

**Jones, William V., EMNRD**

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**From:** Jones, William V., EMNRD  
**Sent:** Friday, December 02, 2011 4:51 PM  
**To:** 'Eddie Seay'; pdarden@legacyp.com  
**Cc:** Ezeanyim, Richard, EMNRD; Dade, Randy, EMNRD  
**Subject:** Disposal application from Legacy Reserves Operating, LP: Andrew Arnquist Estate Well No. 2 30-015-21942 Cisco Canyon disposal from 7750 to 8100 feet

Hello Eddie and Mr. Darden:

We still have an outstanding protest on this application, but evaluated it anyway to prevent delays if the protest is withdrawn or the application goes to hearing.

The Rule 5.9 inactive wells at this time is OK – the system shows 7 wells inactive which is the limit. If any other wells go inactive, then Rule 5.9 issues would prevent disposal permits.

Couple of other issues,

- a. Were there any water wells or windmills within 1 mile of this location? If so, please send a recent water analysis of that water with the location stated on the analysis.
- b. Please send a statement from an engineer or geologist as to the possible oil or gas productivity of this Canyon interval or how Legacy would evaluate it prior to commencing disposal.
- c. Yates and Brothers were noticed as operators or lessees of acreage in the Area of Review. Please send a map, or specific legal location, showing what minerals (acreage) each of these operators (and Legacy) control at the Canyon formation depths.

Thank You,

William V. Jones, P.E.  
Engineering, Oil Conservation Division  
1220 South St. Francis Drive, Santa Fe, NM 87505  
Tel 505.476.3448 ~ Fax 505.476.3462



*Going To Hearing*

*Case 14808*

Injection Permit Checklist (11/15/2010)

WFX PMX SWD Permit Date UIC Qtr

# Wells: 1 Well Name(s): ANDREW ARNQUIST EST #2

API Num: 30-0 15-21942 Spud Date: 10/28/76 New/Old: 0 (UIC primacy March 7, 1982)

Footages: 330FNL/330FEL Unit: A Sec: 29 Tsp: 18S Rge: 26E County: EDDY

General Location: NW of Corral Creek, N of Reef

Operator: Legacy Resource Operations Contact: Pat Darden / EDDY Sany

OGRID: 240114 RULE 5.9 Compliance (Wells): (7) 199 (Finan Assur): OK IS 5.9 OK? OK

Well File Reviewed: Current Status: P&A

Planned Work to Well: To 8200' Re-enter 5 1/2" old hole, run 5 1/2" at LIM CT

Diagrams: Before Conversion ☒ After Conversion ☒ Elogs in Imaging File:

Well Details:		Sizes	Setting	Stage	Cement	Determination
		Hole.....Pipe	Depths	Tool	Sx or Cf	Method
New	Existing	Surface	17 1/2 13 1/8	400'	360	CIRC
New	Existing	Interm	12 1/4 9 5/8	1200'	750	CIRC
New	Existing	LongSt	8 3/4 7	3600'	684	CIRC
New	Existing	Liner	6 1/2 5 1/2	(8200' NAL TD)		
New	Existing	OpenHole				

Depths/Formations:	Depths, Ft.	Formation	Tops?
Formation(s) Above	7100 7770	CISCO Canyon	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Injection TOP:	7750	CISCO	Max. PSI 1550 OpenHole Perfs <input checked="" type="checkbox"/>
Injection BOTTOM:	8100	CISCO	Tubing Size 2 7/8 Packer Depth 7700
Formation(s) Below	8200	STRAIN	<input checked="" type="checkbox"/>

Capitan Reef? (Potash? Noticed?) [WIPP? Noticed?] Salado Top/Bot < 700' Cliff House?

Fresh Water: Depths: < 160' Formation: OGada Wells? 0 Analysis? 0 Affirmative Statement ☒

Disposal Fluid Analysis? Sources: Legacy's own Yes production

Disposal Interval: Analysis? Production Potential/Testing:

Notice: Newspaper Date 10/2/11 Surface Owner: Arnquist Ed Mineral Owner(s): ✓

RULE 26.7(A) Affected Persons: Yates / Brother Prod

AOR: Maps? ☒ Well List? ☒ Producing in Interval? NO Wellbore Diagrams? ☒

.....Active Wells 2 Repairs? 0 Which Wells? —

.....P&A Wells 0 Repairs? — Which Wells? —

Issues: Request Sent Reply:

**Jones, William V., EMNRD**

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**From:** Jones, William V., EMNRD  
**Sent:** Tuesday, November 22, 2011 4:27 PM  
**To:** 'Betty Arnquist'; pdarden@legacylp.com  
**Subject:** RE: Objection

This administrative application will be held in suspense until this objection is withdrawn or a maximum of 6 months.

Please let us know if this objection is withdrawn or when a Case is entered for an examiner hearing.

Regards,

Will Jones  
New Mexico  
Oil Conservation Division  
Images Contacts

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**From:** Betty Arnquist [<mailto:bettyarnquist@gmail.com>]  
**Sent:** Tuesday, November 22, 2011 3:47 PM  
**To:** Jones, William V., EMNRD; [pdarden@legacylp.com](mailto:pdarden@legacylp.com)  
**Subject:** Objection

RE: Unit A, Section 29, Township 18 South, Range 26 East, Eddy County, New Mexico

Dear Oil Conservation Division:

On behalf of the owners of the surface rights of the Northern half of Section 29 referenced above, I wish to object within 15 days of receiving notice of the Application for Authorization to Inject filed by Legacy Reserves, until we reach a written agreement.

Sincerely,

Betty P. Arnquist

415-461-8888

**Jones, William V., EMNRD**

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**From:** Betty Arnquist [bettyarnquist@gmail.com]  
**Sent:** Tuesday, November 22, 2011 3:47 PM  
**To:** Jones, William V., EMNRD; pdarden@legacyp.com  
**Subject:** Objection

RE: Unit A, Section 29, Township 18 South, Range 26 East, Eddy County, New Mexico

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Sincerely,

Betty P. Arnquist

415-461-8888

PTGW

DATE IN <u>11.9.11</u>	SUSPENSE	ENGINEER <u>WVJ</u>	LOGGED IN <u>11.9.11</u>	TYPE <u>SWD</u>	APP NO. <u>1131348415</u>
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ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505



Legacy A 12:4

Andrew Arvizu Est. #

**ADMINISTRATIVE APPLICATION CHECKLIST** 30-015-21942

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 Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication

☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement

☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery

☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify \_\_\_\_\_

*Corrected 11/22/11*  
*A-29-185-26E*

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☒ Offset Operators, Leaseholders or Surface Owner

[C] ☒ 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

*7700'-8100'*  
*1200' ST*

[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.

Pat Darden

Print or Type Name

P. Darden

Signature

Sr. Engineer

Title

11/07/11

Date

pdarden@legacylp.com  
 e-mail Address

**APPLICATION FOR AUTHORIZATION TO INJECT**

PURPOSE: Secondary Recovery Pressure Maintenance X Disposal Storage  
Application qualifies for administrative approval? X Yes No

II. OPERATOR: Legacy Reserves, Operating LP

ADDRESS: Box 10848 Midland, TX 79702

CONTACT PARTY: Pat Darden, P.E.

PHONE: 432-689-5237

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? Yes X 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 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: Pat Darden

TITLE: Sr. Engineer

SIGNATURE: 

DATE: 11/07/11

E-MAIL ADDRESS: pdarden@legacylp.com

\* 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: \_\_\_\_\_

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

<p>285</p>	<p>286</p>	<p>287</p>	<p>288</p>	<p>289</p>	<p>290</p>	<p>291</p>	<p>292</p>	<p>293</p>	<p>294</p>
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## ATTACHMENT TO APPLICATION C-108

Andrew Arnquist Estate #2 (API 30-015-21942)  
Unit A, Sect. 29, Tws. 18 S., Rng. 26 E.  
Eddy Co., NM

### III. WELL DATA

- A.
  - 1) See injection well data sheets and attached schematics.
  - 2) See injection well data sheets and attached schematics.
  - 3) 2 7/8" plastic coated tubing.
  - 4) Baker Tension Packer.
- B.
  - 1) Injection formations is the Cisco Canyon.
  - 2) Injection interval perforations from 7750' to 8100'.
  - 3) Well was P & A, will re-enter and perforate.
  - 4) The next higher producing zone is the Abo at approximately 4440'.  
The next lower producing zone is the Strawn at approximately 8200'.

### IV. NO.

### V. MAP ATTACHED.

### VI. LIST OF WELLS AND DATA ATTACHED.

- VII. Legacy plans to re-enter the P & A Andrew Arnquist #2. Will drill out plug to original TD of 3000', squeeze old San Andres and Yeso perfs and deepen to 8200'. Legacy will run 5 1/2" casing to TD and attempt to circulate cement. (run temp. survey)

We propose to perforate 5 1/2" from 7750' to 8100', acidize as needed. Run in and set 2 7/8" IPC packer at 7700' and begin injecting into Cisco Canyon.

- 1) Plan to inject 5000 bpd with a maximum pressure of 1200# or whatever OCD allows.
- 2) Water will be from Legacy's own production from the Yeso.
- 3) Injection will be a closed system.
- 4) Produced water analysis attached.



- VIII.** The proposed disposal formation is interbedded shale and limestone. The primary geologic name is the Cisco Canyon found from 7100' to 8200'.

The fresh water formation in the area is the Ogallala which ranges in thickness from 100' to 160'. Analysis of water well attached.

- IX. ACID AS NEEDED.**

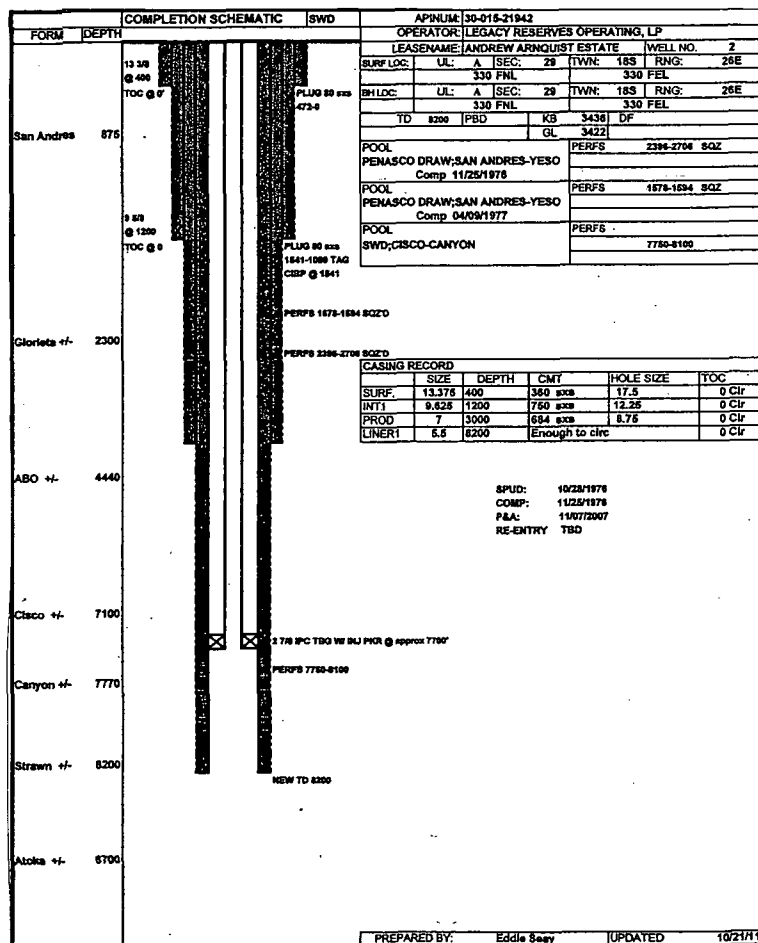
- X. WILL RE-LOG AND SEND UPON RE-ENTRY.**

- XI. ATTACHED.**

- XII.** I, Pat Darden, have examined all available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zones and any underground source of drinking water pertaining to this well.

- XIII. ATTACHED.**

## INJECTION WELL DATA SHEET

OPERATOR: Legacy Reserves OperatingWELL NAME & NUMBER: Andrew Arnquist #2WELL LOCATION: 330/N 330/E A 29 18 26  
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGEWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 17.5 Casing Size: 13.375Cemented with: 360 SX. or  ft<sup>3</sup>Top of Cement: Surface Method Determined: CircIntermediate CasingHole Size: 12.25 Casing Size: 9.625Cemented with: 750 SX. or  ft<sup>3</sup>Top of Cement: Surface Method Determined: CircProduction CasingHole Size: 8.75 Casing Size: 7Cemented with: 684 SX. or  ft<sup>3</sup>Top of Cement: Surface Method Determined: Circ\* Total Depth: (See Attached)Injection Interval feet to 

(Perforated or Open Hole; indicate which)

## INJECTION WELL DATA SHEET

OPERATOR: Legacy Reserves OperatingWELL NAME & NUMBER: Andrew Arnquist # 2WELL LOCATION: 330/N 330/E A 29 18 26  
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGEWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface Casing

Hole Size: \_\_\_\_\_ Casing Size: \_\_\_\_\_

Cemented with: \_\_\_\_\_ sx. or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: \_\_\_\_\_ Method Determined: \_\_\_\_\_

Intermediate Casing

Hole Size: \_\_\_\_\_ Casing Size: \_\_\_\_\_

Cemented with: \_\_\_\_\_ sx. or \_\_\_\_\_ ft<sup>3</sup>

Top of Cement: \_\_\_\_\_ Method Determined: \_\_\_\_\_

Production Casing

# 2

Hole Size: 6.5 Casing Size: 5.5Cemented with: enough to Circ sx. or \_\_\_\_\_ ft<sup>3</sup>Top of Cement: Surface Method Determined: CircTotal Depth: 8200Injection Interval7750 feet to 8100(Perforated) or Open Hole; indicate which)

INJECTION WELL DATA SHEETTubing Size: 2 7/8 Lining Material: IPCType of Packer: Baker Tension TypePacker Setting Depth: 7700Other Type of Tubing/Casing Seal (if applicable): NONEAdditional Data

1. Is this a new well drilled for injection? Yes ☒ No

If no, for what purpose was the well originally drilled? Producer

2. Name of the Injection Formation: Cisco Canyon

3. Name of Field or Pool (if applicable): Penasco Draw

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. See attached

Schematic.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:

Abo at 4440Strawn at 8200

## DISPOSAL WELL

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	CO	LAND	U/L	SEC	TWN	RNG	N/S	E/W
30-015-21942	LEGACY RESERVES OPERATI	2	ANDREW ARNQUIST ESTATE	3000					A	29	18 S	26 E	330 N	330 E

Wells within 1/2 mile of the proposed disposal well penetrating the proposed disposal interval.

5280 5280

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	CO	LAND	U/L	SEC	TWN	RNG	N/S	E/W	< 1/2 mile
30-015-00212	ETHEL V NOEL	1	YATES PETROLEUM CORPORATION	9157	Gas	A	Eddy	P	P	20	18 S	26 E	990 S	990 E	1/2 mile
30-015-05926	LEN MAYER	1	YATES PETROLEUM CORPORATION	9225	Oil	A	Eddy	P	D	28	18 S	26 E	990 N	990 W	1/2 mile

Wells within 1/2 mile which do not penetrate proposed disposal interval

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	CO	LAND	U/L	SEC	TWN	RNG	N/S	E/W	< 1/2 mile
30-015-21741	DAYTON FT	1	YATES PETROLEUM CORPORATION	1867	Oil	A	Eddy	P	M	21	18 S	26 E	330 S	990 W	1/2 mile
30-015-21770	DAYTON FY	1	YATES PETROLEUM CORPORATION	1775	Oil	A	Eddy	F	L	21	18 S	26 E	1650 S	990 W	1/2 mile
30-015-22040	ANDREW ARNQUIST ESTATE	4	LEGACY RESERVES OPERATING, LP	2825	Oil	P	Eddy	P	H	29	18 S	26 E	1650 N	430 E	1/2 mile
30-015-22041	ANDREW ARNQUIST ESTATE	3	LEGACY RESERVES OPERATING, LP	2763	Oil	P	Eddy	P	B	29	18 S	26 E	330 N	1650 E	1/2 mile
30-015-22306	YATES IQ	1	YATES PETROLEUM CORPORATION	2900	Oil	A	Eddy	P	E	28	18 S	26 E	2310 N	990 W	1/2 mile
30-015-22331	DAYTON FO	2	YATES PETROLEUM CORPORATION	2800	Oil	A	Eddy	P	F	28	18 S	26 E	1652 N	1650 W	1/2 mile
30-015-28878	DAYTON FN	2	YATES PETROLEUM CORPORATION	1885	Oil	A	Eddy	P	C	28	18 S	26 E	330 N	1650 W	1/2 mile

[illegible]

SPUD: 10/28/1976  
COMP: 11/25/1976  
P&A: 11/07/2007

# WELLBORE SCHEMATIC AFTER

COMPLETION SCHEMATIC		SWD	APINUM: 30-015-21942																																									
FORM	DEPTH		OPERATOR: LEGACY RESERVES OPERATING, LP																																									
			LEASENAME: ANDREW ARNQUIST ESTATE			WELL NO. 2																																						
			SURF LOC:	UL: A	SEC: 29	TWN: 18S	RNG: 26E																																					
			330 FNL			330 FEL																																						
			BH LOC:	UL: A	SEC: 29	TWN: 18S	RNG: 26E																																					
			330 FNL			330 FEL																																						
			TD 8200	PBD	KB 3436	DF																																						
					GL 3422																																							
			POOL PENASCO DRAW; SAN ANDRES-YESO Comp 11/25/1976				PERFS 2396-2706 SQZ																																					
			POOL PENASCO DRAW; SAN ANDRES-YESO Comp 04/09/1977				PERFS 1578-1594 SQZ																																					
			POOL SWD; CISCO-CANYON				PERFS 7750-8100																																					
			<table border="1"> <thead> <tr> <th colspan="6">CASING RECORD</th> </tr> <tr> <th></th> <th>SIZE</th> <th>DEPTH</th> <th>CMT</th> <th>HOLE SIZE</th> <th>TOC</th> </tr> </thead> <tbody> <tr> <td>SURF.</td> <td>13.375</td> <td>400</td> <td>360 sxs</td> <td>17.5</td> <td>0 Cir</td> </tr> <tr> <td>INT1</td> <td>9.625</td> <td>1200</td> <td>750 sxs</td> <td>12.25</td> <td>0 Cir</td> </tr> <tr> <td>PROD</td> <td>7</td> <td>3000</td> <td>684 sxs</td> <td>8.75</td> <td>0 Cir</td> </tr> <tr> <td>LINER1</td> <td>5.5</td> <td>8200</td> <td colspan="2">Enough to circ</td> <td>0 Cir</td> </tr> </tbody> </table>						CASING RECORD							SIZE	DEPTH	CMT	HOLE SIZE	TOC	SURF.	13.375	400	360 sxs	17.5	0 Cir	INT1	9.625	1200	750 sxs	12.25	0 Cir	PROD	7	3000	684 sxs	8.75	0 Cir	LINER1	5.5	8200	Enough to circ		0 Cir
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San Andres	875		<div> <div> 13 3/8 @ 400 TOC @ 0' </div> <div> PLUG 80 sxs 472-0 </div> </div>																																									
			<div> <div> 9 5/8 @ 1200 TOC @ 0' </div> <div> PLUG 80 sxs 1541-1080 TAG CIBP @ 1541 </div> </div>																																									
Glorieta +/-	2300		<div> <div>PERFS 1578-1594 SQZ'D</div> <div>PERFS 2396-2706 SQZ'D</div> </div>																																									
ABO +/-	4440		<div> <div>2 7/8 IPC TBG W/ INJ PKR @ approx 7700'</div> <div>PERFS 7750-8100</div> </div>																																									
Cisco +/-	7100		<div> <div>NEW TD 8200</div> </div>																																									
Canyon +/-	7770																																											
Strawn +/-	8200																																											
Atoka +/-	8700																																											

SPUD: 10/28/1976  
 COMP: 11/25/1976  
 P&A: 11/07/2007  
 RE-ENTRY TBD

COMPLETION SCHEMATIC		G-A	APINUM: 30-015-00212																															
FORM	DEPTH		OPERATOR: YATES PETROLEUM CORP																															
San Andres	887		LEASENAME: ETHAL V NOEL																															
			WELL NO. 1																															
			SURF LOC:	UL: P SEC: 20 TWN: 18S RNG: 26E																														
			990 FSL																															
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			990 FSL																															
			TD 9157	PBD KB DF 3439																														
			GL																															
			POOL ATOKA;PENNSYLVANIAN (GAS)																															
			PERFS 8892-9100																															
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Cisco +/-	7075		TOC @ 7295 TS																															
Canyon	7770																																	
Strawn	8180																																	
Atoka	8668		PERFS 8892-9100																															
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TD 9157																																		
PREPARED BY: Eddie Seay																																		
UPDATED 10/21/11																																		



# WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC		G-A	APINUM: 30-015-05926	
FORM	DEPTH		OPERATOR: YATES PETROLEUM CORP	
			LEASENAME: LEN MAYER	
			WELL NO. 1	
			SURF LOC:	UL: D SEC: 28 TWN: 18S RNG: 26E
			990 FNL 990 FWL	
			BH LOC:	UL: D SEC: 28 TWN: 18S RNG: 26E
			990 FNL 990 FWL	
			TD 9225 PBD KB DF	
			GL	
			POOL	PERFS 9009-9172
			ATOKA;PENNSYLVANIAN (GAS)	
			POOL	PERFS 2435-2688
			ATOKA;GLORIETA-YESO	
			POOL	PERFS 1596-1660
			ATOKA;SAN ANDRES	
Casing Record				
	SIZE	DEPTH	CMT	HOLE SIZE
SURF.	8 5/8	1255	400 sxs	11
PROD	5.5	6550-9225	600 sxs	7.785
PROD	5.5	0-3000	600 sxs	7.785
TOC				
0 Cir 6540 TS 366 TS				
CIBP @ 2350 cap w/ 35 cmnt				
			PERFS	2435-2688
			PLUG 35 sxs 3000-3100	
			SPUD: 11/25/1960	
			COMP: 01/18/1961	
			PLUG 35 sxs 4456-4556	
			PLUG 35 sxs 5830-5930	
			PLUG 35 sxs 6500-6600	
			CUT & PULL @ 6550	
			PLUG 100 sxs 8925-9200	
			PERFS 9009-9172	
			TD 9157	

San Andres 893

Glorieta 2282

Abo 4506

Cisco 7130

Canyon 7803

Strawn 8250

Atoka 8737

8 5/8  
@ 1255  
TOC @ 0'

TOC @  
366'

PERFS  
1596-1660

PERFS  
2435-2688

PLUG 35 sxs 3000-3100

PLUG 35 sxs 4456-4556

PLUG 35 sxs 5830-5930

PLUG 35 sxs 6500-6600  
CUT & PULL @ 6550

PLUG 100 sxs 8925-9200  
PERFS 9009-9172

5 1/2  
@ 9225  
TOC @ 6540 TS

PREPARED BY: Eddie Seay UPDATED 10/21/11



# Water Analysis

Date: 2/24/2005

2401 Sivley, Artesia NM 88210

Phone (505) 746-3140 Fax (505) 746-2293

## Analyzed For

Company	Well Name	County	State
Westall	State G#1	Eddy	New Mexico

## Sample Source

Sample #

1

## Formation

Canyon

## Depth

Specific Gravity	1.060	SG @ 60 °F	1.051
pH	6.30	Sulfides	Not Tested
Temperature (°F)	65	Reducing Agents	Not Tested

## Cations

Sodium (Calc)	in Mg/L	9,518	in PPM	9,056
Calcium	in Mg/L	5,600	in PPM	5,328
Magnesium	in Mg/L	240	in PPM	228
Soluble Iron (FE2)	in Mg/L	300.0	in PPM	285

## Anions

Chlorides	in Mg/L	24,000	in PPM	22,835
Sulfates	in Mg/L	2,000	in PPM	1,903
Bicarbonates	in Mg/L	185	in PPM	176
Total Hardness (as CaCO3)	in Mg/L	15,000	in PPM	14,272
Total Dissolved Solids (Calc)	in Mg/L	41,844	in PPM	39,813
Equivalent NaCl Concentration	in Mg/L	38,410	in PPM	36,546

## Scaling Tendencies

\*Calcium Carbonate Index 1,038,464

Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable

\*Calcium Sulfate (Gyp) Index 11,200,000

Below 500,000 Remote / 500,000 - 10,000,000 Possible / Above 10,000,000 Probable

\*This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.

Remarks FAX 677-2361

POOLCHLORIDES

Dean Permo Pennsylvanian	44,730
Dean Devonian	19,525
Denton Wolfcamp	37,275
Denton Devonian	37,062
South Denton Wolfcamp	54,315
South Denton Devonian	34,080
Medicine Rock Devonian	39,760
Little Lucky Lake Devonian	23,288
Wantz Abo	132,770
Crosby Devonian	58,220
Scarborough Yates Seven Rivers	3,443 (Reef)
Teague Simpson	114,665
Teague Ellenburger	120,345
Rhodes Yates Seven Rivers	144,485
House San Andres	93,365
House Drinkard	49,700
South Leonard Queen	115,375
Elliott Abo	55,380
Scharb Bone Springs	30,601
EK Queen	41,890
East EK Queen	179,630
Maljamar Grayburg San Andres	46,079
Maljamar Paddock	115,375
Maljamar Devonian	25,418
Salt Lake Yates	6,781 (Reef)
Teas Yates Seven Rivers	22,152 (Reef?)



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**Analytical Results For:**

Eddie Seay Consulting  
Eddie Seay  
601 W. Illinois  
Hobbs NM, 88242  
Fax To: (505) 392-6949

Received: 01/06/2011  
Reported: 01/18/2011  
Project Name:  
Project Number:  
Project Location: ECS - 1 W

Sampling Date: 01/05/2011  
Sampling Type: Water  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: ECS - 1 W (H100028-01)**

Bicarbonate 310.1M		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Bicarbonate	185	5.00	01/07/2011	ND	964	96.4	1000	7.79	
Calcium SM3500Ca-D		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Calcium	70.5	1.60	01/13/2011	ND	52.1	104	50.0	4.83	
bonate 310.1M		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Carbonate	<0.00	0.00	01/07/2011	ND	ND		0.00		
Chloride, SM4500Cl-B		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	4.00	01/10/2011	ND	104	104	100	3.77	
Conductivity 120.1		uS/cm	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Conductivity	600	1.00	01/07/2011	ND	1410	100	1410	0.333	
Magnesium SM3500MgE		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Magnesium	17.5	1.00	01/13/2011	ND	55.9	112	50.0	0.00	
pH		pH Units	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
pH	7.88	0.100	01/07/2011		7.03	100	7.00	0.253	
Potassium 8049		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

Cardinal Laboratories

\* = Accredited Analyte

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**Analytical Results For:**

Eddie Seay Consulting  
Eddie Seay  
601 W. Illinois  
Hobbs NM, 88242  
Fax To: (505) 392-6949

Received: 01/06/2011  
Reported: 01/18/2011  
Project Name:  
Project Number:  
Project Location: ECS - 1 W

Sampling Date: 01/05/2011  
Sampling Type: Water  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

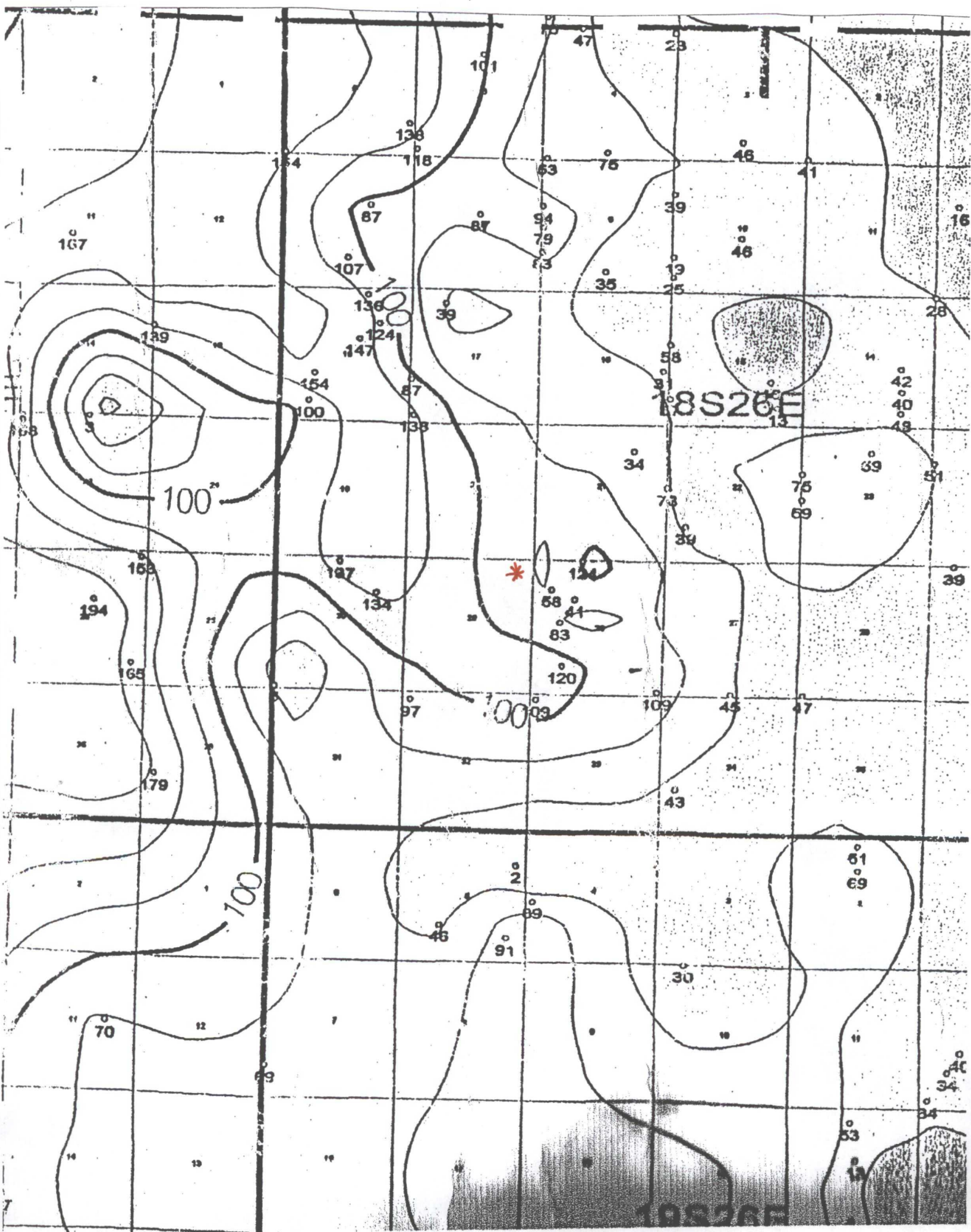
**Sample ID: ECS - 1 W (H100028-01)**

Potassium 8049		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Potassium	1.60	1.00	01/13/2011	ND	7.61	95.1	8.00	9.11	
Sodium Calculated		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sodium	18.0	1.00	01/13/2011	ND					
Sulfate 375.4		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	67.5	10.0	01/11/2011	ND	40.4	101	40.0	7.90	
TDS 160.1		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	407	5.00	01/06/2011	ND				0.00	
Total Alkalinity 310.1M		mg/L	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Total	152	4.00	01/07/2011	ND	790	96.3	820	7.59	

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\* = Accredited Analyte

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**LEGACY RESERVES, LP**

RE: Andrew Arnquist Estate #2 (API 30-015-21942)  
Unit A, Section 29, Tws. 18 S., Rng. 26 E.  
Eddy Co. New Mexico

Dear Sir:

In accordance with the Rules and Regulations of the Oil Conservation Division of the State of New Mexico, you are being provided a copy of the C-108, Application for Authorization to Inject in to the above captioned well.

Any questions about the permit can be directed to Pat Darden, (432)689-5237. Any objections or request for hearing must be filed with the Oil Conservation Division within fifteen (15) days from the date received. The OCD address is 1220 S. Saint Francis Drive, Santa Fe, NM 87504, (505)476-3440.

Thank You,

A handwritten signature in black ink, appearing to read 'Pat Darden', with a long horizontal flourish extending to the right.

Pat Darden, P.E.  
Legacy Reserves  
Box 10848  
Midland, TX 79702  
432-689-5237

## **LEASE OWNERS AND OFFSETS**

### **LEASE OWNERS**

Arnquist Et Al  
60 Corte Ortega #11  
Greenbrae, CA 94904

### **OFFSET OPERATORS OR LEASE OWNERS**

Yates Petroleum Corp.  
105 S. 4<sup>th</sup> St.  
Artesia, NM 88210

Brothers Production  
Box 7515  
Midland, TX 79708



7010 2780 0000 1720 3165

U.S. Postal Service	
<b>CERTIFIED MAIL RECEIPT</b>	
(Domestic Mail Only, No Insurance Coverage Provided)	
For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ 1.48
Certified Fee	2.85
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 6.68
Sent To Arnquist Et Al Street, Apt. No., or PO Box 60 Corte Ortega #11 City, State, ZIP+4 Greenbrae, CA 94904	
PS Form 3800, August 2005 See Reverse for Instructions	

7010 2780 0000 1720 3158

U.S. Postal Service	
<b>CERTIFIED MAIL RECEIPT</b>	
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For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ 1.48
Certified Fee	2.85
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 6.68
Sent To Yates Petroleum Corp. Street, Apt. No., or PO Box 100 S 4th St City, State, ZIP+4 Artesia, NM 88210	
PS Form 3800, August 2005 See Reverse for Instructions	

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For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ 1.48
Certified Fee	2.85
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 6.68
Sent To Brothers Production Street, Apt. No., or PO Box 7515 City, State, ZIP+4 Midland, TX 79708	
PS Form 3800, August 2005 See Reverse for Instructions	

## **LEGAL NOTICE**

Pursuant to the rules and regulations of the Oil Conservation Division of the State of New Mexico, Legacy Reserves Operating LP, Box 10848, Midland, TX 79702, is filing a C-108, Application for Salt Water Disposal. The well being applied for is the Andrew Arnquist Estate #2 (API 30-015-21942), located in Unit A, Section 29, Township 18 South, Range 26 East, Eddy Co., NM. The injection formation is the Cysco Canyon from 7700' to 8100' below surface. Expected maximum injection rate is 5000 bpd., and the expected maximum injection pressure is 1200 psi or what the OCD allows. Any questions about the application can be directed to Eddie W. Seay, (575)392-2236, or any objection or request for hearing must be directed to the Oil Conservation Division, (505)476-3440, 1220 South Saint Francis Drive, Santa Fe, NM 87504, within fifteen (15) days.

# Affidavit of Publication

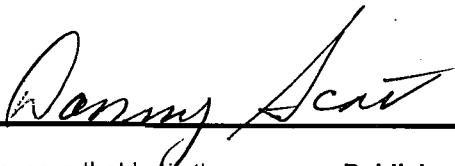
NO.

21899

TE OF NEW MEXICO

County of Eddy:

Danny Scott



being duly sworn, says that he is the

Publisher

of the Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached

## Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for  
1 Consecutive weeks/days on the same

as follows:

First Publication

October 30, 2011

Second Publication

Third Publication

Fourth Publication

Fifth Publication

Subscribed and sworn to before me this

31st day of

October

2011



OFFICIAL SEAL  
Latisha Romine  
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires:

5/12/2015



Latisha Romine  
Notary Public, Eddy County, New Mexico

# Copy of Publication:

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