30446760 SWD 11/7/01

bp

BP America, Inc.
501 WestLake Park Blvd.
Houston, TX 77079-3092

Phone: 281-366-2000

Oct. 22, 2001

State of New Mexico
Oil Conservation Div.
1220 South St. Francis Dr.
Santa Fe, NM 87505

OCT 23 2001

Application for Saltwater Disposal
Jicarilla Contract 146 Well 28
API 30-039-22145
Blanco Mesaverde
Rio Arriba County, New Mexico

Amoco Production Company requests permission to convert the above-mentioned non-productive gas well to a saltwater disposal well. Allen Kutch has examined the available geologic and engineering data and he finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

If you have any technical questions please call Allen Kutch at 281-366-7955. For administrative questions call Cherry Hlava at 281-366-4081.

Sincerely,

Cherry Hlava

Cherry Hlava
Regulatory Analyst

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised 4-1-98

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ___X___Disposal _____Storage
Application qualifies for administrative approval? _____Yes _____No

II. OPERATOR: Amoco Production

ADDRESS: 501 Westlake Park Blvd.
P.O. Box 3092
Houston, TX 77079

CONTACT PARTY: Allen Kutch 281-366-7955 or Cherry Hlava PHONE: 281-366-4081

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: Cherry Hlava TITLE: Regulatory Analyst

SIGNATURE: Cherry Hlava DATE: 10/22/2001

* 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: **Logs were submitted 11/1979**

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, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

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

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

INJECTION WELL DATA SHEET

Side 1

OPERATOR: Amoco Production Company

WELL NAME & NUMBER: Jicarilla Contract 146 Well 28

WELL LOCATION: 1170 FSL & 1170 FWL (**FOOTAGE LOCATION**) | M (**UNIT LETTER**) | 9 (**SECTION**) | 25N (**TOWNSHIP**) | 5W (**RANGE**)

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12-1/4" Casing Size: 8-5/8"

Cemented with: 315 sx. **or** _____ ft3

Top of Cmt: Surface Method Determined: circ

Intermediate Casing

Hole Size; _____ Casing Size: _____

Cement with: _____ sx. **or** _____ ft3

Top of Cmt: _____ Method Determined: _____

Production Casing

Hole Size: 7-7/8" Casing Size: 4-1/2"

Cement with: 1170 sx. **or** _____ ft3

Top of Cmt: Unknown Method Determined: _____

Total Depth: 5408'

Injection Interval

Perforated 4577 ft to 4829

(Perforated or Open Hole; indicate which)

(OVER)

INJECTION WELL DATA SHEET

Side 2

Tubing Size: 2 - 3/8" @4520' Lining Material: N/A

Type of Packer: Arrowset 1X

Packer Setting Depth: 4500'

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

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

   If no, for what purpose was the well originally drilled? Producing Gas Well

2. Name of the Injection Formation: Blanco Mesaverde

3. Name of Field or Pool (if applicable): Blanco Mesaverde

4. Has the well ever been perforated in any other zone(s)? List all such perforated: P. Cliffs 2914'-2958'; Mesaverde 4577'4829 & 4934'-5252' intervals and give plugging detail, I.e. sacks of cement or plug(s) used. CICR set @4900' Pt Lookout 4934'-5252' to be P&A'd

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

NOTICE OF APPLICATION FOR SALTWATER DISPOSAL WELL PERMIT

Amoco Production Company, Attn: Cherry Hlava 281-366-408, 1501 Westlake Park Blvd. Houston, Texas 77079 has applied to the State of New Mexico Energy, Minerals and Natural Resources Dept. for a permit to inject fluid into a formation which is not productive of oil or gas.

The applicant purposes to inject fluid into the existing Jicarilla Contract 146 well #28. This well is located in Sec. 9 Township 25 North Range 5 West in the Blanco Mesaverde formation. Disposal of saltwater will be at a depth of 4577' - 4829' with a maximum rate of 2500 bbls per day and max wellhead pressure of 1500 psi.

Requests for a public hearing from persons who can show they are adversely affected, or requests for further information concerning any aspect of the application should be submitted in writing, within fifteen (15) days of this publication, to the Oil Conservation Division, 1200 South St. Francis Dr., Santa Fe, New Mexico 87505. (Published October 4, 2001)

36 lines 60 times at

Affidavit 5.00

Subtotal 26.60

Tax 1.65

Total 28.25

Payment received at ***Rio Grande SUN***

Date

By

Affidavit of Publication

State of New Mexico
County of Rio Arriba

I, Robert Trapp, being first duly sworn, declare and say I am the Publisher of the ***Rio Grande SUN***, a weekly newspaper published in the English language and having a general circulation in the County of Rio Arriba, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937. The publication, a copy of which is hereto attached, was published in said paper once each week for

1 consecutive weeks and on the same day of each week in the regular issue of the paper during the time of publication and the notice was published in the newspaper proper, and not in any supplement. The first publication being on the 4th day of Oct and the last publication on the 4th day of Oct.

2001 payment for said advertisement has been duly made, or assessed as court costs. The undersigned has personal knowledge of the matters and things set forth in this affidavit.

Robert Trapp
Publisher

Subscribed and sworn to before me this 4th day of Oct A.D. 2001

Ruth S Trapp
Notary Public
My commission expires 17 May 2005

bp

501 Westlake Park Blvd.
Post Office Box 3092
Houston, TX 77079

Sept. 26, 2001

Yolanda Perez
Conoco Inc.
600 N. Dairy Ashford
Houston, TX 77252-2197

Application for Saltwater Disposal
Jicarilla Contract 146 Well 28
API 30-039-22145
Blanco Mesaverde
San Juan County, New Mexico

This letter is intended to give notification to Conoco that PB plans to convert the above well to a Saltwater Disposal well. Please see attached data giving name of Conoco well and location.

Should you have any technical questions please contact Allen Kutch @ 281-366-7955. For administrative questions contact Cherry Hlava 281-366-4081

Sincerely,

Cherry Hlava

Cherry Hlava

SWD Jic 146-28

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Conoco Inc.
Attn: Eva Rodriguez
600 North Dairy Ashford
Houston, TX 77079-1175

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)*: C. Quintana — B. Date of Delivery: 9-27-01

C. Signature: x C. Quintana — ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Copy from service label)*
7099 3220 0000 3963 0595

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

Amoco Production Company
501 Westlake Park Blvd.
Post Office Box 3092
Houston, TX 77079

Sept. 28, 2001

Mr. Thurman Velarde
Jicarilla Apache Oil & Gas Administration
P.O. Box 507 Hawks Dr.
Dulce, NM 87528

Application for Saltwater Disposal
Jicarilla Contract 146 Well 28
API 30-039-22145
Blanco Mesaverde
Rio Arriba County, New Mexico

By this letter Amoco Production Company gives notice of intent to convert the above well to a saltwater disposal well. There is no action required on your part, this is simply notification to the land owner.

Should you have any questions please contact Cherry Hlava 281-366-4081

Sincerely,

Cherry Hlava

Cherry Hlava

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7099 3220 0000 3963 0601

Article Sent To: MR Thurman Velarde 10-1-01

Postage	$
Certified Fee	✓
Return Receipt Fee (Endorsement Required)	✓
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Name (Please Print Clearly) (To be completed by mailer)
MR T. Velarde
Street, Apt. No.; or PO Box.
Hawks Dr.
City State, ZIP+ 4
Dulce NM 87528

PS Form 3800, July 1999 See Reverse for Instructions

bp

501 Westlake Park Blvd.
Post Office Box 3092
Houston, TX 77079

Oct. 22, 2001

Elm Ridge Resources, Inc.
P.O. Box 189
Farmington, NM 87499

Application for Saltwater Disposal
Jicarilla Contract 146 Well 28
API 30-039-22145
Blanco Mesaverde
San Juan County, New Mexico

This letter is intended to give notification to Elm Ridge Resources, Inc that PB plans to convert the above well to a Saltwater Disposal well. Please see attached data giving name of Elm Ridge wells and locations.

Should you have any technical questions please contact Allen Kutch @ 281-366-7955. For administrative questions contact Cherry Hlava 281-366-4081

Sincerely,

Cherry Hlava

Cherry Hlava

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

7099 3220 0000 3963 0618

Article Sent To: Elm Ridge Resources, Inc 10-22-01

Postage	$
Certified Fee	✓
Return Receipt Fee (Endorsement Required)	✓
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Name (Please Print Clearly) (To be completed by mailer): Elm Ridge Resources, Inc ATTN: Trudy
Street, Apt. No.; or PO Box: PO Box 189 505-632-3476
City State, ZIP+ 4: Farmington NM 87499

PS Form 3800, July 1999 See Reverse for Instructions

Form 3160-5
(August 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: November 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
JICARILLA CONT146

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☐ Oil Well ☐ Gas Well ☒ Other: INJECTION

8. Well Name and No.
JICARILLA CONTRT 146 28

2. Name of Operator
AMOCO PRODUCTION COMPANY
Contact: CHERRY HLAVA
E-Mail: hlavacl@bp.com

9. API Well No.
30-039-22145

3a. Address
P.O. BOX 3092
HOUSTON, TX 77253

3b. Phone No. (include area code)
Ph: 281.366.4081
Fx: 281.366.0700

10. Field and Pool, or Exploratory
BLANCO MESAVERDE

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 9 T25N R5W Mer SWSW 1170FSL 1170FWL

11. County or Parish, and State
RIO ARRIBA COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☒ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Amoco Production Requests permission to convert the subject well to a salt water disposal well per the attached procedure.

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #5440 verified by the BLM Well Information System
For AMOCO PRODUCTION COMPANY, sent to the Rio Puerco
Committed to AFMSS for processing by Angie Medina-Jones on 07/05/2001 ()

Name *(Printed/Typed)* CHERRY HLAVA — Title AUTHORIZED REPRESENTATIVE

Signature — Date 07/03/2001

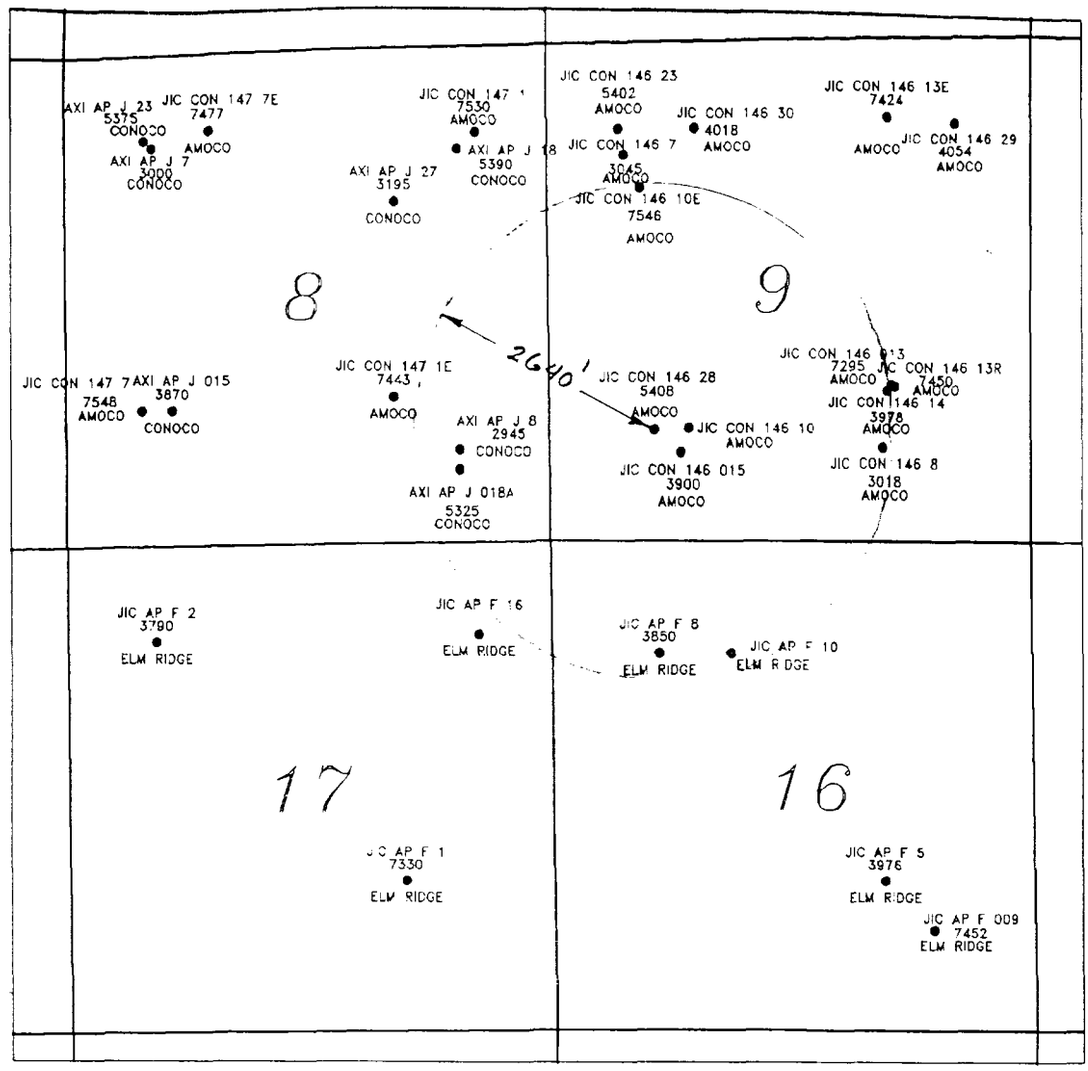
THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By — Lands and Mineral Resources — Title — Date 7-9-01

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. — Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ****



1:24000

FEET 0 2000 FEET

STATUTE MILES 0 .5 STATUTE MILES

Amoco Production Company
Houston, Texas

San Juan Basin

Proposed
JIC 146-28 SWD

SCALE	DRAWN C. E. SACKETT	DATE 25-JUN-2001

Permit #_____

Well Completion and Operation Data

Type Injection Well: (EOR/SWD/HC Storage) (New/Conversion)

Injection: (Continuous/Cyclic) Cyclic

Approximate # days operating/year 90
Rate (B/D): Average 250 Maximum 2500
Wellhead pressure (psi): Average 1000 Maximum 1500
Fluid: TDS 5432 Sp. Gr. 1.005 Analyses included: (yes/no)
Source (formation name) Dakota, Gallup, Mesaverde, Chacra, PC, Fruitland Coal
Will anything be added to the water to be injected? (yes/no)
What will those additives be? no

Geologic Data (all references to depths are below land surface)

Injection Interval: Top 4577 ; Bottom 4829 ; Effective Thickness 74
Formation name Cliffhouse Lithology sandstone
Porosity (%) 12 Current Reservoir Pressure 840 Date 1/15/80
or Current Fluid Level in Well _____ ft. Date _____
Permeability (md) 0.1
Drill Stem Test Included: (YES) (NO)

Confining Zones: Thickness between injection zone and USDW 2050'
Lithology Sand and shale
Cumulative shale 1980' : thickest shale zone 3830-4577 (interval)
Faults: Are there any faults in the area of the well which penetrate the injection interval? (Yes/No) No

Well Data: (all references to depths are below land surface)

Surface Elevation: 6727GL (KB/GL) Total (Depth/Plugged Back Depth) 6271 / 4880
Date Drilled or to be drilled 10-25-79
Type logs available on (this well/offset well): (By reference/included
Induction/GR, CDL, CDN filed previously

Construction:	Size (in)	Depth Interval	Sacks of Cement	Hole Size	Cement Interval	How Detemined
Surface Csg.	8-5/8	295	315	12¼	Surface	Circulation
Intermediate Csg.						
Long String Csg.	4-1/2	5408	1170	7-7/8	unknown	
Liner						
Tubing	2-3/8	4520	Packer type and depth		Weatherford Arrowset 1X @4500'	

Other Perforated Intervals Pictured Cliffs 2914' - 2958', Point Lookout 4934' - 5252' (to be P&A'd)

Jicarilla Contract 146 No. 28
Unit M Sec 9 T25N-R5W
Rio Arriba County, NM

Procedure:

1. MIRU SU. Record TP, CP and BH. ND tree, NU BOP.

2. POOH drifting tbg, visually inspecting.

3. RU air package and D/O CIBP at 4490' capped with 4 sacks cmt. Circulate clean to PBTD.

4. Make bit x scraper run.

5. RU electric line. Log GR-CCL correlation strip (unless cased hole log is available from field file). Set CICR at 4900'.

6. Sqz below CICR with 25 sxs cmt. Cap with 5 sxs. POOH LD tbg.

7. RIH with following injection string:

   a) Arrowset pkr
   b) On/off tool with 1.78" F-profile and blanking plug installed.
   c) 1 jt new 2-3/8" IPC tbg
   d) 1.78" ID F-nipple
   e) New 2-3/8" IPC tbg to surface

8. Set pkr at 4500'.

9. Release on/off tool. Unload hole with air package to kick off PC. Flow back PC 1-2 hrs to clean up.

10. Relatch on/off tool.

11. Load tbg with water and pressure test to 1500 psi.

12. RU wireline. Make gauge ring run. Retrieve blanking plug.

13. Perform step-rate test and North West New Mexico Packer Leakage test.

WELL SCHEMATIC

Operator Amoco Production Company **Well Name** Jicarilla Cont 146 **Well #** 28

Completion Date: 1/15/81

1170 Ft. F S L & 1170 Ft. F W L

SW ¼ Section 9 Twp. 25N Rg. 5W

Surface Elevation 6727'

Formation(s) Top/Bottom from PBTD to surface:

Pictured Cliffs	2919'	2972'
Mesaverde	4576'	5330'

Tubing Size: 2-3/8 In.
Weight: 4.7 lb./Ft.
Length: 4510' Ft.

Packer Type: Arrowset 1X
Set at: 4520' KB Ft.

Formation(s) perforated above packer:

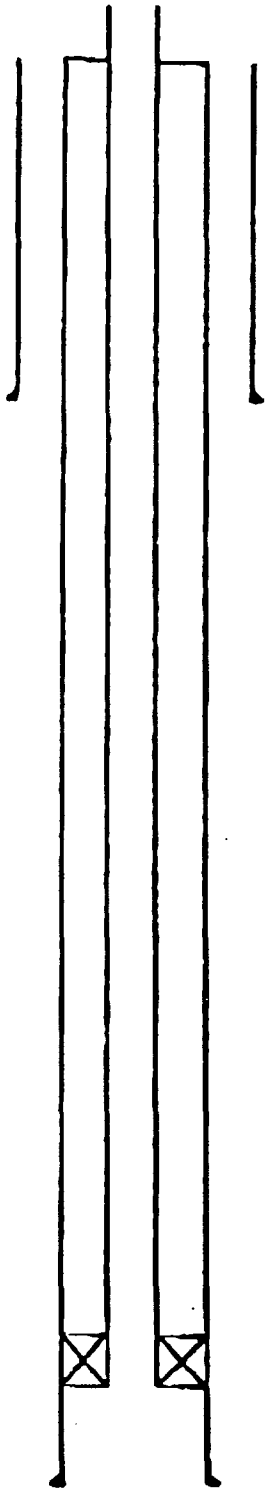
Pictured Cliffs 2914' to 2958'
' to '

Formation(s) perforated below packer:

Cliffhouse 4577' to 4829'
' to '
' to '

Open hole below production casing from n/a ' **to** '

Formation(s) present in open hole:
n/a



SURFACE CASING DATA

Hole Size: 12-1/4 In.
Casing Size: 8-5/8 In.
Weight: 24 lb/F
Length: 285 Ft.
Cement Type: Class B
Amount: 315 Sx.
Additives: 2% CaCl2
Casing set at: 295 KB Ft.
Top of Cement: Surface Ft.
Method of Determination: Circulated 20 sxs cmt to surface

PRODUCTION CASING DATA

Hole Size: 7-7/8 In.
Casing Size: 4-1/2 In.
Weight: 11.6 lb/F
Length: 5398 KB Ft.
Cement Type: Class B
Amount: 1070 + 100 ne Sx.
Additives: 6% Gel, 2# tuff plu
Casing Set at: 5408 KB Ft.
Top of Cement: To be determined Ft.
Method of Determination: CBL

PBTD: 4880' KB

TD: 6271' KB

NOTE: All depths are to be from ground level. If KB depths are used make notations on diagram & give height of KB above ground level.

WELL SCHEMATIC

Operator Amoco Production Company **Well Name:** Jicarilla Cont 146 **Well #** 28

Completion Date: 1/15/81

1170 Ft. F S L & 1170 Ft. F W L

SW ¼ Section 9 Twp. 25N Rg. 5W

Surface Elevation 6727'

Formation(s) Top/Bottom from PBTD to surface:

Pictured Cliffs	2919'	2972'
Mesaverde	4576'	5330'
	/	
	/	
	/	
	/	
	/	
	/	

Tubing Size: 2-3/8 In.

Weight: 4.7 lb./Ft.

Length: 4510' Ft.

Packer Type: Arrowset 1X

Set at: 4520' KB Ft.

Formation(s) perforated above packer:

Pictured Cliffs 2914' to 2958'

' to '

Formation(s) perforated below packer:

Cliffhouse 4577' to 4829'

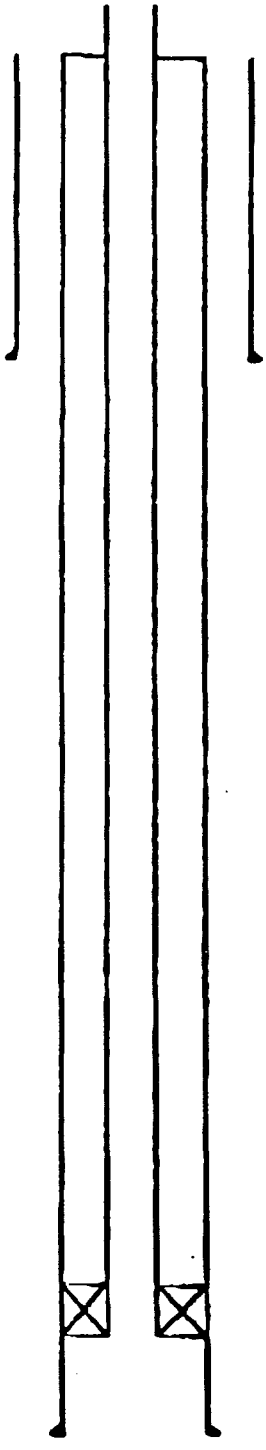
' to '

' to '

Open hole below production casing from n/a ' to '

Formation(s) present in open hole:

n/a



SURFACE CASING DATA

Hole Size: 12-1/4 In.

Casing Size: 8-5/8 In.

Weight: 24 lb/F

Length: 285 Ft.

Cement Type: Class B

Amount: 315 Sx.

Additives: 2% CaCl2

Casing set at: 295 KB Ft.

Top of Cement: Surface Ft.

Method of Determination: Circulated 20 sxs cmt to surface

PRODUCTION CASING DATA

Hole Size: 7-7/8 In.

Casing Size: 4-1/2 In.

Weight: 11.6 lb/Ft

Length: 5398 KB Ft.

Cement Type: Class B

Amount: 1070 + 100 ne Sx.

Additives: 6% Gel, 2# tuff plu

Casing Set at: 5408 KB Ft.

Top of Cement: To be determined Ft.

Method of Determination: CBL

PBTD: 4880' KB

TD: 6271' KB

NOTE: All depths are to be from ground level. If KB depths are used make notations on diagram & give height of KB above ground level.

TABULATION OF WEI WITHIN ½ MILE OF PROPOSE INJECTION WELL WHICH PENETRATE THE INJECTION ZONE.

Name AXI Apache J18A Company Name Conoco Date Drilled 12/29/71 Depth 5325'

Location 790' F S L & 990 ' F E L; SE /4, Sec. 8 -T 25N -R 5W Status Active

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
12¼ "	8-5/8 "	242 '	150 sxs Class A, 2% CaCl2	'	
7-7/8 "	5-1/2 "	5324 '	1st stage: 190 sxs 50:50 Poz	'	✓
"	DV tool "	3901 '	2% gel. 2nd stage: 334 sxs	'	
"	"	'	50:50 Poz, 2% gel.	'	

Formations Open to Wellbore: Point Lookout (p&a'd) Chacra (open)

Well Name Jicarilla Contract 146-13R Company Name Amoco Production Company Date Drilled 9/22/84 Depth 7450'

Location 1635 F S L & 1500 ' F E L; SE /4, Sec. 9 -T 25N -R 5W Status Active

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
12¼ "	8-5/8 "	323 '	354 cf Class B	Surface '	
7 7/8 "	4-1/2 "	7450 '	Stage 1: 1024 cf Class B 50:50 Poz / 118 cf Class B neat.	300' '	(temp. survey) ✓
"	DV tool "	4472 '	Stage 2: 1704 cf Cl B 65:35 Poz	'	
"	"	'		'	

Formations Open to Wellbore: Dakota

Well Name Jicarilla Contract 146-10 Company Name Amoco Production Company Date Drilled 12/18/60 Depth 7458

Location 1190' F S L & 1550 ' F W L; SW /4, Sec. 9 -T 25N -R 5W Status Active

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
12¼ "	8-5/8 "	506 '	425 sxs, 2% CaCl2	Surface '	
7-7/8 "	4-1/2 "	7458 '	1st stage: 400 sxs 6% gel /	2200 '	(temp. survey)
"	DV tool "	3927 '	100 sxs neat. 2nd stage: 375 sxs, 6% gel.	'	✓
"	"	'		'	

Formations Open to Wellbore: Dakota

Well Name Jicarilla Contract 146-10E Company Name Amoco Production Company Date Drilled 10/31/79 Depth 7546'

Location 1520' F N L & 1030 ' F W L; NW /4, Sec. 9 -T 25N -R 5W Status Active

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
12¼ "	8-5/8 "	290 '	315 sxs Class B neat	Surface	
7-7/8 "	4-1/2 "	7546 '	1st stage: 375 sxs 50:50 Poz	Surface	✓
"	DV tool "	5393 '	6% gel / 175 sxs neat. 2nd stage: 1115 sxs 50:50 Poz, 6% gel / 100 sxs neat	'	
"	"	'		'	

Formations Open to Wellbore: Dakota

TABULATION OF WEI WITHIN ½ MILE OF PROPOSE INJECTION WELL WHICH PENETRATE THE INJECTION ZONE.

Name Jicarilla Contract 146-13 Company Name Amoco Production Company Date Drilled 9/15/72 Depth 7295'

Location 1650 ' F S L & 1550 ' F E L; SE /4, Sec. 9 -T 25N -R 5W Status PxA'd

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
2¼	8-5/8	503	375 sxs neat	Surface	CICR @ 6880' w/ 118 cf cmt
-7/8	4-1/2	7295	1st stage: 350 sxs, 6% gel /	Surface	cmt plugs 5400' - 4600',
	DV tool	3999	100 sxs neat. 2nd stage: 350	sxs	4050' - 3720', 3100' - 2900',
			6% gel.		2650' - 2360', CICR @ 465'
					59 cf cmt. Sqz perfs 451' -
					551' 50'

Formations Open to Wellbore: Dakota (P&A'd)

Well Name Jicarilla F10 Company Name Elm Ridge Exploration, Inc. Date Drilled 1/26/63 Depth 7428'

Location 1190 ' F N L & 1980 ' F W L; NW /4, Sec. 16 -T 25N -R 5W Status Active

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
13-3/4	9-5/8	215	150 sxs, 2% gel, 2% CaCl2	Surface	
	3-1/2	7399	1st stage: 275 sxs 50:50 Poz		
	DV tool	3911	12½# gilsonite/100 sxs 50:50	Poz	
			2nd stage: 300 sxs Class C,	6% gel	

Formations Open to Wellbore: Dakota

Well Name _____ Company Name _____ Date Drilled _____ Depth _____

Location ____ ' F _ L & ____ ' F _ L; ____ /4, Sec. ____ -T ____ -R ____ Status _____

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:

Formations Open to Wellbore: _____

Well Name _____ Company Name _____ Date Drilled _____ Depth _____

Location ____ ' F _ L & ____ ' F _ L; ____ /4, Sec. ____ -T ____ -R ____ Status _____

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:

Formations Open to Wellbore: _____

Entity (or well #): Well Analysis Cost: $40.00

Formation: UNKNOWN

Sample Point: SEPARATOR GP-DK-MV

Summary	
Sampling Date:	5/1/01
Analysis Date:	5/8/01
Analyst:	SHEILA HERNANDEZ
TDS (mg/l or g/m3):	5432.5
Density (g/cm3, tonne/m3):	1.005
Anion/Cation Ratio:	0.9999998
Carbon Dioxide:	
Oxygen:	

Analysis of Sample 185421 @ 75 °F

Anions	mg/l	meq/l	Cations	mg/l	meq/l
Chloride:	2283.0	64.4	Sodium:	1907.0	82.95
Bicarbonate:	1127.0	18.47	Magnesium:	2.0	0.16
Carbonate:	54.0	1.8	Calcium:	2.0	0.1
Sulfate:	3.0	0.06	Strontium:	1.5	0.03
Phosphate:			Barium:	4.0	0.06
Borate:			Iron:	16.0	0.58
Silicate:			Potassium:	33.0	0.84
			Aluminum:		
Hydrogen Sulfide:			Chromium:		
pH at time of sampling:			Copper:		

TABULATION OF WEI WITHIN ½ MILE OF PROPOSE INJECTION WELL WHICH PENETRATE THE INJECTION ZONE.

Name Jicarilla Contract 146-13 Company Name Amoco Production Company Date Drilled 9/15/72 Depth 7295'

Location 1650' F S L & 1550' F E L; SE /4, Sec. 9 -T 25N -R 5W Status PxA'd

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
2¼	8-5/8	503	375 sxs neat	Surface	CICR @ 6880' w/ 118 cf cmt
-7/8	4-1/2	7295	1st stage: 350 sxs, 6% gel /	Surface	cmt plugs 5400' - 4600',
	DV tool	3999	100 sxs neat. 2nd stage: 350	sxs	4050' - 3720', 3100' - 2900',
			6% gel.		2650' - 2360', CICR @ 465'
					59 cf cmt. Sqz perfs 451' -
					551' 50'

Formations Open to Wellbore: Dakota (P&A'd)

Well Name Jicarilla F10 Company Name Elm Ridge Exploration, Inc. Date Drilled 1/26/63 Depth 7428'

Location 1190' F N L & 1980' F W L; NW /4, Sec. 16 -T 25N -R 5W Status Active

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:
13-3/4	9-5/8	215	150 sxs, 2% gel, 2% CaCl2	Surface	
	3-1/2	7399	1st stage: 275 sxs 50:50 Poz		
	DV tool	3911	12½# gilsonite/100 sxs 50:50	Poz	
			2nd stage: 300 sxs Class C,	6% gel	

Formations Open to Wellbore: Dakota

Well Name _____ Company Name _____ Date Drilled _____ Depth _____

Location ____' F _L & ____' F _L; ____/4, Sec. ____-T ____-R ____ Status _____

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:

Formations Open to Wellbore: _____

Well Name _____ Company Name _____ Date Drilled _____ Depth _____

Location ____' F _L & ____' F _L; ____/4, Sec. ____-T ____-R ____ Status _____

Hole Size	Casing Size	Landed Depth	Cement & Additive Data	Top of Cement	If well is TA or P&A Describe How:

Formations Open to Wellbore: _____

BAKER HUGHES
Baker Petrolite

Rocky Mountain Region
1675 Broadway, Suite 1500
Denver, CO 80202
(303) 573-2772
Lab Team Leader - Sheila Hernandez
(915) 495-7240

Water Analysis Report by Baker Petrolite

Company:	B P AMOCO INCORPORATED	Sales RDT:	44102
Region:	ROCKY MOUNTAINS	Account Manager:	BOB WILLIAMS (970) 749-7375
Area:	CORTEZ, CO	Sample #:	185421
Lease/Platform:	JICARILLA 102 AREA	Analysis ID #:	18788
Entity (or well #):	7 M	Analysis Cost:	$40.00
Formation:	UNKNOWN		
Sample Point:	SEPARATOR GP-DK-MV		

Summary	
Sampling Date:	5/1/01
Analysis Date:	5/8/01
Analyst:	SHEILA HERNANDEZ
TDS (mg/l or g/m3):	5432.5
Density (g/cm3, tonne/m3):	1.005
Anion/Cation Ratio:	0.9999998
Carbon Dioxide:	
Oxygen:	
Comments:	

Analysis of Sample 185421 @ 75 °F

Anions	mg/l	meq/l	Cations	mg/l	meq/l
Chloride:	2283.0	64.4	Sodium:	1907.0	82.95
Bicarbonate:	1127.0	18.47	Magnesium:	2.0	0.16
Carbonate:	54.0	1.8	Calcium:	2.0	0.1
Sulfate:	3.0	0.06	Strontium:	1.5	0.03
Phosphate:			Barium:	4.0	0.06
Borate:			Iron:	16.0	0.58
Silicate:			Potassium:	33.0	0.84
			Aluminum:		
Hydrogen Sulfide:			Chromium:		
pH at time of sampling:			Copper:		
pH at time of analysis:		8.52	Lead:		
pH used In Calculation:		8.52	Manganese:		
			Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite $CaCO_3$		Gypsum $CaSO_4 \cdot 2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$		CO_2 Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	0.01	0.00	-5.13	0.00	-5.20	0.00	-3.49	0.00	0.04	0.00	0.05
100	0	0.00	0.00	-5.14	0.00	-5.15	0.00	-3.46	0.00	-0.10	0.00	0.08
120	0	0.00	0.00	-5.14	0.00	-5.06	0.00	-3.43	0.00	-0.21	0.00	0.14
140	0	0.00	0.00	-5.13	0.00	-4.96	0.00	-3.39	0.00	-0.31	0.00	0.24

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.