

PMX 11/30/99

199



November 10, 1999

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

NOV 15 1999

RE: Expansion of Pressure Maintenance Project  
North Hobbs (Grayburg/San Andres) Unit  
Hobbs; Grayburg – San Andres Pool  
Well No. 221  
Letter F, Section 24, T-18-S, R-37-E  
Lea County, NM

Gentlemen:

Altura Energy LTD respectfully requests administrative approval for expansion of the subject pressure maintenance project by converting North Hobbs (G/SA) Unit Well No. 221 from production to water injection. Administrative Order No. R-6199 granted November 30, 1979, authorized Shell Western E&P Inc. (Altura's predecessor) to conduct the North Hobbs (G/SA) Unit pressure maintenance project within the Hobbs; Grayburg -- San Andres Pool.

The following data is submitted in support of this request:

- Form C-108 with miscellaneous data attached
- Form C-102
- A map reflecting the location of the proposed injection well (No. 221). The map identifies all wells located within a two-mile radius of the proposed injector and has a one-half mile radius circle drawn around the proposed injection well which identifies the well's Area of Review.
- An injection well data sheet
- A tabulation of data on all wells of public record within the well's Area of Review
- A list of Offset Operators and Surface Owners (these parties have been notified of this application by certified mail)



- An Affidavit of Publication and copy of the legal advertisement that was published in the county in which the well is located.

Your favorable consideration of our request will be appreciated. If you have any questions of a technical nature, please call David Nelson at (505) 397-8211. Otherwise, please call me at (281) 552-1158.

Very truly yours,

*Mark Stephens*

Mark Stephens  
Business Analyst (SG)

CC: Oil Conservation Division  
Hobbs District Office  
P.O. Box 1980  
Hobbs, NM 88241

State of New Mexico  
Commissioner of Public Lands  
P.O. Box 1148  
Santa Fe, NM 87504-1148

Offset Operators (see attached list)

Surface Owners (see attached list)

APPLICATION FOR AUTHORIZATION TO INJECT

- ✓ I. PURPOSE: \_\_\_\_\_ Secondary Recovery     Pressure Maintenance    \_\_\_\_\_ Disposal    \_\_\_\_\_ Storage  
Application qualifies for administrative approval?     Yes    \_\_\_\_\_ No
- ✓ II. OPERATOR: Altura Energy LTD  
ADDRESS: P.O. Box 4294, Houston, TX 77210-4294  
CONTACT PARTY: Mark Stephens, Rm. 338-B, WL2    PHONE: (281) 552-1158
- ✓ 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    \_\_\_\_\_ No  
If yes, give the Division order number authorizing the project: R-6199 (11/30/79)
- ✓ 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: Mark Stephens    TITLE: Business Analyst (SG)

SIGNATURE: Mark Stephens    DATE: 11/10/99

\* 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: Hearing October 3, 1979; Case No. 6653, Order No. R-6199

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

### 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, 2040 South Pacheco, Santa Fe, New Mexico 87505, 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.

Attachment To Form C-108  
Miscellaneous Data

North Hobbs (Grayburg/San Andres) Unit  
Well No. 221  
Letter F, Section 24, T-18-S, R-37-E  
Lea County, New Mexico

III. Well Data

- B.(5) Next higher oil zone -- Grayburg @ +/- 3700'  
Next lower oil zone -- Glorieta @ +/- 5300'

VII. Proposed Operation

1. Average Injection Rate            1500 BWPD  
Maximum Injection Rate        4000 BWPD
2. Closed Injection System
3. Average Injection Pressure        500 PSIG  
Maximum Injection Pressure    805 PSIG (approx.)  
(will not exceed 0.2 psi/ft. to top perforation)
4. Source Water – San Andres Produced Water  
(Champion Technologies, Inc. analysis attached)

IX. Stimulation Program

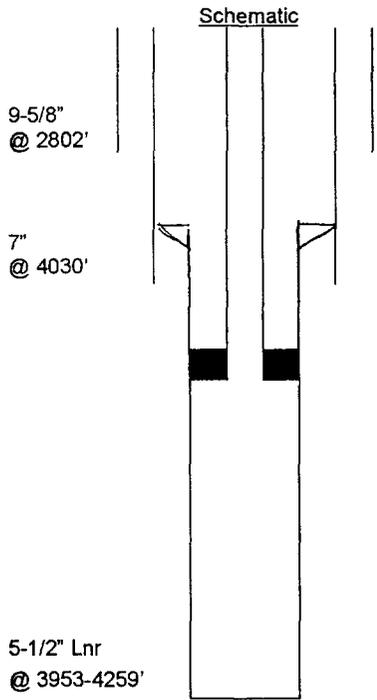
Acid treatment of unitized perforations will be performed during conversion work

- XI. Fresh Water Sample Analysis  
(Laboratory Services, Inc. analysis attached – 2 ea.)

- XII. Altura Energy LTD affirms that available geologic and engineering data has been examined resulting in the finding of no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

# INJECTION WELL DATA SHEET

Operator <b>Altura Energy LTD.</b>		Lease <b>North Hobbs G/SA Unit</b>			County <b>Lea</b>
Well No. <b>24-221</b>	Footage Location <b>2310' FNL &amp; 2310 FWL</b>	Section <b>24</b>	Township <b>18-S</b>	Range <b>37-E</b>	Unit Letter <b>F</b>



<u>Surface Casing</u>		<u>Tubular Data</u>	
Size	<u>9-5/8"</u>	Cemented with	<u>150</u> sxs.
TOC	<u>Surf</u>	Determined by	<u>Circ.</u>
Hole size _____			
<u>Intermediate Casing</u>			
Size	<u>7</u>	Cemented with	<u>250</u> sxs.
TOC	<u>3005'</u>	Determined by	<u>CBL</u>
Hole size _____			
<u>Long string Casing</u>			
Size	<u>5-1/2" Lnr</u>	Cemented with	<u>100</u> sxs.
TOC	<u>TOL</u>	Determined by	<u>CBL</u>
Hole size _____			
Total depth		<u>4260'</u>	
<u>Injection interval</u>			
<u>4000</u>	feet to	<u>4350</u>	feet
<u>Completion type</u>		<u>Perforations</u>	

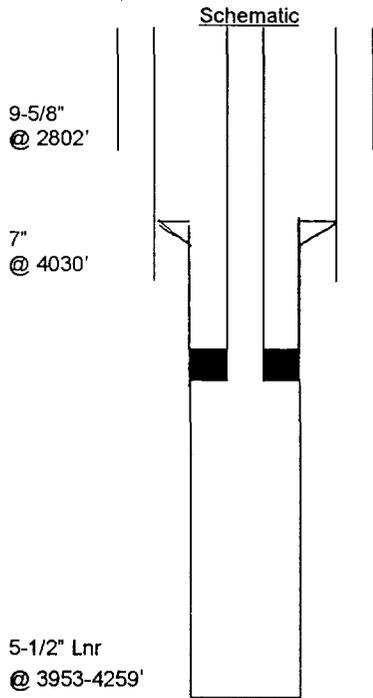
Tubing size 2-7/8" lined with Fiberglass Epoxy set in a  
Giberson Uni VI packer at ±3950 feet  
 (brand and model)

Other Data

1. Name of the injection formation San Andres
2. Name of field or Pool Hobbs (Grayburg/San Andres) Pool
3. Is this a new well drilled for injection? Yes  No   
 If no, for what purpose was the well originally drilled? San Andres producer
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)  
None
5. Give the depth to and name of any overlying and/or underlying oil and gas zones (pools) in this area.  
Grayburg - 3700, Glorieta - 5300

**INJECTION WELL DATA SHEET**

Operator <b>Altura Energy LTD.</b>		Lease <b>North Hobbs G/SA Unit</b>			County <b>Lea</b>
Well No. <b>24-221</b>	Footage Location <b>2310' FNL &amp; 2310 FWL</b>	Section <b>24</b>	Township <b>18-S</b>	Range <b>37-E</b>	Unit Letter <b>F</b>



<u>Surface Casing</u>		<u>Tubular Data</u>	
Size	<u>9-5/8"</u>	Cemented with	<u>150</u> sxs.
TOC	<u>Surf</u>	Determined by	<u>Circ.</u>
Hole size _____			
<u>Intermediate Casing</u>			
Size	<u>7</u>	Cemented with	<u>250</u> sxs.
TOC	<u>3005'</u>	Determined by	<u>CBL</u>
Hole size _____			
<u>Long string Casing</u>			
Size	<u>5-1/2" Lnr</u>	Cemented with	<u>100</u> sxs.
TOC	<u>TOL</u>	Determined by	<u>CBL</u>
Hole size _____			
Total depth		<u>4260'</u>	
<u>Injection interval</u>			
<u>4000</u>	feet to	<u>4350</u>	feet
<u>Completion type</u>		<u>Perforations</u>	

Tubing size 2-7/8" lined with Fiberglass Epoxy set in a  
Giberson Uni VI packer at ±3950 feet  
 (brand and model)

Other Data

- Name of the injection formation San Andres
- Name of field or Pool Hobbs (Grayburg/San Andres) Pool
- Is this a new well drilled for injection? Yes  No   
 If no, for what purpose was the well originally drilled? San Andres producer
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)  
None
- Give the depth to and name of any overlying and/or underlying oil and gas zones (pools) in this area.  
Grayburg - 3700, Glorieta - 5300



P.O. BOX 2187  
HOBBS, NEW MEXICO 88240

## Saturation Index Calculations

Champion Technologies, Inc.  
(Based on the Tomson-Oddo Model)

Telephone (505) 393-7726

### Site Information

Company	Altura
Field	North Hobbs Unit
Point	IPD
Date	4/15/98

### Water Analysis (mg/L)

Calcium	1,122
Magnesium	194
Barium	0
Strontium	0
Sodium*	3730
Bicarbonate Alkalinity	1,769
Sulfate	1,726
Chloride	6,000

### Appended Data

Dissolved CO2	228 mg/l.
Dissolved O2	N/A PPB
H2S	596 mg/l.
Iron	0.0 mg/l.
Specific Gravity	1.010 value
TDS	14551 mg/l.
Total Hardness	3600 mg/l.
Well head pH	N/A value

\* - Calculated Value

### Physical Properties

Ionic Strength*	0.29
pH†	6.52
Temperature	86°F
Pressure	100 psia

\* - Calculated Value † - Known/Specified Value

### Calcite Calculation Information

Calculation Method	Value
pH	6.52
Bicarbonate Alkalinity Correction(s)	Value
None Used	---

### SI & PTB Results

Scale Type	SI	PTB
Calcite (Calcium Carbonate)	0.48	310.4
Gypsum (Calcium Sulfate)	-0.45	N/A
Hemihydrate (Calcium Sulfate)	-0.32	N/A
Anhydrite (Calcium Sulfate)	-0.72	N/A
Barite (Barium Sulfate)	N/A	N/A
Celestite (Strontium Sulfate)	N/A	N/A

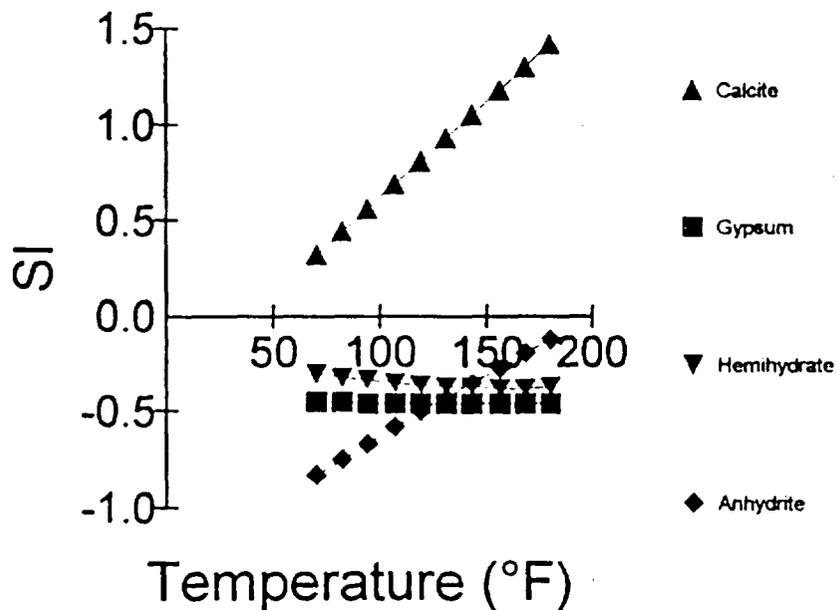
**Site Information**

Company	Altura
Field	North Hobbs Unit
Point	IPD
Date	4/15/98

**SI Results**

Temperature (°F)	Calcite	Gypsum	Hemihydrate	Anhydrite
70	0.32	-0.45	-0.30	-0.83
82	0.44	-0.45	-0.32	-0.75
94	0.56	-0.46	-0.33	-0.67
107	0.69	-0.46	-0.35	-0.58
119	0.81	-0.46	-0.36	-0.50
131	0.93	-0.46	-0.37	-0.43
143	1.05	-0.46	-0.37	-0.35
156	1.18	-0.46	-0.38	-0.27
168	1.30	-0.46	-0.38	-0.19
180	1.42	-0.46	-0.37	-0.12

**SI**





**Laboratory Services, Inc.**

4016 Fiesta Drive  
Hobbs, New Mexico 88240  
Telephone: (505) 397-3713

**Water Analysis**

**COMPANY** Altura Energy Ltd,  
**SAMPLE** 18S-38E-Sec 30 NW1/4, NE1/4, SW1/4, SE1/4, SW1/4  
**SAMPLED BY** David Nelson  
**DATE TAKEN** 10/12/99  
**REMARKS**

Barium as Ba	0	
Carbonate alkalinity PPM	0	
Bicarbonate alkalinity PPM	212	
pH at Lab	7.46	
Specific Gravity @ 60°F	1.001	
Magnesium as Mg	172	
Total Hardness as CaCO3	296	
Chlorides as Cl	85	
Sulfate as SO4	135	
Iron as Fe	0.01	
Potassium	0.1	
Hydrogen Sulfide	0	
Rw	7	23 C
Total Dissolved Solids	922	
Calcium as Ca	124	
Nitrate	7.9	

Results reported as Parts per Million unless stated

Langelier Saturation Index - 0.04

Analysis by: Rolland Perry  
Date: 10/19/99



**Laboratory Services, Inc.**

4016 Fiesta Drive  
Hobbs, New Mexico 88240  
Telephone: (505) 397-3713

**Water Analysis**

**COMPANY**      Altura Energy Ltd,  
**SAMPLE**        18S-37E-Sec 24 SE1/4, SE1/4, SE1/4, SE1/4, SE1/4, SW1/4  
**SAMPLED BY**   David Nelson  
**DATE TAKEN**   10/12/99  
**REMARKS**

Barium as Ba	0	
Carbonate alkalinity PPM	0	
Bicarbonate alkalinity PPM	224	
pH at Lab	7.47	
Specific Gravity @ 60°F	1.001	
Magnesium as Mg	197	
Total Hardness as CaCO3	340	
Chlorides as Cl	141	
Sulfate as SO4	105	
Iron as Fe	0	
Potassium	0.1	
Hydrogen Sulfide	0	
Rw	7.5	23 C
Total Dissolved Solids	885	
Calcium as Ca	143	
Nitrate	2.4	

Results reported as Parts per Million unless stated

Langelier Saturation Index                      - 0.03

Analysis by:            Rolland Perry  
Date:                      10/19/99

DISTRICT I  
P.O. Box 1880, Hobbs, NM 88241-1880

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised February 10, 1994  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT IV  
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-09876	Pool Code 31920	Pool Name HOBBS; GRAYBURG - SAN ANDRES
Property Code 19520	Property Name NORTH HOBBS G/SA UNIT	Well Number 221
OGRID No. 157984	Operator Name ALTURA ENERGY LTD.	Elevation 3672

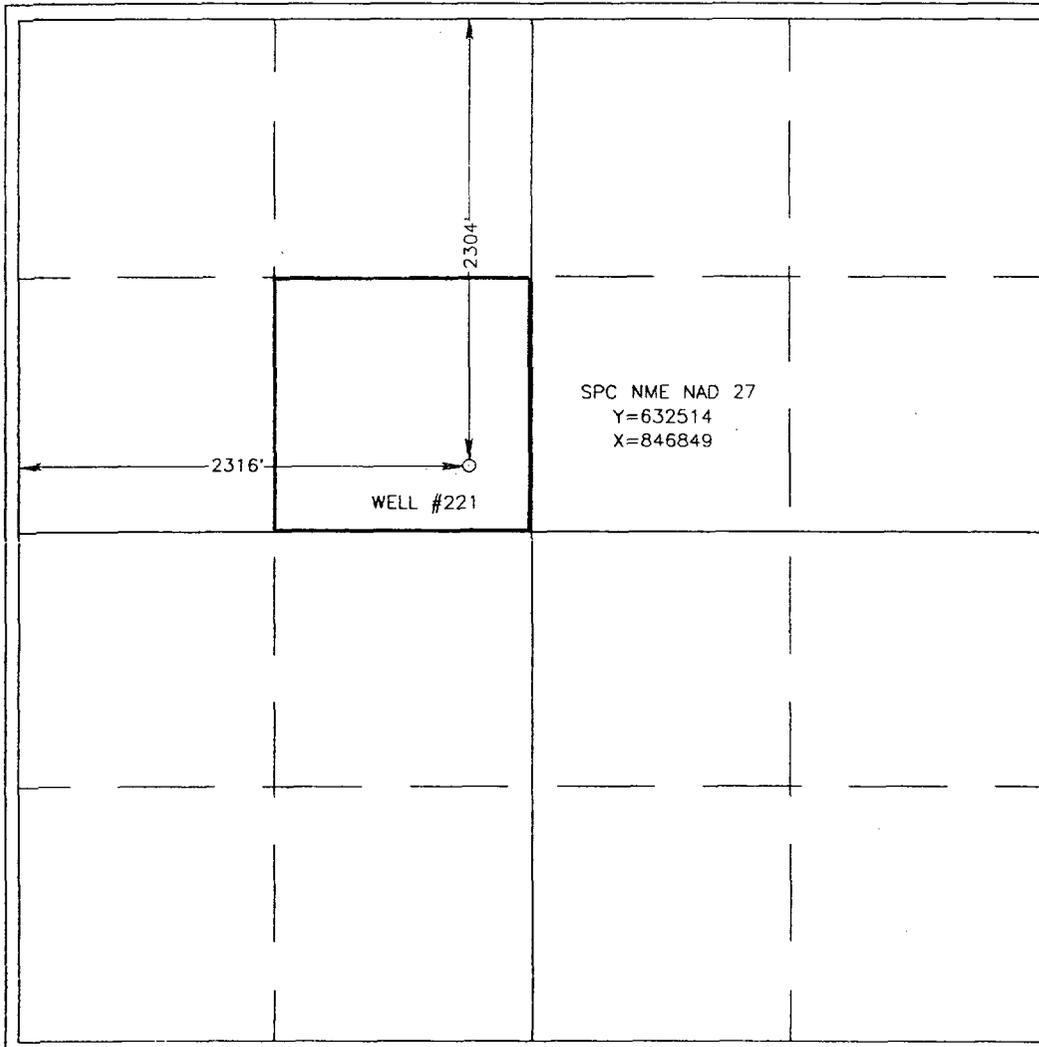
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	24	18 S	37 E		2304	NORTH	2316	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



**OPERATOR CERTIFICATION**

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.

Mark Stephens  
Signature

Mark Stephens  
Printed Name

Business Analyst (SG)  
Title

November 10, 1999  
Date

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**SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JULY 20, 1999  
Date Surveyed

REYNALDO J. EIDSON  
Signature

REYNALDO J. EIDSON  
Professional Surveyor

3239  
No.

2841  
No.

2855  
No.

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised February 10, 1994  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-09876	Pool Code 31920	Pool Name HOBBS; GRAYBURG - SAN ANDRES
Property Code 19520	Property Name NORTH HOBBS G/SA UNIT	Well Number 221
OGRID No. 157984	Operator Name ALTURA ENERGY LTD.	Elevation 3672

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	24	18 S	37 E		2304	NORTH	2316	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres		Joint or Infill		Consolidation Code		Order No.			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Mark Stephens</i> Signature</p> <p>Mark Stephens Printed Name</p> <p>Business Analyst (SG) Title</p> <p>November 10, 1999 Date</p>
	<p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>JULY 20, 1999 Date Surveyed</p> <p><i>Ronald J. Eidson</i> Signature</p> <p>Professional Seal of NEW MEXICO Professional Surveyor No. 3289 99-11-0594 5-27-99</p> <p>Certified by McDONALD</p>

ESTES ENGINEERING  
STATE  
KB-3690  
TD-4150  
6/25/75  
30 025 25020

SHELL OIL  
STATE E  
ES-3685  
TD-4374  
6/26/36  
30 025 0189

WI-141  
SHELL OIL  
N HOBBS(GBSA)U SEC13  
GR-3682  
TD-4040  
9/30/82  
30 025 05437

CONTINENTAL OIL  
STATE B-13  
TD-4038  
7/5/35  
30 025 05436

2  
SHELL OIL  
RICE  
ES-3678  
TD-4263  
12/19/56  
30 025 05446

442  
SHELL WESTERN EXPL&PROD  
N HOBBS(GBSA)U SC 13  
DF-3677  
TD-4370  
12/21/84  
30 025 28878

441  
SHELL OIL  
ES-3668  
TD-4175  
4/12/83  
30 025 12732

ANTWEIL MORRIS R  
STANOLIND-STATE  
ES-3683  
TD-4135  
1/20/53  
30 025 05452

23

I-AD  
SWEET C H OIL  
STATE F  
ES-3686  
TD-4115  
6/19/51  
30 025 05465

411  
SHELL WESTERN EXPL&PROD

GR-3683  
TD-4150  
12/29/41  
30 025 2783

412  
SHELL WESTERN EXPL&PROD  
DF-3682  
TD-4202  
1/19/90  
30 025 05468

2  
SWEET C H OIL  
STATE F  
ES-3675  
TD-4158  
7/20/51  
30 025 05466

2  
AMERADA HESS CORP  
STATE E  
ES-3685  
TD-4105  
8/29/35  
30 025 05477

2  
SHELL OIL  
STATE D  
ES-3678  
TD-4260  
3/31/35  
30 025 07047

312  
SHELL WESTERN EXPL&PROD  
GR-3668  
TD-4370  
5/20/85  
30 025 29130

414  
SHELL WESTERN EXPL&PROD  
NO HOBBS GBSA U 524  
DF-3679  
TD-4370  
11/26/84  
30 025 28879

24

2  
GULF OIL  
GRAHAM  
ES-3670  
TD-4217  
10/7/53  
30 025 05479

411  
SHELL OIL  
NR HOBBS(GBSA)U SC24  
GR-3675  
TD-4283  
2/15/83  
30 025 23522

413  
SHELL WESTERN EXPL&PROD  
N HOBBS(GBSA)U SC24  
DF-3672  
TD-4400  
11/4/84  
30 025 28414

WI-121  
SHELL OIL  
NORTH HOBBS(GBSA)U SEC  
DF-3682  
TD-4240  
9/22/82  
30 025 05476

212  
SHELL WESTERN EXPL&PROD  
GR-3666  
TD-4370  
5/23/85  
30 025 29129

ONE-HALF MILE RADIUS FROM WELL 24-221

24-221  
N. HOBBS  
UNIT

1  
SHELL OIL  
STATE D  
ES-3674  
TD-4260  
10/15/57  
30 025 09876

3  
GULF OIL  
GRAHAM-STATE A  
ES-3671  
TD-4219  
8/30/34  
30 025 05480

1  
GULF OIL  
GRAHAM-STATE A  
TD-4225  
8/9/30  
30 025 05478

432  
SHELL WESTERN EXPL&PROD  
GR-3669  
TD-4368  
4/26/85  
30 025 29073

2  
TEXAS PACIFIC OIL  
STATE G  
ES-3669  
TD-4218  
11/14/30  
30 025 05497

WI-431  
SHELL OIL  
ES-3681  
TD-4191  
9/21/82  
30 025 05467

3  
SAMEDAN OIL  
STATE C  
GR-3671  
TD-4200  
4/16/35  
30 025 05484

2  
SAMEDAN OIL  
STATE C  
ES-3672  
TD-4171  
6/26/34  
30 025 05483

4  
SAMEDAN OIL  
STATE C  
ES-3678  
TD-4218  
10/24/35  
30 025 05485

WI-242  
SHELL OIL  
KB-3677  
TD-4443  
3/28/82  
30 025 26832

3  
TEXAS PACIFIC OIL  
STATE G  
ES-3670  
TD-4227  
6/16/32  
30 025 05488

442  
SHELL WESTERN EXPL&PROD  
GR-3662  
TD-4384  
3/30/85  
30 025 29098

1  
YATES JOHN A  
SHELL-STATE  
DF-3681  
TD-4225  
1/9/56  
30 025 05473

26

1  
SKELLY OIL  
HOBBS E  
DF-3679  
TD-4256  
10/1/56  
30 025 05509

2  
CONTINENTAL OIL  
STATE B-25  
DF-3675  
TD-4200  
4/17/57  
30 025 05491

1  
CONTINENTAL OIL  
STATE B-25  
GR-3365  
TD-4225  
9/29/33  
30 025 05489

4  
TEXACO INC  
STATE C-DD-B NCT-1  
DF-3672  
TD-4232  
3/14/33  
30 025 05506

25

411  
SHELL OIL  
DF-3671  
TD-4206  
3/8/83  
30 025 05503

1  
SAMEDAN OIL  
STATE C  
ES-3669  
TD-4188  
3/27/34  
30 025 05482

4  
TEXAS PACIFIC OIL  
STATE G  
ES-3667  
TD-4225  
5/14/33  
30 025 05490

342  
SHELL WESTERN EXPL&PROD  
KB-3679  
TD-4371  
3/31/85  
30 025 29062

1  
TEXAS PACIFIC OIL  
STATE G  
ES-3667  
TD-4214  
7/3/30  
30 025 06486

NOTE:  
WELL DATA DERIVED FROM THE PETROLEUM  
INFORMATION - DATA MANAGEMENT SYSTEM,  
WELL DATA SYSTEM PREPARED FOR AMOCO.



**Altura** Altura Energy Ltd.  
ENERGY, LTD.

Area of Review Plat  
**NORTH HOBBS (GRAYBURG  
SAN ANDRES) UNIT**

WELL NO. 24-221

T-18-S, R-37-E

Lea County, New Mexico

Scale: 1" = 600' 07-03-99 nm438a00.dgn - 11  
Plat prepared by PJE Drafting, Inc.  
For Horizon Survey, Inc.

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

Active Offset wells within 1/2 mile radius of proposed 24-221 conversion

Well Name	Oper	API No.	Sec.	T	R	Un Ltr	Drill Date	Well Type	TD or PBT D	Top Perf	Bot. Perf	Sgz. Perfs	Csg. Size	Hole Size	Depth	No. of	
																Sxs.	TOC
24111	Altura	30-025-05477	24 -18S	-38E	D		8//35	Prod	4135	4034	4148		10.75	13.75	230	250	Circ.
													7	8.75	3998	500	Circ.
													5.5 Lnr	6.75	3942-4268	30	Circ.
24121	Altura	30-025-05476	24 -18S	-38E	E		1//35	Inj	3955	4014	4081		9.625	12	2821	450	1170
									(CIBP)				7	8.75	4053	400	3214
													5.5 Lnr	6.25	4012-4249	100	4012
24131	Altura	30-025-05484	24 -18S	-38E	L		4//35	Prod	4200	4135	4145		12.5	17.5	219	150	Circ
													7	8.625	4002	500	2692 CBL
													5 Lnr	6.25	3942-4200	40	3942
24141	Altura	30-025-05485	24 -18S	-38E	M		10//35	Prod	4210	4190	4200		12.5	16	211	175	Circ
													7	8.75	4035	800	2604
													5 Lnr	6.25	3962-4270	36	3962
24211	Altura	30-025-07047	24 -18S	-38E	C		03/30/1935	Prod	4231	4099	4101		9.625	11.75	1599	200	865
													7	8.75	4010	250	2840
													5 Lnr	6.25	3952-4260	100	3952
24212	Altura	30-025-29129	24 -18S	-38E	C		04/22/1985	Inj	4313	4135	4288	4112-14	13.375	18	40	200	Circ
													9.625	12	1500	600	Circ.
													7	8.625	4368	580	Circ
24231	Altura	30-025-05483	24 -18S	-38E	K		6//34	Prod	4169	4050	4148		9.625	11.75	2823	200	2089
													7	8.75	3966	150	3272 CBL
													5 Lnr	6.25	3917-4171	50	3917
24242	Altura	30-025-26832	24 -18S	-38E	N		11/21/1980	Inj	4293	4204	4280	4236-56	16	20	40	40	Surf
									(CIBP)			4315-89	8.625	12.25	1600	785	Surf
													5.5	7.875	4442	1350	Surf/CBL
24311	Altura	30-025-05481	24 -18S	-38E	B		8//35	Inj	4274	4132	4256		9.625	12.25	1588	400	427
													6.25	8	3976	320	3072 CBL
													4.5 Lnr	5.5	3745-4288	150	3946
24312	Altura	30-025-29130	24 -18S	-38E	B		05/05/1985	Prod	4000	4052	4069		13.375	17	40		

Note: Calculated TOC's are estimated with 50% efficiency

Active Offset wells within 1/2 mile radius of proposed 24-221 conversion

Well Name	Oper	API No.	Sec.	T	R	Un Ltr	Drill Date	Well Type	TD or PBTD (CIBP)	Top Perf (OH)	Bot Perf (OH)	Sqz. Perfs	Csg. Size	Hole Size	Depth	No. of Sxs.	TOC
24321	Altura	30-025-05480	24 -18S	-38E	G		8/34	Prod	4204	3994	4204		13.375	17	214	415	Circ
													9.625	12.25	1510	600	Circ
													7	8.75	4369	875	Circ
24331	Altura	30-025-05488	24 -18S	-38E	J		6/32	Prod	4218	3878	4215		12.5	16	215	200	Circ
													9	11.75	2810	400	1642
													7	8.75	3878	300	Surf CBL
24411	Altura	30-025-23522	24 -18S	-38E	A		7/70	Prod	4274	4138	4260		8.625	12.25	322	210	Circ
													5.5	7.875	4283	265	2524 CBL
24421	Altura	30-025-23081	24 -18S	-38E	H		5/69	Prod	4298	4064	4316		13.375	17.5	408	400	Circ
													8.625	11	3903	500	2115
													5.5	7.875	6106	385	2840
24422	Altura	30-025-05478	24 -18S	-38E	H		9/30	Prod	4117	4174	4254		9.625	13.75	2806	600	1769
													7	8.25	4086	375	3000 CBL
													5.5 Lnr		3933-4304	100	4120 CBL
24432	Altura	30-025-29073	24 -18S	-38E	I		04/03/1985	Prod	4015	4065	4229		13.375	17.5	40		
													9.625	12.5	1534	425	Circ
													7	8.25	4370	550	Circ

Note: Calculated TOC's are estimated with 50% efficiency

## LIST OF OFFSET OPERATORS & SURFACE OWNERS

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North Hobbs (Grayburg/San Andres) Unit  
Well No. 221  
Letter F, Section 24, T-18-S, R-37-E  
Lea County, New Mexico

### Offset Operators

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Altura Energy LTD  
P.O. Box 4294  
Houston, TX 77210-4294

### Surface Owners

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State of New Mexico  
Commissioner of Public Lands  
P.O. Box 1148  
Santa Fe, NM 87504-1148

Sally Huston Seed (State of New Mexico Agricultural Lease GT-766)  
4721 Lovington Hwy  
Hobbs, NM 88240

Is your RETURN ADDRESS completed on the reverse side?

<b>SENDER:</b> ■ 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.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.
3. Article Addressed to:  State of New Mexico Commissioner of Public Lands P.O. Box 1148 Santa Fe, NM 87504-1148	4a. Article Number P 447 842 807	4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD
5. Received By: (Print Name)	7. Date of Delivery	
6. Signature: (Addressee or Agent) <b>X</b>	8. Addressee's Address (Only if requested and fee is paid)	

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

<b>SENDER:</b> ■ 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.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.
3. Article Addressed to:  Sally Huston Seed 4721 Lovington Hwy Hobbs, NM 88240	4a. Article Number P 447 842 808	4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD
5. Received By: (Print Name)	7. Date of Delivery	
6. Signature: (Addressee or Agent) <b>X</b>	8. Addressee's Address (Only if requested and fee is paid)	

Thank you for using Return Receipt Service.

AFFIDAVIT OF PUBLICATION

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.

of 2 weeks.

Beginning with the issue dated September 11 1999 and ending with the issue dated September 12 1999

Kathi Bearden  
Publisher

Sworn and subscribed to before me this 22nd day of October 1999

Joel Stenson  
Notary Public.

My Commission expires October 18, 2000 (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.

02101173000 01535865  
Altura Energy LTD  
P. O. Box 4294  
Houston, TX 77210-4294

**LEGAL NOTICE**  
**SEPTEMBER 12, 1999**  
Notice is hereby given of the application of Altura Energy LTD, Attn: Mark Stephens, P.O. Box 4294, Rm. 338-B, Houston, TX 77210-4294 (281/552-1158), to the Oil Conservation Division, New Mexico Energy, Minerals and Natural Resources Department, for approval of the following injection wells for the purpose of secondary recovery:

- Pool Name: Hobbs; Grayburg-San Adres
- Lease/Unit Name: North Hobbs G/SA Unit
- Well No. 221  
Loc.: 2310' FNL & 2310' FWL, Unit Letter F, Sec. 24, T-18-S, R-37-E, Lea Co., NM
- Well No. 342  
Loc.: 145' FSL & 1435' FEL, Unit Letter O, Sec. 24, T-18-S, R-37-E, Lea Co., NM
- Well No. 432  
Loc.: 2480' FSL & 1280' FEL, Unit Letter I, Sec. 24, T-18-S, R-37-E, Lea Co., NM
- Well No. 141  
Loc.: 330' FSL & 330' FWL, Unit Letter M, Sec. 29, T-18-S, R-38-E, Lea Co., NM
- Well No. 241  
Loc.: 330' FSL & 2310' FWL, Unit Letter N, Sec. 29, T-18-S, R-38-E, Lea Co., NM
- Well No. 112  
Loc.: 200' FNL & 1310' FWL, Unit Letter D, Sec. 30, T-18-S, R-38-E, Lea Co., NM
- Well No. 233  
Loc.: 2455' FSL & 1480' FWL, Unit Letter K, Sec. 30, T-18-S, R-38-E, LEA Co., NM
- Well No. 313  
Loc.: 405' FNL & 2272' FEL, Unit Letter B, Sec. 30, T-18-S, R-38-E, Lea Co., NM
- Well No. 332  
Loc.: 2470' FSL & 1600' FEL, Unit Letter J, Sec. 30, T-18-S, R-38-E, Lea Co., NM
- Well No. 412  
Loc.: 760' FNL & 550' FEL, Unit Letter A, Sec. 30, T-18-S, R-38-E, Lea Co., NM
- Well No. 432  
Loc.: 2260' FSL & 180' FEL, Unit Letter I, Sec. 30, T-18-S, R-38-E, Lea Co., NM

The injection formation is the Hobbs; Grayburg-San Adres Pool between the intervals of +/-3700' and +/-5300' below the surface of the ground. Expected maximum infection rate is 4000 BWPD and the expected maximum injection pressure is approximately 805 psi. Interested parties must file objections or requests for hearing with the Oil Conservation Division, 2040, S. Pacheco, Santa Fe, NM 87505 within fifteen (15) days.  
#16873

PMX-199



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

11 / 16 / 99

POST OFFICE BOX 1980  
HOBBS, NEW MEXICO 88241-1980  
(505) 393-6161

GOVERNOR

OIL CONSERVATION DIVISION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

RE: Proposed:

- MC \_\_\_\_\_
- DHC \_\_\_\_\_
- NSL \_\_\_\_\_
- NSP \_\_\_\_\_
- SWD \_\_\_\_\_
- WFX \_\_\_\_\_
- PMX   X

Gentlemen:

I have examined the application for the:

Operator	<u>Altura Energy Ltd</u>	Lease & Well No.	<u>N Hobbs GB/SA Unit</u>	Unit	<u># 221-F-24-18-37</u>
				S-T-R	<u>30-025-09876</u>

and my recommendations are as follows:

OK.

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Yours very truly,

Chris Williams  
Supervisor, District 1

/ed



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

PMX-199

12/10/99

GOVERNOR

POST OFFICE BOX 1980  
HOBBS, NEW MEXICO 88241-1980  
(505) 393-6161

OIL CONSERVATION DIVISION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC	_____
DHC	_____
NSL	_____
NSP	_____
SWD	_____
WFX	_____
PMX	_____ X _____

Gentlemen:

I have examined the application for the:

<u>Altura Energy Ltd</u>	<u>N Hobbs GB/SA Unit</u>	<u># 432-I-30-185-38e</u>
Operator	Lease & Well No. Unit	S-T-R 30-025-28957

and my recommendations are as follows:

OK

Yours very truly,

Chris Williams  
Supervisor, District 1

/ed