
| | "A" St., Building 4, Suite 100 | | 34 | | intra of additional parties |
| | Midland, TX 79705; | | 1. | | |
| | David Arrington Oil & Gas, Inc. | | | | |
| | P.O. Box 2071 | | | | |
| | Midland, TX 79702 | | | | |
| | | | | | |
| | Ph. 915-682-6685; | | | | |
| | David Petroleum Corp | | | | |
| | 116 W. 1st St. | | | 1 | |
| | Roswell, NM 88201 | | | | |
| | Ph 505-622-8850 | | | | |
| 36 | Energen Resources Corporation 3300 N. | · · · · · · · · · · · · · · · · · · · | NE/4 NE/4 Section | Ale 4 -1 - 18/-11- | |
| | "A" St., Building 4, Suite 100 | | | IND ACTIVE Wells | State of NM OGL No VA-644 |
| | Midland, TX 7970 | | 34 | | |
| 37 | David Arrington Oil & Gas, Inc. | | | | |
| 01 | | | NW/4 Section 35 | Permitted Well | |
| | P.O. Box 2071 | | | Arrington - Disco-Modge uni | |
| | Midland, TX 79702 | | | D | · |
| | Ph. 915-682-6685 | | | U | |
| 38 | David Arrington Oil & Gas, Inc. | | 0.111.0 | | |
| | P.O. Box 2071 | | SW/4 Section 26 | No Active Welis | Arrington may only own partial rights |
| | | | | | , , , , , , , , , , , , , , , , , , , |
| | Midland, TX 79702 | | | | |
| | Ph. 915-682-6685 | | | | |
| 39 | Amerind Oil Co., L.P. | | Lots 1, 2, 5, 6, 7, 8 | Colleghes State#2 | 0 |
| | 415 W. Wall St., Suite 500 | | | | State of NM OGL No LG-478 |
| | Midland, TX 79701 | | & 9, Section 2 | West State #1 | Sol West Record title holder |
| | Ph 915-682-8217 | | | | |
| 44 | Amerind Oil Co., L.P. | | | | 4 |
| TT | | | Lots 3 & 4, Section | Mobil State #1 | State of NM OGL No 3003 ExxonMo |
| | 415 W. Wall St., Suite 500 | | 2 | | Record title holder |
| | Midland, TX 79701 | | | | |
| | Ph 915-682-8217 | | | | |
| 40 | Yates Petroleum Corporation | | Lots 8, 10, 11 | Field ADK Otate MUR HILLS | |
| | 105 S. 4th St. | | | FIERD ARK State Wells #1 thru | State of NM OGL No VA-604 |
| | Artesia, NM 88210 | | Section 2 | 4 | |
| | Ph. 505-748-4489 | | | Gallagher ATJ State Com #1 | |
| | Ocean Energy, Inc. | | | | |
| | | l | _ots 14, 15, 16 & | Townsend State 1, 5, 9, 11 | State of NM OGL No. E-7720 |
| | 1001 Fannin, Suite 1600 | 5 | SE/4 Section 2 | , -, -, -, | |
| ĺ | Houston, TX 770002 | | | | |
| | Ph. 713-265-6000 | | | | |
| | Permian Resources, Inc. | 1 | ot 12 Section 2 | Now Movies 144 | |
| | 608 N. Main St. | L. L | | New Mexico I #1 | State of NM OGL No. E-3003 |
| | Midland, TX 79701 | | | | |
| 1 | Ph. 915-685-0113 | | i i | | |
| | | | | | |
| | Yates Petroleum Corporation | | ots 1, 2, 7, & 8 | Daisy AFS State #1 | State of NM OCL No. VIDAR |
| | 105 S. 4th St. | | ection 3 | | State of NM OGL No. VB15 |
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| / | Artesia, NM 88210 Ph. 505-748-4489 | 5 | | I | |

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Attachment K

XIII. Item B.

LEGAL NOTICE NOTICE OF APPLICATION FOR DISPOSAL WELL PERMIT

ENERGEN RESOURCES CORPORATION, 3300 N. "A" Street, Bldg. 4, Ste. 100, Midland, Texas 79705, has filed form C-108 (Application For Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the West Lovington Strawn Unit #19 is located 330' FNL & 1000' FWL, Section 33, Township 15 South, Range 35 East, Lea County, New Mexico. Disposal water will be sources from area wells producing from the San Andres formation. The disposal water will be injected into the San Andres formation at a depth of 4818'-6300', a maximum surface pressure of 3000 psi, and a maximum rate of 5000 BWPD.

LEGAL AUTHORITY: Rule 401.C.(1) of the Rules and Regulations of the New Mexico Oil Conservation Commission.

Requests for a public hearing from persons who can show they are adversely affected, or requests for further information concerning any aspect of the application should be submitted in writing, within fifteen days of this publication, to the Oil Conservation Division, 2040 S. Pacheco Street, Santa Fe, New Mexico 87505. Additional information can be obtained by contacting Sharon Hindman, Regulatory Analyst, at 3300 N. "A" Street, Bldg. 4, Ste. 100, Midland, Texas 79705, or (915) 684-3693. State of New Mexico, County of Lea.

I, KATHI BEARDEN

Publisher

of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period.

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2002

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Beginning with the issue dated

November 24 2002 and ending with the issue dated

November 24

Publisher Sworn and subscribed to before

me this <u>25th</u> day of

November

btary Public.

My Commission expires October 18, 2004

(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

REC'D NOV 3 0 2002

LEGAL NOTICE November 24, 2002 NOTICE OF APPLICATION FOR DISPOSAL WELL PERMIT

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01105161000 67510798

Energen Resources Corporation 3300 North "A" Street Building 4, Suite 100 MIDLAND, TX 79705 STATE OF TEXAS

COUNTY OF MIDLAND

BEFORE ME, the undersigned authority on this day personally appeared Sharon Hindman, an Regulatory Analyst with Energen Resources Corporation, who being by me duly sworn, deposes and states that the persons listed on the foregoing attached list have been sent a copy on December 19, 2002, of the New Mexico Oil Conservation Division form C-108 entitled, "Application For Authorization To Inject" for the West Lovington Strawn Unit Well #19, located in Section 33, T15S, R35E, Lea County, New Mexico.

Energen Resources Corporation

Sharon Hindman

Sharon Hindman

SBUSCRIBED AND SWORN TO before me on December 19, 2002, to certify which witness my hand and seal of office.



10 NOTARY PUBLIC, STATE OF TEXAS