CASE NO.

7687

APPlication,
Transcripts,
Small Exhibits,

ETC.

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NEW MEXICO OIL CONSERVATION COMMISSION

EXAMI	MER H	CARING			
:					
	SANTA	FE	. ,	NEW	MEXICO

Hearing Date SEPTEMBER 29, 1982 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
Jeff Idmister	MARK CO. O	As loc
Jest Edmister Clyde A More	Amoco Fral Co.	Housto.
Frient L. Vadula	Mountain States Petrole	5F
Yny HAvenor	Mountain States Pot Corp	Resucco.
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NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER	HEARING			
SANTA	FE	5	NEW	MEXI CO

Hearing Date SEPTEMBER 29, 1982 Time: 9:00 A.M.

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of Amoco Production Company for salt water disposal, Union

County, New Mexico.

MR. MOTE: Mr. Examiner, I'm Clyde Mote,

MR. STAMETS: We will call Case 7687.

MR. PEARCE: That is on the application

attorney, representing Amoco Production Company, in association

with Mr. Bill Carr, New Mexico, and we're ready to proceed.

MR. STAMETS: Are there any other appear-

Mr. Mote, you may proceed.

(Witness sworn.)

MR. MOTE: Mr. Examiner, I'm Clyde Mote, attorney, representing Amoco Production Company and we'll have one witness, Larry Sheppard.

LARRY W. SHEPPARD

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. MOTE:

Q.

ances in this case?

If you would, please, state your name, by

4 2 whom employed, and in what capacity and location? 3 My name is Larry W. Sheppard. I'm em-4 ployed by Amoco Production Company as a staff petroleum en-5 gineer in our Houston West Region Proration Group. 6 Would you please relate your educational 7 experience? 8 I received a Bachelor of Science degree 9 in petroleum engineering from Texas Tech University in May 10 of 1977. 11 And what has been your work experience 0. 12 since that date? 13 Since that time I've been employed by 14 Amoco Production Company. I've worked in various engineering 15 capacities at Andrews, Houston, Hobbs, and now again in 16 Houston. 17 And what's been the general categories 18 of your employment with Amoco? 19 I've been employed in the areas of pro-20 duction engineering, reservoir engineering, drilling and com-21 pletion, and now proration. 22 Are you familiar with the Brave Dome area 23 in New Mexico? 24 Yes, I am. 25 Is there any question concern-MR. MOTE:

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ing th	e witness	' qualifications?
		MR. STAMETS: The witness is considered
qualif	ied.	
	Q.	You'll be asked to testify concerning
certai	n exhibit	s. Were these exhibits either prepared by
you or	under yo	ur supervision and direction?
	Α.	Yes.
	Q.	Turn to your first exhibit, please, sir.
I beli	eve this	is the administrative application for the well
which	is the su	bject of this hearing, is that not true?
	A.	Yes, sir.
	Q.	And this is the same petition, or appli-
cation	, the C-1	08, with all attachments that was filed with
the Oi	l Conserv	ation Division in an attempt to get admini-
strati	ve approv	al, is that correct?
•	A.	That's correct.
	Q.	And certain protests were filed and that
is the	reason w	hy we're here today, is that correct?
	A.	Yes, sir.
	Q.	All right, go to your Exhibit Number Two.
I beli	eve these	are the notices that were given in connection
with t	he admini	strative application, is that correct?
e de la companya de l	A.	Yes, sir.
	Q	Is it true that the State owns all the

All right, and the red arrow, is that the injection well, proposed injection well?

Yes, sir, that is correct.

And I notice there are only three wells in this radius, is that true?

Yes, sir, we have the proposed disposal

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well and two other wells.

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Q. All right, go to your Exhibit Number Four.

This is the current well status summary, is it not?

A. Yes, sir, this is the summary of the well status of the three wells within the area of review.

Q All right, point out all the information which you feel might be of special importance to the Examiner on this exhibit.

A. This is just a tabular summary of the pertinent data concerning the completions and the current status of these wells. It lists the well name, the dates drilled, the depth of surface and production casing, the legal location, the total depth of the well, and the completion interval.

This data is presented in a more complete fashion on exhibits that we will present.

Q. All right, and one of those, I believe, is Exhibit Five, is it not?

M. Yes, sir.

Q I believe Exhibit Number Five is a well-bore sketch and a well history of what we'll call Well Number One. By the way, Well Number One was known as what now before, F-1-1?

A. It was known as the State FI No. 1. It's

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continuis also aldeis

currently Brave Dome Unit No. 20343610.

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Q. All right.

Wells One, Two, and Three?

pletely isolated, also.

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MR. STAMETS: This is the simple system that Amoco worked out to identify the wells in the unit, is that correct?

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A. Yes, sir, that is correct.

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MR. STAMETS: It certainly seems to be --

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For the record, may we refer to them as

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MR. STAMETS: Let us hope so.

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Q. All right, if you would, point out the --

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at least the material -- the information shown on here with

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regard to circulation of the cement to surface.

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As far as the pertinent data, you'll see

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that both our surface casing and production casing strings

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have been circulated to surface with cement. We, within the

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last month, completed the circulation of the production string,

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as you can see. We perforated at 980 feet and did circulate

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the cement to the surface, and so that string is now com-

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All right, go to your Exhibit Number Six.

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I believe this is the same type of exhibit but it's with regard to Well Number Two, is that correct?

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A Yes, sir, it is.

posal horizon; for the Tubb, which is the water to be disposed of; and we also include two analyses from fresh water wells that are within the vicinity of the proposed disposal well.

of particular interest, it should be noted that the Glorieta water samples show the total dissolved solids of 29,332. The Tubb water analysis shows the total dissolved solids of 44,937, and the fresh water samples, which were taken from the Ogallala with -- from two wells within a mile of the proposed disposal well, show total dissolved solids of between 4 and 700 parts per million.

Q Does the 29,332 parts per million total dissolved solids in the Glorieta meet State specifications for a water in which to inject?

A. Yes, sir, it is nearly three times in excess of the minimum requirements of the State of 10,000 milligrams per liter total dissolved solids.

All right, now have you determined whether or not the Glorieta formation and the water in the Glorieta formation are compatible with the water from the Tubb to be injected?

A. Yes, sir, all the data that we have indicates that both the water and the formation would be compatible with the Tubb disposal water.

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Q. All right, go to your Exhibit Number Nine, if you would. I believe these are your calculations for maximum surface injection pressure, are they not?

That is correct. ۸.

Q, Would you please go through these calculations and explain to the Examiner what you've done?

A. Okay, the calculations are broken up into three parts. First of all, I have the qualification for my calculations, and that is that the fracture gradient of the Glorieta would be approximately equivalent to that of the Tubb.

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Using that as a qualification, I backed out the calculated fracture gradient for the Tubb, which was based on actual fracture stimulations of six wells within the

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vicinity of the proposed disposal well.

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As you can see, the fracture gradient calculated to be .79 psi per foot of depth.

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Again now, using my qualification of assuming that the Glorieta would have the same, approximately the same fracture gradient, I calculated that the bottom hole fracture pressure for the Glorieta would be 1382 psi.

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converts to a wellhead fracture pressure of 596 psi.

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As you can see, dividing that by the average depth of the injection well would give us a surface limit

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of .34 psi per foot. This is well in excess of what has been

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a standard guideline of approximately 2.2 psi per foot, and therefor we are recommending that we adopt the .2 psi per foot which would give us a maximum surface limit pressure of 350 psi, or approximately 250 psi below our calculated fracture pressure.

Q. In substance, what this exhibit shows is that you think that the Glorieta would take about 596, or more, in order to obtain parting pressure from the wellhead, is that true?

Yes, sir, that's correct.

And you are recommending 300, a maximum of 350 psi at this time.

A. Yes, sir, that's correct.

Q. And does this differe from the psi maximum requested in your administrative application?

A. Yes, sir, this is the only point where we deviate from what was requested through the administrative application.

Our Hobbs office, when they submitted that, based their pressure, really, upon just an arbitrary pick, because all of the stimulation tests that we have on the Glorieta and Bravo Dome indicate that it would take the necessary water on a vacuum, but we do want to go ahead and request the 350 psi limit so we do not have to come back for

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another hearing if indeed we do need to exceed the 100 psi.

All right, get out your Exhibits Ten and Eleven and we'll discuss both of those at the same time.

I believe Exhibit Number Ten is a pertinent data sheet and Exhibit Number Eleven is a log of the proposed disposal well, is that correct?

A. Yes, sir.

Q. All right, if you would, go through and point out matters of interest on both these exhibits.

A. Okay. First of specific interest in our pertinent data sheet are our proposed operation parameters. As far as volumes of water to be disposed of, we initially anticipate disposing of no more than 50 barrels of water per day; however, in the future we possibly foresee that there would be need of disposing of up to 600 barrels of water a day; but in no case can we envision that we would need to exceed 900 barrels of water per day.

The system will be closed and again we're recommending a maximum surface limit of 350 psi; however, we do expect our average injection pressure to less than 100 psi

The next area that I'd like to briefly touch on would be the geology of the disposal horizon, and of fresh water sands within the vicinity of this well.

First of all, the Glorieta top is located

on the logs at 1702 feet. The lithology of the proposed disposal horizon is a fine to coarse-grained sandstone that is well cemented by calcereous material.

Now, as you can also see, I've marked the other tops, the tops of the San Andres, Santa Rosa, and of the Triassic on the log that I have. The deepest fresh water sand in the area is the Morrison Exeter Sand where the base of the sand is located at 620 feet, which is at the top of the Triassic. This does agree with areal ground water studies which have done and that indicated that the probable depth of the deepest fresh water zone would be somewhere between 550 and 600 feet.

Q. How far is the base of the Exeter from the perforations that you intend to place in your disposal well?

A. We have separation of about 1100 feet.

Q. All right, is the Glorieta at a low pressure and able to take water easily?

A. Yes, sir, as I have previously mentioned, all of the stimulations that I have seen were done on a vacuum and we do have bottom hole pressures that indicate that the Glorieta is an abnormally low pressure horizon, and therefor should not have any problem taking the water that we wish to dispose in it.

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Q Have you examined all available geologic and engineering data and find no evidence of open faults or any other hydrological connection between the disposal zone and any underground source of drinking water?

A. I have examined the data and I do find that there is no evidence of such.

All right, go to your Exhibits Twelve and Thirteen and we'll discuss those two together.

I believe your Exhibit Number Twelve is your planned method of conversion of the disposal well and Exhibit Thirteen is a graphical level sketch showing this conversion. Is that true?

A. Yes, sir.

Q. Would you please go through and describe the method which you intend to use in converting this existing well into a salt water disposal well?

A. Our Exhibit Number Twelve is a copy of the C-103 which will be submitted to the Commission for approval to convert the well. We intend to go in, set a cast iron bridge plug approximately 100 feet above the Tubb perforations, cap that bridge plug with 35 feet of cement, which is in accordance with the Commission regulations for permanent abandonment of horizon.

Upon completion of that we will perforate

1 the proposed Glorieta interval from 1718 to 1780 feet. 2 will then acidize it with 1000 gallons of 7-1/2 percent hydro-3 chloric acid. We will run an injection packer, which will be internally and externally coated with 2-3/8th internally 5 coated injection tubing, circulate the tubing-casing annulus with inhibited water, set our packer, and then we will be 7 completed and ready for disposal. R Does that complete your testimony? 9 0. Yes, sir, it does. 10 MR. MOTE: We offer all Exhibits One 11 through Thirteen into evidence and submit the witness for 12 examination. 13 MR. STAMETS: The exhibits will be ad-14 mitted. 15 16 CROSS EXAMINATION 17 BY MR. STAMETS: Mr. Sheppard, what's the location of the 19 two water wells that you've sampled? 20 Sir, the first well is located almost 21 on the same -- as I understand, it's located within about 22 200 feet of the proposed disposal well. It's within sight 23

The other well is located approximately

of it.

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one mile to the southeast of the proposed disposal well.

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water from those wells? Do you know that?

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A. Sir, all I have is hearsay and the staff feels that it is probably Ogallala and the depth would be between 100 -- between 50 and 100 feet.

And what's the approximate depth of the

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Q. Now you indicated that the .2 of a pound per foot pressure is acceptable. I presume that you would like to have a provision in that order which would allow for higher pressures, if needed, and based upon evidence that you would not fracture the confining strata.

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A. Yes, sir. that is correct.

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Q. And I understand that the San Andres contains water in this area in poor quality. Do you know anything about the San Andres?

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A. Yes, sir, I have seen some data on the San Andres water samples.

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0. Is that correct, that the water is not

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usable quality?

A.

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waters and it's somewhat suspect in this well. As you can

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see on the logs, through the upper portion of the San Andres

The San Andres does have very brackish

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there are about eight or ten stringers of anhydrite and I

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only saw one place in the San Andres that could possibly give

2	up water, which would be at about 1600 feet and I think our
3	experience in the past has been that we've not ever been able
4	to get very prolific either water or any other production
5	from the San Andres.
6	0. How wide an area do you expect this in-
7	jection well to serve in the industry?
8	A. l'm not certain. Could you please re-
9	phrase your question? I'm not certain.
10	Q Does this have to be the only injection
11	well for the unit or is this just one of probably what will
12	be quite a number before the unit is completely developed?
13	A. I think that we will have to see what
14	happens during our testing phase to see how much water we
15	actually are going to make. Right now this is our only
16	planned disposal well but we could possibly anticipate that
17	a full scale operation of the unit that we would need future
18	disposal wells, but I can't make a definitive statement on
19	that now because I just don't know.
20	Q. Are there any questions of the witness?
21	He may be excused.
22	Does anyone have anything that they wish
23	to add in the case?
24	It will be taken under advisement.
25	(Hearing concluded.)

CERTIFICATE

the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Saly la Royd CSE

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7687 heard by the on 9-29 1987

uchard A. Stamt, Examiner

Oil Conservation Division

BRUCE KING GOVERNOR LARRY KEHOE SECRETARY

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

October 8, 1982

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87501 (505) 827-2434

Mr. Clyde Mote, Attorney Amoco Production Company	Re:	CASE NO. 7637 ORDER NO.R-7096
P. O. Eox 3092		ORDER NO. N. 1999
Houston, Texas 77001		Applicant:
		Amodo Production Company
Dear Sir:		
Enclosed herewith are two Division order recently en		
Yours very truly,		
JOE D. RAMEY Director		
JDR/fd		
Copy of order also sent to	:	
Hobbs OCD × Artesia OCD × Aztec OCD		
Other		
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STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7687 Order No. R-7096

APPLICATION OF AMOCO PRODUCTION COMPANY FOR SALT WATER DISPOSAL, UNION COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on September 29, 1982, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 7th day of October, 1982, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Amoco Production Company, is the owner and operator of the Bravo Dome Carbon Dioxide Unit Tract 2034 Well No. 362, formerly known as the State FI Well No. 2 located 660 feet from the South line and 1320 feet from the East line of Section 36, Township 20 North, Range 34 East, NMPM, Union County, New Mexico.
- (3) That the applicant proposes to utilize said well to dispose of produced salt water into the Glorieta formation, with injection into the perforated interval from approximately 1718 feet to 1780 feet.
- (4) That the injection should be accomplished through 2 3/8-inch plastic lined tubing installed in a packer set at approximately 1650 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge or approved leak detection device should be attached to the

†2-Case No. 7687 Order No. R-7096

annulus in order to determine leakage in the casing, tubing, or packer.

- (5) That the injection well or system should be equipped with a pressure limiting switch or other acceptable device which will limit the wellhead pressure on the injection well to no more than 350 psi.
- (6) That the Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the Glorieta formation.
- (7) That the operator should notify the supervisor of the Santa Fe district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.
- (8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.
- (9) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amoco Production Company, is hereby authorized to utilize its Bravo Dome Carbon Dioxide Gas Unit Tract 2034 Well No. 362 located 660 feet from the South line and 1320 feet from the East line of Section 36. Township 20 North, Range 34 East, NMPM, Union County, New Mexico, to dispose of produced salt water into the Glorieta formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 1650 feet, with injection into the perforated interval from approximately 1718 feet to 1780 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That the injection well or system shall be equipped with a pressure limiting switch or other acceptable device

-3-Case No. 7687 Order No. R-7096

which will limit the wellhead pressure on the injection well to no more than 350 psi.

- That the Director of the Division may authorize an (3) increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Glorieta formation.
- (4) That the operator shall notify the supervisor of the Santa Fe district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.
- (5) That the operator shall immediately notify the supervisor of the Division's Santa Fe district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.
- (6) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 702, 703, 704, 705, 706, 708, and 1120 of the Division Rules and Regulations.
- (7) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year designated.

> STATE OF NEW MEXICO OLL CONSERVATION DIVISION

JOE D. RAMEY 🥖

Director

STATE OF NEW MEXICO ENERGY AND HINCRALS DEPARTMENT

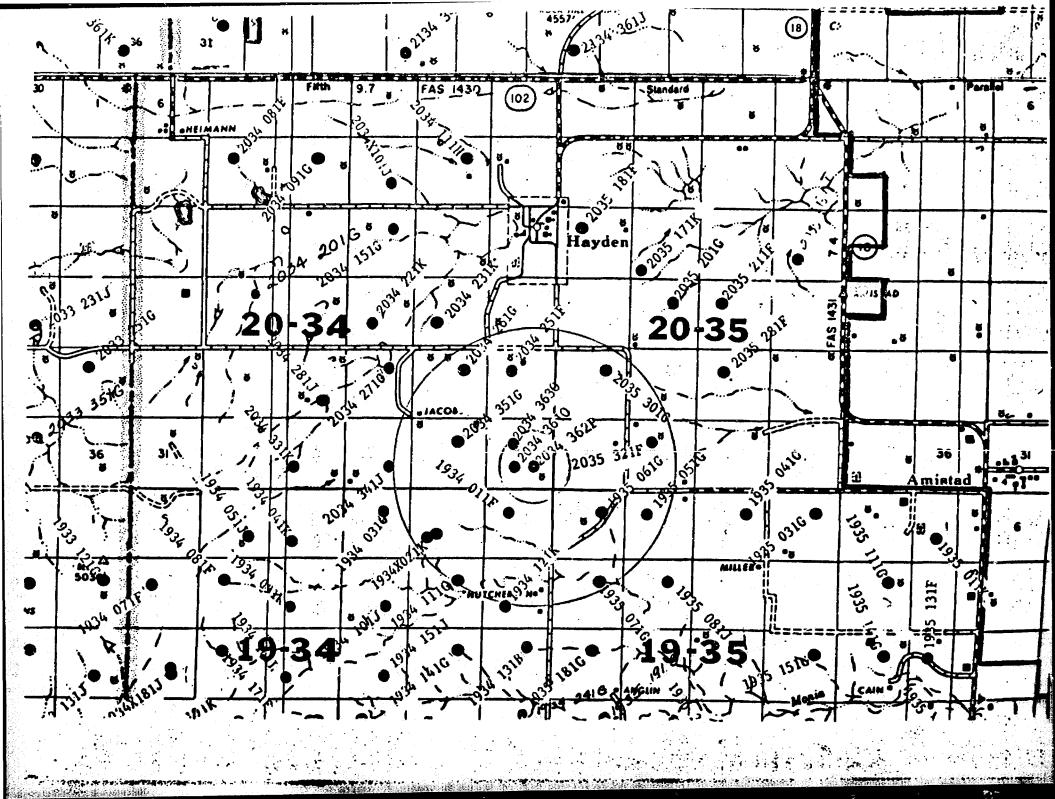
OIL CONSERVATION DIVISION

POST DIFFICE BOX (408 BTATE LEAD DIFFICE BRIDDING BANTA FE, NEW MEXICO 87501

AMOCO

FORM C-108 Revised 7-1-81

APPL10	CATION FOR AUT	HORIZATION TO INJECT		7687
1.	Purpose: Applicat	Sucondary Recovery Presion qualifies for administrative	e approval? X pro	no 9-29-82-
11.	Operator:	Amoco Production Company	Frank British Commence	The man of the state of the sta
	Address:	P. O. Box 68, Hobbs, NM 88		
	Contact par	_{ty:} Steven Lesikar	Phone: (50!	5) 393-1781
113.	Well data:	Complete the data required on proposed for injection. Addit	the reverse side of this ional sheets may be attack	form for each well hed if necessary.
IV.	Is this and If yes, give	expansion of an existing projec e the Division order number aut	t? yes X no horizing the project	•
۷.	injection we	o that identifies all wells and ell with a one-half mile radius circle identifies the well's a	circle drawn around each	of any propused proposed injection
vI.	ponetrate to well's type,	oulation of data on all wells on ne proposed injection zone. Su construction, date drilled, l of any plugged well illustrati	ch data shall include a di ocation, depth, record of	escription of each
VII.	Attach data	on the proposed operation, inc	luding:	
	2. Whet 3. Prop 4. Sour th 5. If i	osed average and maximum daily her the system is open or clos cosed average and maximum injectes and an appropriate analysise receiving formation if other njection is for disposal purpoor within one mile of the projection to the projection of the projection water terature, studies, nearby well-	ed; tion pressure; s of injection fluid and o than reinjected produced ses into a zone not produc posed well, attach a chemi r (may be measured or infe	ompatibility with water; and tive of oil or gas cal analysis of
111.	detail, geol bottom of al total dissol	priate geological data on the ogical nome, thickness, and del underground sources of drink ved solids concentrations of line as well as any such source terval.	oth. Give the geologic na ing water (aquifers contai 0,000 mg/l or less) overly	me, and depth to ning waters with ing the proposed
ıx.	Describe the	proposed stimulation program,	if any.	Ī
x.		priate logging and test data or ision they need not be resubmit		have been filed
XI.	available an	mical analysis of fresh water of producing) within one mile of wells and dates samples were to	F any injection or dispose	er wells (if 1 well showing
XII.	examined ava or any other	or disposal wells must make an ilable geologic and engineering hydrologic connection between inking water.	data and find no evidenc	e of open faults
111.	Applicants m	ust complete the "Proof of Nati	ce" section on the revers	e side of this form.
XIV.	Certification	n .		
	to the best	tify that the information submi	tted with this applicatio	n is true and correct
	Name: Cath	y L. Forman	Title Asst. Admi	nistrative Analyst
	Signature: ∠	athy & Forman	Date: <u>8-24-82</u>	



2146-2300	2663	R-35-E	T-20-N.		Sec.	- FM-	(1980	FNL	1980	Circ	2663	5-1/2"	• • •	705	8-5/8"	3-25-81	Gas	2035	
2243-2348	2670	R-35-E	T-20-N		•	7	1980	ENC >	1980	Circ C	2670	5-1/2"	•	723	8-5/8"	3-28-81	Gas	2038	
2190-2359	2600	R-34-E	T-20-N		•	-	1980	FSL)	1315'	Sirc	2600	4-1/2"	•	322	8-5/8"	5-22-79	Seg	2034	
2198-2369	2625	R-34-E	T-20-N,		•		1320	FSL)	660'	Circ	2600	4-1/2"	••	307	8-5/8"	10-7-74	Gas	2034	
2186-2404	2670	R-34-E	T-20-N				(1980	FSL)	1099	1	2665	4-1/2"	• •	328	8-5/8"	7-12-74	Gas	2034	
2220-2438	2650	R-34-E	T-20-N	35	• •	-	x 1980	FNL	1980'	Circ	2647	5-1/2"	Circ	703	8-5/8"	12-8-80	Gas	BDCCGU 2034 3516	
2220-2421	2760	R-34-E	T-20-N		•	. -	(1980		1980	Circ	2757	5-1/2"	1	733	8-5/8"	1-23-81	Gas	2034	
2262-2422	2763	R-34-E	T-20-N		•	-	1980	FNL	1980	Circ	2763	5-1/2"	••	705	8-5/8"	12-23-80	Gas	2034	
2000	2451	R-35-F	T-19-N				1980	E E	1980	Circ	2451	5-1/2"	٠.	698	8-5/8"	12-23-80	Gas	1935	
2126-2222	2450	R-35-F	T-19-N			-	1980	FN.	2044	Circ	2450	5-1/2"	٠,	701	8-5/8"	1-1-80	Gas	1935	
2130-1225	2465	R-35-F	T-19-N			, - -	1980	FIL	1980	Circ	2465	5-1/2"	• •	703	8-5/8"	5-26-81	น์ลร	1935	
2176-2478	2552	R-34-E	T-19-N		•	· -	1972	FSL	1980'	Circ	2553	5-1/2"	• •	718	8-5/8"	1-28-81	Gas	1934	
2142-2354	2530	R-34-E	T-19-N			_	1984	FIL	1980'	Circ	2506	5-1/2"	•	741	8-5/8"	11-21-80	Gas	1934	
2198-2433	2587	R-34-E	T-19-N.	~		-	2055	FSL)	1980	412'	2633	5-1/2"	• •	701	8-5/8"	10-24-80	Gas	1934	
N/A	2614	R-34-E	T-19-N.	2		-	1980	FSL	1980	N/A	N/A	N/A	•	700	8-5/8"	10-18-80	PXA	1934	
2172_2372	2625	R-34-F	T-19-N	<u>.</u>		-	C 1530	FNL	1968	Circ	2626	5-1/2"	••	714	8-5/8"	11-11-80	Gas	BDCDGU 1934 011F	
INTERVAL	EPTH (Ft)	ie		*	OCATION	<u>[0</u>	• • •			SH	@ (FT)	CSG.	목	@ (FT)	CSG.	DATE DRILLED	TYPE	WELL NAME	
COMPLETION										유	SET	PROD	<u>유</u>	SET	SURF.		WELL		
	-						•			TOP			TOP						

^{*}Every location is in Union County, New Mexico
***Proposed injection well (prior to workover)
+Cmt tie back performed 7/17/80
++Cmt tie back to be performed

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	AMOCO

Amoco Production Company

ENGINEERING CHART

FILE	 			
APPN	 			
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SUBJECT.	HUTCHERSON	$\mathcal{B}^{"}$	No.	5	(1934	U21K)

DATE 2/25/81

BRAYO DOME IND TUBB

- RAB

UNIT K. 1980 F5L × 1980 FWL SEC. Z. T-10-N. R-34 E. UNION COUNTY. NEW MEXICO.

PHA

ELEV: 4785 GL

85/8" 25A 700" 24th K-55, 315C CMT W/ 400 SXS. circ. 12'/4' noie

PLUD to b5b' circ 10 scc 1255 C next out

CMTW175 SXS. CLOSS C next. PLUG FROM: 860 - 650 CMTW/150 5x3. Class C nest.

PLUG FRUM 1060'-910'.

CMT W/95 sxs. Class C neat.

PLUG FROM 1105'-1060'.

CMTW/ 150 SXS. Class C neat.

drill collars

BDCDGU 1934 OD/K Well History Hutcherson B No. 5

- 10/7/80 8-5/8", 24#, K-55, ST&C casing set at 700' in a 12-1/4" hole. Cemented with 400 sacks Class C with 1% CaCl₂. Circulated 45 sacks.
- 10/10/80 Stuck drill pipe for 8 hours. TD 2614'.
- 10/11/80 Stuck drill pipe at 2614'. (24 hours)
- 10/12/80 Stuck drill pipe and all drill collars stuck except 1/2 of last drill collar on top. (7-3/4 hours) TD 2614'.
- 10/13/80 Fishing (18 hours). Bridge at 950'. Washing and reaming from 950' to 1040'. TD 2614'.
- 10/14/80 Washing from 1124'-1295'. Stuck wash pipe. Fishing for 23 hours. TD 2614'.
- 10/15/80 Ream from 767'-1300'. Fish for 24 hours. TD 2614'.
- 10/16/80 Wash and ream from 1100' to 2077'. Wash through bridge at 1205'. Fish for 24 hours for wash pipe. TD 2614'.
- 10/17/80 Fishing for 12 hours. Pump 150 sacks Class C neat cement to set plug from 1105'-1060' (6 hours).
- 10/18/80 Pump 95 sacks Class C neat to set plug from 1060'-910' (6 hours). Pump 150 sacks Class C neat to set plug from 910'-860'. Pump 75 sacks Class C neat to set plug from 860'-650'. Circulate 10 sacks cement aut. Top of cement at 656'.

2/25/81 RAB/sas

VII. Proposed Operation Data

1. The proposed average and maximum daily rate and volume of fluids to be injected: Avg: 600 BWPD; Max 900 BWPD

2

- 2. The system is closed.
- The proposed average and maximum injection pressure:
 Avg: <100 psi; Max: 100 psi
- 4. See attached water analysis
- 5. See attached water analysis

VIII. Geology Of Injection Zone

- 1. Sandstone formation
- 2. Giorietta zone
- 3. Net Pay: 98'
- 4. Depth: 1702' (+3043' subsea)
- 5. The Exador sand, located at approximately 560' (+4185' subsea), is the closest known fresh water source in the area.

IX. <u>Proposed Stimulation</u>

1. See attached C-103

XI. Chemical analysis

- 1. Water samples have been shipped for analysis from two (2) nearby water wells (see attached analysis).
- XII. All available geologic and engineering data has been examined and no hydrologic connection between the Glorietta formation and the Exador formation have been found.

INJECTION WELL DATA SHEET

### Action Feet Feet Feet Feet Feet Feet	Amoco Product	tion Company	Bravo Dome Car	bon Dioxide	Gas Unit	
Schematic Surface Surf	2034 362P	660' FSL x 1320' FI	LL Sec. 36		T-20-N	R-34-F
Schematic Surface Casing Size 8-6/8	WELL NO.				_	
Surface Casing Size 8-5/8		8				·
Surface Casing Size 8-5/8						
size 8-5/8 Francisc with 108 100 Surface Feet determined by (circ 75 sx) Hole size 12-1/4" Intersediate Cosing Feet determined by (circ 75 sx) Intersediate Cosing Feet determined by Hole size Feet determined by Intersediate Cosing Feet determined by Hole size Feet determined by Hole size Feet determined by (circ 70 sx) Injection interval Feet to 1780 Feet Injection interval Feet to 1780 Feet Injection interval Feet to Feet to Feet Injection interval Feet to Feet to Feet Injection interval Feet to	. Schemn	tie		tabuln	r Data	
Hole size 12-1/4" Intermediate Cooling Cemented with Intermediate Cooling Cemented with TOC General of the determined by Hole size Cemented with TOC General of the determined by Hole size Compating Size 4-1/2 Cemented with 625						
Hole size 12-1/4" Intermediate Cosing Size "Cemented with TOC feet determined by Hole size Long string Size 4-1/2 "Cemented with 625 TOC SUPFACE Feet determined by (circ 70 sx) Hole size 7-7/8" Total depth 2625' Injection interval 1718 Feet to 1780 Feet himself or open-hole, indicate which) perforated or open-hole, indicate which) perforated Sulberson Uni-packer VI packer ut 1650 Feet determined by perforated Sulberson Uni-packer VI packer ut 1650 Feet himself or determined by perforated Sulberson Uni-packer VI packer ut 1650 Feet himself or determined by perforated Sulberson Uni-packer VI packer ut 1650 Feet himself or determined by perforated by perforated Sulberson Uni-packer VI packer ut 1650 Feet himself or determined by perforated by the perforate	See attachmer	it	Size 8-5/8		Cemented wi	th <u>108</u>
Intermediate Cooling Sire					determined b	(circ 75 sx)
Size			Hole mize	12-1/4"	-	
Size		•	Intermediate Ca	nnie		
whing size 2-3/8 lined with		4			Cemented will	th.
while size Long string	•					
Size 4-1/2 " Comented with 625 Tot Surface Feet determined by (circ 70 SX) Hole size 7-7/8" Total depth 2625 Injection interval 1780 Feet to 1780 Teprforated or open-hole, indicate which) Feet perforated perforated perforated with perforated (naterial) perforated (brand and model) (brand and model) (brand and model) perforated (brand and model) perforated (brand and model) (brand					determined by	
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and the control of th	. Give the d	epth to port pline of ar	olone onlytrage v	r underlyim	oil or mas z	mi (stong) dong

Post Conversion Sketch

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AMOCO

Amoco Production Company

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DATE 5-24-82

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2600' W/625 SX. CEMINT			[]	_C/	st I	RON!	<u>3</u> P	02	377′	!		- -	
CIRCULATED W/70 SX.		10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		i -			+-			1	<u> </u>		
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. . . . PHONE 943-3234 OM \$43-1840 MODANANS TEXAS 78784 MONAHAND, TEMAS 70750 PHONE \$43-3234 GR 863-1640

LHCHE #83-4831 RIPLAND, TEXAS TOTAL MIDLAND, YEXAS TOTAL PHONE 683-4821

PHONE \$43-3234 GM 863-1640	ESULT OF WATER	NALYSES F		PHONE 603-4821
•		ABORATORY NO	. 881413 (P	ace 2)
To: Mr. Eric Tries		MPIFE: RECEIVED	8-26-81	
P.O. Box 63. Hobbs, New Mexico	i Ri	SUL'YS REPORTE	D: 9-4-81	
COMPANY. Amoco Production Compan	T	Frw Bravo Do	me	
	1 Wat 19 manual	. Dans		
SECTION BLOCK SURVEY	COUNTY	\	TATE NM	'
SOURCE OF SAMPLE AND DATE TAKEN:				
'NO. 1		•		
INO. 2				
\$HO. 3				
NO. 4 Tubb water flowed from 19	34 121K (Hutch P	10)-(32 BNW	recovered).	6-26-81
REMARKS:				
CHEMIC	AL AND PHYSICAL F	ROPERTIES		**
	'NO. 1	NO. 2	NO. 3	No. 4
Specific Gravity at 60° F.		<u> </u>		1.0220
pH When Sampled				:
-pH When Received				7.67
Bicarbonate as' HCO3	• • • • • • • • • • • • • • • • • • •		<u> </u>	9.516
Supersaturation as CaCO3		<u> </u>		
-Undersaturation as CaCO3				i
Total Hardness as CaCO3			<u> </u>	3,450
Calcium as Ca		<u> </u>		50
Magnesium as Mg		J		808
Sodium and/or Rotz sium.				7.956
Sulfate as SO4				7,920
-Chloride as CI			<u> </u>	3.764
fron as Fe		 		50.3
Berium es Ba		<u> </u>	 	
Turbidity, Electric		<u> </u>		
Color as 'Pt				
Total Solids, Calculated				30,484
Temperature *F.				
Carbon Dioxide, Calculated				1
Dissolved Oxygen, Winkler		ļ	ļ	1
Hydrogen Sulfide				1 0.0
Resistivity, ohms/m at 77° F. Suspended Oil				0.390
				
Filtrable Solids as mg/1 Volume Filtered, ml			 	·}
				0 367
Resistivity, chas/a @ 7705-massu	1284			0.357
Fotassium, as K		·		470
Potessium Galoride, es KGL	vits Reported As Milligrams	Par I tag		898
Additional Determinations And Remarks .	tire vehouse às camillant	- 47		
Mentioner perfermantions who usuality			<u> </u>	·
		- 		
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Form No. 3

DOWN THE REAL PROPERTY OF THE
Box 68			
Robbs.	New Mexico		

This report is the property of Halliburian Campany and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval at laboratory management, it may however, be used in the course of regular business aperations by any person or concern and employees the policy receiving such report from Halliburian Company.

Submitted by		Date Rec	8-12-74
Well No. As Marked D	Depth As Marked	Formation	Tubbs
County 2037 364 State F	ield 1514 1514	ASource	
2330-250			•
Resistivity 0.340	9 74°F. 0.046 6	9 74°F.	
Specific Gravity 1.015	1.163		The administrate to the second
рН	6.3	<u> </u>	
Calcium (Ca)	6,400	×.05 326,5	*MPL
Magnesium (Mg)60 7.	ofrz 4.9 350 x	.0822 29.6	
Chlorides (CI) 7,000 x	197.4 154.000	x.0282 4342,8	
Sulfates (SO ₄)	.oref 96.1 7,800	x.0208 162.2	
Bicarbonates (HCO ₂)	138.1 2.070	x . 6164 33.9	
Soluble from (Fe) 1911	N11		
######################################	3/10000	nea	
Na late 341.7 x 23 -	= 7974 4189.3×23	3= 96354	
***************************************			• • • • • • • • • • • • • • • • • • •
Remarks: All last AL	could on FI	HI and	*Milligrams per liter
85% load 1il	covered on "FJ"#	1	•
GARY JONES OPERATIONS I	REPORT FOR 8-3-74 (FI#1 SAME DAY,	WELL FILE) SHOTIS	THESE TWO
R-= 26@100	 Respectfully submitted 	,	•
Analyst: Erever		HALLIBURTON C	OMPANY
CC:	Ву	11. 8.	Beuren

NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or omission, resulting from such report or its use.

				LABOR			age 5
TO:	TO: Mr. B. A. Belknap SAMPL			E RECEIVED	0-26-71		
	P. O.	Box 1600.	Midland.	Texas RESUL	TS REPORTED	0-30-71	
		•	API WATI	er analysis repo	ORT FORM		
	Company Humb	le 011 & R	efining Com	pany	Sample No.	Date Sampled 10-22-71	•
	Field Wild	cat	Legal D	exciption	County or P Union	arish State N. 14.	
•	Lease or Unit State		Well #1	Depth 1702'-1810'	Formation Glorieta	Water, B/D	
;	Type of Wat DST #2	er (Produced,	Supply, etc.)	Sampling Point Sample Chamb	er	Sampled By	
	VED SOLIDS				OTHER PROPER	RTIES	
CATIONS Sodium, 1 * Calcium, 6 * Magnesium Barium, E	Na (calc.) Ca m, Mg	mg/l 5,321 140 3,9	7.0 0.3 0.0		pH Specific Gravity, 6 Resistivity (ohm-r Total Hardnes	neters) 77 F.	7.6 1.0148 0.746 366
ANIONS		dammaran Phone delibert		•	WATE	R PATTERNS — me	į,
Chloride, Sulfate, S Carbonate Bicarbona	C1 304 5, CO2	2,379 7,085 0 1,476	67.1 147.4 0.0 24.2	X 1 X 1	co 		HHHHHH03
Total Diss Iron, Fe (1 Sulfide, as	••	16,405 18.7 0.0	0.6		Romin + mois + mois (LOGARITHMIC	## + # ## HCO ₃

REMARKS & RECOMMENDATIONS:

When we compare these analyses from the mud pit down to the sample chamber, we see some ver distinct similarities in the waters, especially in the sulfate level. We do note a progressive increase in calcium, sodium, chloride, and bicarbonate along with a fluctuating but general decline in pH. These changes tend to indicate some exterior influence but generall most of the water appears to originate from the pit. We note a substantially lower sulfate (though it is still higher than usual) than we found on analysis \$1071166 (10-26-71).

^{*} Determined by Atomic Absorption Spectrophotometry.

RESULT OF WATER ANALYSES

MIDLAND, TEXAS 19101

A STATE OF THE STA	LABORATORY NO. 3 1071187 page 4
To: Mr. B. A. Belknap	SAMPLE RECEIVED 10-26-71
P. O. Box 1600, Midland, Texas	RESULTS REPORTED 10-30-71

API WATER ANALYSIS REPORT FORM

Company Humble 0:1 & Re		Sample No.	Date Sampled 10-22-71
Field Wildcat	Legal Description	County or Paris	State N. M.
Lease or Unit Wel		Formation Glorieta	Water, B/D
Type of Water (Produced, Suppl DST #2	(, etc.) Sampling Point Drill pipe -	Bottom	Sampled By

BDC069 1934 161L

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	4,557	198.1
* Calcium, Ca	36	1.8
* Magnesium, Mg	2,5	0.2
Barium, Ba	0_	0.0.

ANIONS	
Chloride, Cl	

Chloride, Cl	1,094	30.8
Sulfate, SO4	7,582	157.7
Carbonate, CO:	24_	0.8
Bicarbonate, HCO:	659	10.8
		

Total Dissolved Solids (calc.)

•	13,733		
Iron, Fe (total) Sulfide, as H-S	3.0	0.1	

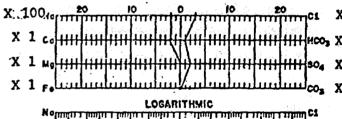
REMARKS & RECOMMENDATIONS:

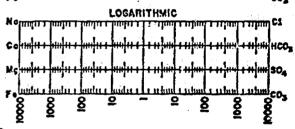
OTHER PROPERTIES

рH	0.5
Specific Gravity, 60/60 F.	1.0134
Specific Gravity, 60/60 F. Resistivity (ohm-meters) 77° F.	0.862
Total Hardness as CaCO3	100
	

WATER PATTERNS - me/l

STANDARD





RESULT OF WATER ANALYSES

	3071107	>
	LABORATORY NO. 1071187 page 3	_
To:Mr. B. A. Belknap	SAMPLE RECEIVED 10-26-71	
	RESULTS REPORTED 10-30-71	_

API WATER ANALYSIS REPORT FORM

	Company Humble Oil	& Refining (Company	Sample No.	Date Sampled 10-22-71
	Field Wildcat	Legal 1	Description	County or Par Union	ish State N. M.
KDGU -	Lease or Unit State "CN"	Well #1	Depth 1702 '-1810'	Formation Glorieta	Water, B/D
	Type of Water (Produced DST #2	, Supply, etc.)	Sampling Point Drill pipe	- Middle	Sampled By

BDC 1934

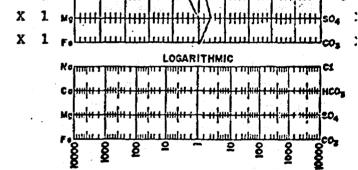
DISSOLVED SOLIDS

CATIONS - Sodium, Na (calc.) E Calcium, Ca * Magnesium, Mg Barium, Ba	4,180 34.5 2.5	181.7 1.7 0.2 0.0	Resistivity	avity, 60/60 F. (chm-meters) 77 F. Hardness as CaCO3	8.7 1.0129 0.930 97
			**************************************	The same of the sa	
			·		
41110110			•	WATER PATTERNS "	16/l

X 100 North

ANJONS		
Chloride, Cl	703	19.8
Sulfate, SO4	<u> 7.458</u>	155_1_
Corbonate, COs	24	0.8
Bicarbonate, HCO:	<u>482</u>	7.9
		····

Total Dissolved Solids	(calc.) 12,884	
Iron, Fe (total) Sulfide, as H ₂ S	5.0	0.2



STANDARD

OTHER PROPERTIES

REMARKS & RECOMMENDATIONS:

Mr. B. A. Belknap

P. O. Box 1600, Midland, Texas

RESULT OF WATER ANALYSES

498 W. ILLINOIS PHONE 668-4626 MIDLAND, TEXAS 38701

ANALYSES MIDLAND, TEXAS 70701

LABORATORY NO. 1071187 page 2

SAMPLE RECEIVED 10-26-71

RESULTS REPORTED 10-30-71

API WATER ANALYSIS REPORT FORM

Company Humble Of	ll & Refining	g Company	Sample No.		Sampled -22-71
Field Wildcat	Legal 1	Description	County or Pa Union	irish	State N. M.
Lease or Unit	Well #1	Depth 1702'-1810'	Formation Glorieta	Wat	ter, B/D
Type of Water (Produced DST #2	i, Supply, etc.)	Sampling Point Top		San	pled By

BOCDGU . 1939 KIL

DISSOLVED SOLIDS

CATIONS	mg/l	ms/l
Sodium, Na (calc.)	4,143	180.1
* Calcium, Ca	29_	1.5
* Magnesium, Mg	1.6	0.1
Barium, Ba	0_	0.0

ANIONS

Chloride, Cl	540	15.2
Sulfate, SO ₄	7,582	157.7
Carbonate, CO ₃	0	0.0
Bicarbonate, HCO ₃	537	8.8
Dicarbonace, Moor		

Total Dissolved Solids (calc.)

12,833

Iron, Fe (total)	1.3	0.0
Sulfice, as H.S	0.0	
	·	

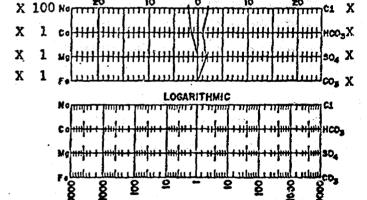
REMARKS & RECOMMENDATIONS:

OTHER PROPERTIES

PH	8.4
Specific Gravity, 60/60 F.	1.0128
Resistivity (ohm-meters) 77° F.	0.962
Total Hardness as CaCO3	

WATER PATTERNS - me/l

STANDARD



RESULT OF WATER ANALYSES

•	LABORATORY NO. 10/110/
	SAMPLE RECEIVED 10-26-71
P. O. Box 1600, Midland, Texas	RESULTS REPORTED 10-30-71

API WATER ANALYSIS REPORT FORM

BOCDGU
1934 161L

	Company Humble Oil &	Refining	Company	Sample No.	Date 10-	Sampled 22-71
i	Field . Wildcat	Legal I	Description	County or Pay Union	rish	State N. M.
. •	Lease or Unit	Well #1	Depth 1702'-1810'	Formation Glorieta	Wat	ter, B/D
-	Type of Water (Produced, Su DST #2	pply, etc.)	Sampling Point Mud Pit	•	San	ipled By

DISSOLVED SOLIDS

CATIONS Sodium, Na (calc.) *Calcium, Ca *Magnesium, Mg Barium, Ba	mg/l 3,950 27.5 1.6	me/l 171.7 1.4 0.1 0.0
ANIONS Chloride, Cl Sulfate, SOs Carbonate, COs Bicarbonate, HCOs	387 7,582 24 329	10.9 157.7 0.8 5.4

Total Dissolved Solids (calc.) 12,301 0.1 Iron, Fe (total) Sulfide, as HaS

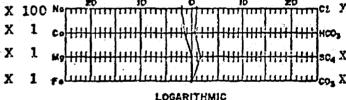
REMARKS & RECOMMENDATIONS:

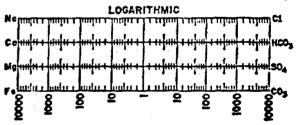
OTHER PROPERTIES

pH ,	8.8
Specific Gravity, 60/60 F.	1.0122
Specific Gravity, 60/60 F. Resistivity (ohm-meters) 77° F.	1.00
Total Hardness as CaCO3	75
	•

WATER PATTERNS - me/l

STANDARD

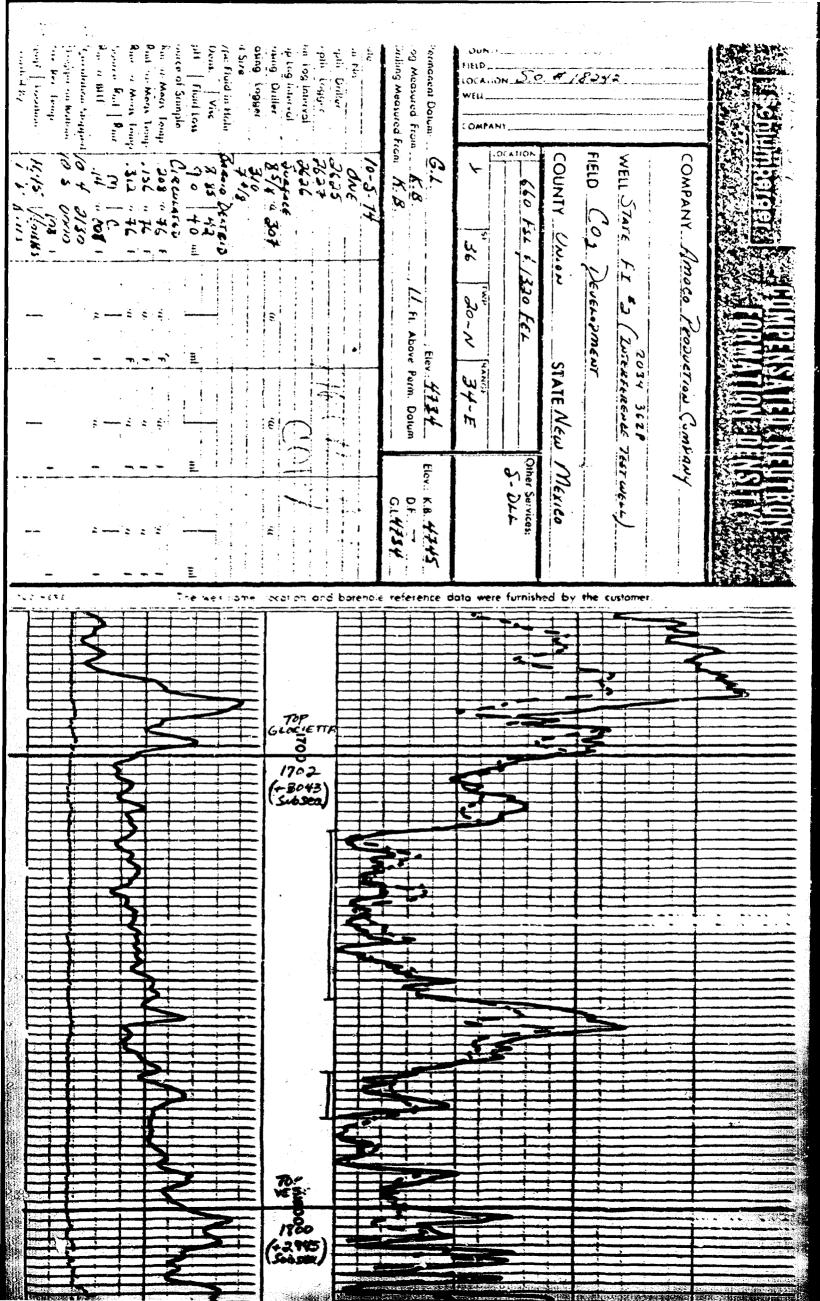




STATE OF NEW MEXICO ENERGY 450 MINERALS DEPARTMENT

OIL CONSERVATION DIVISION P. O. BOX 2080	Form C-103 Revised 10
SANTA FE, NEW MEXICO 87501 PILE U.S.D.S. LAND OFFICE OPERATOR	Su. Indicate Type of Louse State Fue 5. State Oil & Gus Louse No.
SUNDRY NOTICES AND REPORTS ON WELLS	
1. SAL CO2 STHER.	7. Unit Agreement Plane BDCDGU
Amoco Production Company	8. Farm of Lease Hame BDCDGU 2034
P. O. Box 68, Hobbs, 11M 88240	362
4. Location of Well WHIT LETTER P 660 PEET FROM THE SOUTH LINE AND 1320 PEET FROM	10. Field and Pool, or Widcat Und. Tubb
THE East LINE, SECTION 36 TOWNPHIP 20-N RANGE 34-E NORM.	
15. Elevation (Show whether DF, RT, GR, etc.) 4734 GL	12. County Union
Check: Appropriate Box To Indicate Nature of Notice, Report of Oth NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK PLUE AND AGANDON PULL OR ALTER CASING PHER CONVERT to salt water disposal ENANCE PLANS PHER CONVERT to salt water disposal	•
Propose to convert to salt water disposal well per the following method work) see nucle 1903. Propose to convert to salt water disposal well per the following method with with brine water and pull tubing. Set a cast iron bridge pland cap with 35' cement. Perforate Glorietta intervals 1718'-54' and DPJSPF. Run 3 joints tailpipe, packer, and 2-3/8" tubing to 1650'. Sacidize with 1000 gal 7-1/2% HCL. Flush with 30 bbls brine water. Papacker. Run internally and externally coated packer and internally coated. Pump annular volume of fresh inhibited water down backside, the Finish loading backside to surface. Pressure test backside for leaks. equipment and prepare for salt water disposal.	od: lug at approx 2100' 70'-80' with 2 Set packer and ull tubing and bated tubing to hen set packer.
O+2-NMOCD, SF 1-Hou 1Susp 1-CLF 1-Amerada 1-UGI 1- 1-Conoco 1-CO2-in-Action 1-Excelsion 1-Sun Tex	-Cities Service

18. I here by certify that the information above to true and complete to the best of my handledge and belief. wee Asst. Admin. Analyst Charles and Marie Carles of Carles of the Carles of Carl



Temp.	Permanent Datum: G.L. Log Aleasured From K.B. Orilling Measured From K.B. Data Party Pun Nc. Depth-Driller Depth-Logger (Schi.) 2627 Bim. Log Interval Top Log Interval Casing-Driller Soft @ 307 @ Casing-Logger Casing-L	COUNTY HIELD COMPANY AMOR PRODUCTION WELL STORE FY 83 (INTERIOR OF SEC 1830 FEL COMPANY STATE COUNTY COMPANY APTERIOR OF SEC 1830 FEL STATE COUNTY COMPANY APTERIOR OF SEC 1830 FEL STATE TOTAL OF SEC 1830 FEL COMPANY APTERIOR OF SEC 1830 FEL COMPANY	
POLD HERE The well name	(m) Dolum D.F. G.N. 4455 G.N. 4455 Iscation and borehole reference of the control of the contr	Company 1034 3638 1865 1865 W644) Now MEXICO Char Services: [Uni-Foe/68	
	7790		

Martin Water Laboratories, Inc.

708 W INDIANA MIDLAND TEXAS 78701 PHONE 683:4521

RESULT OF WATER ANALYSES

	L.A	BORATORY NO	882207	
To: Mr. Steven Lesikar				
	RE			
Paralle Marie Mari				
COMPANY Amoco Production Company	LEASE	Bravo Dom	e	
FIELD OR POOL				
SECTION BLOCK SURVEY			ATE	
SOURCE OF SAMPLE AND DATE TAKEN:				
NO. 1 Fresh water well due east of	F BDCDGU #2034	362P.		
NO. 2 Fresh water well due one mi			/ 262n	
	IE SOUTHERST O	1 BUI-UI-U - \$ 214 31	3h/Y	
NO. \$				
2 NO. 4				
REMARKS:				
CHEMICAL	AND PHYSICAL P	ROPERTIES		
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0021	1.0016		
pH When Samples				
pH When Received	8.78	8,40		
Bicarbonate as NCOs	156	185		
Subersaturation #5 CeCO3				-
Undersaturation as CaCO3				
Total Hardness as CaCO3	252	134		
Catcium as Ca	25	18		
Magnesium as Mg	46	21		Per s
Sadium agaryer Paragerap	145	107		
Suifere as SQ4	276	104		
Chloride as C1	38	28		
Iron as Fe	0,23	0.17		
Barium as Da				
Turbidity, Electric			-	
Color as Pt				
Total Solids, Calculated	759	518		
Temperature °F.				
Carbon Diexide, Calculated				·
Dissolved Oxygen, Winkler	1	<u> </u>		
Hydrogen Sulfide		0.0		
Resistivity, ohms/m at 77° F Calculated	10.50	17.00		
Suspended Oil	<u> </u>			
Filtrable Solids as mg/)	<u> </u>			
Volume Frittered, ml	1			
Carbonate, as CO ₂	67	46		
Potassium, as K	9	9		·
Potassium Chloride, as KCl	17	17		
Results	Reported As Milligrams	Per Liter	·)	
Additional Determinations And Remarks				
Resistivity, ohms/m @ 77°F.	11,90	19.05		
(measured)				
		·		
Please contact us if we can be of	my assistance	<u>in interpreta</u>	tion of the	above re-
enlte.			·	

Form No. 3

By Martin, H. A.

The street of the street superiors before the street and the street of the street superiors and the street superiors are superiors and the street superiors are superiors are superiors and the street superiors are superiors are superiors and the street superiors are superiors are superiors are superiors are superiors are superiors are superiors.

Union County Legals

LEGAL NOTICE

August 11, 1982

NOTICE

TO WHOM IT MAY CONCERN:

AMOCO PRODUCTION COMPANY PROPOSES TO CONVERT THE FOLLOWING WELL TO SALT WATER DISPOSAL:

BRAVO DOME CARBON DIOXIDE GAS UNIT WELL NO. 2034 362 P LOCATION: SEC. 36, T-20-N, R-34-E; 660' FSL x 1320', FEL. TD 2625'

THE INTENDED PURPOSE OF THE WELL IS FOR DISPOSAL OF SALT WATER WITH AN EXPECTED MAXIMUM INJECTION RATE OF 900 BWPD AND PRESSURE LESS THAN 100 PSI. INTERESTED PARTIES MUST FILL OBJECTIONS OR REQUESTS FOR HEARING WITH THE OIL CONSERVATION DIVISION, P.O. BOX 2088, SANTA FE, NEW MEXICO 87501 WITHIN 15 DAYS FROM DATE OF THIS PUBLICATION.

FOR FURTHER INFORMATION, CONTACT STEVEN F. LESIKAR AT AMOCO PRODUCTION COMPANY, P.O. BOX 68, HOBBS, NEW MEXICO 88240, OR TELEPHONE (505) 393-1781.

8-11

"Proof of Notice"



â

August 24, 1982

File: SJ0-020.1-1118

Re:

Bravo Dome ${\rm CO_2}$ Gas Unit Well No. 2034 2362 P

Union County, New Mexico

Mr. Nike Autcherson 710 W. 11th Street Plainylew, TX 79072

Mr. Hutcherson:

This is to inform you, as leaseholder of the surface land, that Amoco Production Company proposes to convert Bravo Dome CO. Gas Unit Well No. 2034 362P to salt water disposal. Attached is a copy of the application to convert subject well. Any objections or requests for hearing of administrative applications must be filed with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501, within fifteen days from the date this application was mailed to you.

Yours very truly,

Original Signed by: S.J. OKERSON

Attachments

CLF/kic APRD01-S

CLF

August 20, 1982

File: SJ0-020.1-1117

Re:

Bravo Dome CO₂ Gas Unit Well No. 2034²362 P Union County, New Mexico

State Land Office P 0 Box 1148 Santa Fe NM 87504

Gentlemen:

This is to inform you, as owner of the surface land, that Amoco Production Company proposes to convert Bravo Dome CO, Gas Unit Well No. 2034 362P to salt water disposal. Attached is a copy of the application to convert subject well. Any objections or requests for hearing of administrative applications must be filed with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501, within fifteen days from the date this application was mailed to you.

Yours very truly,

Original Signed By S. J. OKERSON

Attachments

CLF/kic APRD01-SS

P 335 767 531 RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL (See Reverse)

SE	FIT T	0 -	(00011010100)					
State Land Office								
P.O. BOX 1148								
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EE		SP	ECIAL DELIVERY	¢				
8		RE	STRICTED DELIVERY					
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CONSULT POSTMASTER FOR FEES	OPTION.	RETUKN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED OFLIVERY	¢				
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P 335 767 530 RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL (See Reverse)

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CURRENT WELL STATUS SUMMARY

				\		4 100		
2190-2359	2600	Circ 1315' FSL X 1980' FEL, Sec. 36, T-20-N, R-34-F 2600		4-1/2"	5/8" 322	5-22-79 8-9	Gas	BDCDGU 2034 3630
2198-2369	2625	60' FSL X 1980' FEL, Sec. 36, T-20-N, R-34-E	2600 Circ	Circ 4-1/2"	8-5/8" 307	•	** Gas	BDCDGU 2034 362P**
2186-2404	2670	660' FSL X 1980' FEL, Sec. 36, T-20-N, R-34-E 2670	2665 -7 6	Circ 4-1/2"	8-5/8" 328	,	++ Gas	BDC6GU 2034 3610++
			Ì					
DEPTH (Ft) INTERVAL	TOTAL (Ft)	LOCATION* DE	@ (FT) CMT	CSG.	@ (FT)	DATE DRILLED CSG.	TYPE	WELL NAME
+3 - -	:		OF TOP	.		SUI	WELL	

*All locations are in Union County, New Mexico **Proposed injection well

++Cmt tie back completed 9/16/82

LWS/1rd

Amoco 7687 Amoco 9-29-82

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AAMOCO

Amoco Production Company

ENGINEERING CHART

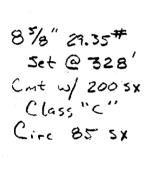
SUBJECT	STATE	<u>"FI"</u>	#1	 (2034	361	0)	
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diction of product in National disease.

(60) FSL X 1980 FEL Sec 36 , T-20-N, K-34-E (Union County , New Mexico Elevation: 4750' Kie 4739' GL



Perf 980'
Top (mt 1000' by CBL
SQ w/ Total 435 sx Cmt - Circ 25 sx
Tst to 900ps: - Held for 1 hr

Tubing 23/8 EUE 8 RD

Pk- Set @ 2136'

Perfs 2186'- 2346 (NC) W/ 255PF

Perfs 2362-2404'(NC) W/255PF Bridge Plug @ 2417' Perfs 2423-91'(NC) W/ 2JSPF

41/2" 9.5#-10.5# J-55 CSA 2665' Crut w/ 650 SX Class "C"

TD: 2670'

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9-29-82

BDC0GU 2034 3610 State "FI" #1 Bravo Dome Well History

Cementing Record:

Set 8 5/8" OD 29.35#, LW ST&C casing in 12½" hole at 6-24-74:

328' w/200 sx class "C" 2% Cacl. Cement Circulated

w/85 sx cement.

Set 45" OD 9.5# & 10.5#, K-55 ST&C casing in a 7 7/8" hole 7-12-74:

at 2665' w/650 sx class "C" Neat.

Well History:

Initial History:

Perforated intervals 2362'-64, 2375'-81, 2388'-90, 2394'-2404' 8-1-74:

2423'-2436', 2462'-64 & 2488'-91' w/2 JSPF. Acidized interval 2417'-2491' w/500 gallons 7½% MCA. Acidized interval 2330'-2417' w/750 gallson 7½% MCA. Set bridge plug @ 2417.

Perforated intervals 2186'-88, 2204'-11', 2234'-48', 2252'-62', 8-19-74:

2266'-81', 2285'-91', 2295'-2304', 2308'-12', 2316'-20',

2326'-32', & 2336'-46', w/2 JSPF.

8-20-74: Acidized interval 2283'-2352' w/1000 gallons 72% MCA.

Acidized interval 2175'-2283' w/1000 gallson 7½% MCA.

PT - 1575 MCF in 24 hours. 48/64" choke

Workovers:

Pull pkr X tbg. Set RBP @ 2011' x test to 1000 psi. Run 9-2-82:

CBL/VDL Log x top of cmt. approx. 1000'. Perf 980' with

4 shots.

Est. in rate of 2 BPM @ 400 psi. SQ with 300 sx cmt x Circ 9-3-82:

5 bbls.

9-8-82: Drl out x test to 800 psi x bled to 500 psi in 2 mins.

LS/cps 980/D/1 9-9-82: Spot 4 bbls acid. Est inj rate of 1.5 BPM @ 1200 psi.

SQ with 100 sx cmt.

9-10-82: Drl out x test to 800 psi x bled to 500 psi in 2 mins.

9-13-82: Spot 2 bbls acid. Est inj rate of 2 BPM @ 1400 psi. SQ with

35 sx Thixset cmt.

9-15-82: Drl out x test to 900 psi x held for 1 hour.

9-16-82: Pull RBP x run pkr x tbg. Pkr set @ 2136 x load annulus with

inhibited wtr.



Amoco Production Company

ENGINEERING CHART

SUBJECT STATE	"FI"	#2	(2034	362	P)

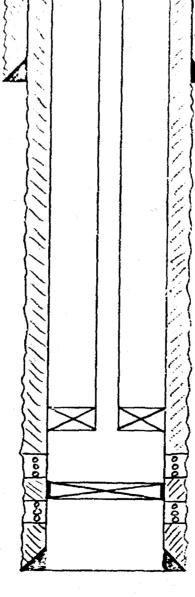
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BRAVO DOME

660' FSL x 1320' FEL Sec 36, To20-N, R-34-E Union County, New Mexico

Elevation 8 4745' KB 4734' GL

8 %" 23.95# (SA 307' Cn+ w/ 108 Ex Cless"C" Circ 75 5x



Tubing 23/8" EUE 8RD Pkr set @ ± 2000'

4/2" 9.5# CSA 2600' Cmt 625 sx Class "C" Circ 70 sx

TD:2625'

Perfs 2198-2369' (NC) w/ 1 JSPF CIBP set @ 2377' Perfs 2385-2408'(NC) w/ 2JSPF

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CASE NO. 7687

Submitted by ... Ameco

Hearing Date 9-22-82

BDCDGU 2034 362 P State "FI" #2 Bravo Dome

Cementing Record:

Set 8 5/8" OD 29.35#, Line casing in a 124" hole at 307' w/108 9-27-74:

sx class "C" cement. Circulated to Surface w/75 sx.

10-7-74: Set 4½" OD 9.5#, ST&C casing in a 7 7/8" hole at 2600'

w/625 sx. Cement Circulated w/70 sx.

Well History:

Initial Completion:

Perforated intervals 2385'-86', 2392'-97, & 2404'-08' 10-8-74:

w/2 JSPF.

Acidized 2385'-2408' w/500 gallons 75% MCA. 10-21-74:

10-23-74:

Perforated intervals 2198'-2230', 2240'-47, 2256'-58, 2261'-64, 2275'-83, 2287'-98, 2303'-28, 2332'-34, 2339'-42,

2348'-62, 2366'-69 w/1 JSPF. Set cast iron bridge plug @

2377'. PT - 2207 MCF in 24 hours 48/64" choke

Workovers:

Flow test 7 days. Flw 1,79 MMCFD x OBW TPF 114 psi x CPC O psi on 2" valve. SI for 72-hr. BHP Build-up test 12-16-81.

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Amoco Production Company

ENGINEERING CHART

SUBJECT STATE "FI" #3 (2034 363 0)

BRAUD DOME

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1315' FSL X 1980' FEL Sec 36, T-ZO-N, R-34-E Union County, New Mexico Elevation: 4749' KB 4740' GL

8%" 24# K-55 CSA 322' Cmt w/ 200 sx Class "C" Circ 40 sx

Tubing: 238" 4.7# EUE 8RD set @ 2366'

Perfs: 2190-2359'

4/2" 9.5# K-55 CSA 2600' Cm+ w/ 700 sx Class "C" Circ 5 sx

> TD : 2600' PBTD 2541'

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	Amoco
Housing	9-29-82

BDCDGU 2034 363 0 STATE "FI" #3 Bravo Dome

Cementing Record:

5-13-79: Set 8 5/8" OD 24# ST*C casing in 12½" hole at 322' w/200 sx

Class C x 3% Cacl. Circ. 40 sx cmt.

5-22-79: Set $4\frac{1}{2}$ " OD 9.5# ST*C casing in 7 7/8" hole at 2600 ft.

w,'700 sx Class C x 9½# salt per sx. Circ. 5 sx cm.

Well History:

Initial History

6-20-79: Perforated interval 2190'-98, 2202'-08, 2211'-21, 2229'-31,

2252'-58, 2271'-75, 2300'-04, 2330'-34, 2339'-59, w/2 JSPF. Run 2½" x 2" swage, seating nipple and 2 3/8" tubing to 2366.

6-21-79: Spot acid across perfs w/1300 gals 71/2% MCA max TP1400#

min 800# AIR 1 BPM swb 35 BLW 16 BL WTR.

6-25-79: Well flowing. SI 72 BHP Build-up test.

6-27-79: Pull bomb. Well SI.

12-5-80: Initial potential 250 MCF on 10/64" CH x TPF 247 psi x slugs

of water.

Workovers:

None

SUMMARY OF WATER ANALYSIS

Well Name Formation	BDCDGU 1932 041D Glorieta	BDCDGU 2034 081F Tubb	Fresh Water Well #1 Ogallala	Fresh Water Well #2 Ogallala
Na	2,864	8,537	145	107
Ca	5,120	6,120	25	18
Mg	1,848	1,420	46	21
C1	17,500	26,600	38	28
so ₄	2,000	1,430	276	104
co ₃	N/A	0	N/A	N/A
HCO ₃	0	830	156 (%):	185
TDS	29,332	44,937	686	463
Total Iron	N/A	N/A	0.23	0.17
Ph	4.0	6.3	8.78	8.40
Specific Gravity	1.020	1.037	1.0021	1.0016
Resistivity	0.23 ohm-meters	s 0.149 ohm-meters	10.50 ohm-meters	17.00 ohm-meters
T- 6 0 1	@ 67° F	@ 77° F	@ 77° F	0 77° F

Ameco 7681

Substitute by Ameco 9-11-82

LS/zb 940/I



Amoco Production Company

ENGINEERING CHART

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SUBJECT BDCDGU Glorieta SWD

Calculations for Max Surf Ing Pressure

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I. Qualifications

Fracture gradient for Glorieta will be approximately equivalent to that of the Tubb.

II. Tubb Fracture Gradient Determination

A. Basis: Six (6) wells in the immediately area that have been fracture stimulated.

ISIP's ranged from 650-1400 psi Aug ISIP = 800 psi Aug depth = 2300'

B. Calculation:

$$FG = D$$

$$ISIP + .052(PPG)(D)$$

$$FG = \frac{800 + .052(8.5 \text{ PPG})(2300')}{2300}$$

III. Glorieta Fracture Pressure Determination

A. Basis: FG = 0.790 psi/ft

Avg depth = 1749' (depth to mid-point of perfs)

Specific Gravity of In; Water = 1.037

BEFORE DUALIBRIER STAMETS

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Amoco.	ERRETTION2
CASH DOL	7687

Submitted by Amoco

Pm 371 2.71



Amoco Production Company

ENGINEERING CHART

SUBJECT	BOCDGU	SWD I	wi Limit	(con't)
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- 0 psi

Bo Calculations:

- (1) $BHFP = FG \times D = (0.790 \text{ ps:/ft})(1749 \text{ ft})$ EHFP = 1382 psi
- (2) WHFP = BHFP $\left[8.33(8_w) \times D \times 0.052\right]$ Friction WHFP = 1382 psi - $\left[8.33(8_w) \times D \times 0.052\right]$ - Friction

WHFP = 596 psi * Note: Since inj rates are to be moderately low friction drop was considered nealigible and therefore excluded from calculations

- (3) Gradient for Max Surf Limit = WHFP : D

 " " " = 596 ps: : 1749 ft

 O.341 psi/ft
- (4) Standard Max Surf Limit = 0.20 psi/ft

 Standard Limit = 0.20 psi/ft x 1749 ft

 Standard Limit = 350 psi

PROPOSED BDCDGU SND PERTINENT DATA SHEET

I. Proposed Operation Data

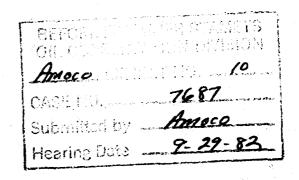
A. Anticipated volumes of water to be disposed:

Initial = 50 BWPD Average = 600 BWPD Maximum = 900 BWPD

- B. The system will be closed.
- C. Surface injection pressure:

II. Geology of Disposal Horizon

- A. Lithology: Fine to coarse grain sandstone. Grains are composed of clean, semi-rounded quartz which are well cemented by calcareous material.
- B. Geologic name: Glorieta
- C. Horizon thickness (gross): 148' Net pay: 66',
- D. Depth: 1702 (+3043') to top of Glorieta 1749' (+2996') to mid-point of perfs
- E. Fresh water sand: The deepest fresh water sand in this area is the Morrison-Exeter sandstone which is of Jurassic age and sometimes referred to as the Entrada, which is probably equivalent. Areal studies indicate the base of the Exeter to be approximately 560' (+4185') and the logs show it to be approximately 620' (+4125').



STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

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	Propose to conv	vert to salt w	ater disposal we	ll per tl	ne following	metho	d:		
	and cap with 35 DPJSPF. Run 3 acidize with 10 packer. Run ir 1650'. Pump ar Finish loading	cement. Pe joints tailpi 200 gal 7-1/2% aternally and a anular volume of backside to s	nd pull tubing. rforate Gloriett pe, packer, and HCL. Flush wit externally coate of fresh inhibit urface. Pressur	a interva 2-3/8" to h 30 bbls d packer ed water e test ba	lls 1718'-54 bing to 1656 brine water and internation down backsie	'and ' 0'. So r. Pu lly cod de, th	70'-80' w et packer 11 tubing ated tubi en set pac	ith 2 and and ng to cker.	
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Amoco Production Company

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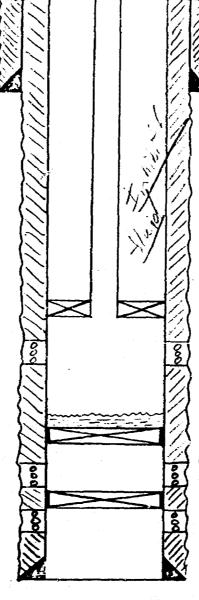
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660' FSL X 1320' FEL Sec 36, T-20-N, R-34-E Union County, New Mexico Elevation & 4745 KB 4734 GL

PROPOSED POST-CONVERSION CONFIGURATION

8%" 23.95# CSA 307' Cm+ w/ 108 5x Class"C" Circ 75 5X



Inj PKT Set @ 1650' Perfs (1718-54) 1770-80'

CIBP set@2100'x cap \$5'cmt

Pe-fs &198-2369' (NC) W/ 1 JSPF CIBP set @ 2377'

Perfs 2385-2408 (M) y 235PF

Amoco 13

7687

Summer Amora

Hearing Date .

9-29-83

4/2" 9.5# CSA 2600" Cmt 625 SX Class "C" Circ 70 SX

> TD: 2625' PBTD: 2377

Inchets Nos. 32-32 and 33-32 are teltatively set for Ditorer 12 and Decomer 27, 1983. Applications for rearing must be filed at least 32 days in advance of hearing date.

DOCKET: EXAMINER REARING - VELDESDAY - SEPTEMBER 19. 1981 9 ALM. - MOBGAN MALL, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Richard L. Stamets, Examiner, or Capiel S. Nutter, Alternate Examiner:

- CASE 7686: In the matter of the hearing called by the Oil Conservation Division on its swm motion to permit Energetics Corporation, United States Fidelity and Guaranty Company, and all other interested parties to appear and show cause why the Hanes Corporation Well No. 1, located in Unit F of Section 9, Township 24 South, Range 2 East, Don Ana County, should not be plugged and abandoned in accordance with a Division-approved plugging program.
- CASE 7687: Application of Amoco Production Company for salt water disposal. Union County, New Mexico.

 Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Glorieta formation in the perforated interval from 1715 feet to 1780 feet in its former State FI Well No. 2 (2034 362P) located 660 feet from the South line and 1320 feet from the East line of Section 36. Township 20 North, Range 34 East.
- CASE 7688: Application of Mountain States Petroleum Corporation for an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 990 feet from the North and East lines of Section 19, Township 15 South, Range 28 East, Buffalo Valley-Penn Gas Pool, the N/2 of said Section 19 to be dedicated to the well.
- CASE 7689: Application of Tesoro Petroleum Corporation for a tertiary oil recovery project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to convert its Hospah Sand Unit Waterflood Project to a polymer-augmented waterflood and, pursuant to Section 212.78 of the U.S. Department of Energy Regulations and Section 4993 of the Internal Revenue Code, seeks certification of said project as a qualified tertiary oil recovery project.
- CASE 7690: Application of C & K Petroleum, Inc. for compulsory pooling, Lea County, New Mexico.

 Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formations underlying the E/2 SW/4 of Section 27, Township 16 South, Range 37 East, Casey-Strawn Pool, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 7679: (Continued from September 15, 1982, Examiner Hearing)

Application of C. K Petroleum, Inc. for the amendment of Order No. R-4857-A and for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Division Order No. R-4857-A to provide that the lands pooled by said order shall be the W/2 SE/4 of Section 27, Township 16 South, Range 37 Fast, dedicated to its Shipp 27 Well No. 2 located in Unit 0 in said Section 27. Applicant, further seeks an order pooling all mineral interests in the Pennsylvanian formation underlying the E/2 SE/4 of the aforesaid Section 27, to be dedicated to a well to be drilled in Unit P of said Section 27. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 7680: (Continued and Readvertised)

Application of Unichem International, Inc. for an exception to Order No. R-3221, Eddy County, New Mexico. Applicant, in the above-scyled cause, seeks an exception to Order No. R-3221 to permit the commercial disposal of produced orine into several unlined surface pits located in Section 2, Township 23 South, Range 29 East.

Application of Dugan Production Corporation for compulsory pooling, San Juan County, New Mexico.

Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Dakota
Pool underlying the W/2 of Section 5, Township 24 North, Range 9 West, to be dedicated to a well to be
drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing
said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said
well.

- CASE 7692: Application of Porister & Sweatt for an unorthodox well location, Chaves County, New Mexico.

 Applicant, in the above-styled cause, seeks approval of an unorthodox location 990 feet from the North line and 1660 feet from the East line of Section 5, Township 13 South, Range 31 East.

 Southeast Chaves Dieen Gas Area, the E/2 of said Section 5 to be dedicated to the well.
- <u>CASE 7693:</u> Application of Forister's Sweatt for compulsory pooling, Chaves County, New Mexico.

 Applicant, in the above-styled cause, seeks an inder pooling all mineral interests in the Southeast Chaves Queen Gas Area uncerlying the E/2 of Section 5. Township 13 South, Range 31 East, to be dedicated to a well to be drilled at an unprehodox legation thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of of applicant, as operator of the well and a charge for risk involved in drilling said well.
- CASE 7681: (Continued from September 15, 1982, Examiner Hearing)

Application of Cibola Energy Corporation for an unorthodox gas well location. Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of an Ordovician gas well to be drilled 330 feet from the North line and 990 feet from the East line of Section 13, Township 9 South, Range 27 East, the E/2 of said Section 13 to be dedicated to the well.

CASE 7682: (Continued from September 15, 1982, Examiner Hearing)

Application of Cibola Energy Corporation for an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Mississippian gas well drilled 330 feet from the North line and 330 feet from the West line of Section 34, Township 11 South, Range 28 East, the W/2 of said Section 34 to be dedicated to the well.

Application of Depco, Inc. for compulsory pooling, Chaves County, New Mexico.

Applicant, in each of the following two cases, seeks an order pooling all mineral interests from the surface down through the Abo formation underlying the lands specified in each case, each to form a standard 160-acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon. Also to be considered in each case will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells and a charge for risk involved in drilling said wells:

CASE 7694: NW/4 Section 21; and

CASE 7695: NE/4 Section 21

Both in Township 5 South, Range 25 East.

Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mississippian through Ellenburger formations underlying the 2/2 of Section 31, Township 20 South, Range 36 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASES 7528 and 7529: (Continued and Readvertised)

Application of JJ-CC, Limited for compulsory pooling, Chaves County, New Mexico. Applicant, in each of the following two cases, seeks an order pooling all mineral interests down through the Abo formation underlying the lands specified in each case, each to form a standard 160-acre gas spacing and proration unit to be dedicated to a well to be drilled at a standard location thereon. Also to be considered in each case will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells and a charge for risk involved in drilling said wells:

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CASE 7528: NW/4 Section 4, Township 5 South, Range 24 East

CASE 7529: NE/4 Section 4, Township 5 South, Range 24 East

CASE 7697: Application of Oxoco Production Corp. for designation of a tight formation, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Mesaverde formation underlying Sections 7, 8, 17, 18, 19 and 20, Township 32 North, Range 8 West, containing 3160 acres, more or less, as a tight formation pursuant to Section 107 of the Natural Gas Policy Act and 18 CFR Section 271.701-705.

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION OF AMOCO PRODUCTION COMPANY FOR SALT WATER DISPOSAL, UNION COUNTY, NEW MEXICO

CASE 7687

ENTRY OF APPEARANCE

Comes now Campbell, Byrd & Black, P.A. and hereby enters its appearance in the above-styled cause for Amoco Production Company.

CAMPBELL, BYRD & BLACK, P.A.

William F. Carr Post Office Box 2208

Santa Fe, New Mexico 87501 Attorneys for Amoco Production

Company

The Alling of the

SEP 28 1982

Set for hearing 9/29 C-106 & attachments coming.

Case 7687

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CIL CONSERVATION DIVISION	
the second of th	Farm C-103 -
	Revised 19-1-
SANTA PE, NEW MEXICO 87501	A security for the later was the second and the security of the second security and the second security of the second security of the second s
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	- N. S.
011 012 013	BDCDGU
12. Nome of Operator	d. Farm or Leave Hume
	BDCDGU 2034
Amoco Production Company	9, Well No.
), Address of Operator	362
P. O. Box 68, Hobbs, NM 88240	
1, Location of Well	10. Field and Pool, or wildcat
UNIT LETTER P 660 PEET PROM THE South LINE AND 1320 PEET PROM	, Und. Tubb
THE East CINE, SECTION 36 TOWNSHIP 20-N MANGE 34-E MARCH	
The state of the s	
15. Elevation (Show whether DF, RT, GR, etc.)	12. County
(i)	Union
	white the same was a second
Check Appropriate Box To Indicate Nature of Notice, Report or Ot	
NOTICE OF INTENTION TO: SUBSEQUEN	T REPORT OF:
	_
PERFORM REMEDIAL WURK PLUG AND ABANDON REMEDIAL WORK	ALTERING CASING
TEMPORARILY ARABOON COMMENCE DRILLING OPHS.	FLUG AND ABANDONMENT
PULL OR ALTER CASING CHANGE PLANS CASING TAST AND CEMENT JOB	_
OTHER	
OTHER Convert to salt water disposal X	
17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, includin work) SEE HULE 1703.	g estimated date of starting any proposi
Propose to convert to salt water disposal well per the following met	hod:
Kill well with brine water and pull tubing. Set a cast iron bridge	plug at approx 2100'
and cap with 35' cement. Perforate Glorietta intervals 1718'-54' un	d 70'-80' with 2
DPJSPF. Run 3 joints tailpipe, packer, and 2-3/8" tubing to 1650'.	Set packer and
acidize with 1000 gal 7-1/2% HCL. Flush with 30 bbls brine water.	Pull tubing and
packer. Run internally and externally coated packer and internally	
packer. Run internally and excernally coated packer and internally	coacea cubing to
TAKN'Dumn annulay volumo of freeh inhihited waten dewn hackeide	than cat nackan
1650'. Pump annular volume of fresh inhibited water down backside,	then set packer.
Finish loading backside to surface. Pressure test backside for leak	then set packer. s. Install wellhead
Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal.	then set packer. s. Install wellhead
Finish loading backside to surface. Pressure test backside for leak	then set packer. s. Install wellhead
Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal.	s. Install wellhead
Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal. 0+2-NMOCD, SF 1-Hou 1Susp 1-CLF 1-Amerada 1-UGI	then set packer. s. Install wellhead 1-Cities Service
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Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal. 0+2-NMOCD, SF 1-Hou 1Susp 1-CLF 1-Amerada 1-UGI	s. Install wellhead
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Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal. 0+2-NMOCD, SF 1-Hou 1Susp 1-CLF 1-Amerada 1-UGI 1-Conoco 1-CO2-in-Action 1-Excelsion 1-Sun Tex 18.1 hereby certify that the information shows to true and complete to the best of my knowledge and belief.	AUG 25 1982
Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal. 0+2-NMOCD, SF 1-Hou 1Susp 1-CLF 1-Amerada 1-UGI 1-Conoco 1-CO2-in-Action 1-Excelsior 1-Sun Tex	L-Cities Service AUG 25 1982
Finish loading backside to surface. Pressure test backside for leak equipment and prepare for salt water disposal. 0+2-NMOCD, SF 1-Hou 1Susp 1-CLF 1-Amerada 1-UGI 1-Conoco 1-CO2-in-Action 1-Excelsion 1-Sun Tex 18.1 hereby certify that the information shows to true and complete to the best of my knowledge and belief.	AUG 25 1982

CONDITIONS OF APPROVAL, IF ANTI

, NMOCD, Santa Fe	Bldg	Mail Code or Rm. No.
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0:	Bldg	Mail Code or
	Reference our appli el 2034 362 P T	cation to conver
Please Note and return	sal, dated 8-24-82	. The attached
Please Note and return Copies	sal, dated 8-24-82 of receipta for cert	. The attached

P 335 767 531 NO INSURANCE COVERAGE PROVIDED ---NOT FOR INTERNATIONAL MAIL (See Reverse) State Land Office CERTIFIED FEE SPECIAL DELIVERY RESTRICTED DELIVERY SHOW TO WHIGH AND POSTMARK OR DATE

Complete items 1, 2, and 3, Add your address in the "RETURN TO" space on The following service is requested (check one.) Show to whom and date delivered...... D Show to whom, date and address of delivery... ☐ RESTRICTED DELIVERY Show to whom and date delivered ... A RESTRICTED DELIVERY. Show to whom, date, and address of delivery.\$ (CONSULT POSTMASTER FOR FELS) ARTICLE ADDRESSED TO: State Land Office P.O. BOX 1148 Santa Fe, AM Prook ARTICLE DESCRIPTION CERTIFIED NO. INSURED NO. (Always obtain signature of addressee or agent) I have received the article described above. . DAddressee DAuthorized agent ADDRESS (Complete only if reque UNABLE TO SELIVER RECAUSE: CLERKS INITIALS ☆GPO: 1979-288-848

P 335 767 530 RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED-NOT FOR INTERNATIONAL MAIL

(See Reverse) Mr. Mike Hutcherson CERTIFIED FEE SPECIAL DELIVERY RESTRICTED DELIVERY SHOW TO WHOM AND DATE DELIVERED SHOW TO WHOM, DATE. CONSULT TOTAL POSTAGE AND FEES POSTMARK OR BATE

Fom	"Add your address to the "RETURN TO" space on reverse.
3811, Jan. 1979	1. The following service is requested (check case.) 2. Show to whom and date delivered
	(CONSULT POSTMASTER FOR FEES)
RETURN	2 ARTICLE ADDRESSED TO: MR. Mike Hatcherson 710 W. 11th Street
RSCE	1. ARTICLE DESCRIPTION: REGISTERED NO. CERTIFIED NO. MISURED NO.
7	P335 767 532
7501	(Always obtain signature of addressee or agent)
ITERED, INSK	I have received the article described above. \$IGNATURE, DAddressee DAuthorized asset PLAINTER Thry Nell Groupe
INBURED AND C	5. ADDRESS (Complete only in the control of the con
ERTIFIE	& UNABLE TO DELIVER SECAUSE: CLERK'S
8	i intikus

Case 7687

Name: <u>Cathy L.</u> Forman

Signature: //nt/

OIL CONSERVATION DIVISION

FORM C-108

Title Asst. Administrative Analyst

Date: 8-24-82

KNERGY AND HINCRALS DEPARTMENT POST OFFICE BOX 1508 Revised 7-1-81 STATE LAND OFFICE DIM SING BANTA PERIOW MEDICURISOS : Case 7687 APPLICATION FOR AUTHORIZATION TO INJECT La Secondary Recovery X Disposal □ Storage Pressure Haintenance Purpose: Application qualifies for administrative approval? | | X | yes Amoco Production Company 11. Operator: P. O. Box 68, Hobbs, NM 88240 Address: (505) 393-1781 Steven Lesikar Contact party: Phone: 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. Is this an expansion of an existing project? yes X no If yes, give the Division order number authorizing the project ٧. 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. Attach a tabulation of data on all wells of public record within the area of review which VI. 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 details. VII. Attach data on the proposed operation, including: Proposed average and maximum daily rate and volume of 2. Whether the system is open or closed; 3. Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluggladding patibility with 4. the receiving formation if other than reinjected produced capeta and 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.). *VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source 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 evailable and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken. XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water. XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. XIV. Certification I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

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

III. WELL DATA

- A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:
 - Lease name; Well No.; location by Section, Township, and Ronge; and footage location within the section.
 - (2) Each easing 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.

- 8. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.
 - (1) The name of the injection formation and, if applicable, the field or pool name.
 - (2) The injection interval and whether it is perforated or open-hole.
 - (3) State if the well was drilled for injection or, if not, the original purpose of the well.
 - (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
 - (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 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.

Amoco Produ	ction Company	Bravo Dome Carbon Dio	xide Gas Unit	
	660' FSL x 1320' FE	L Sec. 36	T-20-N	R-34-E
WELL NO.	FOUTAGE LUCATION	SUCTION	TOWNSHIP	RANGE
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Schen	na tic	T _a	bular Data	
•		Surface Casing		
See attachme	ent	Sizo 8-5/8 "	Cemented wil	th 108 sx.
		10c surface		
		Hole size 12-1/4"		Mary and the second sec
		Intermediate Casing		
		Size "	Compated with	4.
		TOC		
	1	Hole size		
		Long string ·		
		Size <u>4-1/2</u> "		**************************************
		TOC surface	feet determined by	(circ 70 sx)
		Hole size		
		Total depth 2625'	November of the Control of the Contr	
		Injection interval		*.
		1718 feet to (perforated or open-hole perforated)	1780 e, indicate which	feet
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Tubing size	2-3/8 lined	with		set in a
	Uni-packer VI	(mater	1650	feet
	id and model)			1660
(or describe	any other casing-tubing	seal).		•
Other Data		Claniatta		1.00 mg/s
	he injection formation			
2. Name of F	ield or Pool (if applic	able) N/A		
	new well drilled for i		X7 No	
	r what purpose was the sterference test & obse	well originally drilled? ervation well	This well was d	rilled for use
and give 2385-240	plugging detail (sacks o 8', cast iron bridge p	d in any other zone(s)? of cement or bridge plug olug set at 2377', perf	(s) used) Yes. Tu	bb perforations
	at 2100' w/35' cmt ca	<u> </u>		
5. Give the thin area	Tubb 2180 (+2565	y overlying and/or under subsea)	lyimy oil or gns z	ones (poals) in

Post	Conversion	Statch
rosi	CONVEISION	SVOLCH

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AMOCO

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Amoco Production Company

FILE	
4004	

SHEET NO.

				ENGIN	EERING CHART
-	STITE	"FT"	すたつ	(21524	2120)

DATE 5-24-82

BRAYD DOME

SFL

660 FSL 4 1320 FEL Sec. 36 ; T-20-N R-34-E UNION CO. NEW MEXICO

ELEVATION: 4745' ROB GL: 4734'

85%" OD 29.35# CSA	
307' W/108 SX. CEME	
CIRCULATED 11/755X.	. ,
(CLASS C" CMT)	. .

Guiberson Uni-pocker II SA 1650

Perfs: 1718-1754, 1770-1780'

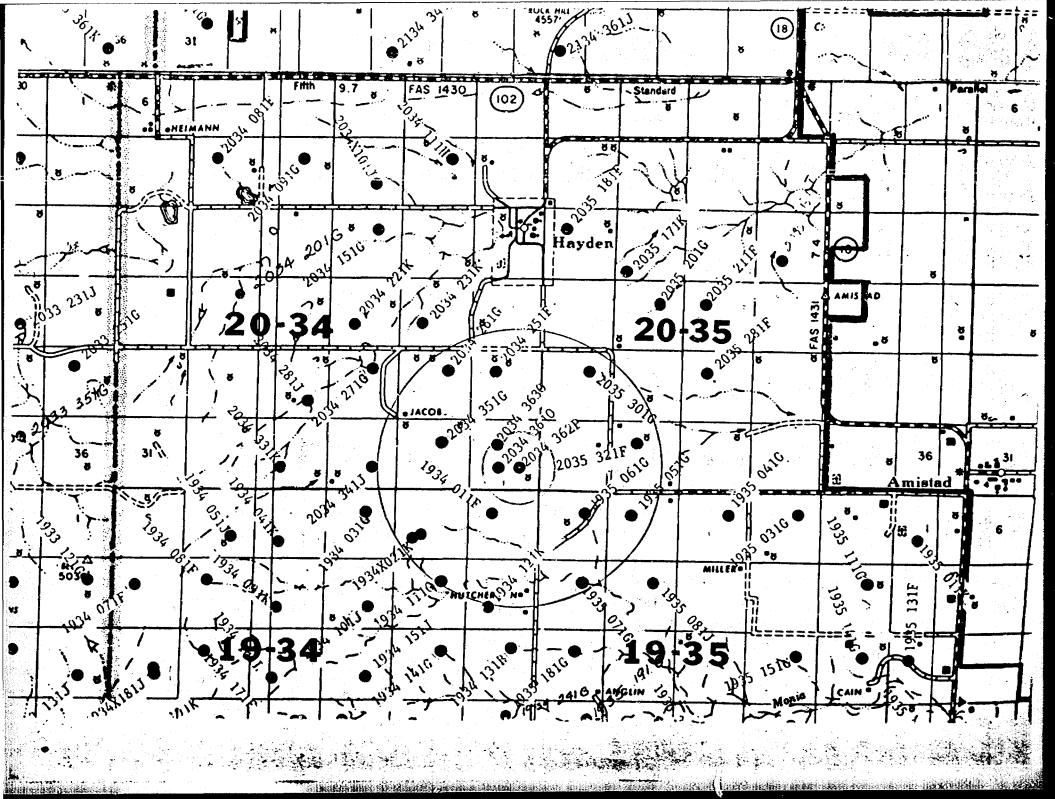
CIBP Sa 2100'x cap w/ 35' cmt

41/2"OD 9.5" CSA 2600' W/6255x. CEMENT CIRCULATED W/70 SX

PERFS: 2198'-2369' \1 JSPF (NC) PERFS: 2385'-2408' W/2 JSPF (NC) CAST IRON BP @ 2377'

WIZJSPF

TD 2625' PBD 2377'



FNL x 1980' FEL, Sec. 6, T-19-N, FNL x 1980' FEL, Sec. 7, T-19-N, FNI x 1980' FWI Sec. 25 T-20-N			705 705	8-5/8 ₁	12-23-80 12-23-80		1935 2034
FNL x 1980' FEL, Sec. 6, FNL x 1980' FEL, Sec. 7, FNL x 1980' FWL, Sec. 25, FNL x 1980' FWL, Sec. 25, FNL x 1980' FEL Co. 26			705 733	က် ကို ထို ထို ကို ကို ကို လူ ထို ထို	12-23-80 12-23-80 1-23-81		8DCDGU 1935 071G BDCDGU 2034 251F+ BDCDGU 2034 261G
FNL x 1980' FEL, Sec. 6, T-19-N, FNL x 1980' FEL, Sec. 7, T-19-N,			86.69 60.69	8-5/8	12-23-80		1935
FNL x 1980' FEL, Sec. 6, T-19-N,			9 6		* > > > >		200
			701	8-5/8"	1-1-80		1935
FNL x 1980' FEL, Sec. 5, T-19-N,			703	8-5/8"	5-26-81		1935
FSL x 1972' FWL, Sec. 12. T-19-N.			718	8-5/8"	1-28-81		1934
FNL x 1984' FEL. Sec. 11. T-19-N.			741	8-5/8"	11-21-80		1934
FSL x 2055' FWI Sec. 2 T-19-N			701	8-5/8"	10-24-80		1934
FSI x 1980' FWI Sec 2 T-19-N			700	8-5/8"	10-18-80		1934
FNI x 1980' FW! Sec 1 T-19-N			714	8-5/8"	11-11-80	Gas	3U 1934 O11F
LOCATION*	\		@ (FT)	CSG.		ТУРІ	WELL NAME
			SET	SURF.		WELL	
ယူ ယူ ယူ ယူ	* 1, T-19-N, 2, T-19-N, 11, T-19-N,	LOCATION* FNL x 1980' FWL, Sec. 1, T-19-N, FSL x 1980' FWL, Sec. 2, T-19-N, FSL x 2055' FWL, Sec. 2, T-19-N, FNL x 1984' FEL, Sec. 11, T-19-N,	TOP OF	TOP PROD SET OF CSG. @ (FT) CMT 5-1/2" 2626 Circ 1968' FNL x 1980' FWL, Sec. 1, T-19-N, N/A N/A 1980' FSL x 1980' FWL, Sec. 2, T-19-N, 5-1/2" 2633 412' 1980' FSL x 2055' FWL, Sec. 2, T-19-N, 5-1/2" 2506 Circ 1980' FNL x 1984' FEL, Sec. 11, T-19-N,	TOP OF PROD SET OF CMT CSG. @ (FT) CMT OF Circ 5-1/2" 2626 Circ 1968' FNL x 1980' FWL, Sec. 1, T-19-N, Circ 5-1/2" 2633 412' 1980' FSL x 2055' FWL, Sec. 2, T-19-N, Circ 5-1/2" 2633 412' 1980' FNL x 1984' FEL, Sec. 2, T-19-N, Circ 5-1/2" 2506 Circ 1980' FNL x 1984' FEL, Sec. 11, T-19-N,	TOP SURF. SET OF PROD SET OF CMT CSG. @ (FT) C	WELL TYPE DATE DRILLED CSG. @ (FT) CMT CSG. @ (FT) CMT Gas 11-11-80 8-5/8" 714 Circ 5-1/2" 2625 Circ 1968' FNL x 1980' FWL, Sec. 1, T-19-N, PxA 10-18-80 8-5/8" 700 Circ N/A N/A 1980' FSL x 1980' FWL, Sec. 2, T-19-N, Gas 11-21-80 8-5/8" 701 Circ 5-1/2" 2633 412' 1980' FSL x 2055' FWL, Sec. 2, T-19-N, Gas 11-21-80 8-5/8" 741 Circ 5-1/2" 2506 Circ 1980' FNL x 1984' FEL, Sec. 11, T-19-N,

*Every location is in Union County, New Mexico
**Proposed injection well (prior to workover)
+Cmt tie back performed 7/17/80
++Cmt tie back to be performed

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AMOGO	

Amoco Production Company

ENGINEERING CHART

APPN	
DATE	<u> 1</u> 25/81
	PAR

SUBJECT HUTCHERSON B' NO. 5 (1934 021K)

BRAYO DOME IND TUBB

UNIT K 1980 FOL × 1980 FWL SEC. 2. T-10-N. 12-34-E. UNION COUNTY. NEW MEXICO

P&A.

ELEV: 4785' G.L.

85/8' CSA 700'
24* K-55. ST.C.
CMT W/ 40D SXS. Circ.
12'/4' hole

Washpipe
1205'

Arill collors

TD: 2614'

PLUD to 056' circ 10 &Cl255CV OUT CMTW175 5X5. Class C hezt. PLUD FROM 860-650 CMTW1505X3. Cl255 C nezt. PLUD FROM 1060'-910'. CMTW1955X5.

Class C neat:
PLUG FROM 1105'-1060'
CMTW 150 SXS.

Class C neat.

BDCDGU 1934 ODIK Well History Hutcherson B No. 5

- 10/7/80 8-5/8", 24#, K-55, ST&C casing set at 700' in a 12-1/4" hole. Cemented with 400 sacks Class C with 1% CaCl₂. Circulated 45 sacks.
- 10/10/80 Stuck drill pipe for 8 hours. TD 2614'.
- 10/11/80 Stuck drill pipe at 2614'. (24 hours)
- 10/12/80 Stuck drill pipe and all drill collars stuck except 1/2 of last drill collar on top. (7-3/4 hours) TD 2614'.
- 10/13/80 Fishing (18 hours). Bridge at 950'. Washing and reaming from 950' to 1040'. TD 2614'.
- 10/14/80 Washing from 1124'-1295'. Stuck wash pipe. Fishing for 23 hours. TD 2614'.
- 10/15/80 Ream from 767'-1300'. Fish for 24 hours. TD 2614'.
- 10/16/80 Wash and ream from 1100' to 2077'. Wash through bridge at 1205'. Fish for 24 hours for wash pipe. TD 2614'.
- 10/17/80 Fishing for 12 hours. Pump 150 sacks Class C neat cement to set plug from 1105'-1060' (6 hours).
- 10/18/80 Pump 95 sacks Class C neat to set plug from 1060'-910' (6 hours). Pump 150 sacks Class C neat to set plug from 910'-860'. Pump 75 sacks Class C neat to set plug from 860'-650'. Circulate 10 sacks cement at 656'.

2/25/81 RAB/sas

VII. Proposed Operation Data

- 1. The proposed average and maximum daily rate and volume of fluids to be injected: Avg: 600 BWPD; Max 900 BWPD
- 2. The system is closed.
- 3. The proposed average and maximum injection pressure: Avg: <100 psi; Max: 100 psi
- 4. See attached water analysis
- 5. See attached water analysis

VIII. Geology Of Injection Zone

- 1. Sandstone formation
- 2. Glorietta zone
- 3. Net Pay: 98'
- 4. Depth: 1702' (+3043' subsea)
- 5. The Exador sand, located at approximately 560' (+4185' subsea), is the closest known fresh water source in the area.

IX. Proposed Stimulation

1. See attached C-103

XI. <u>Chemical analysis</u>

- 1. Water samples have been shipped for analysis from two (2) nearby water wells (see attached analysis).
- XII. All available geologic and ongineering data has been examined and no hydrologic connection between the Glorietta formation and the Exador formation have been found.

MONVHANE: 188 % 1640 MONVHANE: 188 % 164 1640 MONAHARS TRICAS 7973F MONE 943:3234 CR 543:1040

PHONE 643-4621 MIDENNO, TEXAS 36301 MIDENNO, TEXAS 36301

RESULT OF WATER ANALYSES

3 \(\)		L'ABORA TORY NO.	<u>831413 (P</u>	age 2)
To: Mr. Eric Trigg	ngi anakali kang kangakanahina .	SAMPLE RECEIVED	8-26-81	
P.O.Box 68, Hobbs, New Maxico		RESULTS REPORTED	<u> 9-4-81</u>	
				•
COMPANY Amoco Production Company	.LEAST	Brayo Dor	X2	-
FIELD OR POOL	Bra	vo Dome		
SECTION BLOCK SURVEY	COUNTY	;\$:	TATE NH	
SOURCE OF SAMPLE AND DATE TAKEN:		r~		
NO. 1				
'NO. 2				
TNO. 3.		n 10) (00 mm)		(0(01
NO. 4 Tubb water flowed from 1934	131g thired	R 1017-(32 RNW	recovered.	6-70-01
REMARKS:				
CHEMICAL A		PROPERTIES	1	
Secretary Control of the Control of	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.				1.0220
pH When Received	d			<u> </u>
Bicarponate as HCO3	 			7.67
Supersaturation as CaCO3	 			9,516
Undersaturation as CaCO3	}			
Total Hardness as CaCO2		_ 	**************************************	
Calcium as Ca			 	3,450
Magnesium as Mg	1			50
Sodium,and/ps, Potassium.				7.955
Sulfate as SO ₄				7.920
·Chloride as C1				3.754
Iron as Fe				50.3
Barrum as Ba				
Turbidity, Electric				
Color as Pt				
'Total Solids, Calculated				30_484
Temperature °F.				
Carbon Dioxide, Calculated	<u> </u>			
Dissolved Oxygen, Winkler				
Hydrogen Sulfide				
Resistivity, ohms/m at 77° F.				0.390
Suspended Oil				
Filtrable Solids as mg/1				-
Valume Filtered. ml				
Resistivity, ohmo/m @ 770F-masure			·	0.357
Potassium, as K				470
Potessium Coloride, as KCL	Šarana Čor Millia			898
Additional Determinations And Remarks	Reported As Milligr	ams Per Liter		
Additional Determinations And Remarks				

Form No. 3

NUMBER OF STREET

· Hobbs, New Mexi	.m	ol	disclosed without first sec- labo atory management, use of regular business op d employees thereof recei mpany.	it may however, be Perations by any pers	used in the on arrestni
Submitted by			Date Rec	8-12-74	
Well No. As Marked	Depth As Mark	ed	Formation	Tubbs	
County	2334 State F.E. Fl 2339-2505	State F.J. 2542-2609	Source		
Resistivi t y	0.340 @ 74 ⁰ F.	0,046 G			
Specific Gravity	1.015	1.163			
Hq	7.4	6.3			
Calcium (Ca)	1,600 x.05 86	6,400 x	05 320,0		*MPL
Magnesium (Mg)	60 1.0822 49	360 y	0822 29.6		
Chlorides (CI)	7,000 x.0282 197.4	154,000	c.0282 4342.8		·.
Sulfates (SO ₄)	4,620 , 0308 91.1	7,800 ¥	.0108 ILY, Z		
Bicachonates (HCO ₃)	(8,420) x ,0164 138.1	2,070 x	.0164 33.9		
Soluble Iron (Fe)	Nil	- N11			
	***	Morale	rea		
Na lale	341.7×23=7974	4189.3423			
Remarks: - als	load recovered from FE # load recovered 500	FJ #1	€.	*Milligrams p	er liter
s/whre:	OPERATIONS REPORT FOR 8-3 TAKEN ON SAME DAY.		ectory saving	-	
Analyst: Erewer	-:.46 100 Respects	ully submitted,	HALLIBURTON C	COMPANY	
cc:		Ву	CHI	Blurer EMIST	/

This report is the property of Halliberton Company and neither it not any part thereof not a copy thereof is to be published or disclosed without first securing the express written opproval

50x 68

NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or amission, resulting from such report or its use.

	LABONATORY NO.	1071187	. nage . 5
To: Mr. B. A. Belknap	SAMPLE RECEIVED	10-26-71	
P. O. Box 1600, Midland, Texas			

API WATER ANALYSIS REPORT FORM

Company Humble Oil	& Refining Co	Sample No.	Date Sampled 10-22-71	
Field Wildcat	Legal	Description	County or Pai Union	rish State N. M.
Lease or Unit State "CN"	Well #1	Depth 1702'-1810'	Formation Glorieta	Water, B/D
Type of Water (Production DST #2	ced, Supply, etc.)	Sampling Point Sample Chamb	er	Sampled By

CATIONS Sodium, Na (calc.) * Calcium, Ca * Magnesium, Mg Barium, Ba	mg/l 5,321 140 3,9	7.0 0.3 0.0	pH Specific Gravity, 60/60 F. Resistivity (ohm-meters) 77 F. Total Hardness as CaCO ₃	7.6 1.0148 0.74 366
noticity, ba				

ANIONS Chloride, Cl Sulfate, SO4 0.0 Carbonate, COs Bicarbonate, HCOs

DISSOLVED SOLIDS

Total Dissolved Solids (calc.) 16,405	•
10,405	

Total Dissolved Solids (16,405	
Iron, Fe (total) Sulfide, as H ₂ S	18.7 0.0	0.6

рд	
Specific Gravity, 60/60 F.	1.0148
Resistivity (olim-meters) 77 F.	0.746
Total Hardness as CaCO3	366
Control of the Contro	
The same of the sa	

OTHER PROPERTIES

WATER PATTERNS - me/l

STANDARD

X	1	Co	++++	1111	1111	1111	1111	11/11	1111	###	1111	###	H00 ₃ 2
X	1	Mg	1111	1111	11!1	1111	111	¦!H	1111	}}}}	1111	###	304 }
X	1	Fo	لسا	u	سب	ш	اسلا	لسا	ш	ш	ш	ш	ω, >
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		Mg	1115 <mark>11-1</mark>	111111	-	##	 	1 11 111	1 11	** 1 4		11 111	S0 ₄
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REMARKS & RECOMMENDATIONS:

When we compare these analyses from the mud pit down to the sample chamber, we see some ver distinct similarities in the waters, especially in the sulfate level. We do note a progres sive increase in calcium, sodium, chloride, and bicarbonate along with a fluctuating but general decline in pH. These changes tend to indicate some exterior influence but general! most of the water appears to originate from the pit. We note a substantially lower sulfate (though it is still higher than usual) then we found on analysis #1071166 (10-26-71).

^{*} Determined by Atomic Absorption Spectrophotometry.

Taran and Taran and Taran					and the second	LABORATORY NO.	1071187	<u> </u>
TO:	Mr.	в. А.	Belkna	ND		SAMPLE RECEIVED	10-26-71	
	P. 0). Box	1600,	Midland,	Texas	RESULTS REPORTED		

API WATER ANALYSIS REPORT FORM

Company Humble O	il & Refining	Company	Sample No.		Sampled 22-71
Field Wildcat	Legal I	Description	County or Par Union	ish	State N. M.
Lease or Unit	Well #1	Depth 1702'-1810'	Formation Glorieta		er, B/D
Type of Water (Production DST #2	eed, Supply, etc.)	Sampling Point Drill pipe -	Bottom	Sam	pled By

BDC06U 1934 161L

CATIONS	mg/l	me/l
Solium, Na (calc.)	4,557	<u>198.1</u>
Calcium, Ca	36	1.8
L Culcium, Cu		0.2

*Magnesium, Mg 2.5 0,2
Barium, Ba 0 0.0

ANIONS

DISSOLVED SOLIDS

Chloride, Cl	1,094	30.8
Sulfate, SO.	7,582	157.7
Carbonate, COs	24	0.8
Bicarbonate, HCOs	659	10.8
		

Total Dissolved Solids (calc.)

13,955

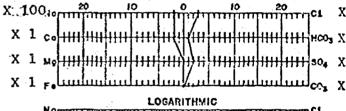
Iron, Fe (total) $\frac{3.0}{0.0}$ Sulfide, as H_2S

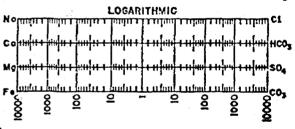
OTHER PROPERTIES

Hq	8.5
Specific Gravity, 60/60 F.	1.0134
Resistivity (ohm-meters) 77° F.	0.862
Total Hardness as CaCO3	100

WATER PATTERNS - me/l

STANDARD





REMARKS & PECOMMENDATIONS:

108 W. ILLINOIS PHONE 688-4881 - WIELANG TEXAS 19701

	LABORATORY NO	1071187	рляе 3_
To: Mr. B. A. Belknap	_ SAMPLE RECEIVED	10-26-71	
P. O. Box 1600, Midland, Texas			

API WATER ANALYSIS REPORT FORM

BOLL	<i>160</i>
1974	

Company Humble Oil	& Refining C	Company	Sample No.	Date Sampled 10-22-71
Field Wildcat	Legal E	description	County or Par Union	ish State N. M.
Lease or Unit	Well #1	Depth 1702'-1810'	Formation Glorieta	Water, B/D
Type of Water (Freduce DST #2	ed, Supply, etc.)	Sampling Point Drill pipe	- Middle	Sampled By

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
- Sodium, Na (calc.)	4,180	181.7
L' Calcium, Ca	34.5	1.7
* Magnesium, Mg	2.5	0.2
Barium, Ba	0	0.0
*		

ANIONS

Chloride, Cl	703	19.8
Sulfate, SO4	7.458	155_1_
Carbonate, COs	24	0.8
Bicarbonate, HCOs	482	7.9
		

Total Dissolved Solids (calc.)

Total Dissolved Sollar	12,884	
Iron, Fe (total) Sulfide, as H ₂ S	5.0	0.2

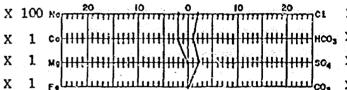
REMARKS & RECOMMENDATIONS:

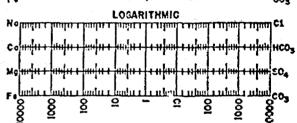
OTHER PROPERTIES

Specific Gravity, 60/60 F. Resistivity (ohm-meters) 77 F. 0.5	9
Resistivity (ohm-meters) 77 E 0.9	-
	930
Total Hardness as CaCO ₃ 97	

WATER PATTERNS - me/l

STANDARD





Mr. B. A. Belknap

P. O. Box 1600,

RESULT OF WATER ANALYSES

Midland, Texas

404 W, ILLINOIS PHONE 893-4821 MIDLAND, TEXAS 79701

LABORATORY NO. 1071187 page 2

SAMPLE RECEIVED 10-26-71

RESULTS REPORTED 10-30-71

API WATER ANALYSIS REPORT FORM

Company Humble O	il & Refining	Company	Sample No.	Date Sampled 10-22-71
Field Wildcat	Legal I	Description	County or Par Union	ish State N. M.
Lease or Unit State "CN"	Well #1	Depth 1702 -1810 *	Formation Glorieta	Water, B/D
Type of Water (Produce DST #2	d, Supply, etc.)	Sampling Point Top	A .	Sampled By

DISSOLVED SOLIDS

BDCDGU 1934 161L.

Dinbon, the bonies		
CATIONS Sodium, Na (cale.) * Calcium, Ca * Magnesium, Mg Barium, Ba	mg/l 4,143 29 1,6	me/l 180.1 1.5 0.1
ANIONS Chloride, Cl Sulfate, SO ₄ Carbonate, CO ₃ Bicarbonate, HCO ₃	540 7,582 0 537	15.2 157.7 0.0 8.8
Total Dissolved Solids	(calc.) 12,833	
Iron, Fe (total) Sulfide, as H ₂ S	1.3 0.0	0.0

REMARKS & RECOMMENDATIONS:

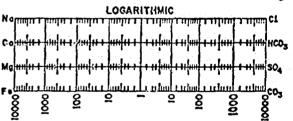
OTHER PROPERTIES

Η	8.4
Specific Gravity, 60/60 F.	1.0128
Resistivity (ohm-meters) 770 F.	0.962
Total Hardness as CaCO3	79

WATER PATTERNS - me/l

STANDARD





•		LABORATORY NO.	1071187
TO:	Mr. B. A. Belknap	SAMPLE RECEIVED	10-26-71
	P. O. Box 1600, Midland, Texas	RECOUNTE DEPONDED	10-30-71

API WATER ANALYSIS REPORT FORM

BOCDGU
1934 161L

Company Humble Oil & Refining (Company	Sample No.	Date 10	Sampled -22-71
Field Wildcat	Legal I	Description	County or Par Union	rish	State N. M.
Lease or Unit	Well #1	Depth 1702'-1810'	Formation Glorieta	Wa	ter, B/D
Type of Water (Produced, DST #2	Supply, etc.)	Sampling Point Mud Pit	`	Sar	npled By

-D199	OLIV	ril.	SOLIDS

CATIONS	mg/l	mo/l
Sodium, Na (calc.)	3,950	171.7
*Calcium, Ca	27.5	1.4
Magnesium, Mg	1.6	0.1
Barium, Ba	0	0_0_
-		

ANIONS

011-11- 01	387	10.9
Chloride, Cl Sulfate, SO ₄	7,582	157.7
Carbonate, COs	24_	0.8
Bicarbonate, HCOs	329	5.4
		<u>-</u>

Total Dissolved Solids (calc.)

12,301

	3.2	0.1
Iron, Fe (total)		V
	0.0	
Sulfide, as H ₂ S	0.0	

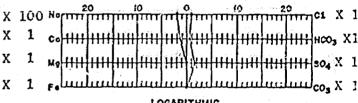
REMARKS & RECOMMENDATIONS:

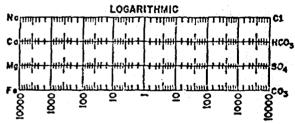
OTHER PROPERTIES

pH ,	8.8
Specific Gravity 60/60 F	1.0122
Specific Gravity, 60/60 F. Resistivity (ohm-meters) 77° F.	1.00
Total Hardness as CaCC3	75
desired the second seco	<u> </u>

WATER PATTERNS - me/l

STANDARD





PENERGY AND ADDIERALS DEPARTMENT	
OIL CONSERVATION DIVISION OBTAINSTON P. O. BOX 2088 SANTA FE, NEW MEXICO 87501	Form C-101 Sevised 19
U.S.O.S. LAND OFFICE OFFIATOR	State St & Gas Leasu So.
SUNDRY NOTICES AND REPORTS ON WELLS 1 100 HOT USE THIS FORM TO TRANSPORT OF FORM TO THE PERSONAL TO A METER CHILD FOR THE PERSONAL TO THE PER	7, that Agreement None
WELL X CO2 OFFICE.	BDCDGU
Amoco Production Company	8DCDGU 2034
P. O. Box 68, Hobbs, NM 88240	3, Well No.
VALUE LETTER P 660 PEET FROM THE SOUTH CINC AND 1320 PEET FROM THE	10. Field and Pool, or Andeat
THE East LINE, SECTION 36 TOWNSHIP 20-N RANGE 34-E	
15. Elevation (Show whether DF, RT, GR, etc.) 4734 GL	Union
Check Appropriate Box To Indicate Nature of Notice, Report of Continue o	OT REPORT OF: ALTERING CASING
	PLUG AND ABANGORMEN
OTHER CONVERT to salt water disposal X	thod: plug at approx 2100' nd 70'-80' with 2 Set packer and Pull tubing and coated tubing to then set packer.
Pull on Alter Casing Convert to salt water disposal X 17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, include work) see nule 1903. Propose to convert to salt water disposal well per the following me Kill well with brine water and pull tubing. Set a cast iron bridge and cap with 35' cement. Perforate Glorietta intervals 1718'-54' at DPJSPF. Run 3 joints tailpipe, packer, and 2-3/8" tubing to 1650'. acidize with 1000 gal 7-1/2% HCL. Flush with 30 bbls brine water. packer. Run internally and externally coated packer and internally 1650'. Pump annular volume of fresh inhibited water down backside, Finish loading backside to surface. Pressure test backside for lea	thod: plug at approx 2100' nd 70'-80' with 2 Set packer and Pull tubing and coated tubing to then set packer.

CONDITIONS OF APPROVAL, IF ANYI

			1 8 A.113
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		ml ml	pl Fluid loss 90 40 ml
			Done. Vice 8.85 42
			/pe fluid in Hale
		7.00	ONE STORY
	6.	(i) (ii) (ii) (iii) (iii	
10:55 18:00 2.00 3.00 3.00 3.00 3.00 3.00 3.00 3.	701 170 170 170 170 Sub.		op tog interval
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\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$		eno	10-3-74
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anka anka)GUEL-)MENT	FIELD (02
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		PRODUCTION COMPANY	COMPANY Amoco
TO REAL PROPERTY.			
7.14.6			では、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmのでは、100mmので
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,	Recorded By) ST/E	om 10-5 0230	.14 @	3 C	3, 7T S 2, 12 S 2, 1	9 6	e of Sample Ciatorates	-	Dens. Visc. 8.85 42		-logger 3 / o	Coung-Driller 85/1 @ 307 @ @	\downarrow	Bim log inserval 2/27	╁			Simily mediation from 12:32	V X			WELI COM	DATE APP SERIAL NO SEC TWO	/Y	5 660 F3L > 1320 FEL	COUNTY Chian STATE Now	FIELD CO2 DEVELOPMENT	WELL STATE FI "2 THERFECE	7 703Y	COMPANY FIMOCO PRODUCTION COMP		Schlumberger IIII III
F	OLD	HER NES		°F (S)	(e)	8	@		3 ne v	vell	nam.			1700	an	d	bore	₽holi-			rence c	dot	O W	/ere		\ <u>`</u>	mexico by	the	TEST WELL)	P	Company		
														1800																			

	t. A	BORATORY NO	882207	
o: Mr. Steven Lesikar				
	1810			
COMPANY Amoco Production Company FIELD OR POOL	LEASE _	Bravo Dom	830	
SECTION BLOCK SURVEY			ATE	AUG 27 1987
OURCE OF SAMPLE AND DATE TAKEN:			ا∬ل	A00 61 1305
NO. 1 Fresh water well due east o	of BDCDGU #2034	362P.	ـدا بـ 	
NO. 2 Fresh water well due one mi				SAULA FF
NO. 3				
				•
NO. 4				
REMARKS:	AND CHICAGO I			
CHEMICAL	AND PHYSICAL PI	·		
Specific Cravity at 60° F.	NO. 1	NO, 2	<u>, NO. 3</u>	NO. 4
pH When Sampled	1.0021	1.0016		
pH When Reserved	0.70	0.70		
Bicarbonate as HCO3	8.78	8.40		
Supersaturation as CaCO3	156	185		
Undersaturation as CaCOs				
Total Hardness as CaCO3		134		
Catcium as Ca	252			
Magnesium as Mg	25	18 21		
Sodium MXXXXXXXXXXXXX	46			
Sulfate as SO ₄	145	107		
Chloride as CI	276	$\frac{104}{28}$		
Iron as Fe	0.23	0.17		
Barium as Ba	1	V• ± /		
Turbidity, Electric		· · · · · · · · · · · · · · · · · · ·		·
Color as Pt				
Total Solids, Calculated	759	518		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	'44' ·	
Resistivity, ohms/m at 17° F - Calculated	10.50	17.00	· ·	
Suspended Oil				
Filtrable Solids as mg/				
Volume Filtered, ml				
Carbonate, as CO ₃	67	46		
Potassium, as K	9	9		
Potassium Chloride, as KCl	<u> </u>	<u> </u>		
	Reported As Milligrams	Per Liter		
Additional Determinations And Remarks			<u> </u>	
Resistivity. ohms/m @ 77°F.	11.90	19.05		
(measured)				
01		in interpret	rtion of the	above ro-
Please contact us if we can he of	any assistance	TO THE EDITE !	TION OF THE	annive Tee
sulfs				

Form No. 3

By Savian C. Martin, M. A.

Union County Legals

LEGAL NOTICE

August 11, 1982

NOTICE

TO WHOM IT MAY CONCERN:

AMOCO PRODUCTION COMPANY PROPOSES TO CONVERT THE FOLLOWING WELL TO SALT WATER DISPOSAL:

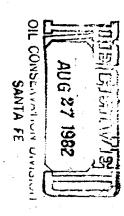
BRAVO DOME CARBON DIOXIDE GAS UNIT WELL NO. 2034 362 P LOCATION: SEC. 36, T-20-N, R-34-E; 660' FSL \times 1320', FEL, TD 2625'

THE INTENDED PURPOSE OF THE WELL IS FOR DISPOSAL OF SALT WATER WITH AN EXPECTED MAXIMUM INJECTION RATE OF 900 BWPD AND PRESSURE LESS THAN 100 PSI. INTERESTED PARTIES MUST FILL OBJECTIONS OR REQUESTS FOR HEARING WITH THE OIL CONSERVATION DIVISION, P.O. BOX 2088, SANTA FE, NEW MEXICO 87501 WITHIN 15 DAYS FROM DATE OF THIS PUBLICATION.

FOR FURTHER INFORMATION, CONTACT STEVEN F. LESIKAR AT AMOCO PRODUCTION COMPANY, P.O. BOX 68, HOBBS, NEW MEXICO 88240, OR TELEPHONE (505) 393-1781.

8-11

"Proof of Notice"



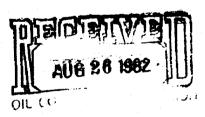




pet application for converting P-36.20N-34E to disposal well. also, because of these objections, I present it will have to go for hearing. I will plan to advise accordingly.

Carl

Logan N.M. 88476 R.C. Carbon Dioxide Well No 2034-362-P. Oil Conservation Division BOX 2088 Santa Fe N.M. 87501 Deay Six: We hereby protest 4 Obsect to the Application by Amoro Production Co. The proposed well to be used For Salt water Disposal use Request A heaving on such Appliation. By Copy of His Letter to Stephen F. Lasiles, Iam Wusing Amoco Production Co. of this Request Protest & Obviction.



Pleast James by Box 376
Logon New Mexico 88426

AUG 30 1982

Bueyeros, New Mexico August 24, 1982

Oil Conservation Division P. O. Box 2088 Banta Fe, New Mexico 87501 Case 7687

Re: Bravo Dome Carbon Dioxide Gas Unit Well No. 2034 362 P

Doar Sirsi

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application. By copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Very truly yours,

J Heimann

cer Steven F. Lesikar



HOWARD W. ROBERTSON

10NE RANCH (505) 633-2296 NARA VISA, NEW MEXICO 88430 Annust 23, 1982

Re: Pravo Dome Carbon Dexoide Cas Unit 2034-362-7

Oil Conservation Division Box 2088 Santa Fe, New Mexico 87501

Dear Sirs:

We hereby protest and object to the application of Amoco Production Company to convert the referenced well to salt water disposal use, requesting a hearing on such application.

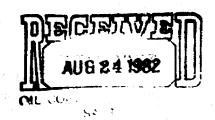
By copy of this letter to Steven F. Lesikar, I am advising Amoco Production Company of this protest, objection and request.

Very truly yours.

me + mrs. Howard Rahertson

Mr. and Mrs. Howard Robertson

cc: Steven F. Lesikar



August 23, 1982 Star Route Nara Visa, NM 88430

Re: Bravo Dome Carbon Dioxide Gas Unit Well #2034-362-P

To: Cil Conservation Division Box 2088 Santa Fe, NM 87501

Dear Sir:

I hereby protest and object to the application of Amoco Production Company to convert the referenced well to salt water disposal use, requesting a hearing on such application.

By copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Very truly yours,

Lon Kupen

Don Kuper

AUG 24 1982
OIL CONSERVATION DATE OF SANSTA SE

Oil Conservation Division Box 2088 Santa Fe, New Mexico 87501

Re: Bravo Dome Carbon Dioxide Gas Unit 2034-362-P

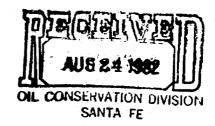
Dear Sirs:

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to sait water disposal use, requesting a hearing on such application. By copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Mrs allen Poling

Mrs. Allen Poling

cc: Steven F. Lesikar



Oil Conservation Division Box 2088 Santa Fe, New Mexico 87501

RE: Bravo Dome Carbon Dioxide Cas Unit 2034-362-P

Dear Sirs:

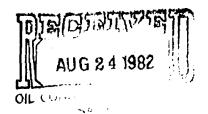
I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application by copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Very truly yours,

Wendle Mr. Saling

cc: Steven F. Lesikar
Amoco Production Company
Box 68
Hobbs, New Mexico 88240

AUG 24 1982
OIL CONSENIATION DIVISION SANTA TE



Oil Conservation Division Box 2088 Santa Fe, New Mexico 87501

RE: Bravo Dome Carbon Dioxide Gas Unit 2034-362-P

Dear Sirs:

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application by copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Very truly yours,

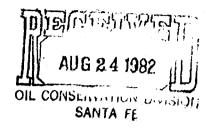
J.M. Poling III

cc: Steven F. Lesikar

Amoco Production Company

Box 68

Hobbs, New Mexico 88240



Oil Conservation Division Box 2088 Santa Fe, New Mexico 87501

RE: Bravo Dome Carbon Dioxide Gas Unit 2034-362-P

Dear Sirs:

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application by copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Very truly yours,

cc: Steven F. Lesikar
Amoco Production Company
Box 68

Hobbs, New Mexico 88240

Harold V. O' Neal by J. M. Poling it (manager)



P.O. BOX 486 • CLAYTON, NEW MEXICO 88415 • PHONE (505) 374-2587

August 23, 1982

Oil Conservation Division Box 2088 Santa Fe. New Mexico 87501

> Re: Bravo Dome Carbon Dioxide Gas Unit 2034-362-P

Dear Sirs,

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application.

By copy of this letter to Steven F. Lesikar, I am advising Amoco Production Company of this protest, objection and request.

Sincerely,

Betty R. Sowers

Steven F. Lesikar cc: Amoco Production Company Box 68 Hobbs, New Mexico 88240

(X) INSERVATION DIV

SANIA FE

903 Walnut Street Clayton, New Mexico August 23, 1982

Oil Conservation Division P. O. Box 2088 Santa Fe, New Mexico 87501

Re: Bravo Dome Carbon Dioxide Unit 2034-362-P

Dear Sirs:

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application. By copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

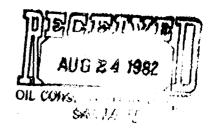
Very truly yours,

Winifred Blakely Winifred Blakely

cc: Steven F. Lesikar

AUG 2.4 1982
OIL CONSERVATION DIVISION SANTA FE

315 Monroe Street Clayton, New Mexico August 23, 1982



RE:

Bravo Dome Carbon Dioxide Gas Unit 2034-362-P

Oil Conservation Division P. O. Box 2038 Santa Fe, New Mexico

Dear Sirs:

I hereby protest and object to the application of Amoco Production Company to convert the above referenced well to salt water disposal use, requesting a hearing on such application by copy of this letter to Steven F. Lesikar, I'm advising Amoco Production Company of this protest, objection and request.

Sincerely yours,

Bobby adee

ce: Steven F. Lesikar

AUGUDA 85,1782

LEFERAVO DOMA CARECHDIOXIDE CAS UNIT

2034-362-P C&L CONSERVATION DIVISION BOX 2088 SANTA FE 87501

Dear Sirs;

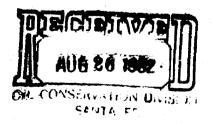
we hereby protest and object to the application of Amoco Production Co. to convert the feferenced well to salt water disposal use, requesting a hearing on such application.

By copy of this letter to Steven F.Lesikar, I'm advising Amaco Production Co. of this protest, objection in request.

Very truly yours,

Addison and Kathryn Cammack

Ameco Production
Box 68
Hobbs, NM 88240



frede P

STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

Par

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

JAR

CASE NO. 7687

>096

Order No. R- 7765

APPLICATION OF AMOCO PRODUCTION COMPANY FOR SALT WATER DISPOSAL, UNION COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on September 29, 1982, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this _____day of October, 1982, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

to experie algebra per lipheto his encodes a continue de la con-

FINDS:

- (1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- owner and operator of the State FI Well No. 2 (2034-362P), branching Carbon Divide Unit Viol 2034 2011 No. 362, for located 660 feet from the South line and 1320 feet from the East line of Section 36, Township 20 North, Range 34 East, NMPM, Union County, New Mexico.
 - (3) That the applicant proposes to utilize said well to dispose of produced salt water into the Glorieta formation, with injection into the perforated interval from approximately 1718 feet to 1780 feet.
 - (4) That the injection should be accomplished through 29/8-inch plastic lined tubing installed in a packer set at approximately (650) feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge or approved leak detection device should be attached to the annulus in order to determine leakage in the casing, tubing, or packer.
 - (5) That the injection well or system should be equipped with a pressure limiting switch or other acceptable device which will limit the wellhead pressure on the injection well to no more than ________ psi.
 - (6) That the Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that

such higher pressure will not result in migration of the injected waters from the Glorieta formation.

- (7) That the operator should notify the supervisor of the Santa Fe district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.
- (8) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.
- (9) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amoco Production Company, is

Brown Draw Corbon Dioxide
hereby authorized to utilize its former State PI Well No. 2
Gas Unil Vract 2034 Well No 362
(2034-362P) located 660 feet from the South line and 1320 feet
from the East line of Section 36, Township 20 North, Range
East, NMPM, Union County, New Mexico, to dispose of produced
salt water into the Glorieta formation, injection to be
accomplished through 245-14ch tubing installed in a
packer set at approximately 1650 feet, with injection
into the perforated interval from approximately 1718 feet to
1780 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert

fluid; and that a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

- (2) That the injection well or system shall be equipped with a pressure limiting switch or other acceptable device which will limit the wellhead pressure on the injection well to no more than 350 psi.
- (3) That the Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Glorieta formation.
- (4) That the operator shall notify the supervisor of the Santa Fe district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.
- (5) That the operator shall immediately notify the supervisor of the Division's Santa Fe district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.
- (6) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 702, 703, 704, 705, 706, 708, and 1120 of the Division Rules and Regulations.

(7) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY, Director

SEAL

LOCATION, CHAVES COUNTY, NEW MEXICO

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