

SWD 6/2/98  
722

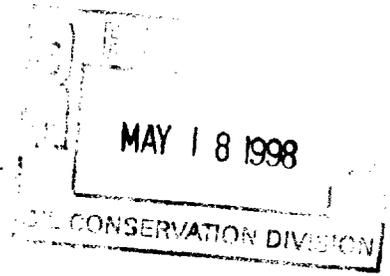
**PENWELL ENERGY, INC.**

1100 ARCO BUILDING  
600 N. MARIENFELD  
MIDLAND, TEXAS 79701

OFF: (915) 683-2534  
FAX: (915) 683-4514

May 14, 1998

State of New Mexico  
Energy, Minerals, & Natural Resources Dept.  
Oil Conservation Division  
2040 Pacheco Street  
Santa Fe, New Mexico 87505



Attn: David Catanach

Re: Application For Authorization To Inject  
Oscar State #1 SWD, Sec. 36, T24S, R29E, Eddy Co.

Mr. Catanach,

Enclosed please find Form C-108 "Application For Authorization To Inject" with attachments for the proposed Oscar State #1 SWD located in Section 36, T24S, R29E, Eddy County, New Mexico.

The wellbore was originally drilled as a Morrow test and subsequently plugged. Penwell Energy proposes to re-enter the upper portion of the hole using the Delaware as an injection target. Produced water from area Bone Springs wells will be the source of the disposal water.

You will find this application to be similar to the recently approved Ore Ida "14" Federal #10 (Administrative Order SWD-695) which is located about 3 miles to the North.

If you should have any questions or need additional data, please contact the undersigned at (915) 683-2534.

  
Charlie Knight  
Engineer

Cc: Tim Gum, NMOCD Artesia

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery Pressure Maintenance  Disposal Storage  
Application qualifies for administrative approval?  Yes  No
- II. OPERATOR: Penwell Energy, Inc.  
ADDRESS: 600 N. Marienfeld, Suite 1100 Midland, Texas 79701  
CONTACT PARTY: Charlie Knight / John Gray PHONE: 915-683-2534
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project:  Yes  No  
If yes, give the Division order number authorizing the project \_\_\_\_\_
- 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:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. 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 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 source 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: Charlie Knight TITLE: Engineer  
SIGNATURE: Charlie W. Knight Jr. DATE: 4/3/98
- \* 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 circumstance 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 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, PO Box 2088, Santa Fe, NM 87504-2088 within 15 days.

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

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**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.**

## Application For Authorization To Inject

Attachment to Form C-108  
Oscar State #1 SWD  
Sec 36, T24S, R29E, Eddy Co.

- I. Purpose: Disposal
- II. Operator: Penwell Energy, Inc.  
Address: 600 N. Marienfeld, Suite 1100, Midland, TX, 79701  
Contact: Charlie Knight / John Gray (915) 683-2534
- III. Well data: See attached "Injection Well Data Sheet".
- IV. Is this an expansion of an existing project? No.
- V. Map showing wells and leases and half-mile radius: See map attached.
- VI. Data on wells within area of review: The only well within the area of review is the Oscar State #1 (subject well). This well was plugged Aug. 1996 and is proposed for re-entry for use as a SWD well. See attached "Injection Well Data Sheet" for well data.
- VII.
  1. Proposed average and maximum injection rates: 1500 BWPD average  
3500 BWPD maximum
  2. The water injection system will be a closed system.
  3. Proposed average and maximum injection pressure: 1000 psig average  
1780 psig maximum  
Note: see attached Delaware injectivity test on Ore Ida 14 Federal #10 located three miles to the north (similar results expected on subject well).
  4. Sources and analysis of injection water and compatibility with receiving formation: Injection water will be produced water from the E. Pierce Canyon (Bone Springs) production from the Penwell Energy operated Spuds 25 Federal Lease and the soon to be developed Spuds 36 State lease. As Penwell Energy continues to acquire and develop additional acreage in the area, produced Bone Springs and/or Delaware water from those leases may be added to the list of disposal water sources.

See attached analysis of produced water from the Spuds 25 Federal #3. Also attached is a water analysis and compatibility statement from Martin Water Labs indicating that 3 miles to the north, similar Bone Springs produced water from the Penwell Energy operated Ore Ida 14 Federal lease is compatible with Delaware water taken from the Ore Ida 14 Federal #10 SWD well (reference order SWD-695).

5. Disposal into a zone not productive of oil or gas; disposal zone water analysis: It is expected that once the Oscar State #1 has been re-entered and a water sample is taken from the proposed Delaware injection target, the water will be the same in chemical composition and compatibility as the Ore Ida 14 Federal #10 SWD water in item 4 above.
- VIII. Geological data on the injection zone: The proposed injection zone is the Bell Canyon and the upper Cherry Canyon sections of the Delaware formation. The lithology is primarily sandstone and shales. The top of the Delaware (Bell Canyon) is at 3310 and is 3822' thick to the base of the Delaware (Brushy Canyon).
- Geological data on underground drinking water: The only known source of underground drinking water is surface rock, clay, sand, and intermingled red beds at the surface to a depth of 350'.
- IX. Proposed stimulation: The open hole injection target 3292'-4760' will be stimulated with acid as needed to clean up the formation face.
- X. Well logs on the Oscar State #1 are attached.
- XI. Only two fresh water wells were found to have been drilled within 1 mile of the proposed injection well and records show they were both non productive and plugged.
- XII. Available geologic and engineering data has been examined and no evidence was found of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Proof of notice: Attached is a copy of certified mail receipts from when a copy of the application was sent to the following:  
Surface owner: State of New Mexico  
Leasehold operators within ½ mile: Penwell Energy  
Yates Petroleum  
Bass Enterprises  
Also attached is proof of publication in the Carlsbad Current Argus newspaper.
- XIV. Certification: See Form C-108.

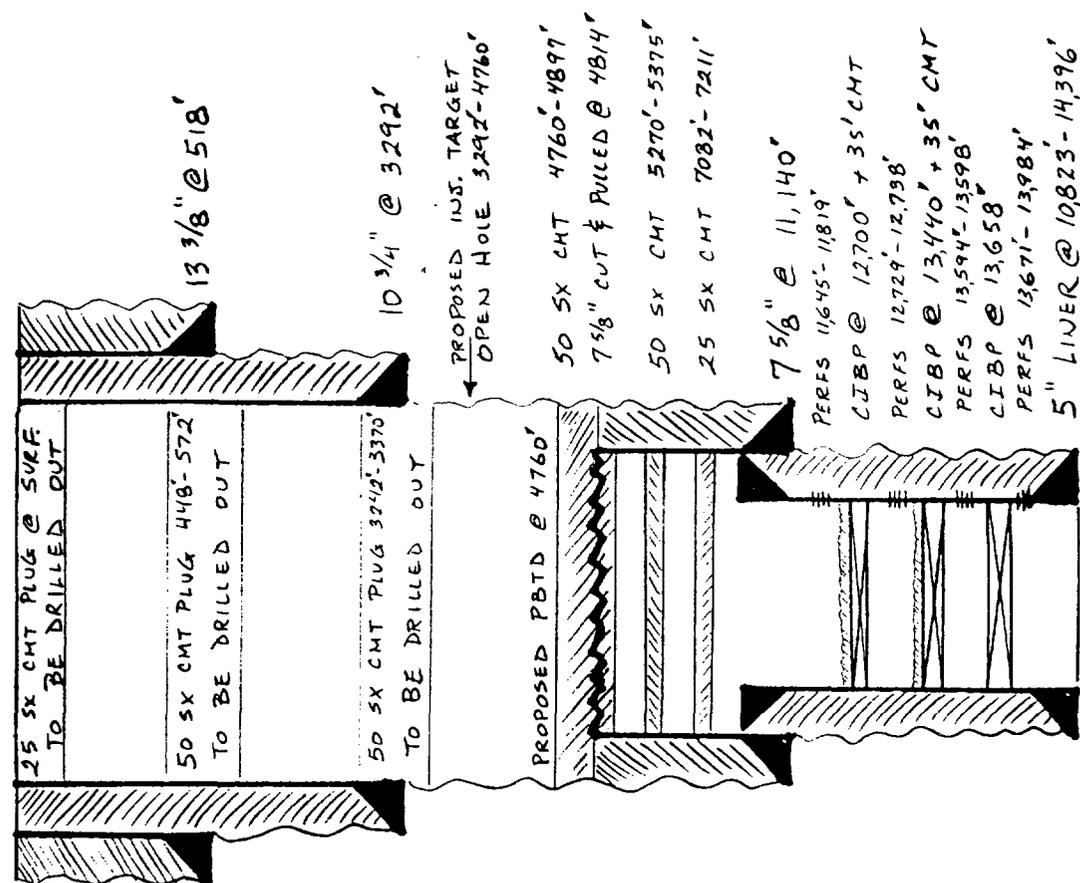
# INJECTION WELL DATA SHEET

OPERATOR Penwell Energy, Inc. LEASE Oscar State

WELL NO. 1 1980' FNL, 1980' FEL SECTION 36 TOWNSHIP 24S RANGE 29E

Well Construction Data

**OSCAR STATE #1  
WELLBORE SCHEMATIC**



Surface Casing  
 Size 13 3/8" Cemented with 530 sx.  
 TOC Surface feet determined by Circulated  
 Hole Size 17 1/2" Casing set @ 518'  
 Intermediate Casing  
 Size 10 3/4" Cemented with 1035 sx.  
 TOC Surface feet determined by Circulated  
 Hole Size 12 1/4" Casing set @ 3292  
 Long String  
 Size 7 5/8" Cemented with 655 sx.  
 TOC 4820' (est.) feet determined by Free Point  
 Hole Size 9 5/8" Casing set @ 11,140'  
 LINER  
 Size 5" Cemented with 705 sx.  
 TOC 10,823' feet determined by Squeeze Liner Top  
 Hole Size UNKNOWN Casing set @ 10,823' - 14,394'  
 Total Depth 14,396  
 Injection Interval

3,292' feet to 4,760' feet Open Hole  
 (perforated or open-hole: indicate which)

TD 14,396'

## INJECTION WELL DATA SHEET

Tubing Size 2 7/8" lined with Plastic Coated set in a  
 (type of internal coating)  
Baker 10 3/4" x 2 7/8" Lok-set packer at 3250' feet

Other type of tubing / casing seal if applicable \_\_\_\_\_

Other Data

1. Is this a new well drilled for injection? Yes  No   
 If no, for what purpose was the well originally drilled? Originally drilled  
to test the Morrow (SPUD ON 10/19/79).
2. Name of the injection formation Delaware (open hole interval 3292'-4760')
3. Name of Field or Pool (if applicable) E. Peirce Crossing (Bone Springs)
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e., sacks of cement or plug(s) used. Perfs at 13979-13984, 13671-13680, 13594-13598, 12729-12738, 11645-11819; CIBP set at 13658, 13440, and 12700; Cmt plugs: 25 sx 7082-7211, 50 sx 5270-5375, 50 sx 4760-4897, 50 sx 3242-3370, 50 sx 448-572, 25 sx at surface.
5. Give the names and depths of any over or underlying oil or gas zones (pools) in this area.  
No Delaware potential at this site. No potential above the  
Delaware. The uppermost potential begins in the Bone Springs  
(top of Bone Springs at 7130').



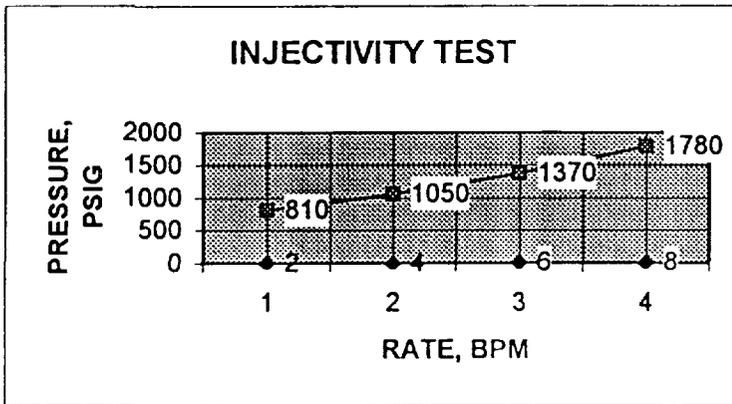
ORE IDA "14" FEDERAL ,# 10

INJECTIVITY TEST

Test Date 10-16-1997

Perfs: Bell Canyon, 3210' - 3618'

RATE BPM	PRESSURE PSIG
2	810
4	1050
6	1370
8	1780





RESULT OF WATER ANALYSES

TO: Mr. John Gray LABORATORY NO. 1097136  
600 N. Marienfeld, Ste 1100, Midland, TX SAMPLE RECEIVED 10-17-97  
79701 RESULTS REPORTED 10-21-97

COMPANY Penwell Energy, Inc. LEASE Ore Ida "14" Federal #10  
 FIELD OR POOL Pearce Crossing  
 SECTION      BLOCK      SURVEY      COUNTY Eddy STATE NM

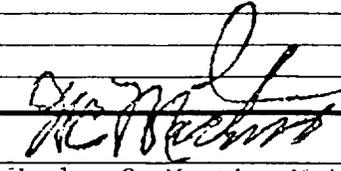
SOURCE OF SAMPLE AND DATE TAKEN:  
 NO. 1 Produced water - taken from Ore Ida "14" Federal #10. 10-15-97 DELAWARE  
 NO. 2 Produced water - taken from "A" battery. 10-15-97 BONE SPRINGS  
 NO. 3 Produced water - taken from "B" battery. 10-15-97 BONE SPRINGS  
 NO. 4     

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F	1.1185	1.1278	1.1258	
pH When Sampled				
pH When Received	6.23	6.59	6.75	
Bicarbonate as HCO <sub>3</sub>	117	556	508	
Supersaturation as CaCO <sub>3</sub>	4	88	48	
Undersaturation as CaCO <sub>3</sub>	--	--	--	
Total Hardness as CaCO <sub>3</sub>	34,000	9,600	8,600	
Calcium as Ca	10,400	2,920	2,560	
Magnesium as Mg	1,944	559	535	
Sodium and/or Potassium	58,140	73,366	71,046	
Sulfate as SO <sub>4</sub>	74	389	395	
Chloride as Cl	113,630	119,312	115,051	
Iron as Fe	105	68.8	32.3	
Barium as Ba	0	0	0	
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	184,305	197,102	190,094	
Temperature °F				
Carbon Dioxide, Calculated	129	289	167	
Dissolved Oxygen				
Hydrogen Sulfide	0.0	0.0	0.0	
Resistivity, ohms/m at 77° F.	0.061	0.059	0.060	
Suspended Oil				
Filterable Solids as mg/l				
Volume Filtered, ml				
Calcium Carbonate Scaling Tendency	None	Marginal	None	
Calcium Sulfate Scaling Tendency	None	None	None	
Barium Sulfate Scaling Tendency	None	None	None	

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The objective herein is to evaluate compatibility between the waters represented. A careful comparison fails to reveal evidence of any incompatibility. This is to say that any combination of these waters would not be expected to result in any precipitation or scaling potential. Contact us if we can be of any additional assistance in this matter.

By   
 Waylan C. Martin, E.A.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

3. Article Addressed to:  
**State of New Mexico**  
**Commissioner of Public Safety**  
**P.O. Box 1147**  
**Santa Fe, NM 87504**

4a. Article Number  
**2 100 667 361**

4b. Service Type  
 Registered  
 Express Mail  
 Return Receipt for Merchandise  
 COD

5. Received By: (Print Name)  
**(OSCAR SWD)**

6. Signature: (Addressee or Agent)  
**X [Signature]**

7. Date of Delivery  
**APR 06 1994**

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

102595-97-B-0179

Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

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3. Article Addressed to:  
**BASS Enterprises**  
**201 Main St.**  
 **Ft. Worth, Tx 76102**

4a. Article Number  
**2 100 667 360**

4b. Service Type  
 Registered  
 Express Mail  
 Return Receipt for Merchandise  
 COD

5. Received By: (Print Name)  
**(OSCAR SWD)**

6. Signature: (Addressee or Agent)  
**X [Signature]**

7. Date of Delivery  
**APR 06 1994**

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

102595-97-B-0179

Domestic Return Receipt

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- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
**Vates Petroleum**  
**105 So. 4th Street**  
**Artesia, NM 88210**

4a. Article Number  
**2 100 667 359**

4b. Service Type  
 Registered  
 Express Mail  
 Return Receipt for Merchandise  
 COD

5. Received By: (Print Name)  
**(OSCAR SWD)**

6. Signature: (Addressee or Agent)  
**X [Signature]**

7. Date of Delivery  
**4 6 98**

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

102595-97-B-0179

Domestic Return Receipt

# Affidavit of Publication

No 18459

State of New Mexico,  
County of Eddy, ss.

Amy McKay

being first duly sworn, on oath says:

That she is Business Manager  
of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

<u>April 8</u>	, 19 <u>98</u>
_____	, 19_____
_____	, 19_____
_____	, 19_____
_____	, 19_____
_____	, 19_____

That the cost of publication is \$ 27.57,  
and that payment thereof has been made and will be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this

11<sup>th</sup> day of May, 1998

Donna Crump

My commission expires 8/1/98

Notary Public

April 8, 1998

## NOTICE OF INTENT TO INJECT PRODUCED WATER

Penwell Energy, Inc.  
600 N. Marienfeld, Suite 1100  
Midland, Texas 79701

Contact party: Charlie Knight  
or John Gray, Engineer (915)  
683-2534

The purpose of the proposed Salt Water Disposal well is to inject water produced from oil wells that Penwell Energy operates in Sections 25 and 26 of T24S, R29E, Eddy County, New Mexico. Produced water is from the Bone Springs formation (7950'-8570') and will be disposed of in the Delaware interval 3292'-4760' which is non-productive of oil and gas in this immediate area.

The proposed disposal well is the Oscar State #1 located 1980' FNL, 1980' FEL, Section 36, T24S, R29E, Eddy County, New Mexico. The maximum expected injection rate is 3500 BWPD and the maximum expected injection pressure is 1780 psig.

All interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87504-2088 within 15 days.

**CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS**

Operator: PENWELL ENERGY Well: OSCAR G. #1 SWD  
Contact: CHARLIE KNIGHT Title: ENG. Phone: 915-684-2534  
DATE IN 5-18 RELEASE DATE 6-2-98 DATE OUT 9-10

Proposed Injection Application is for:  WATERFLOOD  Expansion  Initial

Original Order: R-  Secondary Recovery  Pressure Maintenance

~~SENSITIVE AREAS~~  SALT WATER DISPOSAL  Commercial Well  
 WIPP  Capitan Reef

Data is complete for proposed well(s)?  Additional Data Req'd WATER ANALYSIS  
 ADD INFO

**AREA of REVIEW WELLS**

Total # of AOR  # of Plugged Wells  
 Tabulation Complete  Schematics of P & A's  
 Cement Tops Adequate  AOR Repair Required

**INJECTION FORMATION**

Injection Formation(s) DELAWARE (BOLL + CHERRY) Compatible Analysis YKS  
Source of Water or Injectate BOLE SPRING

**PROOF of NOTICE**

Copy of Legal Notice  Information Printed Correctly  
 Correct Operators  Copies of Certified Mail Receipts  
 Objection Received  Set to Hearing \_\_\_\_\_ Date

**NOTES:**

**APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL?** YKS

**COMMUNICATION WITH CONTACT PERSON:**

1st Contact:  Telephoned  Letter \_\_\_\_\_ Date \_\_\_\_\_ Nature of Discussion \_\_\_\_\_  
2nd Contact:  Telephoned  Letter \_\_\_\_\_ Date \_\_\_\_\_ Nature of Discussion \_\_\_\_\_  
3rd Contact:  Telephoned  Letter \_\_\_\_\_ Date \_\_\_\_\_ Nature of Discussion \_\_\_\_\_