CASE NO.

7572

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
12 May 1982

EXAMINER HEARING

IN THE MATTER OF:

Application of Anadarko Production Company for a waterflood expansion, Eddy County, New Mexico. CASE 7572

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. STAMETS: We'll call next Case 7572.

MR. PEARCE: That is the application of Anadarko Production Company for a waterflood expansion, Eddy County, New Mexico.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant and I have one witness.

(Witness sworn.)

CHRIS RHODES

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and your occupation?

A. Chris Rhodes. I'm a Staff Reservoir Engineer for Anadarko Production Company.

Q. Mr. Rhodes, have you previously testified before the Division as a petroleum engineer?

A. Yes, I have.

Q. And have you prepared certain exhibits with

regards to the application of Anadarko in this case today?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Rhodes as an expert petroleum engineer.

MR. STAMETS: He is considered qualified.

Q. Mr. Rhodes, let me direct you to what we've marked as a package of exhibits and have you turn, first of all, to Exhibit Number One, which is the small land plat, and have you identify for us the waterflood unit which is the subject matter of this application.

A. The Anadarko Production Company Ballard Grayburg-San Andres Unit is shown on this plat by the yellow colored area. It is surrounded by other -- pretty much surrounded by other areas, waterfloods to the west and north and east.

Q. This Ballard waterflood is a currently operating waterflood project, is it not?

A. Yes, it is.

Q. And it injects water into what formation?

A. It is injecting water into the -- primarily the Grayburg, for the most part the Metex and Premier Sands, and the -- some injection into the Jackson interval of the San Andres.

Q. Looking to the waterflood projects to the

east of your unit, would you identify for us the formations in which the Newmont and the far west Loco Hills Waterflood Projects are injecting water into.

A. In the far west Loco Hills Unit, that flood is in a Loco HIlls Sand, which is above the unitized interval in the Ballard Unit, and in Newmont flood, I'm not real familiar with theirs, but I think it's flooding the same interval.

Q. Let me have you turn to Exhibit Two, and would you generally identify Exhibit Two?

A. This is a map showing the Ballard GSA unit in the center and it has our Grayburg flood patterns drawn out to the injection wells connected by the lines, and it indicates with a triangle a proposed ten new injection wells, two of which are conversions of existing producers, eight will be newly drilled wells.

Q. How are the two wells to be converted to injection identified?

A. Those two wells are the 6-17, which is in the southeast of the southwest of Section 6, and the 3- --

MR. STAMETS: Let me find that first.

A. Okay.

MR. STAMETS: In the southeast of the southwest of --

A. Yes, sir.

MR. KELLAHIN: Yes, sir.

Q. And where is the other one?

A. And that is located in the southeast of the northeast of Section 7, and that is the Unit Well No. 3-1.

Q. The other eight would be new injection wells.

A. Yes, that's correct.

Q. Would you describe generally what you propose to do with these ten new injector wells, Mr. Rhodes, in terms of your anticipated average daily volume of injection water and your anticipated needs with regards to injection pressure?

A. We propose to inject an average of 250 barrels of water per day in each of these proposed wells.

As far as injection pressure goes, we propose a surface injection pressure of 1700 pounds.

Q. Before we leave Exhibit Number Two, let me have you direct your attention to Exhibit Number Three. What is Exhibit Number Three, Mr. Rhodes?

A. Exhibit Number Three shows the data on the proposed operation, including the rates and proposed pressures, although under item number three, this was previously submitted at 1500 pounds, but we would like to propose a surface injection pressure of 1700 pounds.

Q. Without going into a great detail about the pressure limitation at the surface, Mr. Rhodes, would you describe generally how you came to a recommendation of 1700 psi at the surface?

A. Well, this is based on what we feel like is close to the average fracture pressure, surface fracture pressure of the formation. This past year, being 1981, we drilled eight new producing wells out there and each one of them is hydraulically fractured and the initial -- or instantaneous shut-in pressures on the frac jobs were used as an indicator of the surface frac pressure, which is an industry accepted number, what the service companies would normally use on the frac, calculating a fracture gradient.

We did eight wells and the pressures ranged from 1300 to 2050 pounds, with an average instantaneous shut-in pressure being 1731 pounds, which we feel is indicative of the surface fracturing pressure.

So it's our belief that 1700 pounds at the surface injection pressure for these injection wells would be proper.

Q. All right, sir, let's go ahead and continue with Exhibit Number Three and have you describe generally what the source is of the injection fluid.

A. We're currently projecting -- I mean pro-

ducing, excuse me, injecting produced water from the unit, along with makeup water, which is fresh water from the City of Carlsbad, and this will be the same. This will not change with the newly added injection.

Q. All right, sir, let me ask you, based upon your study, Mr. Rhodes, what, if any, fresh water sands have you encountered within a half mile radius of the proposed new injection wells?

A. We don't know of any fresh water sands within a half a mile radius. The -- we did find, it may or may not be there close to the surface, we did find one fresh water well, which was over, I think it was more than a mile away from the east side of the unit. There was a windmill there, and we do have a water analysis on that, and the -- probably whatever exists there, probably does exist under the unit, although we don't have any fresh water wells on it.

The Triassic Sands, which are from approximately, surface to 150 feet, probably are productive of fresh water, and possibly the Rustler down around 150 to 200 feet, although we don't have any fresh water well in the unit area, but it should be the same as the one to the east, so those would be fresh water sands in the area.

Q. Do you have an estimate, Mr. Rhodes, of the benefit to the project in general from the drilling of

these ten new injector wells in terms of increased recoveries?

A. Our calculations show that these ten added injection wells will recover an additional 639,000 barrels of reserves, oil reserves.

Q. Can you give us an estimate of your time-table with regards to the drilling of these new injection wells?

A. Well, upon approval we hope to begin drilling as soon as possible, and we hope to have them all injecting water by the end of the year.

Q. All right, sir, let's turn at this point, then, to Exhibit Number Four, which is the Commission required tabulation of completion information on all wells within a half mile radius.

Have you had an opportunity to review the information tabulated on this exhibit, Mr. Rhodes?

A. Yes, sir, I have.

Q. And in your opinion, Mr. Rhodes, are there any of the wells within the half mile radius in which there is inadequate or no cement across the injection interval?

A. We do not see any problems with any of the current producing wells. There are possible problems with a couple of different P&A'd wells, which --

Q. All right, let's --

A. -- we will discuss later.

Q. Let's come to the plugged and abandoned wells later, but on the producing wells indicated on the tabulation, you're not aware of any that have evidence of cementing failures or difficulties that would be problems for the injection of fluids into this formation.

A. I don't see any problems. I might point out an apparent typographical error here on page six, for the Depco No. 1 Welch Federal.

Q. Just a moment, let's find it. That's the last well on page six?

A. Yes, sir.

Q. All right, sir, what's the problem?

A. Under the 8-5/8ths casing it indicates it's at 290 feet. That's an apparent mistake and I do not know the right number. I just realized that in the past day or so.

Q. Other than that typographical error, obviously that's got to be a deeper depth, doesn't it, Mr. Rhodes?

A. Yes, sir, that's correct.

Q. Other than that change, are you aware of any other changes in the tabulation?

A. No, sir, I don't know of any other changes.

Q. All right, sir, let's go on to Exhibit

Number Five then. What is Exhibit Five?

A. Exhibit Number Five is the schematic on the plugged and abandoned, or temporarily abandoned wells.

Q. Let me ask the same question about the plugged and abandoned wells I asked you about producing wells. Are you aware of any plugged and abandoned wells that may be sources of difficulty for the injection of fluids as you propose?

A. There are two wells that could be problem wells. One of them is the -- should be the first one, which is the Depco No. 2 Dunn-C.

Q. All right, let's -- before you go to the next one, let's talk about this one.

What's the problem with the Depco No. 2 Dunn-C Well?

A. Well, we haven't found any records of the plugging and abandonment. We will attempt to get the records from Depco and if it hasn't been satisfactorily plugged, you know, we'll discuss it with the Commission and if it's not satisfactory we'll either attempt to get Depco to plug it or plug it ourselves to meet the Commission's requirements.

Q. All right, sir, let's look at the other problem well.

A. Okay. I believe it's the last one in the

packet of schematics.

A. Okay, this is the Depco Dunn No. 1. It could be a problem in that there is no cement around the interval where we're going to be injecting water. The only problem would be, you know, I can see would be if it developed a hole in the casing somewhere. As you go up the hole there is a plug at 750 feet but nothing down between that and the plug at 2450.

We will again try to get all the records from Depco and if it doesn't appear to be satisfactorily plugged, if it's not satisfactory with the Commission, we'll either try to get Depco to plug it satisfactorily or plug it ourselves.

Q. All right, sir, let's turn to Exhibit Number Six, please. This is the package of schematics on the proposed new injector wells, Mr. Rhodes. Would you identify the first page?

A. The first one is Well No. 3-1. This is one of the proposed conversions of an existing producing well.

The next schematic is also a conversion of an existing producing well, No. 6-17.

And the third schematic is of a typical or type well which we propose to drill. Each one of them will basically be the same;numbers will vary a little bit as

far as where they're perforated.

Q. This is for the other eight wells.

A. Yes, sir, that's correct, and their locations and numbers of the eight to be drilled are shown in this tabulation, or list.

Q. All right. What type of device or gauge would you place at the surface to detect the movement of fluids?

A. On the casing-tubing annulus?

Q. Yes, sir.

A. Well, we would either have a valve where we could check for any pressure or flow, or have a pressure gauge there which -- to read.

Q. Do you have a recommendation to the Examiner as to a choice to detect water at the surface; a recommendation as to simply leaving it open as opposed to a gauge?

A. Well, you would be able to tell if it was getting any pressure just by leaving it open.

Q. And what about the use of plastic-lined tubing, Mr. Rhodes?

A. We do plan to use plastic-lined tubing in all our injection wells.

Q. And where is your packer to be located in

relation to the top perforations?

A We plan to locate the packer approximately 50 feet above the top perforation.

Q And what's the advantage to that location, Mr. Rhodes?

A Well, if you get the packer any lower or closer to perforations, you can then have possible problems when you're treating the well, with possibly effect of lost sealer action, and things of this nature, and also you're running a temperature survey, you can sometimes get a temperature effect from the temperature tool when it comes out of your packer, and so if you get too close, you sometimes cannot tell for sure what's going on at the top of the injection interval with a temperature survey.

Q All right, sir, let's turn now to Exhibit Number Seven and have you identify that.

A Exhibit Number Seven is the -- is a log on our Unit Well No. 14-6, which was drilled during 1981. On it is marked the top of the unitized interval, the base of the Loco Hills, which is right above the top of the unitized interval; the top of the Metex; the top of the Premier, which are both parts of the Grayburg formation. And then the top of the San Andres formation; and this particular log is a density neutron log which gives you a good idea of the -- you

can see the different porosity zones where you develop some fairly good sands within the Metex and Premier.

Q What is the average range of thickness through this injection formation, Mr. Rhodes?

A The average thickness is about 229 -- 225 feet. The range is about 220 to 240 feet.

Q And what's the approximate depth of the injection zone?

A The average depth is around 2520 feet.

Q All right, sir, let's turn to Exhibit Number Eight and have you identify that.

A Exhibit Number Eight is a graph showing oil production, water production, and water injection for the subject unit. As you can see, the production has had a very good response to the water injection. We anticipate good production response from the proposed injectors, also.

Q All right, sir. Let's go to Exhibit Number Nine.

A Exhibit Number Nine shows some water analyses. The first one is the fresh water supply for the unit. The second one is analysis of produced water from Unit Well No. 14-2. The third one is a combination of the fresh supply water and produced water. The last one is an analysis of the water from the windmill, the well with the windmill on it that

we mentioned earlier. It's a little over a mile to the east.

Q Are you experiencing any difficulties with the combination of produced water and the fresh water?

A We are doing treating but we have not had any problems with the treatment we've not been able to handle.

Q You're talking about treatment. What kind of treatment?

A Treatment for the injection water.

Q And that treatment includes what, Mr. Rhodes?

A I believe it probably includes an oxygen scavenger and that would probably be the main thing.

Q Okay, are there any corrosion inhibitors placed in the water?

A I think so but I'm not really sure.

Q All right, sir. And then the last one is the water analysis on the windmill.

A That's correct.

Q All right, let's go to Exhibit Number Ten and have you identify that for us.

A Exhibit Number Ten is a tabulation of the instantaneous shut-in pressures on the eight wells that we drilled during 1981 I mentioned earlier. It shows the well number, the date it was treated, and the instantaneous shut-in

pressure as recorded by the service company that did the work.

The average of these was 1731 psig. We feel this is indicative of the surface fracture pressure, an average.

Q In your opinion is that reasonable and sufficient data upon which to make the recommendation as to a surface limitation injection pressure?

Are you willing to make a recommendation to the Examiner of a surface pressure limitation number based upon instantaneous shut-in pressures?

A Yes, sir, based upon these pressures I'd recommend 1700 pounds.

Q All right, sir. Now for the aid of the Examiner, you might take a moment and identify for us the wells that you have these instantaneous shut-in pressures on.

A Okay. We need to refer back to Exhibit Two, I believe it is, the large map of the Unit.

The No. 5-15 is located in the northeast quarter of Section 8.

The No. 5-16 is located also in Section 8. It's in the southwest of the southeast of that section.

The No. 10-6 is located up in the northeast corner of the unit in Section 4, in the southwest of the northwest.

The 11-6 is located over in Section 6. It's in the northeast of the northeast.

The No. 14-6 is located in Section 8 in the southwest of the southwest.

The No. 15-7 is also in Section 8. It's located in the southwest of the northwest.

The No. 24-5 is up in Section 5. It's located in the southwest of the southeast.

And the No. 26-3 is in Section 4. It's in the southwest of the southwest.

Q. And all these tests are run on the wells that you drilled in 1981?

A. Yes, sir.

Q. Are you satisfied, Mr. Rhodes, that the pattern of those wells in which you have information is reasonably spread throughout the waterflood project to give you an accurate estimate of the estimated surface injection pressure?

A. Yes, we are.

Q. In your opinion will a surface limitation pressure of 1700 pounds at the surface be sufficiently below the fracture gradient for the formation that you would not jeopardize fresh water sands above that formation?

A. Yes, sir, I think it is sufficient.

Q. All right, sir. Let's turn to Exhibit Number Ten. That was Ten; it's Eleven.

A. Ten and Eleven are the same.

MR. KELLAHIN: Mr. Examiner, the last exhibit is the notice letter required showing that the offset operators have been served with notice and that the surface owners for the locations involved are either Bogle Farms or Bureau of Land Management.

Q. Were Exhibits One through Ten prepared by you or compiled under your direction and supervision, Mr. Rhodes?

A. Yes, sir.

Q. And in your opinion will approval of this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, sir.

MR. KELLAHIN: We move the introduction of Exhibits One through Eleven. Eleven should be the tabulation of the offset notices.

A. I might mention that under the plugged and abandoned wells, there are at least one that's temporarily abandoned which is operated by us, but we do have plans for plugging. That would be the Unit Well No. 20-5. We have plans to drill another producing well nearby, and there is

another one, Well NO. 20-3 that is producing intermittently but we think we'll probably be plugging it pretty soon. And there is one other, the Stroup-Yates No. 1-A which is a twin more or less to a producing well in Section 5. We don't anticipate any problems. We're not sure it's plugged adequately but we don't see any problems; would it give any future problems we would at that time do something additional to it.

Q. Let me ask you this, Mr. Rhodes, about your locations. Have those locations been staked yet?

A. No, sir, they haven't been staked to my knowledge, so they're -- they are subject to minor changes to stay away from surface problems. We don't see any problem with any of the other wells in the area. They all are wells within the unit area which produce from deep depths.

There has been one well that I've heard that is a deep well, probably a Morrow well, it has pressure on the intermediate casing and they apparently, it's my understanding they probably didn't set it deep enough and they do have some pressure on the intermediate casing. That's all I know about it.

Q. Okay, thank you, Mr. Rhodes.

MR. STAMETS: The exhibits will be admitted.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Rhodes, I'd like to refer to Exhibit Five, which are the diagrams of the P&A'd wells.

A. Yes, sir.

Q. We've already talked about the first well, there being some question about its status which you intend to clear up.

The second well you show two cement plugs in that well but I don't have a depth on those or an amount.

A. This is the Texas American Oil Corporation Metex No. 4?

Q. Right.

A. There's one at 750-800 feet and one from 2095 to2540 feet, apparently.

Q. Okay, those are the plugs. We go on to the next well, the Yates-Penroc Federal No. 1, I don't find any information there on casing, cement, plugs, depths.

A. That one we -- all we could find is it was temporarily abandoned. It had a welded cap at the surface and we haven't -- didn't find any additional records. That kind of escaped me there. We will try to find, do some more research and try to find records and see if it is plugged

properly, and if not, attempt to do something about it.

Is that a twin, do you remember? It is in Section 6. Okay, that one is over there in the southwest of the northwest of Section 6. That was all we -- oh, the TD on that one is 1215 feet, according to our records. That was all --

Q. That's the Penroc-Yates No. 1?

A. Yes, sir, and that was all we found. We can do some more checking and maybe we can find something additional. I don't know whether it's because of the shallow depth, maybe they didn't do anything else, or whether it just didn't show up in the records that we found. I don't know for sure.

Q. Okay. About two pages further there is the Ballard-Grayburg-San Andres Unit 5-11.

A. Yes, sir.

Q. Now, if I understand this correctly you believe that all of the injection intervals are behind the 5-1/2 inch casing?

A. Yes, sir, I believe they are.

Q. And there's a good plug up at the 5-1/2 top stub.

All right, and then you said the 20-5 is a well you're going to plug and abandon shortly.

A. Yes, sir.

Q. And the 20-3 will be returned to production or plugged.

A. Yes, sir.

Q. Now what about the Jeffers -- or No. 1 Jeffers Well, which should be the next one?

A. This was one that we first couldn't find any information on and yesterday, I believe it was, we found some additional information as to how it was plugged, and so indicated on this schematic. It turns out it was the No. 1 Jeffers. We had originally submitted all this as the No. 4 Jeffers and they didn't have any records available.

Under status on the schematic I have no records available but I should have marked that out. We did find some records yesterday.

Q. Okay. That plug that is at 2450, is that above any injection zones?

A. Let me check here. 2450. I think it would probably be above or right at the top. It would be dependent, you know, on after we logged it and where the uppermost sand that we would want to inject in would be, and the uppermost sand could be up in the neighborhood of 2450 or slightly above.

I think it would probably, probably be

adequate, though.

If we injected anything into that area above it, it couldn't be much above it, I wouldn't think, although I can't be sure until after the well's are -- the new wells are logged, without referring back to the log of the injection well close to that one, I couldn't say for sure whether the plug is above the top of the injection zone there or not.

Q. Several pages on there is the Unit Well 15-3.

A. Okay.

Q. That shows a 10-sack plug at 2445. Is a 10-sack plug adequate to do any good at that depth?

A. Well, we're not really sure but we don't anticipate problems because it's a twin to a producing well so that in the area of that interval the 15-3 -- although the producing well is producing from the San Andres.

I don't think there would be any problems, though. If it did develop some problems we'd certainly want to do something about it.

Q. Did you mention the Stroup-Yates No. 1-A being a potential problem well? It's the next to last well in the packet.

A. That one is one that has a plug up high, 760, and then had some cement down at 2555. The interval does have 7-inch casing down to 2340. It -- lack of any plugs be-

tween those two is questionable, although we don't think we'll have any problem unless in there, there should be some sort of casing leak. Again, it's in Section 5, it is kind of a twin to a producing well, too, which in the injection interval the producer should be taking pressure off the producing formation there, to some extent.

Q. And I believe you did mention the last well as a potential problem.

A. Yes, sir, the Depco Dunn No. 1, it could be a potential problem, especially if we get a hole in the casing.

Q. I believe this project has been active for some period of time, is that correct?

A. Yes, sir, that's correct.

Q. First water injection in 1974?

A. I believe the first injection started either -- it was around the last of '73, the first of '74, I don't recall the exact date.

Q. Is the injection pretty much throughout the project or has it been limited to one area or another?

A. Well, it's been pretty much throughout the entire project except to the southwest side and our intent is to expand the flood off to that area. The reservoir doesn't appear to be quite as good a quality off to the southwest but

we still feel like we can recover a significant amount of reserves, and part of these injection wells are infill injection wells, which will with the patterns, it will go down to smaller spacing, hopefully improve our flood efficiency.

Q. That area, I presume, has been inspected by the Artesia District Office in part of its annual injection inspection program?

A. I don't know. Our field people would be talking to the Commission Office about that kind of things, but I don't --

Q. I can determine that from our District Office, and see how well that area has passed muster so far.

What's the current injection pressure on wells in this project?

A. We -- of the -- of all the injectors injecting into the Grayburg formation, for March our average pressure was 1315 pounds; an average rate for a Grayburg injector is 184 barrels of water per day. We have a range of from 900 to 1900 pounds for the Grayburg injectors.

Q. If your injection pressure was limited to 1300 pounds with the option to go higher upon a demonstration that frac pressure would not be exceeded, would that be an acceptable amount for Anadarko at the present time?

A. Well, it would, you know, we would defi-

nitely have to cut back on some of the injectors. There are three Grayburg injectors --

MR. KELLAHIN: Excuse me, I'm not sure he understood the question. It's a limitation on the new injector wells.

A. Right.

MR. KELLAHIN: At 1315 psi.

MR. STAMETS: 1300 until there was a step rate test or some sort of test on that individual well which would show that that well's frac pressure was higher than 1300 pounds.

A. Well, we might be able to live with 1300 pounds initially but as we put more water in the ground it's probably going to take more pressure to get water in.

We're not real sure what the step rate test might tell us because it's a multi-layered reservoir with these different sands and the water might first go in one and as you get the higher pressures, then it might go in another zone, so we -- we don't feel that step rate tests, at least after we've been putting water in the ground for a long time, we don't feel that we can interpret them to tell us a whole lot.

Q. My favorite question is you'd rather have that than a denial of the application, I presume?

A. Yes, sir, that's correct.

Q. All right. I hate to ask that one but oftentimes it does put things in perspective.

I like to know where everybody's priorities are.

MR. STAMETS: Are there any other questions of this witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

CERTIFICATE

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that 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.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7552 heard by me on 5-12 19 82

Richard L. Stamets, Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

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

June 14, 1982

Re: CASE NO. 7572
ORDER NO. R-7000

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Applicant:

Anadarko Production Company

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

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. 7572
Order No. R-7000

APPLICATION OF ANADARKO PRODUCTION
COMPANY FOR A WATERFLOOD EXPANSION,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 12, 1982, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 11th day of June, 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, Anadarko Production Company, seeks authority to expand its Ballard GSA Unit Waterflood project by the completion for injection or conversion to water injection of ten wells located in Unit N of Section 5, Units N and P of Section 6, Units F, H, J, and P of Section 7, Units F and N of Section 8, and Unit F of Section 17, all in Township 18 South, Range 29 East, Loco Hills Pool, Eddy County, New Mexico.

(3) That the proposed waterflood expansion should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(4) That the proposed expansion provides for additional injection offsetting five wells which may not be completed or plugged in such a manner as to confine the injected fluids in the waterflood interval.

(5) The five wells are identified as the Dunn Well No. 1 and No. 1X in Unit P and Dunn C Well No. 2 in Unit O in Section 7 and Unit Wells 20-3 in Unit D and 20-5 in Unit E of Section

17, all in Township 18 South, Range 29 East, NMPM, Eddy County, New Mexico.

(6) That the applicant should consult with the supervisor of the Division's district office at Artesia to develop an acceptable plan for repairing or replugging such wells or for monitoring for determination of fluid movement from the injected interval in order to protect neighboring properties and to protect other oil or gas zones or fresh water.

(7) That the operator should otherwise 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 from injection, production or plugged and abandoned wells.

(8) That the injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 1550 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(9) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Anadarko Production Company, is hereby authorized to expand its Ballard GSA Unit Waterflood Project by the completion for injection or conversion to water injection of ten wells in Township 18 South, Range 29 East, NMPM, Loco Hills Pool, Eddy County, New Mexico as set out below:

WELL NO.	APPROXIMATE LOCATION	SECTION
23-4	330' FSL & 1980' FWL	5
6-17	660' FSL & 3300' FEL	6
6-18	660' FSL & 660' FEL	6
1-7	2310' FNL & 1600' FWL	7
3-1	1980' FNL & 660' FEL	7
4-1	330' FSL & 990' FEL	7
19-3	1650' FSL & 2310' FEL	7
14-7	400' FSL & 2000' FWL	8
15-8	2310' FNL & 1980' FWL	8
16-1	2310' FNL & 1980' FWL	17

(2) That injection into each of said wells shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) That the operator shall, prior to injection into nearby wells, consult with the district supervisor of the Division's district office at Artesia to develop an acceptable plan for repairing, replugging, and/or monitoring for out-of-zone fluid movement for the five wells identified in Finding No. (5) of this order.

(5) That the injection wells herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 1550 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(6) That the subject waterflood project is hereby and shall continue to be governed by the provisions of Rules 701 through 708 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.

S E

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY,
Director

Docket No. 13-82

Dockets Nos. 14-82 and 15-82 are tentatively set for May 26 and June 9, 1982. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 12, 1982

9 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM, STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

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

ALLOWABLE: (1) Consideration of the allowable production of gas for June, 1982, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for June, 1982, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 7540: (Continued and Readvertised)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Pauly-Anderson-Fritchard, William H. Pauly, and all other interested parties to appear and show cause why the Maloy Well No. 1, located in Unit P, Section 16, Township 29 North, Range 11 West, San Juan County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 7538: (Continued and Readvertised)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Francis L. Harvey and all other interested parties to appear and show cause why the Pinkstaff Estate Well No. 2, located in Unit A, Section 29, Township 29 North, Range 10 West, San Juan County, should not be re-entered and plugged and abandoned in accordance with a Division-approved plugging program.

CASE 7566: In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Flag-Redfern Oil Co., Principal, National Surety Corporation, and all other interested parties to appear and show cause why four wells, being the Julander No. 1 located in Unit L, Section 34; Julander No. 2 located in Unit I, Section 33; Hargis No. 1 located in Unit G, Section 33; and Hargis No. 2 located in Unit J, Section 33, all in Township 30 North, Range 12 West, San Juan County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 7560: (Continued from April 28, 1982, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Charles H. Heisen, Fidelity and Deposit Company of Maryland, Surety, and all other interested parties to appear and show cause why the Crownpoint Well No. 1, located in Unit F, Section 18, Township 18 North, Range 13 West, McKinley County, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 7542: (Continued from April 14, 1982, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Benson-Montin-Greer Drilling Corporation, Hartford Accident and Indemnity Company, and all other interested parties to appear and show cause why the following wells: Dustin No. 1, located in Unit K, Section 6, and the Gallegos Canyon Unit No. 2, located in Unit K, Section 35, both in Township 29 North, Range 12 West, and the Segal No. 1, located in Unit K, Section 10, and the Price No. 1, located in Unit N, Section 15, both in Township 31 North, Range 13 West, San Juan County, should not be plugged and abandoned in accordance with Division-approved plugging programs.

CASE 7567: Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Richardson Unit Area, comprising 1,283.35 acres, more or less, of State and Fee lands in Townships 13 and 14 South, Range 36 East.

CASE 7565: (Continued from April 28, 1982, Examiner Hearing)

Application of Delta Drilling Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the North Mescalero Unit Area, comprising 719.77 acres, more or less, of State, Fee and Federal lands in Townships 9 and 10 South, Range 32 East.

CASE 7568: Application of Petroleum Corp. of Delaware for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Superior Federal Well No. 6 located in Unit N of Section 6, Township 20 South, Range 29 East, East Burton Flat Field, to produce oil from the Strawn formation through tubing and gas from the Morrow formation through the casing-tubing annulus by means of a cross-over assembly.

CASE 7569: Application of Petroleum Corp. of Delaware for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Atoka and Morrow production in the wellbores of its Parkway West Unit Well No. 3, located in Unit K of Section 29, and Well No. 10, located in Unit G of Section 27, both in Township 19 South, Range 29 East.

CASE 7570: Application of J. Cleo Thompson for three unorthodox oil well locations, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for three unorthodox well locations, being 660 feet from the North line and 1330 feet from the West line, 660 feet from the North line and 2630 feet from the East line, and 660 feet from the North line and 1310 feet from the East line, all in Section 2, Township 17 South, Range 30 East, Square Lake Pool.

CASE 7516: (Continued from March 31, 1982, Examiner Hearing)

Application of Benson-Montin-Greer for a unit agreement, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for the North Canada Ojitos Unit Area, comprising 12,361 acres, more or less, of Jicarilla Apache Indian lands in Township 27 North, Range 1 West.

CASE 7571: Application of Yates Petroleum Corporation for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface through the Abo formation underlying the SE/4 of Section 9, the SW/4 of Section 10, the NW/4 of Section 15, all in Township 6 South, Range 26 East, each to form a standard 160-acre spacing and proration unit 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 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 7551: (Continued from April 14, 1982, Examiner Hearing)

Application of Harvey E. Yates Company for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp through Mississippian formations underlying the E/2 of Section 21, Township 11 South, Range 31 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.

CASE 7572: Application of Anadarko Production Company for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Ballard SSA Waterflood Project by drilling and converting ten wells located in Unit N of Section 5, Units N and P of Section 6, Units F, H, J, and P of Section 7, Units F and N of Section 8, and Unit F of Section 17, all in Township 18 South, Range 29 East, Loco Hills Pool.

CASE 7573: Application of Anadarko Production Company for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its West Square Lake Waterflood Project by the conversion to water injection of five wells located in Units J and N of Section 9, D and H of Section 10, and J of Section 3, all in Township 17 South, Range 30 East.

CASE 7574: Application of Sun Exploration and Production Company for two non-standard gas proration units and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of two 160-acre non-standard Jalmat gas proration units comprising the NW/4 of Section 21, for its Boren & Greer Com Well No. 2 in Unit C and the NE/4 of Section 20, for its Boren & Greer Com Well No. 3, to be drilled at an unorthodox location 660 feet from the North line and 940 feet from the East line of said Section 20, all in Township 22 South, Range 36 East. Applicant further seeks rescission of Order No. R-5686.

CASE 7575: Application of Eagle Oil & Gas Co. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox gas well location for a Wolfcamp-Penn test well to be drilled 1500 feet from the South line and 660 feet from the East line of Section 2, Township 17 South, Range 27 East, the S/2 of said Section 2 to be dedicated to the well.

CASES 7576 and 7577: Application of Apollo Oil Company for compulsory pooling, Lea County, New Mexico. Applicant, in each of the following cases, seeks an order pooling all mineral interests from the surface through the base of the San Andres formation underlying the lands specified in each case, each to form a standard 40-acre oil spacing and proration unit 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 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 7576: NE/4 SW/4 Section 6, Township 19 South, Range 38 East

CASE 7577: SE/4 SW/4 Section 6, Township 19 South, Range 38 East

CASE 7578: Application of MGF Oil Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface down through the Seven Rivers formation underlying the SE/4 of Section 31, Township 19 South, Range 39 East, to form a standard 160-acre gas proration unit 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 7579: Application of MGF Oil Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface down through the Seven Rivers formation underlying the N/2 NW/4 of Section 5, Township 20 South, Range 39 East, to form a non-standard 80-acre gas proration unit 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 7580: Application of MGF Oil Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Seven Rivers formation underlying the SW/4 of Section 31, Township 19 South, Range 39 East, to form a standard 160-acre gas proration unit 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 7581: Application of Estoril Producing Corp. for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 660 feet from the South line and 990 feet from the East line of Section 10, Township 23 South, Range 34 East, Antelope Ridge-Morrow Gas Pool, the S/2 of said Section 10 to be dedicated to the well.

CASES 7582 thru 7585: Application of Jack J. Grynberg for compulsory pooling, Chaves County, New Mexico. Applicant, in each of the following 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 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 7582: NW/4 Section 13, Township 6 South, Range 24 East

CASE 7583: NE/4 Section 13, Township 6 South, Range 24 East

CASE 7584: SW/4 Section 13, Township 6 South, Range 24 East

CASE 7585: NW/4 Section 24, Township 6 South, Range 24 East

CASES 7525 thru 7534: (Continued from April 28, 1982, Examiner Hearing)

Application of Jack J. Grynberg for compulsory pooling, Chaves County, New Mexico. Applicant, in each of the following 10 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:

CASE 7525: SW/4 Section 3, Township 5 South, Range 24 East

CASE 7526: NW/4 Section 3, Township 5 South, Range 24 East

CASE 7527: SE/4 Section 3, Township 5 South, Range 24 East

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 7530: NW/4 Section 11, Township 6 South, Range 24 East

CASE 7531: SW/4 Section 11, Township 6 South, Range 24 East

CASE 7532: SE/4 Section 27, Township 6 South, Range 24 East

CASE 7533: SW/4 Section 27, Township 6 South, Range 24 East

CASE 7534: NW/4 Section 34, Township 6 South, Range 24 East

CASE 7515: (Continued from April 14, 1982, Examiner Hearing)

Application of Four Corners Gas Producers Association for designation of a tight formation, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Dakota formation underlying all or portions of Townships 26 and 27 North, Ranges 12 and 13 West, Township 28 North, Range 13 West, Township 29 North, Ranges 13 through 15 West, and Township 30 North, Ranges 14 and 15 West, containing 164,120 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.

CASE 7586: Application of Standard Resources Corp. for designation of a tight formation, Chaves and Eddy Counties, New Mexico. Applicant, in the above-styled cause, seeks the designation of the Abo formation underlying all or portions of Township 15 South, Ranges 23 through 25 East, Township 19 South, Range 20 East, and Township 20 South, Range 20 East, all in Chaves County; in Eddy County: Township 16 South, Ranges 23 through 26 East, Township 17 South, Ranges 21, 23, 24, and 25 East, and Township 18 South, Ranges 21, 23, 24 and 25 East, Township 19 South, Ranges 21, 23, and 24 East, and Township 20 South, Ranges 21, 23, and 24 East, containing 460,800 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.

CASE 7587: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, abolishing, and extending vertical and horizontal limits of certain pools in Chaves, Eddy, and Lea Counties, New Mexico:

(a) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Wolfcamp production and designated as the Draper Mill-Wolfcamp Gas Pool. The discovery well is the HNG Oil Company Vaca Draw 16 State Well No. 1 located in Unit E of Section 16, Township 25 South, Range 33 East, NMPM. Said pool would comprise:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM
Section 16: W/2

(b) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the Jabalina-Morrow Gas Pool. The discovery well is the Amoco Production Company Perro Grande Unit Well No. 1 located in Unit J of Section 6, Township 26 South, Range 35 East, NMPM. Said pool would comprise:

TOWNSHIP 26 SOUTH, RANGE 35 EAST, NMPM
Section 6: E/2

(c) ABOLISH the Diamond Mound-Morrow Gas Pool in Chaves and Eddy Counties, New Mexico, as heretofore classified, defined, and described as:

TOWNSHIP 15 SOUTH, RANGE 27 EAST, NMPM
Section 35: All

TOWNSHIP 15 SOUTH, RANGE 28 EAST, NMPM
Section 31: E/2

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 3: Lots 1 through 16
Section 4: Lots 1 through 16
Section 5: Lots 1 through 16
Section 6: Lots, 1, 2, 7, 8, 9, 10, 15, 16, and S/2

(d) EXTEND the vertical limits of the Diamond Mound-Atoka Gas Pool in Chaves and Eddy Counties, New Mexico, to include the Morrow formation, and redesignate said pool to Diamond Mound-Atoka-Morrow Gas Pool, and extend the horizontal limits of said pool to include acreage from abolished Diamond Mound-Morrow Gas Pool and one additional well as follows:

TOWNSHIP 15 SOUTH, RANGE 27 EAST, NMPM
Section 35: All

TOWNSHIP 15 SOUTH, RANGE 28 EAST, NMPM
Section 31: E/2

TOWNSHIP 16 SOUTH, RANGE 27 EAST, NMPM
Section 9: S/2

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 3: Lots 1 through 16
Section 4: Lots 1 through 16
Section 5: Lots 1 through 16
Section 6: Lots 1, 2, 7, 8, 9, 10, 15, 16, and S/2

(e) EXTEND the Burton Flat-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 35: E/2
Section 36: N/2

(f) EXTEND the Crow Flats-Morrow Gas Pool in Eddy County, New Mexico to include therein:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 1: All
Section 12: N/2

(g) EXTEND the South Culebra Bluff-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 28 EAST, NMPM
Section 10: All
Section 11: W/2
Section 14: W/2
Section 15: W/2
Section 34: W/2

(h) EXTEND the South Empire-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM
Section 17: N/2

(i) EXTEND the Golden Lane-Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 30 EAST, NMPM
Section 28: All

(j) EXTEND the Kennedy Farms-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 26 EAST, NMPM
Section 10: N/2

(k) EXTEND the East LaRica-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
Section 36: S/2

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 31: S/2

(l) EXTEND the Little Box Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 22 EAST, NMPM
Section 18: E/2

(m) EXTEND the Malaga-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 28 EAST, NMPM
Section 11: E/2

(n) EXTEND the South Millman-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 16: N/2

(o) EXTEND the East Millman-Queen-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 7: NE/4

(p) EXTEND the Millman Strawn Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 8: S/2

(q) EXTEND the West Nadine-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 38 EAST, NMPM
Section 5: SW/4

(r) EXTEND the West Osudo-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 35 EAST, NMPM
Section 11: S/2
Section 12: S/2

(s) EXTEND the Pecos Slope-Abo Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 4 SOUTH, RANGE 24 EAST, NMPM

Section 24: S/2
Section 25: All
Section 26: E/2
Section 35: W/2 and NE/4
Section 36: N/2

TOWNSHIP 4 SOUTH, RANGE 25 EAST, NMPM
Section 19: SW/4
Section 30: W/2
Section 31: NW/4

TOWNSHIP 5 SOUTH, RANGE 24 EAST, NMPM
Section 2: NW/4
Section 7: All
Section 8: All
Section 9: N/2 and SW/4
Section 16: W/2
Section 17 thru 20: All
Section 21: W/2
Section 28: W/2
Section 29: All
Section 30: All
Section 31: N/2
Section 32: N/2
Section 33: NW/4

TOWNSHIP 5 SOUTH, RANGE 25 EAST, NMPM
Section 1 thru 5: All
Section 6: E/2
Section 7: SW/4 and E/2
Section 8 thru 12: All
Section 14 thru 22: All
Section 23: N/2
Section 27: N/2
Section 28 thru 30: All
Section 31: NE/4
Section 32: N/2
Section 33: All
Section 34: All

TOWNSHIP 6 SOUTH, RANGE 24 EAST, NMPM
Section 2: All
Section 11 thru 14: All
Section 22 thru 28: All
Section 34: E/2
Section 35: All
Section 36: All

TOWNSHIP 6 SOUTH, RANGE 26 EAST, NMPM
Section 4 thru 6: All
Section 7 thru 8: All
Section 9: N/2
Section 17 thru 20: All
Section 29 thru 32: All

TOWNSHIP 7 SOUTH, RANGE 24 EAST, NMPM
Section 1: All
Section 2: All
Section 3: E/2
Section 9 thru 15: All
Section 22 thru 27: All
Section 34 thru 36: All

TOWNSHIP 7 SOUTH, RANGE 25 EAST, NMPM
Section 6: W/2
Section 7: S/2
Section 13: SW/4
Section 14: S/2
Section 15: S/2
Section 18 and 19: All
Section 20: S/2
Section 22 thru 27: All
Section 29 thru 32: All
Section 34 thru 36: All

TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM
Section 5: All
Section 6: All
Section 7 thru 10: All
Section 11: W/2
Section 15 thru 17: All
Section 18: N/2
Section 19 thru 22: All
Section 28 thru 32: All

TOWNSHIP 8 SOUTH, RANGE 24 EAST, NMPM
Section 1 through 3: All
Section 10: E/2
Section 11: All
Section 12: All

TOWNSHIP 8 SOUTH, RANGE 25 EAST, NMPM
Section 1 through 12: All
Section 13 through 16: N/2

TOWNSHIP 8 SOUTH, RANGE 26 EAST, NMPM
Section 6: W/2

(t) EXTEND the West Pecos Slope-Abo Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 22 EAST, NMPM
Section 23: SE/4
Section 24: S/2 and NE/4
Section 25 through 27: All
Section 28: E/2

TOWNSHIP 8 SOUTH, RANGE 23 EAST, NMPM
Section 3 through 5: All
Section 6: N/2
Section 8 through 10: N/2
Section 17: W/2
Section 18: SE/4
Section 19: All
Section 20: W/2
Section 29: W/2
Section 30: All
Section 31: All
Section 32: W/2

TOWNSHIP 9 SOUTH, RANGE 23 EAST, NMPM
Section 3: W/2
Section 4: All
Section 5: All
Section 6: E/2
Section 8: All

(u) EXTEND the East Red Lake-Queen-Grayburg Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 28 EAST, NMPM
Section 25: E/2 NE/4 and NE/4 SE/4

(v) EXTEND the Sand Ranch-Morrow Gas Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 29 EAST, NMPM
Section 26: All

(w) EXTEND the Sawyer-San Andres Associated Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 10 SOUTH, RANGE 38 EAST, NMPM
Section 4: SW/4

(x) EXTEND the Tom-Tom-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 31 EAST, NMPM
Section 7: All

(y) EXTEND the Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 7: W/2
Section 7: N/2

(z) EXTEND the Twin Lakes-San Andres Associated Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM
Section 18: N/2 SE/4 and SE/4 SE/4

(aa) EXTEND the South Vacuum-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM
Section 16: SE/4

****

Docket No. 14-82

DOCKET: COMMISSION HEARING - MONDAY - MAY 17, 1982

OIL CONSERVATION COMMISSION - 9 A.M.
ROOM 205 - STATE LAND OFFICE BUILDING,
SANTA FE, NEW MEXICO.

CASE 7522: (DE NOVO)

Application of Santa Fe Exploration Co. for an unorthodox gas well location, Eddy County, New Mexico Applicant, in the above-styled cause, seeks approval of an unorthodox location 660 feet from the North and West lines of Section 14, Township 20 South, Range 25 East, Permo-Penn, Strawn, Atoka and Morrow formations, the N/2 of said Section 14 to be dedicated to the well.

Upon application of Chama Petroleum Company, this case will be heard De Novo pursuant to the provisions of Rule 1220.

Docket 14-82

CASE 7476: (DE NOVO)

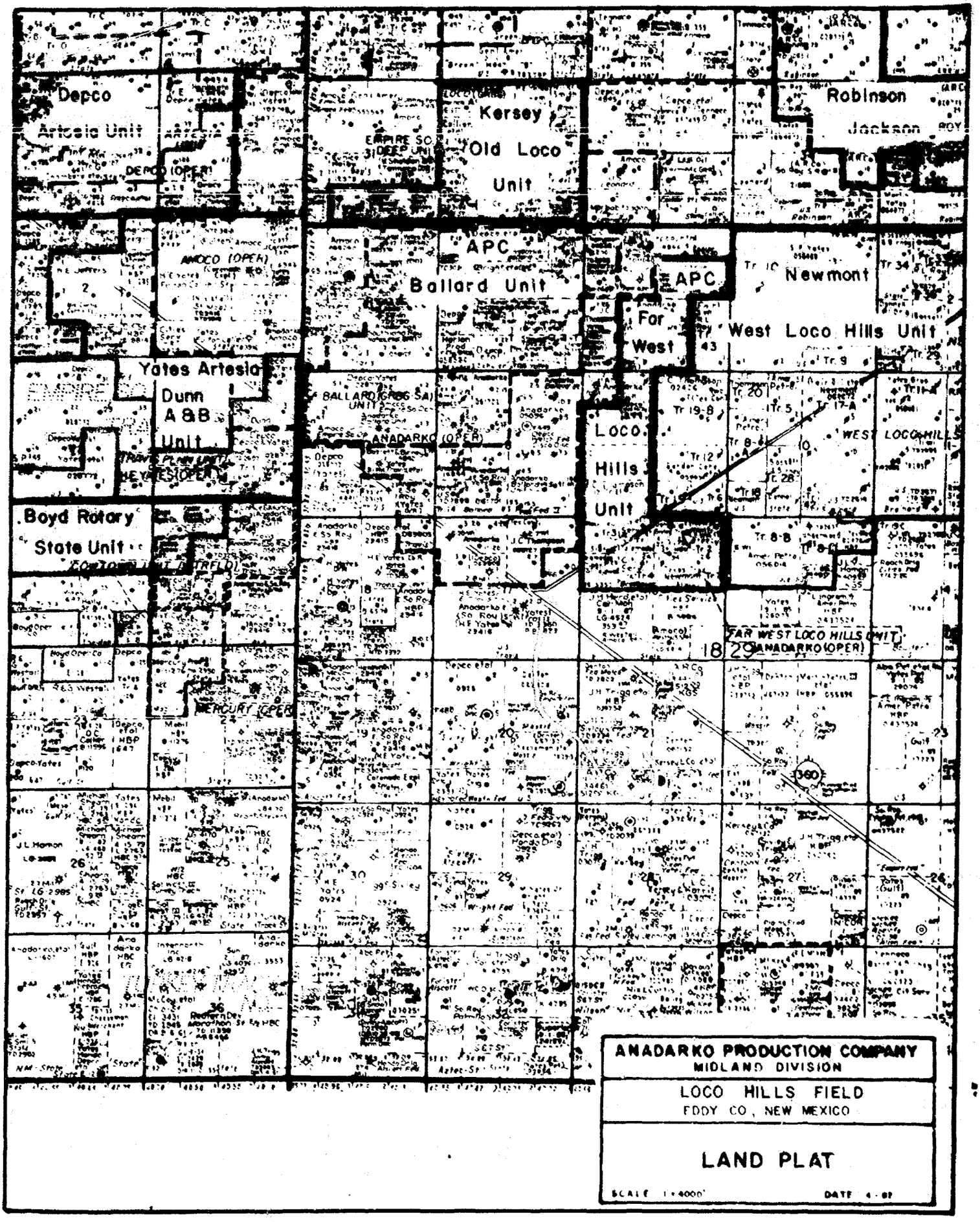
Application of Jack J. Grynberg for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests down through and including the Abo formation, underlying two 160-acre gas spacing units, being the NE/4 and SE/4, respectively, of Section 12, Township 5 South, Range 24 East, each 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.

Upon application of Mesa Petroleum Company, this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 7513: (DE NOVO)

Application of Mesa Petroleum Company for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Abo formation underlying the SE/4 of Section 12, Township 5 South, Range 24 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.

Upon application of Mesa Petroleum Company, this case will be heard De Novo pursuant to the provisions of Rule 1220.



W.N.M.C.F. MICROGRAPHICS

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 1
CASE NO. 7572
Submitted by
Hearing Date

W.N.M.C.F. MICROGRAPHICS

ANADARKO PRODUCTION COMPANY
BALLARD GSA UNIT - ADDITIONAL WATER INJECTION WELLS
DATA ON PROPOSED OPERATION

1. Proposed injection rates:
   a) Average daily rate - 250 BWPD/well
   b) Maximum daily rate - 400 BWPD/well
   c) Total monthly volume - approximately 12,000 BW/well

2. Whether the system is open or closed: closed

3. Proposed injection pressures:
   a) Average pressure - 1400 p.s.i.g.
   b) Maximum pressure - 1500 p.s.i.g.*
   *(see attached tabulation of I.S.I.P's on 1981 fracture treatments and treatment reports)

4. Type of injection fluid: The fluid will be a mixture of produced water from the Ballard GSA Unit and fresh water from the City of Carlsbad (see attached analyses and compatibility test).

GEOLOGICAL DATA

1. Geologic name of injection zone: water injection will be in the Grayburg formation, primarily in the Metex and Premier sands.

2. Lithologic detail of injection zone: the Metex and Premier sands are gray, fine to medium grain, calcareous sandstones interbedded with dense dolomites and anhydrites.

3. Thickness of injection zone:
   a) Average thickness - approximately 225 ft.
   b) Range of thickness - approximately 220 ft. to 240 ft.

4. Depth to injection zone:
   a) Average depth - approximately 2520 ft.
   b) Range of depth - approximately 2450 - 2590 ft.

5. Geologic name and depth to bottom of all underground sources of drinking water (TDS of 10,000 mg/l or less) overlying or immediately under injection zone: Triassic sands from 0 - 150 ft., Rustler from 150-200 ft. Sampled fresh water well is of unknown depth but analysis indicates it probably from the Rustler.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Anadarko EXHIBIT NO. 3
CASE NO. 7572
Submitted by
Hearing Date

W.N.M.C.F. MICROGRAPHICS

Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
um Co. #1 s	Unit L, Sec 5-18S-29E, 2310 FSL & 990 FWL	Oil Producer	7/23/43	9/14/43	2700	-	-	-NA-
od. Co. #23-3 Unit	Unit L, Sec 5-18S-29E, 1900' FSL & 890' FWL	Wtr Injection	2/20/74,	4/6/74	2750	-	Metex Premier	Perfs: 2493-98,2500-07,21-25,34-37, 2620-23,63-78,82-88. Plastic Csg: 8-5/8" @ 353' w/150 sks., 4-1 @ 2750' w/250 sks, 2-3/8" tbg w/Johnston 101-S tension pkr
od. Co. #24-3 Unit	Unit K, Sec 5-18S-29E, 2180' FSL & 2255' FWL	Oil Producer	12/13/77	3/11/78	2810	2796	Metex Premier	Perfs: 2492-95,2506-12,16-22,34-40,4 2630-36,40-43,55-59,68-72,82-8 90-2700,04-12. Csg: 8-5/8" @ 373' w/150 sks., 4-1 @ 2810' w/400 sks., 2-3/8" tbg
can Oil #4	Unit K, Sec 5,18S,29E 1980 FSL & 1980 FWL	P&A	12/16/39	5/15/40	2590	Surface	Grayburg	P&A: 2540-2095,cmt, .750-800 cmt, 8" 10-3/4 150' rec.
mpire So.	Unit K, Sec 5,18S,29E 1980 FSL & 2120 FWL	Gas Well	11/5/76	2/1/77	11,165	11,130	Morrow	Perfs: 10,642-656,730-750,888-900 Csg: 13-3/8" - 425 400 sks 9-5/8 - 2900 2275 sks 5-1/2 - 11,165 2225 sks
. #3	Unit J, Sec. 5-18S-29E 1980 FSL & 1980 FEL	Oil Producer Scout Ticket	Respud 4/8/64	Recomplete 4/17/64	2781	-	Grayburg San Andres	OH 2371-2781 7" @ 2371 w/100 sks.
od. Co. #25-1 Unit	Unit J, Sec 5, 18S, 29E 1980' FSL & 1780' FEL	Wtr Injection	3/1/74	4/12/74	2800	2795	Metex Premier	Perfs: 2550-62,92-95,2624-27,31-34,26 2712-18,30-45,53-60. Csg: 8-5/8" @ 359' w/150 sks, 4-1/2 @ 2786' w/250 sks, 2-3/8" tbg w/Johnston 101 S tension pkr. @ 2523'.
rod. Co. #25-1 A Unit	Unit M, Sec 5-18S-29E 660' FSL & 660' FWL	Oil Producer	5/28/39	7/15/39	2735	-	Premier	OH 2515-2735 Csg: 8-5/8" @ 417' w/50 sks, 7" @ 2 w/100 sks.
rod. Co. #23-2 A Unit	Unit N, Sec 5-18S-29E 990' FSL & 2310' FWL	Oil Producer	12/21/43	2/20/44	3101	3067	Grayburg San Andres	Perfs: 2450-80,2656-60,2672-76,2502-0 2616-22. Csg: 8-5/8" @ 326' w/50 sks, 7" @ 2 w/100 sks, 5-1/2" liner, 2212' 2861' w/50 sks.
rod. Co. #24-5 A Unit	Unit O, Sec 5-18S-29E 450' FSL & 2100' FEL	Oil Producer	2/24/81	3/31/81	2800	2784	Metex Premier	Perfs: 2490-2504,2516-22,31-36,63-70, 84,2600-07; 2631-37,42-47,50-50,70-73,76-8 90-95,2700-08. Csg: 8-5/8" @364 w/250 sks, 4½ @ 27

mber	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
. Co. #24-2 nit	Unit P, Sec 5-18S-29E 660' FSL & 990' FEL	Oil Producer	12/1/77	3/3/78	2850'	2799'	Metex Premier	Perfs: 2511-14,26-32,36-42,55-59,70-73 2658-62,69-72,85-88,99-2702,12-1 20-30,44-48,52-56 Csg: 8-5/8" @ 381' w/150 sks, 7" @105 w/400 sks., 5-1/2" @ 1787'.
ates	Unit P, Sec5-18S-29E	P&A	5/17/40	7/17/40	2594	Surface	-	8-5/8 @ 450' w/50 sx 7" @ 2340 w/100 sxs Shot 2565-2585 (Completion) P&A as follows: 20 sxs @ 2555' 10 sxs @ 760', cmt 320'-295' Mud to Surface.
	Unit E, Sec 6-18S-29E 2310 FNL & 653 FWL	T&A	10/31/70 Respud	12/15/70 Recomplete	1215	Surface	-	8-5/8 @ 420 w/ 50 sks Welded cap @ surface.
own	Unit G, Sec 6-18S-28E 2310 FNL & 1650 FEL	T&A 4-27-64	3/13/64	4/27/64	3984	-	-	NA
nit #11-1 Company	Unit H, Sec 6-18S-29E 2310' FNL & 330' FEL	Oil Producer	11/20/39	1/13/40	2695	2674		Perfs: OH 2460-2695 Metex & Premier Csg: 8-5/8" @ 358' w/50 sks., 7" @ 2352' w/100 sks.
Deep	Unit K, Sec 6-18S-29E 1980 FSL & 1900 FWL	Gas Well	3/29/72	6/8/72	10,992	10,946	Morrow	Perfs: 10,874-10,890 Csg: 12-3/4 @ 318 w/ 300 sks. 8-5/8 @ 4500 w/350 sks 4-1/2 @ 10,992 w/800 sks.
nit #6-3 . Company	Unit J, Sec 6-18S-29E 1980' FSL & 2080' FEL	Wtr Injection	8/20/76	11/8/76	2750	-	Metex Premier	Perfs: 2466-70,78-82,94-98,2503-08,20-2 32-38,40-44,64-68. 2603-10,13-20,34-38,49-52,58-66 Plastic lined. Csg: 8-5/8" @ 373' w/150 sks, 4-1/2 @ 2750' w/250 sks, 2-3/8" plast lined tbg w/Guiberson Uni-one pkr @ 2381'.
nit #6-2 Co.	Unit I, Sec 6-18S-29E 2310' FSL & 990' FEL	Oil Producer	7/12/40	9/15/40	3157	2723	Grayburg	OH 2645-2675 Csg: 8-5/8", @ 380' w/50 sks, 7" @ 2400' w/100 sks.
it #6-17 ction Co.	Unit N, Sec 6-18S-29E 660' FSL & 3300' FEL	Oil Producer	7/1/62	8/26/62	4637	3625	Metex Premier	Perfs: 2454-58,2481-85,2490-94,2504-10 2519-23; 2583-86,2600-04,06-12, 2618-22,46-56. Csg: 7" @ 452' w/75 sks, 4½" @ 3638 w/200 sks.

Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
A Unit #6-7 rod. Co.	Unit O, Sec 6-18S-29E 660' FSL & 1980' FEL	Oil Producer	9/28/51	1/19/52	3522'	3462'	-	Perfs: 2446-54,58-61,71-75,83-86,9 2502,12-16,40-46,75-79,92-9 2604-10. 2636-46, 50-58 Csg: 8-5/8" @463'w/50 sks; 5-1/2 w/178 sks.
A Unit #6-1 rod. Co.	Unit P, Sec 6-18S-29E 660' FSL & 330' FEL	Oil Producer	1/6/39	4/15/39	2651	2640	Grayburg	Perfs: OH 2400-2575 Csg: 8-5/8" @ 358' w/50 sks, 7" w/100 sks.
unn "A"	Unit A, Sec 12-18S-28E	Oil	2/6/79	2/27/79	2850	2845	Premier Lovington	Perfs: 2656-64 2821-31 Csg: 10-3/4 @ 547 w/575 sks 7" @ 2850 w/1050 sks
unn "A"	Unit H, Sec 12-18S-28E	Oil	10/28/57	12/4/57	2846	-	Grayburg Lovington	Perfs: 2640-54,2660-65,2818-30, 25 & 2600. Csg: 8-5/8 @ 530 w/75 sks 4-1/2 @ 2847 w/200.
Dunn "B"	Unit I, Sec 12,18S,28E	WIW	2/20/58	3/24/58	2867	2730	Penrose Grayburg Lovington	Csg: 8-5/8 @ 422 w/75 sks. 4-1/2 @ 2867 w/200. 2-3/8 pl w/4-1/2 Johnston I tension pkr @ 2512 Perfs: 2185-2205, 2621-25,2613-19 2652-77, 2833-48.
Prod. Co SA Unit #1-6	Unit D, Sec 7,18S,29E 990' FNL 7 330' FWL	WIW	6/17/67 Converted to inj 6/25/ 76	6/30/67	2719	2696	Metex Premier	Perfs: 2438-42,74-78,95-98,2508-1 2590-94,2600-04,13-17,46-5 Plastic lined. Csg: 8-5/8" @ 509' w/125 sks., @ 2719 w/330 sks; 3-3/8" t Guiberson Uni-one pkr @ 23
Prod. Co. SA Unit #1-5	Unit C, Sec 7,18S,29E 660' FNL & 1655' FWL	Oil	5/17/64	6/25/64	2666	2652	Grayburg	Perfs: OA 2463-2624 (9 shots) Csg: 8-5/8" @ 472' w/75 sks, 4- @ 2666' w/150 sks.
Prod. Co. SA Unit #2-3	Unit B, Sec 7,18S,29E 660' FNL & 1980' FEL	WIW	10/24/64 Converted to inject. 6/16/76	11/20/64	2668	2665	Metex Premier	Perfs: 2418-22, 54-60,74-80,88-92 2569,71,78-82,95-99,2610-2 Plastic lined. Csg: 8-5/8" @ 375' w/75 sks, 4- @ 2688' w/150 sks, 2-3/8" w/Guiberson Uni-one pkr.
Prod Co. GSA Unit #2-1	Unit A, Sec 7,18S,29E 660' FNL & 660' FEL	Oil	9/1/43	9/27/43	2733'	-	Grayburg	Perfs: 2414-2733 (OH) Csg: 8-5/8" @ 371' w/50 sks, 7" 2465' w/100 sks.

, Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
Prod Co. GSA Unit #1-4	Unit E, Sec 7,18S,29 E 1810' FNL & 500' FWL	Oil	1/22/64	3/6/64	2878	2876	Metex Premier San Andres	Perfs: 2452-56,90-96,2522-26 2604-10,14-18,28-34-43-47, 2828-34 Csg: 8-5/8" @ 452' w/75 sks, 4- @ 2878' w/200 sks.
ire So Deep Unit	Unit G, Sec 7,18S,29E	Gas	9/22/77	11/18/77	11085	-	Morrow	Csg: 13-3/8 @ 390 w/450 sks. 9-5/8 @ 2955 w/1200 sks. 5-1/2 @ 11085 w/2100 sks. Perfs: 10,918-36.
Prod Co. GSA Unit #3-1	Unit H, Sec7,18S,29E 1980' FNL & 660' FEL	Oil Producer	11/2/78	12/11/78	3100	3091	Metex Premier San Andres	Perfs: 2415 -18,45-48,56-61,70-74 2588-90, 2609-12,14-18,20- 36, 40-43, 2556-61, 2570-7 Csg: 8-5/8" @ 353 w/250 sks 4-1 3100 W/500 sks.
l Travis, et al	Unit J, Sec 7,18S,29E	Gas	12/15/77	2/21/78	11,210	11,161	Morrow	Csg: 12-3/4 @ 416 w/425 8-5/8 @ 2900 w/300 5-1/2 @ 11,193 w/875 Perfs: 10,901-10,914
Prod Co. GSA Unit #19-1	Unit I, Sec 7,18S,29E 2310' FSL & 330' FEL	Oil	8/1/42	9/26/42	3070	3067	Metex Premier	Perfs: 2435-39,51-55,69-75 2542-46,62-68,79-85,2601-0 Csg: 8-5/8" @ 315' w/50 sks, 7" w/100 sks, 5-1/2" @ 2835'
2 Dunn "C"	Unit O, Sec 7,18S,29E	P&A	1/14/44	2/7/44	3595	Surface	-	Csg: 8-1/2 @ 315 w/50 sks P&A No record
l Dunn	Unit P, Sec 7, 18S, 29E	P&A	5/7/42	6/30/42	2450	Surface	-	Rec 750' 7" Csg: 8-5/8 @ 310 w/30 7" @ 2257 w/100 P&A: 25 sks @ 2450 10 sks @ 750 10 sks @ 305 10 Sks @ surface
1-X Dunn	Unit P, Sec 7,18S,29E	P&A	3/7/60	3/16/60	3339	Surface	-	7" @ 324 w/20 sks, 4-1/2 @ 2898 w Rec 1900' 4-1/2; plugged as follo 100' cmt, 2300-2400; 100' cmt, 18 1950, 730-830, 275-375; 30 ' @ su

me, Number r	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construc
erican Oil Corp. rd "B"	Unit D, Sec 8,18S,29E 660 FNL & 660 FWL	P&A (1953)	6/6/39	9/5/39	3017	Surface	Grayburg	OH Completion P&A: No Record
Prod Co. GSA Unit #15-2	Unit C, Sec 8,18S,29E 660' FNL & 1980' FWL	Oil Producer	11/18/43	1/19/44	3065	3060	Grayburg	Perfs: 2474-82,2506-14,70-74,266 OH 2900-81, OH 2990-30,60 Csg: 8-5/8" @ 368' w/50 sks, 7 w/100 sks. 5-1/2 2250-2858.
Prod Co. GSA Unit #5-6	Unit B, Sec 8,18S,29E 990' FNL & 2310' FEL	WIW	10/12/55	12/9/55	3058	-	Metex Premier Jackson	Perfs: 2453-60,63-68,81-84,92-99, 89-92,97-99,2604-08,15-21, 2662-70 2943-46,55-58,77-85,88-30 OH 3033-58. Csg: 8-5/8" @ 345' w/50 sks, 5- 3034' w/180 sks, 2-3/8 pl lined tbg w/Guiberson Uni- @ 3040.
ko Prod Co. d GSA Unit #5-12	Unit B, Sec 8,18S,20E 330' FNL & 1650' FEL	Oil	11/8/61	2/1/62	3008	2730	Metex Premier	Perfs: 2489-95,2514-20,34-38 2602-06,28-34,42-45,2666- 2702-08 Csg: 8-5/8 @ 340 w/50 sks, 5-1/ @ 2762 w/125 sks.
ko Prod. Co. d GSA Unit #5-15	Unit A, Sec 8,18S,29E 960' FNL & 1130' FEL	Oil	4/26/81	8/20/81	2850	2814	Metex Premier	Perfs: 2492-2507,2508-25,35-40,68 2605-11,2625-28,34-37 2655-58,71-87,2704-12 Csg: 8-5/8" @ 378 w/250 sks, 4- 2847 w/1350 sks.
ko Prod. Co. d GSA Unit #5-10	Unit A, Sec 8,18S,29E 990' FNL & 990' FEL	WIW	7/15/56	9/11/56	3130	-	Jackson Lovington	Perfs: 2950-66-70-80, OH 2992-31 2830-40 sq cmt'd Csg: 8-5/8" @ 380' w/50 sks. 7" @ 2992' w/175 sks. 2-3/8" Plastic lined w/Gu Uni one pkr @ 2855' PL.
#15 Empire So. nit	Unit E, Sec 8,18S,29E	Gas	8/8/77	11/2/77	10,997	-	Morrow	Csg: 13-3/8 @ 426 w/400 sks, 9 2872 w/1250 sks, 5-1/2 @ w/200 sks (10,824-80 perf

, Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
Prod Co. #15-3 SA Unit	Unit E, Sec 8,18S,29E 1650' FNL & 990' FWL	P&A	3/7/43	10/19/43	2728	Surface	-	Rec 180' 8-5/8" 1000' 7" Csg: 8-5/8" @ 346' w/50 sks, 7" w/100 sks. P&A: 10 sks @ 2445', 10 sks @ 1 10 sks @ 180, 10 sks @ sur
Prod Co. SA Unit #15-5	Unit E, 8,18S,29E 1750' FNL & 990' FWL	Oil	8/31/49	11/3/49	3028	-	Jackson Grayburg	Csg: 8-5/8 @ 351 w/50 sks 7" @ 2873 w/100 sks Perfs: 2648-56, 20-30, 2570-78, 5 2485-89. 2472-75,54-60, 44-
Prod. Co. SA Unit #15-7	Unit E, Sec 8,18S,29E 2150' FNL & 840 FWL	Oil	6/15/81	8/7/81	2775	2762	Metex Premier	Perfs: 2450-52, 56-62, 72-78, 88- 2518-20, 22-26, 36-40, 54- 2572-77, 98-2608, 16-20, 2 50-54 Csg: 8-/58" @ 363' w/300 sks, 5 @ 2774 w/650 sks.
Prod. Co. SA Unit 15-4	Unit F, Sec 8,18S,29E 1650' FNL & 2310' FWL	Oil	3/4/44	5/16/44	3075	3041	Jackson	Perfs: OH 2903-3047 Csg: 8-5/8" @ 361' w/50 sks, 7" w/100 sks, 5-1/2" liner @ 2850 w/225 sks.
Prod. Co. SA Unit #15-6	Unit F, Sec 8,18S,29E 1980' FNL & 1980' FWL	Oil	4/1/75	7/16/75	3089	-	Grayburg	Perfs: 2454-58,65-68,81-84,92-98, 66,80-86,2624-28,32-40,58- 2975,2988,2995, 3004,3037 Csg: 8-5/8" @ 343' w/150 sks, 4 @ 3089' w/400 sks.
Prod. Co. SA Unit #5-5	Unit G, Sec 8,18S,29E 2310 FNL & 2290 FEL	Oil	4/22/49	9/7/49	3050	3034	Metex Premier Jackson	Perfs: 2458-62,2468-74,80-88,2498 2566-72,88-92,2600-06,16-2 70-80; OH 2882-3034 Csg: 8-5/8" @ 355' w/50 sks, 7" 2882' w/100 sks.
Welch Fed.	Unit G, Sec 8,18S,29E	Oil	10/6/77	1/7/78	11,150	9156	Cisco	Csg: 13-3/8 409-1430 sks w/430 8-5/8 290 w/1300 sks 5-1/2 9909 w/500 sks Perfs 9120-35 Cover on depth

me, Number r	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
o Prod. Co. GSA Unit #5-9	Unit H, Sec 8, 18S, 29E 1980' FNL & 990' FEL	Oil	3/17/56	6/2/56	3054	-	Metex Premier	Perfs: 2546-50,28-36,11-15,2490- 2698-2708,2674-82,66-72,4 30-34,18-22,2596-2602. Csg: 8-5/8" @360' w/60 sks, 5-1/2" @ 3054' w/150 sks.
o Prod Co. GSA Unit #21-1	Unit L, Sec 8,18S,29E 2310 FSL & 990' FWL	WIW	7/21/43 Converted to injection	8/26/43 12/28/73	3040	-	Jackson	Perfs: OH 2887-3040 Csg: 8-5/8" @ 345' w/50 sks, 7 2302' w/100 sks, 5-1/2" w/35 sks. 2-3/8 w/ Johnston 101 S T PL @ 2774
o Prod Co. GSA Unit #21-2	Unit L, Sec 8,18S,29E 1980' FSL & 660 FWL	WIW	8/4/76	11/26/76	2712	-	Metex Premier	Perfs: 2409-15,50-60,73-78,84-9 2534-38,51-55;2570-74,78- 2594-2602,2614-28,37-44. Csg: 8-5/8" @363' w/150 sks, 4 @ 2712' w/250 sks, 2-3/8" tbg W/Johnston 101 S tens @ 2315'
o Prod. Co. GSA Unit #14-4	Unit K, Sec 8,18S,29E 1980' FSL & 1980 FWL	Oil	5/5/50	9/6/50	3305	3116		Perfs: 2410-18,50-60,75-79,89-95 2556-62,76-82,2605-09,20- Csg: 8-5/8" @ 335' w/50 sks, 5 @ 2872 w/100 sks.
o Prod. Co. d GSA Unit #14-1	Unit K, Sec 8, 18S,29E 2310 FSL & 2310 FWL	P&A	11/27/40 (P&A in 1974)	1/30/41	2660'	Surface	Grayburg	Perfs: OH 2360-2660 Csg: 8-5/8" @ 330' w/50 sks, 7 2360' w/100 sks. P&A rec 460' of 7" csg 650 sk cmt ret + 70 sks @ 482, 1 @ surf.
o Prod. Co. d GSA Unit #5-2	Unit J, Sec 8,18S,29E 2310 FSL & 2310 FEL	P&A	2/24/41. (P&A in 1956)	6/10/41	2770	Surface	-	Perfs: OH 2628-2674 Csg: 8-5/8" @ 375' w/50 sks; 7 w/100 sks. P&A: rec 220' of 8-5/8" csg, r of 7" csg, 50 sks @ 2360' @ 800', 10 sks @ 240', 10 Surface.
o Prod. Co. #5-8 d GSA Unit	Unit J, Sec 8,18S,29E 2310' FSL & 1980' FEL	WIW	3/12/56	5/8/56	3044	-	Jackson	Perfs: 3003-3025 (perfs) 8-5/8-368' 50 sks Csg: 4-1/2 @ 2994 w/125 sks G uni I @ 2970 Plastic line

Name, Number tor	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Constru
larko Prod. Co. ard GSA Unit #5-4	1650' FSL & 2310' FEL Unit J, Sec 8,18S,29E	WIW	2/5/49	4/13/49	3050	-	Metex Premier	Perfs: 2438-42,85-89,2503-07. 90,2606-10 2654-58, 60-64 Csg: 8-5/8" @ 380' w/50 sks 2776' w/100 sks. 2-3/8 w/Guiberson Uni-one pk
larko Prod Co. ard GSA Unit #5-7	Unit I, Sec 8,18S,29E 2310' FSL & 990' FEL	Oil Producer	1/2/56	3/8/56	2860	2850	Metex Premier Loving-ton	Perfs: 2494-2500,2504-08,21-2 2629-34,43-47,58-68,8 2710-18, 2605-25; 2795 Csg: 8-5/8 @ 334' w/50 sks, @ 2860 w/70 sks.
larko Prod. Co. ard GSA Unit #14-6	660' FSL & 660' FWL Unit M, Sec 8,18S,29E	Oil	5/30/81	6/24/81	2778	2723	Metex Premier	Perfs: 2407-12,50-54,56-60,85 2518-25,37-41,54-57,72 2601-08,18-22,24-32,35 Csg: 8-5/8 @ 377 w/300 sks, 2775 w/725 sks.
larko Prod Co. ard GSA Unit #14-3	Unit M, Sec 8,18S,29E 990' FSL & 990' FWL	WIW	5/22/41	7/18/41	3045	-	Grayburg San Andres	Perfs: 2444-66; 2610-54 Csg: 8-5/8" @ 330' w/50 sks w/220 sks, 5-1/2" @ 29 sks; 2-3/8" PL tbg w/J tension pkr@ 2811'.
larko Prod Co. ard GSA Unit #14-5	Unit N, Sec 8,18S,29E 990' FSL & 1650' FWL	Oil	6/26/53	8/25/53	3056	3053	Grayburg San Andres	Perfs: OH OA 2460-3053 Csg: 8-5/8" @ 330' w/50 sks, 2426' w/100 sks.
larko Prod. Co. ard GSA Unit #14-2	Unit N, Sec 8,18S,29E 990' FSL & 2310' FWL	Oil	3/26/41	5/14/41	3087	-	Grayburg	Perfs: 2416-20,27-33,72-80,92 2596-2600,2608-14,18-2 57, 60-64,74-86. Csg: 8-5/8" @350 w/50 sks, w/100 sks, 5-1/2" @ 29
larko Prod. Co. ard GSA Unit #5-3	Unit O, Sec 8,18S,29E 330' FSL & 2310' FEL	WIW	6/30/41	9/26/41	3045	3040	Grayburg San Andres	Perfs: OH 2863-3040 Csg: 8-5/8 @ 360' w/50 sks, w/100 sks, 5-1/2" liner 2578' w/230 sks, 2-3/8' w/Johnston 101-S tensi 2850'.
arko Prod. Co. ard GSA Unit #5-16	Unit O, Sec 8,18S,29E 400' FSL & 2130 FEL	Oil	6/7/81	8/24/81	2830	2816	Metex Premier	Perfs: 2502-08,34-38,66-76,26 22-28;2646-50,58-62,78 2716-23. Csg: 8-5/8" @ 346 w/250 sks

ame, Number or	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Constru
rko Prod. Co. rd GSA Unit #5-14	Unit P, Sec 8,18S,29E 990' FSL & 1310' FEL	Oil	10/20/78	12/16/78	3100	3091	Metex Premier	Perfs: 2494-96,2504-09,36-44, 85-94,2701,17-21,26-29 Csg: 8-5/8" @ 396' w/250 sks @ 3095' w/500 sxs.
rko Prod. Co. rd GSA Unit #5-1	Unit P, Sec 8,18S,29E 660' FSL & 660' FEL	P&A	1/17/40 (P&A IN 1957)	4/1/40	3148	Surface	Grayburg	Perfs: 2403-24 2625-40 Csg: 8-5/8" @ 366' w/50 sks, w/100 sks. P&A: rec 18' of 8-5/8" csg; of 7" csg; 30 sks @ 240 @ 2270'; 10 sks @ surf
rko Prod. Co. rd GSA Unit #5-11	Unit P, Sec 8,18S,29E 990' FSL & 990' FEL	P&A	1/1/57 (P&A in 1959)	5/14/57	3056	Surface	Grayburg San Andres	Perfs: OH 2780-86 Csg: 8-5/8" @ 400' w/100 sks @ 2768' w/100 sks.
rko Prod. Co. rd GSA Unit #12-2	Unit D, 8,18S,29E 990' FNL & 990' FWL	WIW	10/25/52	3/13/53	3086	-	Metex Premier	Perfs: 2453-55,63-65,79-81,92- 2554-58,76-89,2618-32,4 Baker Lok set @ 2686 Model B tension pkr @ Model BF flow Regulator Csg: 8-5/8" @365' w/50 sks; 2695' w/100 sks; 2-3/8" w/ Baker Pkr & reg. fo
rko Prod. Co. rd GSA Unit #20-3	Unit D, Sec 17,18S,29E 330' FNL & 990' FWL	TA	7/21/41	9/1/41	3254	3241	Grayburg	Perfs: OA 2765-2800 Csg: 8-5/8" @ 320' w/50 sks; w/100 sks; 5-1/2" @ 28
rko Prod. Co. rd GSA Unit #20-6	Unit D, Sec 18,18S,29E 760 FNL 7 560 FWL	WIW	9/2/76	11/8/76	2700'	-	Metex Premier	Perfs: 2398-2404,36-39,45-52, 2553-57,74-78,84-88,94- 16, 20-30,44-55 Plastic Csg: 8-5/8" @ 379' w/150 sks @ 2700' w/250 sks; 2-3 W/Guiberson Uni-one pk
rko Prod. Co. rd GSA Unit #20-11	Unit C, Sec 17,18S,29E 990' FNL & 1650' FWL	Oil	8/4/58	9/15/58	3052	2950	Metex Premier Grayburg San Andres	Perfs: 2490-94,2505-09,40-44, 2594-2600;2608-12,28-3 2410-14-21-25-68-76,26 Csg: 8-5/8" @ 362 w/50 sks; 3052' w/200 sks.
rko Prod Co. rd GSA Unit # 20-4	Unit C, Sec 17, 18S, 29E 330' FNL & 1980' FWL	Oil	10/8/41	11/14/41	3068	3018	Grayburg Jackson	Perfs: OA 2225-3018 Csg: 8-5/8" @ 331' w/50 sks w/150 sks; 4-1/2" line

Name, Number Operator	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Record of Completion: Zone(s)	Record of Completion: Perf(s) and Well Construction
Parko Prod. Co. Ward GSA Unit #7-3	Unit B, Sec 17, 18S,29E 660' FNL & 1980' FEL	WIW	8/26/76	11/8/76	2770	-	Metex Premier	Perfs: 2454-57,66-70,2506-20,36[illegible] 84-90; 2640-44,48-52,73-[illegible] 94-2704-09-14,30-40 Csg: 8-5/8" @ 386' w/150 sks, @ 2770 w/250 sks, 2-3/8" Guiberson Uni-one pkr @
Parko Prod. Co. Ward GSA Unit #7-1	330' FNL & 1650' FEL Unit B, Sec 17, 18S, 29E	Oil	7/17/39	8/31/39	3090	3047	Premier Metex	Perfs: OH 2500-2585 OH 2630-2740 Csg: 8-1/4" @ 335' w/50 sks; w/100 sks.
Parko Prod. Co. Ward GSA Unit #20-5	Unit E, Sec 17,18S,29E 1650' FNL & 990' FWL	TA	12/17/41	2/1/42	2657	-	Metex Premier	Perfs: 2415-2485 2537-2657 Csg: 8-5/8" @ 308' w/50 sks; w/100 sks.
Parko Prod. Co. Ward GSA Unit #7-2	Unit G, Sec 17,18S,29E 1800' FNL & 1650' FEL	Oil	9/25/39	11/13/39	2807	2803	Grayburg	Perfs: OH 2396-2803 Csg: 8-1/4" @ 335' W/50 sks; w/100 sks.
Parko Prod. Co. Travis "D" Fed #18	Unit H, Sec 17,18S,29E	Oil	1/23/79	2/24/79	2885	2878	Metex Premier	Perfs: 2526,27,69,70,71,72,90, 38,39,40 2755-57,64-66,78-80 Csg: 8-5/8 @ 376 w/275 4-1/2 @ 2884 - 1450
Parko Prod. Co. Travis "D" Fed. #12	Unit J, Sec 17,18S,29E	Oil	7/13/61	8/4/61	3360	2823	Loco Hills	Perfs: 2428-31,2493-98,2537-42 2554-58,2566-70 Csg: 8-5/8@ 419 w/75 sx 4-1/2 @ 2823 w/230 sx.
Amey E. Yates Co. #1 Travis	Unit F, Sec 17,18S,29E	Gas	12/7/79	2/2/80	11,300	-	Morrow	Perfs: 10,978-10,988 Csg: 13-3/8 @ 372 w/375 sx. 8-5/8 @ 2900 w/ 900 sx. 5-1/2 @ 11,300 w/675 sx
Amey E. Yates Co. #2 Travis "17"	Unit J, Sec 17,18S,29E	Gas	3/19/80	5/2/80	11,200	11,132	Morrow	Perf: 11,052-11,072 Csg: 13-3/8 @ 350 w/370 sx. 8-5/8 @ 3000 w/1100 sx 5-1/2 @ 11,200 w/655 sx

Name, Number Star	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Constru
rd GSA Unit #16A-1 rko Production Co.	Unit A, Sec 18,18S,29E 330' FNL & 330' FEL	Oil	11/18/43	1/6/44	3111	2750	Grayburg	Perfs: OH 2470-2520 Csg: 8-5/8" @ 351' w/50 sks w/100 sks.
y E. Yates Co. #4 s Deep Unit	Unit H, Sec. 18,18S,29E	Gas	10/8/78	12/14/78	11,155	11,072	Morrow	Csg: 13-3/4 @ 400 w/475 sx. 8-5/8 @ 2910 w/500 sx. 4-1/2 @ 11,113 w/890 sx Perfs: 10,915-10,928
y E. Yates Co. #1 s	Unit G, Sec 18,18S,29E	Gas	1/9/77	3/22/77	11,375	11,335	Morrow	Perfs: 10,844-10,851 12-3/4 @ 364 w/425 sx. Csg: 8-5/8 @ 3500 w/300 sx 4-1/2 @ 11,375 w/950 sx

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION

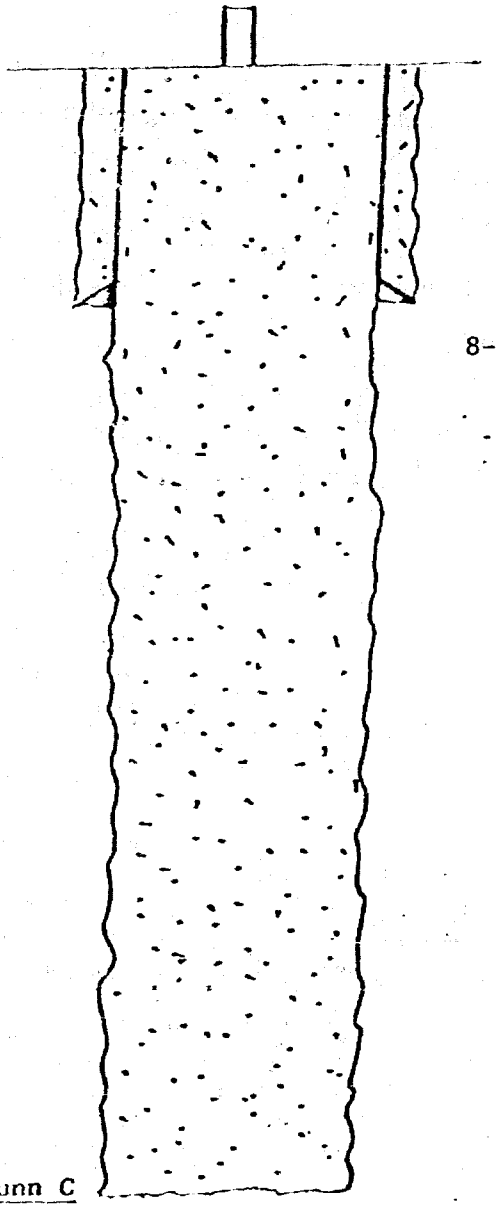
Amoco EXHIBIT NO. 4

CASE NO. 7572

Submitted by

Hearing Date

W.N.M.O.C.C. MICROGRAPHICS



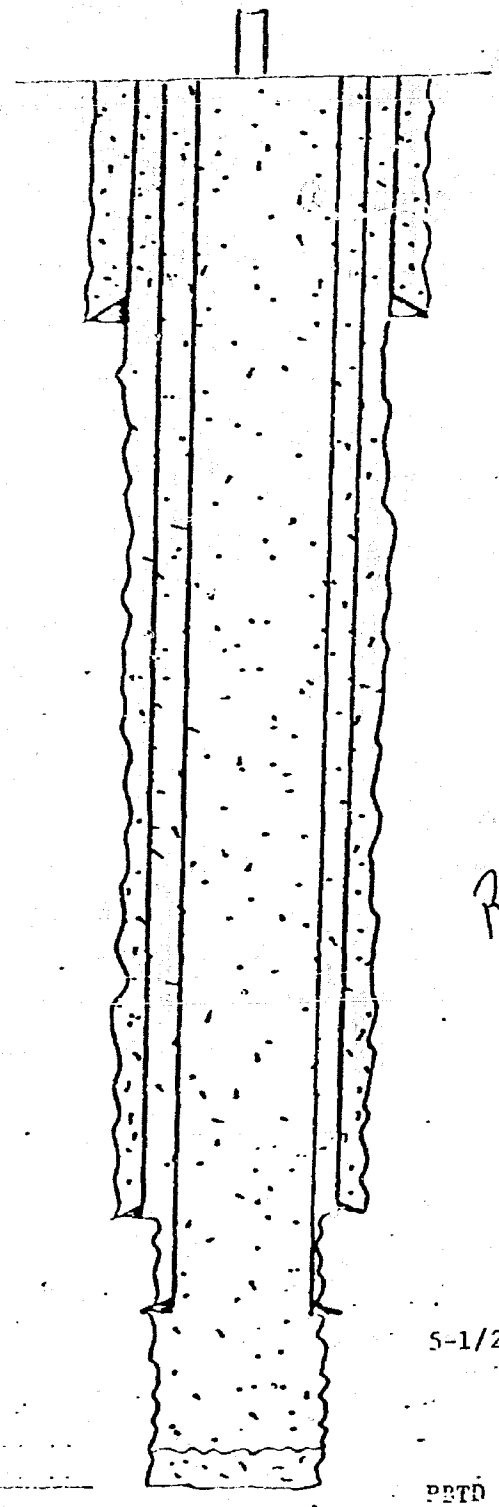
8-5/8 @ 315 w/50 sks

Well Name & No. Depco #2 Dunn C
County Eddy State NM
Location sec. 7-18S-29E
660 FSL & 1980 FEL or 1650
Status: Dry & Abandoned

ID 2708
No Records
on File

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 5
CASE NO. 7572
Submitted by:
Hearing Date:

17



8-5/8 @ 320 w/50 sks

7" @ 2215 w/100 sks

5-1/2 @ 2858 w/50 sks

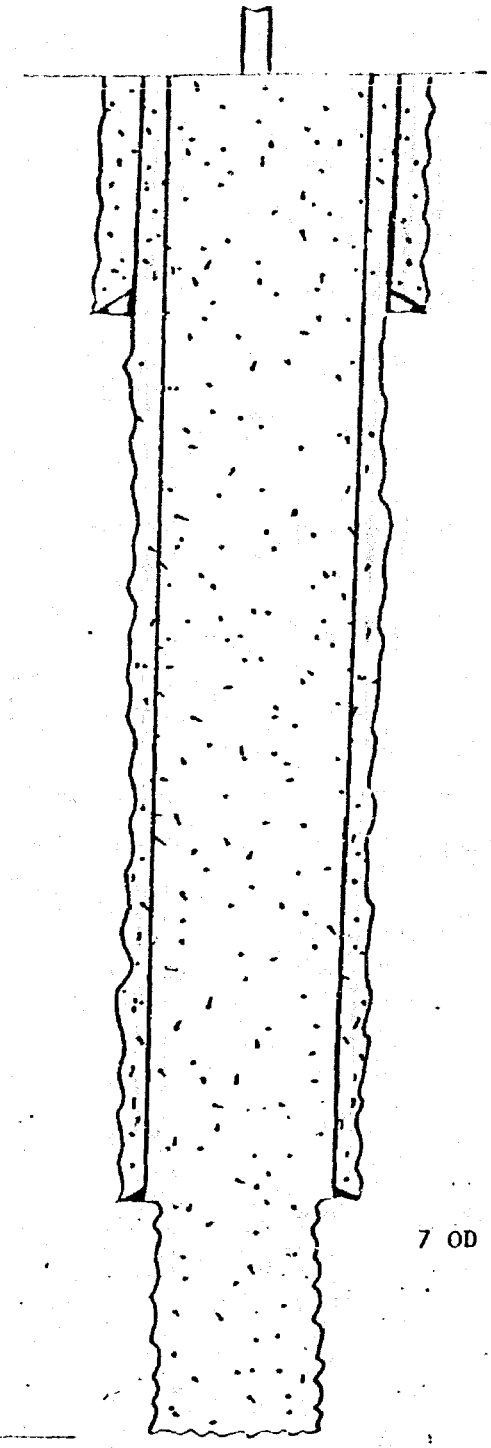
Return to Prod. or P&A

Well Name & No. BGSAU 20-3
County Eddy State NM
Location sec 17-18S-29E
330 FNL & 990 FWL
Status: TA effective 4/1/80

PBTD 3241

TD 3284

8-5/8 OD @ 308 w/50 sks



7 OD @ 2200 w/100 sks

TD 2657

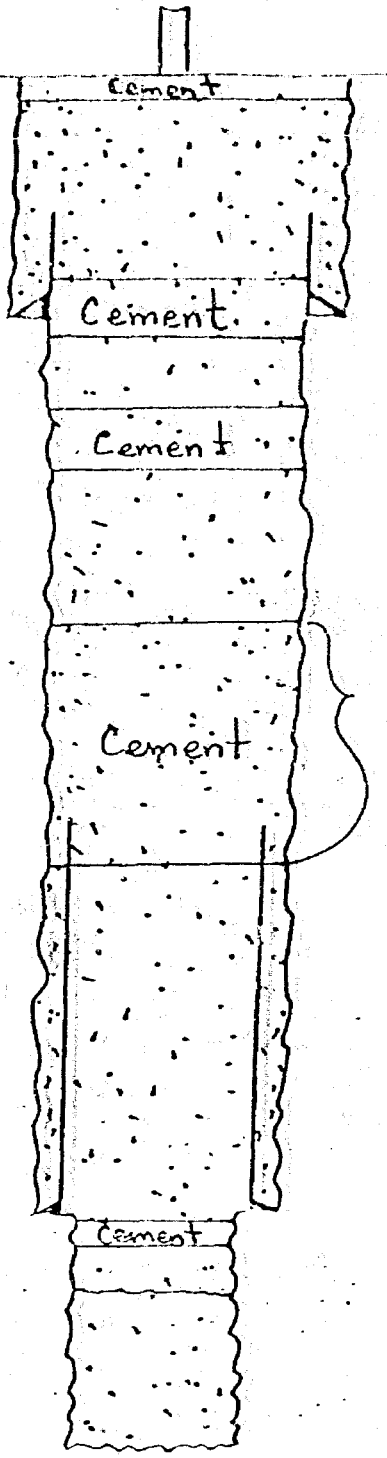
Well Name & No. BGSAU 20-5
County Eddy State NM
Location Sec 17-18S-29E
1650 FNL & 990 FWL
Status: TA effective 9/12/80

10 sks @ surface

Cmt Plug: 450-350

Cmt Plug: 850-750

Cmt Plug: 2100-1350



8-5/8" @ 400' w/100 sks

Rec 2050' - 5½"

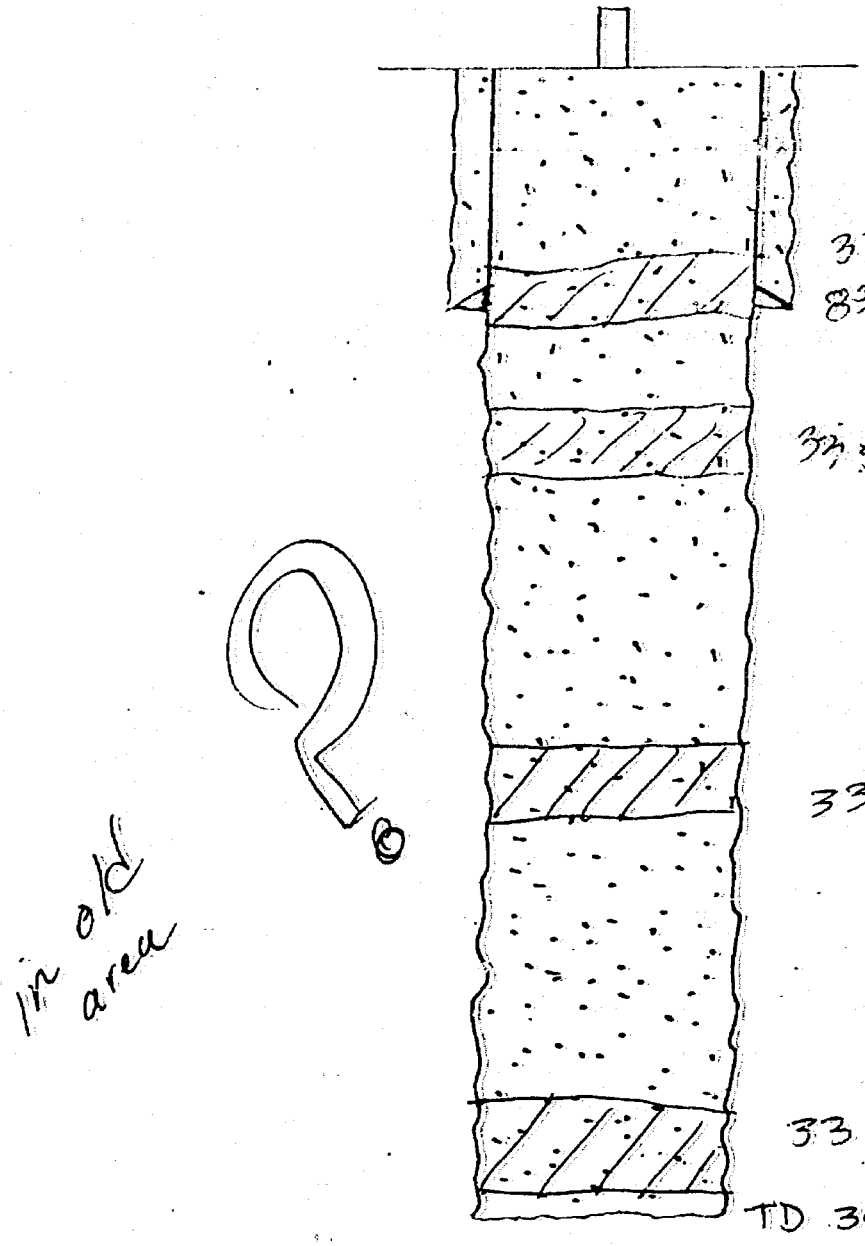
5½" @ 2768 w/100 sks

10 sks @ 2775

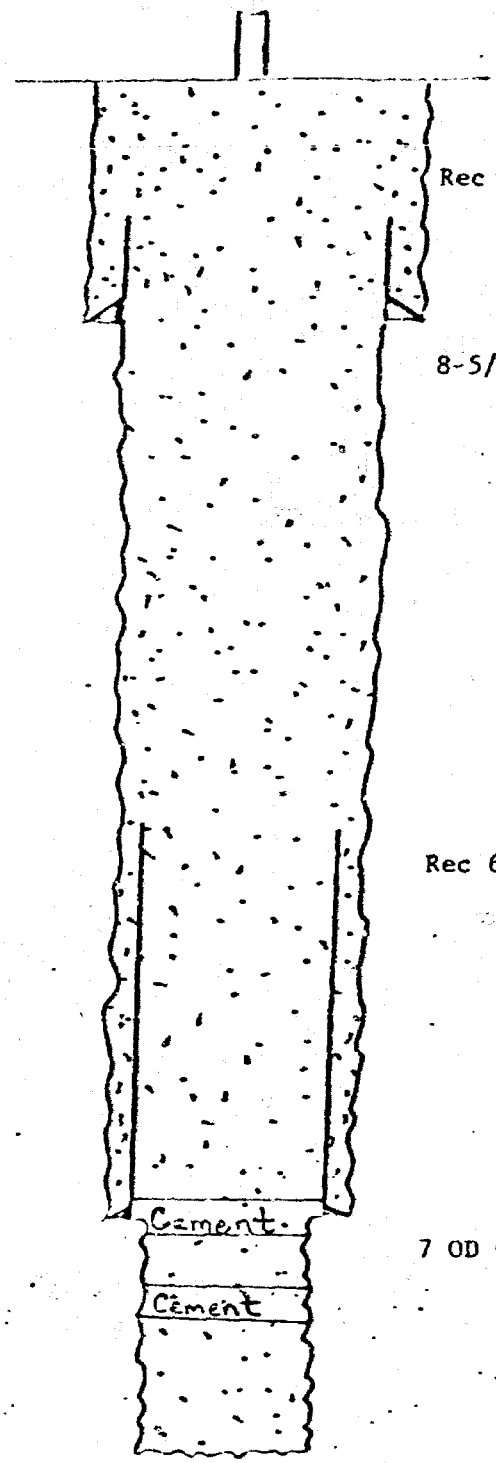
PBTD 2810

TD 3056

Well Name and No. Ballard GSAU 5-11
County Eddy State NM
Location Sec 8-18S-29E



Well Name & No. #1 Jeffers
County Eddy State NM
Location sec 6-18S-29E 2310 FNL & 1650 FEL
Status: P&A ~~No records available~~



Old area

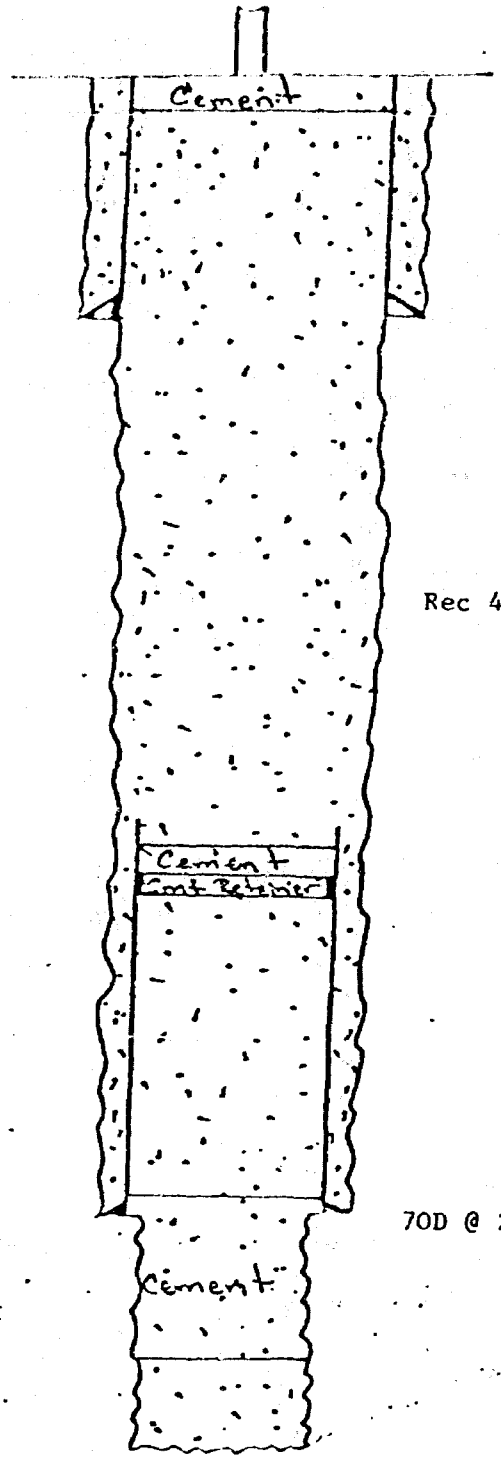
10 sks @ 2270

30 sks @ 2400

Well Name & No. BGSAU 5-1
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
660 FNL & 660 FEL

10 sks @ surface

8-5/8 OD @ 330 w/50 sks



Rec 469' - 7" csg

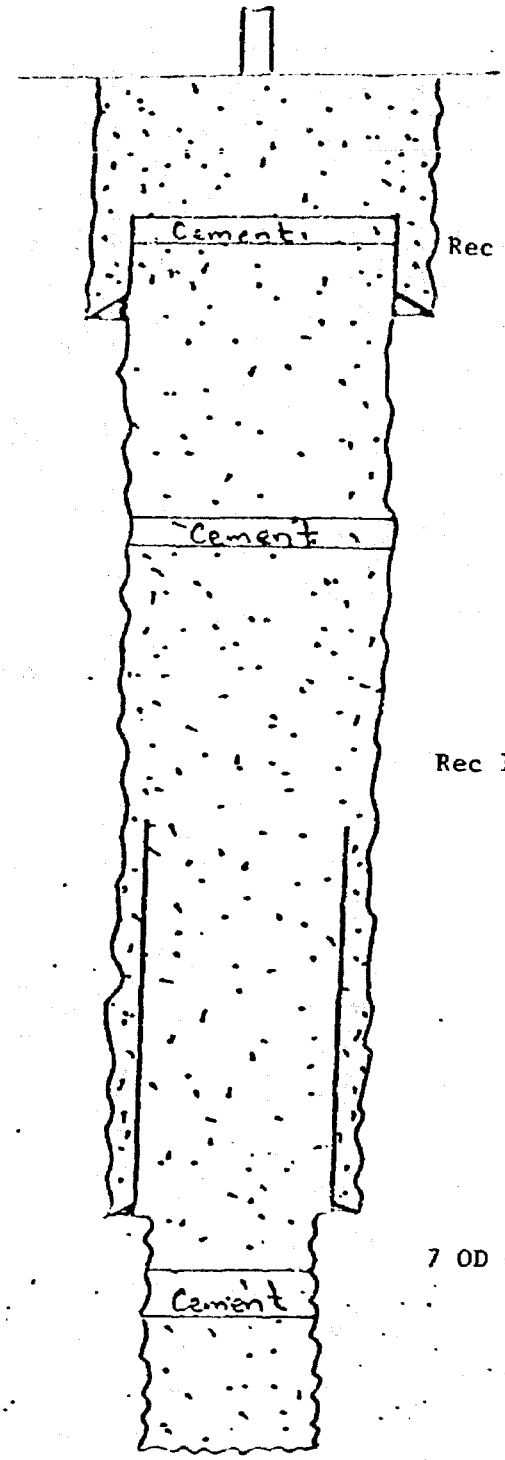
Cmt Ret @ 482 w/70 sks

650 sks @ 2360

7OD @ 2360 w/100 sks

Well Name BGSAU 14-1
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
2310 FSL & 2310 FWL

TD 2660



10 sks @ 240

8-5/8 OD @ 375 w/50 sks

Rec 220' - 8-5/8 csg

20 sks @ 800

Rec 1600' - 7" csg

Old area

7 OD @ 2285 w/100 sks

50 sks @ 2360

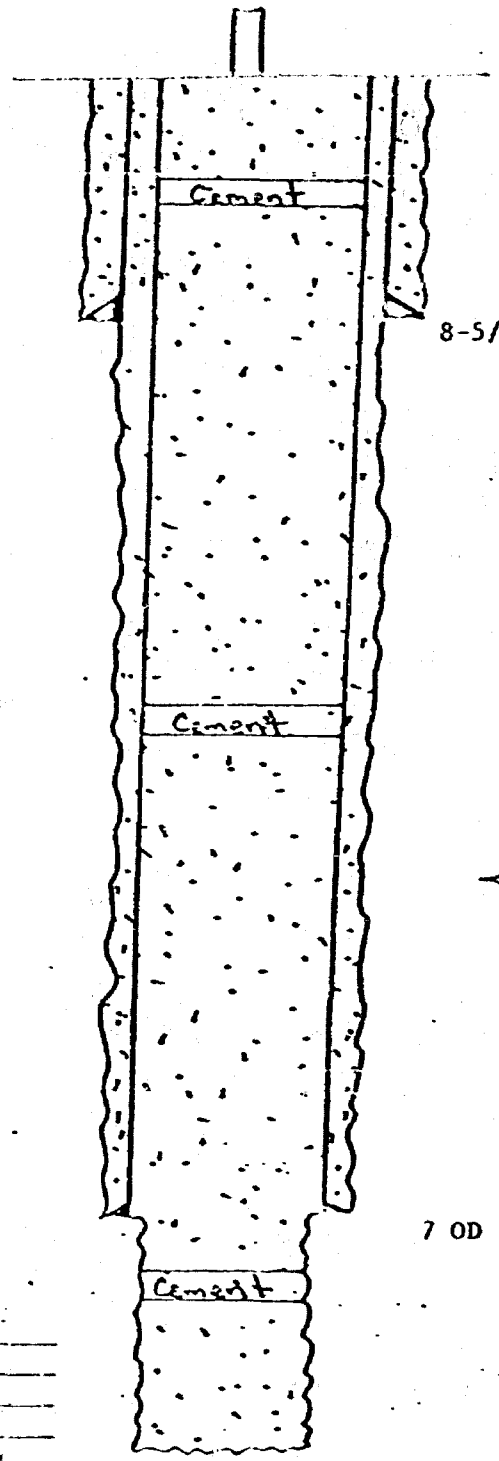
Well Name & No. BGSAU 5-2
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
2310 FSL & 2310 FEL

TD 2719

10 sks @ 180

10 sks @ 1000

10 sks @ 2445



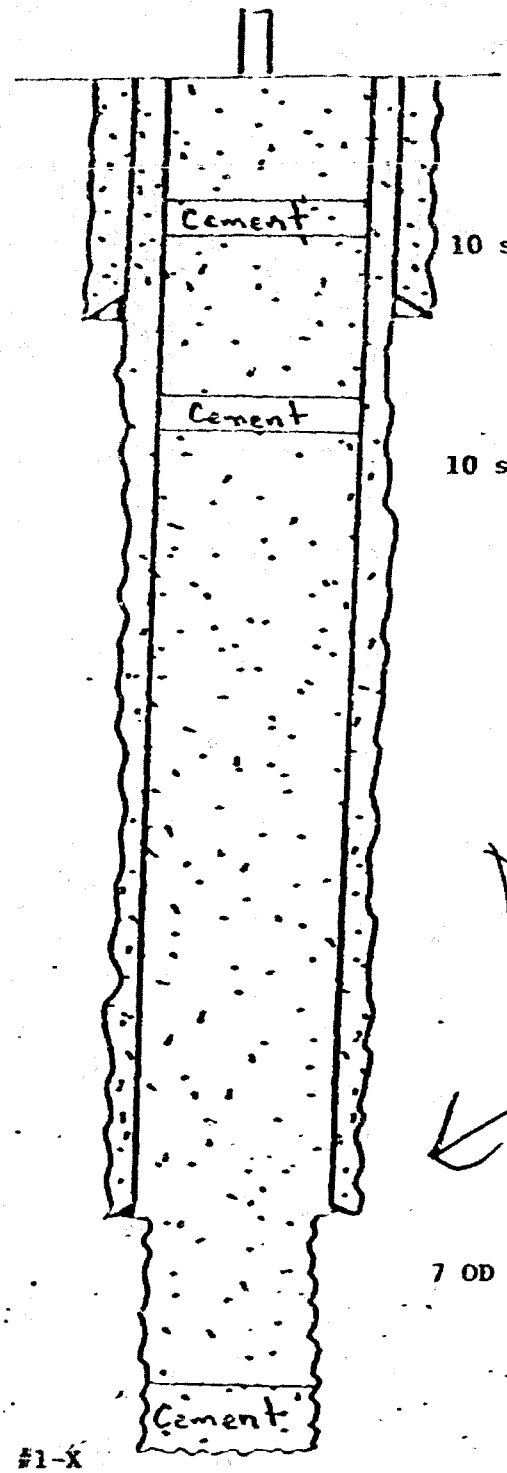
8-5/8 OD @ 346 w/50 sks

7 OD @ 2287 w/100 sks

TD 2728

Will V. prod well from 3 Pf

Well Name & No. BGSAU 15-3
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
1650 FNL & 990 FWL



8-5/8 OD @ 450 w/50 sks

10 sks @ 295'

10 sks @ 760'

old area

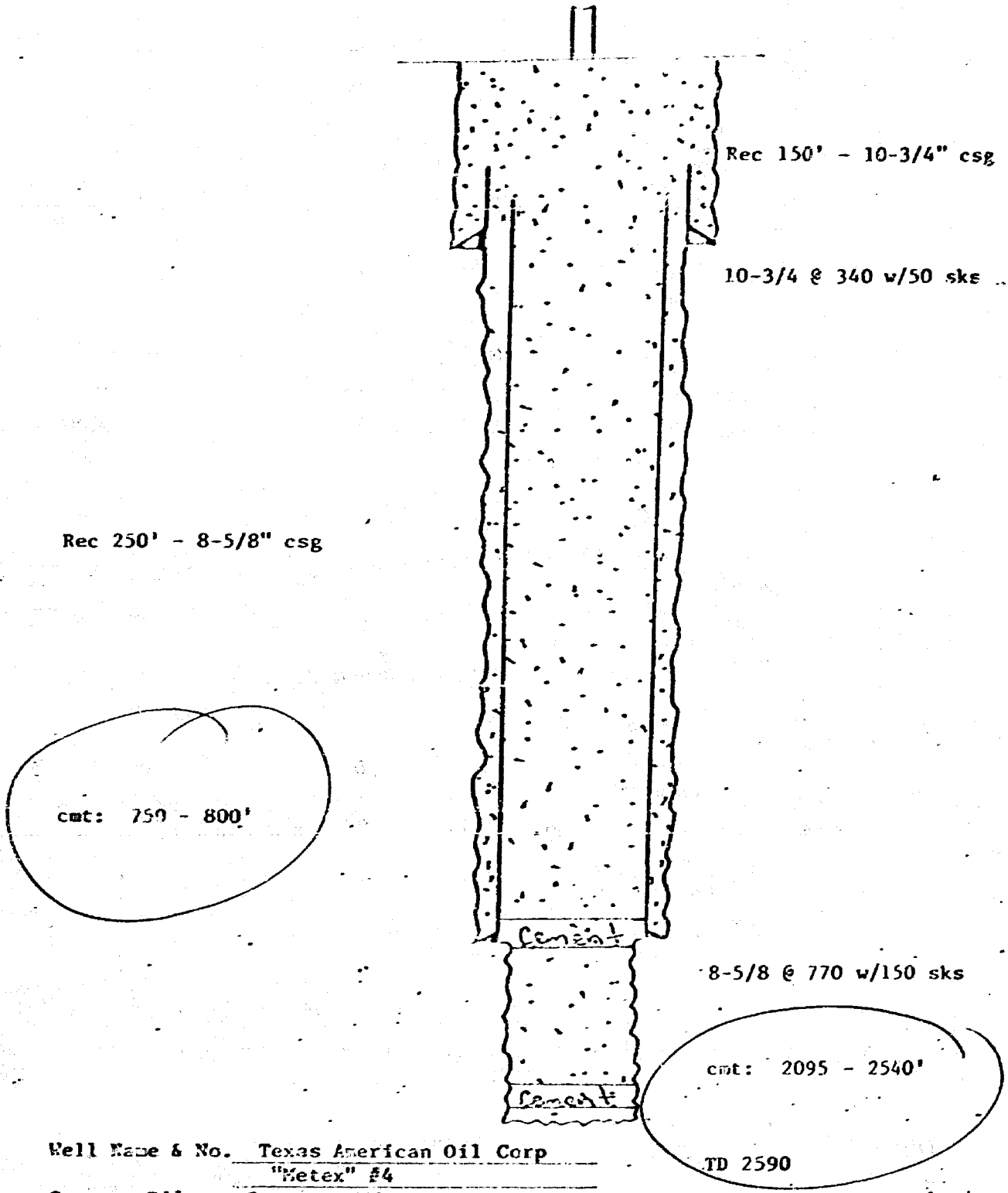
Not a Winner

20 sks @ 2555

7 OD @ 2340 w/100 sks

TD 2594

Well Name & No. Stroup Yates #1-X
County Eddy State NM
Location sec 5-18S-29E

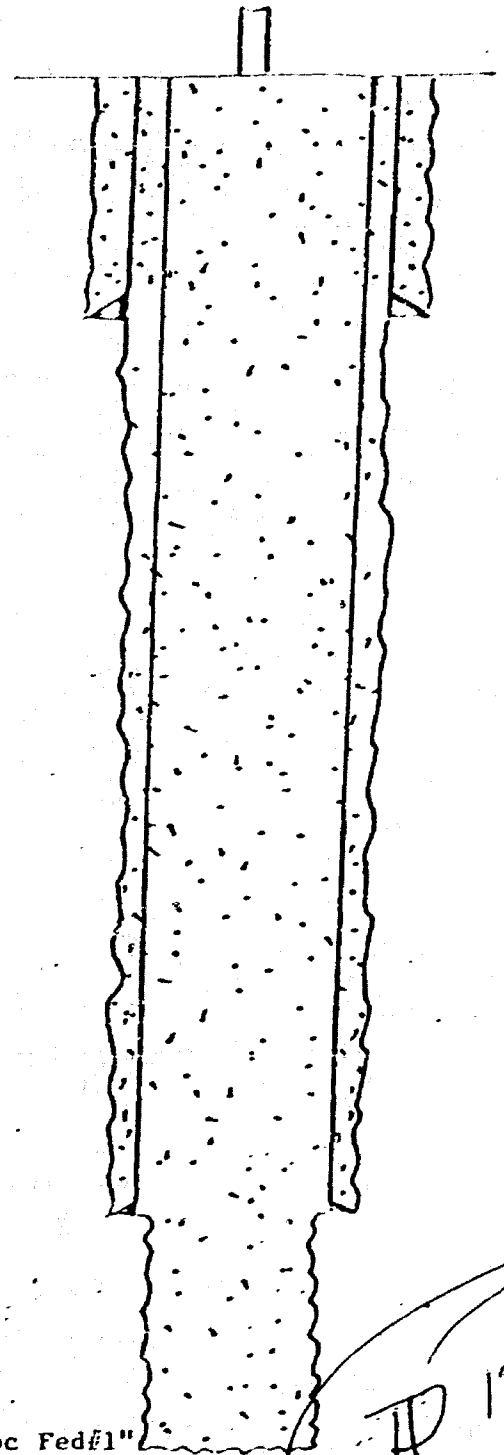


Well Name & No. Texas American Oil Corp "Metex" #4

County Eddy State NM

Location sec 5-18S-29E 1980 FSL & 1980 FWL

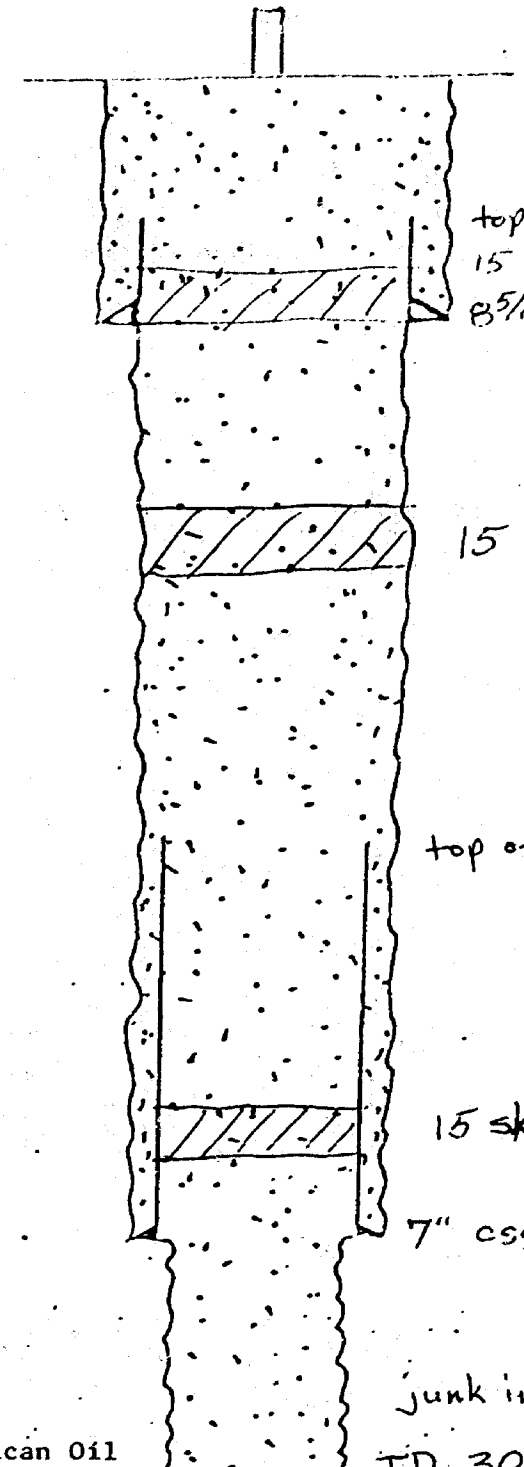
Welded cap @ surface



3

HD 12-15

Well Name & No. Yates "Penroc Fed#1"
County Eddy State NM
Location sec 6-18S-29E 2310 FNL & 653 FWL
Status Temp. Abandoned



Well Name & No Texas American Oil Corp. #1 Ballard B

County Eddy State NM

Location sec 8-18S-29E
660 FNL & 660 FWL

Status: ~~P&A no records available~~

now the Ballard GSA Unit # 12-1

O.K

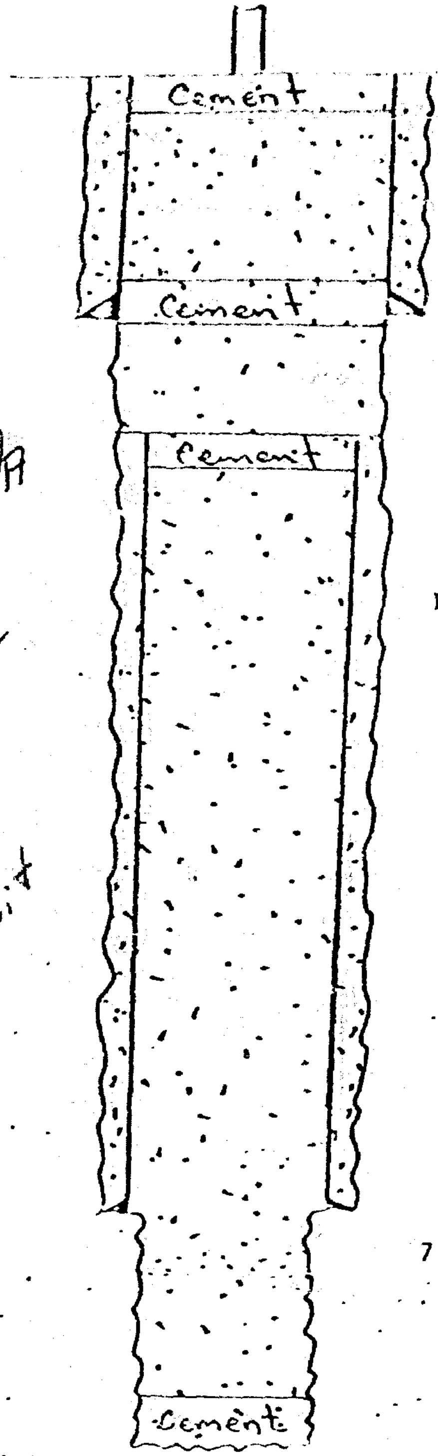
International Dunn C #2
R2708 No P&A
Report
990 S 1650 E

10 sks @ surface

8-5/8 OD @ 310 2/50 sks

10 sks @ 305

10 sks @ 750



Rec 750' - 7" csg

Two Dunn Wells in 7
1st Bassett & Birney 2310 S 330 E
7" at 2275 w/ 100 sx No P&A
report

Harvey Yates Dunn #1 990S 330E
P&A
R3339
7" at 2898 75 sx No !!
like this exhibit
good plugging exhibit

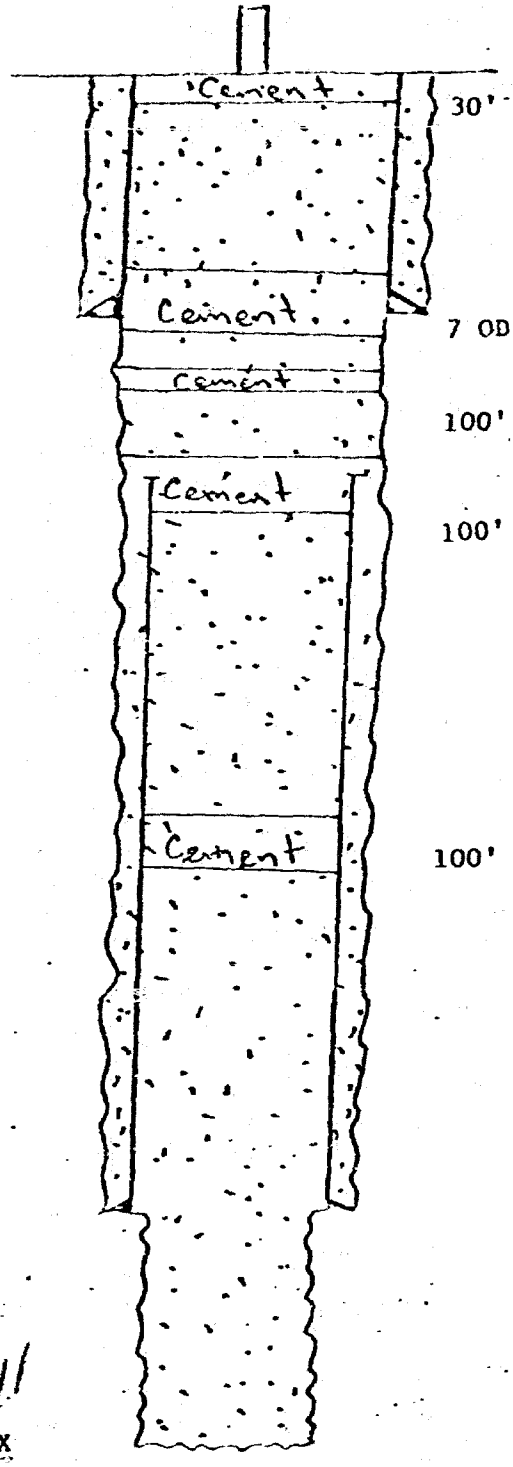
Potential Prob

25 sks @ 2450

7 OD @ 2257 w/100 sks

Well Name & No. Depco "Dunn" #1
County Eddy State NM
Location sec 7-18S-29E

TD 2450



30' cmt @ surface

100' cmt @ 275

7 OD @ 324 w/50 sks

100' cmt @ 730

Rec 1900'- 4-1/2" csg

100' cmt @ 1850

100' cmt @ 2300

4-1/2 OD @ 2898' w/75 sks

TD 3339

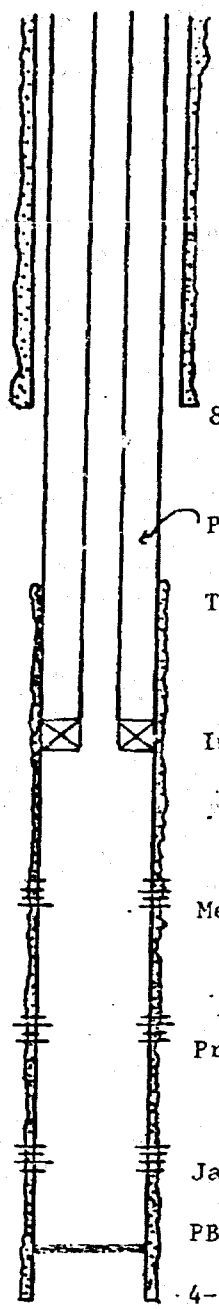
old Hunt Yates well

Well Name Depco "Dunn" #1-X
County Eddy State NM
Location sec 7-18S-29E

990s 330e
OK

OPERATOR	LEASE			
Anadarko Production Co.	Ballard GSA Unit			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
3-1	1980 FNL & 660 FEL	7	18S	29E

Schematic



Tabular Data

Surface Casing

Size 8-5/8" Cemented with 250 sx

TOC Surface feet determined by Circulation

Hole size 12-1/4

Intermediate Casing

Size _____" Cemented with _____ sx

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2" Cemented with 500 sx

TOC 1140 feet determined by Temp Survey

Hole size 7-7/8

Total depth 3124 (3091 PBTD)

Injection interval

2415 feet to 2643 feet
(perforated or open-hole, indicate which)

Metex: 2415-18, 45-48, 56-61, 70-74, 81-86.

Premier: 2556-61, 2570-74, 81-86, 2588-90, 2609-12, 14-18, 20-23, 32-36, 40-43

Jackson: 2954-3001 (selectively)

PBTD 3091

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
EXHIBIT NO. 6
CASE NO. 2573
Submitted by _____
Hearing Date _____

Tubing size 2-3/8 lined with Plastic (material) set in a Guiberson Uni-One (brand and model) packer at 2365 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Grayburg

2. Name of Field or Pool (if applicable) Loco Hills Queen Grayburg San Andres

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

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) Jackson: 2954-3001 intend to set bridge plug or cement squeeze to block off perfs.

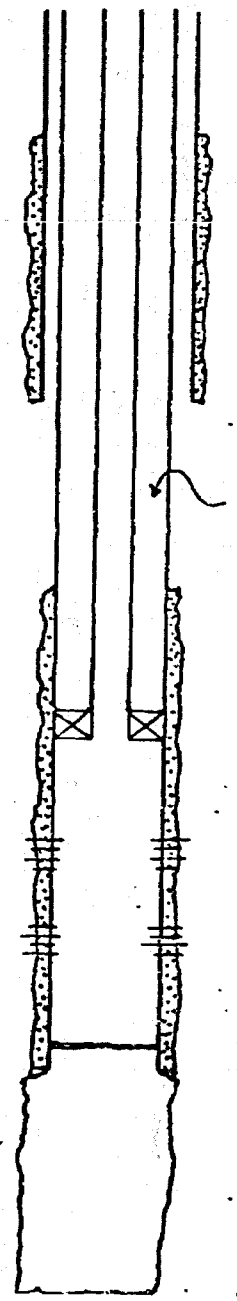
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. overlying: none; underlying: Loco Hills Cisco 9000-10,000 ft.

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

Operator	Lease			
Anadarko Production Company	Ballard GSA Unit			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
6-17	660 FSL & 3300 FEL	6	18S	29E

Schematic



Tabular Data

Surface Casing

Size 7" Cemented with 75 sx

TOC 120 feet determined by est.

Hole size 9-5/8

Intermediate Casing

Size _____" Cemented with _____ sx

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2" Cemented with 200 sx

TOC 1000 feet determined by est.

Hole size 6-1/4

Total depth 4637 [3625-PBTD]

Injection interval

inj pkr @ 2400 2454 feet to 2656 feet
(perforated or open-hole, indicate which)

Metex: 2454-58, 2481-85, 2490-94, 2504-10, 2519-23

Premier: 2583-86, 2600-04, 06-12, 2618-23, 46-56

PBTD

4-1/2" @ 3638

TD 4637'

Tubing size 2-3/8 lined with Plastic (material) set in a

Guiberson Uni-One (brand and model) packer at 2400 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Grayburg

2. Name of Field or Pool (if applicable) Loco Hills Queen Grayburg San Andres

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

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) None

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. overlying-none; underlying: Loco Hills Cisco 9000-10,000 ft.

W.N.M.C.F. MICROGRAPHICS

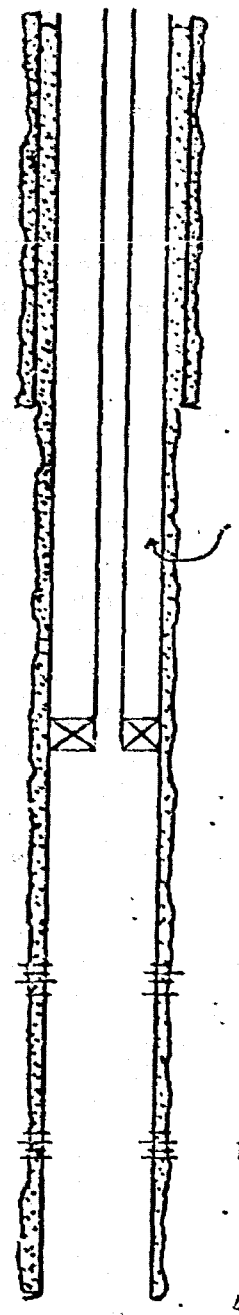
BEST AVAILABLE COPY

Anadarko Production Company — Ballard GSA Unit

WELL NO. | FOOTAGE LOCATION | SECTION | TOWNSHIP | RANGE

"type well" - see attached list of well numbers & locations

Schematic



Tabular Data

Surface casing

Size 8-5/8" Cemented with 250 sx

TOC Surface feet determined by circulate

Hole size 12-1/4

Intermediate casing

Size _____" Cemented with _____ sx

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2" Cemented with 500 sx

TOC Surface feet determined by circulate

Hole size 6-1/4

Total depth 2800

Injection interval

2400 feet to 2650 feet

(perforated or open-hole, indicate which)

Metex: selectively according to well logs

Premier: selectively according to well logs

Tubing size 2-3/8 lined with Plastic (material) set in a

Guiberson Uni-One (brand and model) packer at 2350 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Grayburg

2. Name of field or Pool (if applicable) Loco Hills Queen Grayburg San Andres

3. Is this a new well drilled for injection? [X] Yes [ ] No

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. overlying: none; underlying: Loco Hills Cisco 9000-10,000 ft.

W.N.M.O.C.C. MICROGRAPHICS

BEST AVAILABLE COPY

BALLARD GSA UNIT
18S-29E

WIW's	LOCATION
#6-18	600 FS&EL Sec. 6
#15-8	2310 FNL & 1980 FWL Sec. 8
#23-4	330 FSL & 1980 FWL Sec. 5
#1-7	2310 FNL & 1600 FWL Sec. 7
#19-3	1650 FSL & 2310 FEL Sec. 7
#4-1	330 FSL & 990 FEL Sec. 7
#16-1	2310 FNL & 1980 FWL Sec. 17
#14-7	400 FSL & 2000 FWL Sec. 8

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O BOX1499

HOBBS, NEW MEXICO 88240

MPANY : ANADARKO
TE : 2-5-82
ELD,LEASE&WELL : OGALLALA FRESH WATER SUPPLY: SALIARD
MPLING POINT:
TE SAMPLED : 2-1-82

ECIFIC GRAVITY = 1
TAL DISSOLVED SOLIDS = 1069
= 7.72

		ME/L	MG/L
CATIONS			
LCIUM	(CA)+2	3.4	68.1
GNESIUM	(MG)+2	4.6	55.9
DIUM	(NA).CALC.	9.5	219.
ANIONS			
CARBONATE	(HCO3)-1	3.6	219.
RBONATE	(CO3)-2	0	0
DROXIDE	(OH)-1	0	0
LFATE	(SO4)-2	.96	46.5
LORIDES	(CL)-1	12.9	459.
DISSOLVED GASES			
REON DIOXIDE	(CO2)	NOT RUN	
DROGEN SULFIDE	(H2S)	NOT RUN	
YGEN	(O2)	NOT RUN	
ON(TOTAL)	(FE)		.4
RIUM	(BA)+2	NOT RUN	
NGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
RBONATE INDEX	1.49
LCIUM CARBONATE SCALING	LIKELY
LFATE INDEX	-18.
LCIUM SULFATE SCALING	UNLIKELY

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Anadarko EXHIBIT NO. 9
CASE NO. 7922
Submitted By:
Hearing Date

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

COMPANY : ANADARKO
DATE : 2-5-82
FIELD,LEASE&WELL : BALLARD UNIT WELL #14-2 PRODUCED WATER
SAMPLING POINT.
DATE SAMPLED : 2-1-82

SPECIFIC GRAVITY = 1.05
TOTAL DISSOLVED SOLIDS = 74424
PH = 6.79

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	53.3	1068.
MAGNESIUM	(MG)+2	46.6	567.
SODIUM	(NA).CALC.	1169.	26877.
ANIONS			
BICARBONATE	(HCO3)-1	16	976.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	40.4	1944.
CHLORIDES	(CL)-1	1212.	42990.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		10.2
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.107
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-1.1
CALCIUM SULFATE SCALING	UNLIKELY

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

UNICHEM INTERNATIONAL

401 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

OMPANY : AMADARKO
ATE : 2-6-82
IELD,LEASE&WELL . OCALLALA FRESH WATER SUPPLY 50%/BALLARD UNIT WEL
214-2 50%
AMPLING POINT:
ATE SAMPLED : 2-1-82

PECIFIC GRAVITY = 1.025
OTAL DISSOLVED SOLIDS = 37747
H = 7.255

		MG/L	MG/L
CATIONS			
ALCIUM	(CA)+2	28.3	568.
AGNESIUM	(MG)+2	25.6	312.
ODIUM	(NA),CALC.	589.	13548.
ANIONS			
ICARBONATE	(HCO3)-1	9.8	597.
ARBONATE	(CO3)-2	0	0
YDROXIDE	(OH)-1	0	0
ULFATE	(SO4)-2	20.7	995.
HLORIDES	(CL)-1	612.	21725.
DISSOLVED GASES			
ARBON DIOXIDE	(CO2)	NOT RUN	
YDROGEN SULFIDE	(H2S)	NOT RUN	
XYGEN	(O2)	NOT RUN	
RON(TOTAL)	(FE)		5.3
ARIUM	(BA)+2	NOT RUN	
ANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP. .
	30C
	86F
ARBONATE INDEX	.210
ALCIUM CARBONATE SCALING	LIKELY
ULFATE INDEX	-2.3
ALCIUM SULFATE SCALING	UNLIKELY

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

COMPANY : ANADARKO
DATE : 2-5-82
FIELD,LEASE&WELL : WINDMILL SE/4 SW/4 SEC. 10, T-18S, R-29E
SAMPLING POINT:
DATE SAMPLED : 2-1-82

SPECIFIC GRAVITY = 1.005
TOTAL DISSOLVED SOLIDS = 7651
PH = 7.4

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	38.6	774.
MAGNESIUM	(MG)+2	33.3	405.
SODIUM	(NA).CALC.	56.0	1287.
ANIONS			
BICARBONATE	(HCO3)-1	2.2	134.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	96.8	2250
CHLORIDES	(CL)-1	78.9	2799.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		1.3
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.293
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	.051
CALCIUM SULFATE SCALING	LIKELY

ANADARKO PRODUCTION COMPANY

BALLARD GSA UNIT

1981 FRAC JOBS

Well	Date Treated	I.S.I.P (Surface)
Ballard GSA Unit #5-15 NE 8	7/10/81	2050 p.s.i.g.
Ballard GSA Unit #5-16 SW SE 8	7/07/81	1300 p.s.i.g.
Ballard GSA Unit #10-6 SW NW 4	3/25/81	1700 p.s.i.g.
Ballard GSA Unit #11-6 NE NE 6	7/17/81	1800 p.s.i.g.
Ballard GSA Unit #14-6 SW SW 8	6/17/81	1600 p.s.i.g.
Ballard GSA Unit #15-7 SW NW 8	7/02/81	1550 p.s.i.g.
Ballard GSA Unit #24-5 SW SE 5	3/26/81	1850 p.s.i.g.
Ballard GSA Unit #26-3 SW SW 4	6/11/81	2000 p.s.i.g.

Average I. S. I. P. = 1731 p.s.i.g.,

which is indicative of average surface fracturing pressure.

W.N.M.O.C.C. MICROGRAPHICS

BEST AVAILABLE COPY

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Anadarko EXHIBIT NO. 10
CASE NO. 7522
Submitted by:
Hearing Date:

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

April 21, 1982

Dear Offset Operator:

Our firm represents Anadarko Production Company before the New Mexico Oil Conservation Division.

Anadarko has filed the enclosed application for approval to add certain injection wells to its currently approved Ballard GSA Waterflood Project, Eddy County, New Mexico.

In accordance with Division Rules we are required to notify all offset operators within a one-half mile radius of any injection well of the pending application. A hearing on this application will be held on May 12, 1982.

If you have any objection to this application you are required by Division rules to file a written objection with the Division within fifteen (15) days of the date of this letter.

If you desire further information, please contact Mrs. C. K. Stegall, Senior Reservoir Engineer, Anadarko, Midland, Texas (915) 682-1666.

Very truly yours,

W. Thomas Kellahin

WTK:rb
cc: Mrs. C. K. Stegall
(Anadarko)
Enclosures
Mailing List of Offset Operators
and Surface Owners
Application for Injection
Letter to OCD Identifying Injectors

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Anadarko EXHIBIT NO. 11
CASE NO. 7572
Submitted by:
Hearing Date:

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

ANADARKO PRODUCTION COMPANY

PROPOSED BALLARD GSA UNIT WATER INJECTION WELLS

OFFSET OPERATORS

Amoco Production Company
P. O. Box 68
Hobbs, New Mexico 88240

Depco, Inc.
1025 Petroleum Club Bldg.
Denver, Colorado 80201

Thompson Petroleum Corp.
4500 Republic Nat'l. Bank Tower
Dallas, Texas 75201

Harvey E. Yates Co.
P. O. Box 1933
Suite 300 Security Nat'l. Bank Bldg.
Roswell, New Mexico 88201

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

ANADARKO PRODUCTION COMPANY

BALLARD GSA UNIT

SURFACE OWNERSHIP OF ACREAGE WITH PROPOSED WATER INJECTION WELLS

1) E/2 & SE/4 SW/4 Section 6, W/2 Section 8, T-18S, R-29E, Eddy County, New Mexico
(Ballard GSA Unit #6-17, 6-18, 14-7, & 15-8)

Bogle Farms, Inc.
P. O. Box 358
Dexter, New Mexico 88230

2) S/2 Section 5, N/2 & NW/4 SE/4 & SE/4 SE/4, Section 7, NW/4 Section 17, T-18S, R-29E, Eddy County, New Mexico
(Ballard GSA Unit #1-7, 3-1, 4-1, 16-1, 19-3 & 23-4)

United States of America

PS Form 3811, Jan. 1979

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered..... ¢
- ☐ Show to whom, date and address of delivery..... ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery $____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Mr. Jerry Sexton
Oil Conservation Division
Box 1980, HOBBS, NM 88240

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	158-719	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

4. DATE OF DELIVERY: POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

APR 1982

☆GPO : 1978-288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☐ Show to whom and date delivered..... ¢
- ☐ Show to whom, date and address of delivery..... ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered..... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery $____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Body Farmerbe.
P.O. Box 358
Dexter, N.M. 88230

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	158-699	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

4. DATE OF DELIVERY: 04-23-82 POSTMARK: APR 23 1982

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS: mg

☆ GPO: 1978-272-362

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Aug. 1978

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one).
- ☐ Show to whom and date delivered ¢
- ☐ Show to whom, date, and address of delivery ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered $
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery $____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Bureau of Land Management
P.O. Box 1778
Carlsbad, N.M. 88220

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	158-701	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

4. DATE OF DELIVERY: APR 26 1982 POSTMARK: APR 26 1982 USM

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO: 1978-272-362

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one).
- ☐ Show to whom and date delivered ¢
- ☐ Show to whom, date, and address of delivery ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery $____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
THOMPSON PETROLEUM
4500 REP. NAT'L. BANK TOWER
DALLAS, TEXAS 76201

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	158-697	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

4. DATE OF DELIVERY: 4/23/82 POSTMARK: APR 1982

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO: 1978-272-362

PS Form 3811, Aug. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one)
- ☐ Show to whom and date delivered ..... ¢
- ☐ Show to whom, date, and address of delivery ..... ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered ..... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery. $
  (CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
AMOCO Production Co.
PO Box 68
Hobbs, N.M. 88240

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	158-700	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent
Ethel Pope

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

APR 26 1982 NM

☆ GPO: 1978-272-242

PS Form 3811, Aug. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one)
- ☐ Show to whom and date delivered ..... ¢
- ☐ Show to whom, date, and address of delivery ..... ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered ..... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery. $
  (CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
DEPCO INC
1025 Petroleum Club Bldg.
Denver, CO 80201

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	158-698	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent
Ronald Cope

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

APR 26 1982 CO MAIN OFF STA USPO

☆ GPO: 1978-272-242

Case 7572
Kellahin submittal
Exhibit 2
Transcript

KELLAHIN and KELLAHIN
Attorneys at Law
500 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

April 19, 1982

Mr. Joe D. Ramey
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

APR 22 1982
OIL CONSERVATION DIVISION
SANTA FE

Case 7572

RE: Anadarko Production Company
Ballard GSA Unit
Eddy County, New Mexico

Dear Mr. Ramey:

The attached application seeks the authorization to convert two producers to injection wells and to drill eight new injector wells in the Anadarko Production Company Ballard GSA Unit all in Township 18 South, Range 29 East, Eddy County, New Mexico, as follows:

Ballard GSA Injectors:

6-18	600 FS&EL Section 6
15-8	2310 FNL & 1980 FWL Section 8
23-4	330 FSL & 1980 FWL Section 5
1-7	2310 FNL & 1600 FWL Section 7
19-3	1650 FSL & 2310 FEL Section 7
4-1	330 FSL & 990 FEL Section 7
16-1	2310 FNL & 1980 FWL Section 17
14-7	400 FSL & 2000 FWL Section 8
3-1	1980 FNL & 660 FEL Section 7
6-17	660 FSL & 3300 FEL Section 6

Although its application will qualify for administrative approval, (R-4493) Anadarko requests that this case be set for the Examiner docket of May 12, 1982, in order to expedite approval.

Very truly yours,

W. Thomas Kellahin

WTK:rb
Enclosure
cc: Mr. Dan Kernaghan (Anadarko)

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

FORM C-108
Revised 7-1-81

Case 7572

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage.
Application qualifies for administrative approval? [ ] yes [ ] no

II. Operator: ANADARKO PRODUCTION COMPANY

Address: P. O. BOX 2497, Midland, Texas 79702

Contact party: DAN KERNAGHAN Phone: 915-682-1666

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? [X] yes [ ] no
If yes, give the Division order number authorizing the project R-4493.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such 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 available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: W. THOMAS KELLAHIN Title ATTORNEY FOR APPLICANT

Signature: W. T. Kellahin Date: April 15, 1982

* 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.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

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

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

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 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.

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

ANADARKO PRODUCTION COMPANY

BALLARD GSA WATERFLOOD PROJECT
EDDY COUNTY, NEW MEXICO

INDEX TO EXHIBITS

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4912
Order No. R-4493

Nomenclature

APPLICATION OF ANADARKO PRODUCTION
COMPANY FOR A WATERFLOOD PROJECT,
SPECIAL RULES, UNORTHODOX LOCATIONS,
AND POOL REDELINEATION, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 28, 1973, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 16th day of March, 1973, the Commission, a quorum being present, 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 Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Anadarko Production Company, seeks authority to institute a waterflood project by the injection of water into the Grayburg and San Andres formations underlying its Ballard Grayburg San Andres Unit Area in Sections 4, 5, 6, 7, 8, 9, 17, and 18, Township 18 South, Range 29 East, NMPM, Loco Hills Pool, Eddy County, New Mexico.

(3) That said injection would be accomplished through 23 wells at orthodox and unorthodox locations, with 15 wells serving as injection wells into the Grayburg formation, five wells serving as injection wells into the San Andres formation, and three wells serving as dual injection wells into the Grayburg and San Andres formations.

(4) That the applicant also seeks the deletion of the NW/4 of Section 7, Township 18 South, Range 29 East, NMPM, from the Artesia Pool and the extension of the Loco Hills Pool to include said lands therein.

(5) Applicant further seeks approval of a procedure for the administrative approval of additional injection and producing wells at orthodox and unorthodox locations without notice and hearing.

(6) That the wells in the proposed project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(7) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(8) That to include all of the proposed waterflood project and the Ballard Grayburg Jackson Unit Area within the horizontal limits of one pool as designated by the Commission, the Artesia Pool should be contracted and the Loco Hills Pool extended as described in Finding No. (4) above.

(9) That approval of the requested administrative procedure will afford the applicant the opportunity to produce its just and equitable share of the oil in the Loco Hills Pool, provided the wells are drilled no closer than 330 feet to the outer boundary of the Ballard Grayburg Jackson Unit Area nor closer than ten feet to any quarter-quarter section or subdivision inner boundary.

(10) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Anadarko Production Company, is hereby authorized to institute a waterflood project in the Ballard Grayburg-Jackson Unit Area, Loco Hills Pool, by the injection of water into the Grayburg and San Andres formations through the following-described wells in Township 18 South, Range 29 East, NMPM, Eddy County, New Mexico:

Tract No.	Well No.	Footage Description	Section
8	5	20' from North line, 1500' from East line	5
13	3	20' from North line, 1200' from West line	5
23	1	Within 330' of well located 2310' from South line, 990' from West line	5

Tract No.	Well No.	Footage Description	Section
25	3	Within 330' of well located 1980' from South line, 1980' from East line	5
5	3	330' from South line, 2310' from East line	8
5	8	2310' from South line, 1980' from East line	8
14	3	990' from South line, 990' from West line	8
21	1	2310' from South line, 990' from West line	8
5	6	990' from North line, 2310' from East line	8
12	2	990' from North line, 990' from West line	8
6	18	1980' from South line, 1980' from East line	6
7	3	660' from North line, 1980' from East line	17
10	2	Within 330' of well located 990' from North line, 380' from West line	4
20	12	660' from North line, 660' from West line	17
21	2	1980' from South line, 660' from West line	8
26	1	Within 330' of well located 2310' from South line, 330' from West line	4
5	13	1310' from South line, 20' from East line	8
1	6	990' from North line, 330' from West line	7
2	3	660' from North line, 1980' from East line	7
5	4	1650' from South line, 2310' from East line	8
17	3	660' from North line, 1980' from East line	6
22	4	990' from North line, 330' from West line	9
5	10	990' from North line, 990' from East line	8

PROVIDED HOWEVER, injection into each of the aforesaid wells shall be through plastic-lined tubing set in a packer located as close as is practicable to the uppermost perforation or the casing shoe, whichever is applicable, and provided further, that the casing-tubing annulus of each well shall be loaded with an inert fluid and equipped with a pressure gauge at the surface.

(2) That the subject waterflood project is hereby designated the Anadarko Ballard GSA Unit Loco Hills Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be sumitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) That the Artesia Pool, as heretofore classified, defined, and described, is hereby contracted by the deletion of the NW/4 of Section 7, Township 18 South, Range 29 East, NMPM.

(5) That the Loco Hills Pool, as heretofore classified, defined, and described, is hereby extended to include therein the NW/4 of Section 7, Township 18 South, Range 29 East, NMPM.

(6) That the Secretary-Director of the Commission may approve additional producing and injection wells at orthodox and unorthodox locations within the Ballard Grayburg Jackson Unit Area as may be necessary to complete an efficient production and injection pattern; provided said wells shall be drilled no closer than 330 feet to the outer boundary of the Ballard Grayburg Jackson Unit Area nor closer than ten feet to any quarter-quarter section or subdivision inner boundary, and provided the application therefor has been filed in accordance with Rule 701 B of the Commission Rules and Regulations.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

S E A L

A. L. PORTER, Jr., Member & Secretary

dr/

W.N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

ANADARKO PRODUCTION COMPANY - BALLARD GSA UNIT PROPOSED INJECTORS

SE NAME WELL NO.	LOCATION	CONSTRUCTION: CASING	TUBING	PACKER
lard GSA Unit #3-1	1980' FNL & 660' FEL Sec 7 T-18S, R-29E Eddy County, New Mexico	8-5/8" @ 353' w/250 sks. cmt. circ. 4-1/2" @ 3124' w/500 sks. TOC @ 1140' by temp. survey TD 3124'	2-3/8" plastic lined	Guiberson Uni-One @2365'
lard GSA Unit #6-17	660' FSL & 3300' FEL Sec. 6 T-18S, R-29E Eddy County, New Mexico	7" @ 452' w/75 sks. TOC @ 120' (est.) 4-1/2" @ 3638' w/200 sks. TOC @ 1000' (est.) TD 4637'	2-3/8" plastic lined	Guiberson Uni-One @2400'
lard GSA Unit posed wells #1-7 entative #4-1 ations #6-18 ject to #14-7 or changes #15-8 #16-1 #19-3 #23-4	T-18S, R-29E Eddy Co., NM. 2310' FNL & 1600' FWL Sec 7 330' FSL & 990' FEL Sec 7 600' FS & EL Sec 6 400' FSL & 2000' FWL Sec 8 2310' FNL & 1980' FWL Sec 8 2310' FNL & 1980' FWL Sec 17 1650' FSL & 2310' FEL Sec 7 330' FSL & 1980' FWL Sec 5	8-5/8" @ 400' w/250 sks. (circ. to surf.) 4-1/2" @ 2800' TD w/500 sks. (circ. to surf.)	2-3/8" plastic lined	Guiberson Uni-One @2350'

MONTH, YEAR January, 1982

GROSS PRODUCTION

Well	Barrels Oil Month	Barrels Oil Day	Barrels Water Month	Barrels Water Day	*Cumulative Barrels Oil	*Cumulative Barrels Water
1-4	360	12	31	1	17,671	81,101
1-5	552	18	8,595	[illegible]	14,786	240,006
2-1	452	15	1,395		18,785	39,747
2-3	-	-	-		1,912	0
3-1	321	10	310	10	10,837	30,810
5-4	-	-	-	-	1,716	0
5-5	374	12	703	23	37,374	5,373
5-7	379	12	274	9	1,043	
5-9	689	22	946	31	3. 683	[illegible]
5-10	-	-	-	-	2,[illegible]	711
5-12	194	6	88	3	44,139	14,941
5-14	231	7	3,658	118	15,192	58,[illegible]54
5-15	1,192	38	314	10	5,084	[illegible]
5-16	1,058	34	2,045	66	11,192	[illegible]
6-1	535	17	558	18	17,207	[illegible]
6-2	481	16	7	0	16,667	[illegible]
6-7	501	16	1,209	39	28,591	[illegible],445
6-17	192	6	152	5	17,783	5,632
7-1	247	8	37	1	5,790	32,605
7-2	244	8	243	8	40,097	5,653
8-3	536	17	155	5	64,555	14,724
8-4	196	6	93	3	46,157	47,511
9-1	63	2	1,116	36	27,777	226,057
9-2	321	10	150	5	70,710	34,500
10-1	305	10	1,974	64	90,567	214,215
10-5	503	16	1,736	56	22,597	32,408

* cumulatives are since unitization

ANADARKO PRODUCTION COMPANY
BALLARD GSA UNIT - ADDITIONAL WATER INJECTION WELLS
DATA ON PROPOSED OPERATION

1. Proposed injection rates:
   a) Average daily rate - 250 BWPD/well
   b) Maximum daily rate - 400 BWPD/well
   c) Total monthly volume - approximately 12,000 BW/well

2. Whether the system is open or closed: closed

3. Proposed injection pressures:
   a) Average pressure - 1400 p.s.i.g.
   b) Maximum pressure - 1500 p.s.i.g.*
   *(see attached tabulation of I.S.I.P's on 1981 fracture treatments and treatment reports)

4. Type of injection fluid: The fluid will be a mixture of produced water from the Ballard GSA Unit and fresh water from the City of Carlsbad (see attached analyses and compatibility test).

GEOLOGICAL DATA

1. Geologic name of injection zone: Water injection will be in the Grayburg formation, primarily in the Metex and Premier sands.

2. Lithologic detail of injection zone: the Metex and Premier sands are gray, fine to medium grain, calcareous sandstones interbedded with dense dolomites and anhydrites.

3. Thickness of injection zone:
   a) Average thickness - approximately 225 ft.
   b) Range of thickness - approximately 220 ft. to 240 ft.

4. Depth to injection zone:
   a) Average depth - approximately 2520 ft.
   b) Range of depth - approximately 2450 - 2590 ft.

5. Geologic name and depth to bottom of all underground sources of drinking water (TDS of 10,000 mg/l or less) overlying or immediately under injection zone: Triassic sands from 0 - 150 ft., Rustler from 150-200 ft. Sampled fresh water well is of unknown depth but analysis indicates it probably from the Rustler.

ANADARKO PRODUCTION COMPANY

BALLARD GSA UNIT

SURFACE OWNERSHIP OF ACREAGE WITH PROPOSED WATER INJECTION WELLS

1) E/2 & SE/4 SW/4 Section 6, W/2 Section 8, T-18S, R-29E, Eddy County, New Mexico
(Ballard GSA Unit #6-17, 6-18, 14-7, & 15-8)

Eagle Farms, Inc.
P. O. Box 358
Dexter, New Mexico 88230

2) S/2 Section 5, N/2 & NW/4 SE/4 & SE/4 SE/4, Section 7, NW/4 Section 17, T-18S, R-29E, Eddy County, New Mexico
(Ballard GSA Unit #1-7, 3-1, 4-1, 16-1, 19-3 & 23-4)

United States of America

ANADARKO PRODUCTION COMPANY

PROPOSED BALLARD GSA UNIT WATER INJECTION WELLS

OFFSET OPERATORS

Amoco Production Company
P. O. Box 68
Hobbs, New Mexico 88240

Depco, Inc.
1025 Petroleum Club Bldg.
Denver, Colorado 80201

Thompson Petroleum Corp.
4500 Republic Nat'l. Bank Tower
Dallas, Texas 75201

Harvey E. Yates Co.
P. O. Box 1933
Suite 300 Security Nat'l. Bank Bldg.
Roswell, New Mexico 88201

DALLAS, TEXAS

CORE ANALYSIS RESULTS

623-3585
621-9209

Company ATLANTIC PRODUCTION COMPANY Formation GRAYBURG File
Well No. ATLANTIC GRAYBURG-S.A. UNIT # 8-5 Core Type DIAMOND 4 3/8" Date Report 1-24-74
Field DOG BILLS Drilling Fluid WATER BASE MUD Analysts DILLARD
County EDDY State NEW MEX. Elev. Location 20' FNL 1500' FEL SEC 5 T18S-R29E

Lithological Abbreviations

ANH-ANHYDRITE DOL-DOLOMITIC LIME CHERT-CHERT GYP-GYPSUM GYP CONGL-CONGLOMERATE CONG FOSSIL-FOSSILIFEROUS FOSS SDY-SANDY SDY SHALY-SHALY SHY LIME-LIME FN-FINE GR MEDIUM-MED COARSE-CSE CRYSTALLINE-XLN GRAIN GRN SPAR-SPARRY SPAR BROWN-BRN GRAY-GY BLACK-BLK FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
		CONVENTIONAL ANALYSIS				
	2540.0-66.0					Dol,Anhy
1	2566.0-67.0	<0.1	4.1			Dol,Sdy
2	2567.0-68.0	0.3	9.9			Dol,Sdy
	2568.0-75.0					Dol,Anhy
3	2575.0-76.0	<0.1	5.3			Sd,Dol
4	76.0-77.0	0.5	10.7			Sd,Dol
5	77.0-78.0	0.1	8.3			Sd,Dol
6	78.0-79.0	1.6	12.8			Sd,Dol
7	79.0-80.0	2.1	13.2			Sd,Dol
8	80.0-81.0	3.2	11.0			Sd,Dol
9	2581.0-82.0	0.5	12.3			Sd,Dol
	2582.0-94.0					Dol,Anhy
10	2594.0-95.0	0.7	8.7			Sd,Dol
	2595.0-36.5					Dol,Anhy,S/Sdy
11	2636.5-37.4	0.7	8.4			Dol,Sdy
	2637.4-41.0					Dol,Anhy,S/Sdy
12	2641.0-42.0	0.5	10.2			Dol,Sdy
13	42.0-43.0	0.7	8.4			Dol,Sdy
14	43.0-44.0	0.7	7.3			Dol,Sdy
15	2644.0-45.0	0.5	8.9			Dol,Anhy
	2645.0-51.0					Dol,Anhy,V/F
16	2651.0-52.0	<0.1	2.2			Dol
17	2652.0-53.0	<0.1	4.6			Dol,Anhy
	2653.0-71.5					Dol,Anhy
18	2671.5-72.0	<0.1	5.1			Dol,Anhy
19	72.0-73.0	<0.1	6.2			Dol,Anhy
20	2673.0-74.0	<0.1	7.7			Dol
	2674.0-87.0					Dol,Anhy,S/Shy
21	2687.0-88.0	<0.1	7.1			Dol,Anhy
22	88.0-89.0	0.7	9.1			Dol,Sdy
23	89.0-90.0	1.1	10.2			Dol,Anhy,Sdy
24	90.0-91.0	1.1	13.7			Dol,Sdy
25	91.0-92.0	0.5	10.0			Dol,Sdy
26	2692.0-93.0	0.4	8.3			Dol,Sdy

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE: OIL	RESIDUAL SATURATION PER CENT PORE: TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS
# 27	2693.0-94.0	0.5	8.9			Sd,Dol
28	94.0-95.0	<0.1	5.6			Sd,Dol
29	2695.0-96.0	<0.1	5.4			Sd,Dol
	2696.0-00.0					Dol,S/Sdy
30	2700.0-01.0	<0.1	3.6			Sd,Dol
31	2701.0-02.0	<0.1	3.4			Sd,Dol
	2702.0-22.0					Dol,S/Sdy
32	2722.0-23.0	<0.1	4.5			Sd,Dol
33	23.0-24.0	<0.1	4.4			Sd,Dol
34	24.0-25.0	0.2	8.3			Sd,Dol
35	25.0-26.0	0.9	11.6			Sd,Dol
36	26.0-27.0	0.7	9.4			Sd,Dol
# 37	27.0-28.0	2.5	9.9			Sd,Dol
# 38	28.0-29.0	1.8	12.2			Sd,Dol
39	29.0-30.0	0.4	8.5			Sd,Dol
40	2730.0-31.0	<0.1	6.6			Sd,Dol,Shy
	2731.0-42.0					Dol,S/Sdy
# 41	2742.0-43.0	<0.1	6.0			Sd,Dol
# 42	43.0-44.0	0.7	10.3			Sd,Dol
# 43	2744.0-45.0	0.7	10.5			Sd,Dol
	2745.0-49.0					Dol,S/Sdy
# 44	2749.0-50.0	0.5	10.9			Sd,Dol
# 45	50.0-51.0	3.4	13.4			Sd,Dol
# 46	51.0-52.0	5.6	15.0			Sd,Dol
# 47	52.0-53.0	14.0	16.8			Sd,Dol
# 48	53.0-54.0	3.9	12.2			Sd,Dol
# 49	54.0-55.0	2.4	12.3			Sd,Dol
# 50	2755.0-56.0	0.5	10.3			Sd,Dol
	2756.0-61.5					Dol,S/Sdy
# 51	2761.5-62.0	0.2	4.7			Sd,Dol
# 52	2762.0-63.0	0.2	5.8			Sd,Dol
	2763.0-70.0					Dol,Anhy

These analyses, opinions or interpretations are based on observations and materials supplied by the client to whom, and for whose exclusive and confidential use, this report is made. The interpretations or opinions expressed represent the best judgment of Core Laboratories, Inc. (all errors and omissions excepted); but Core Laboratories, Inc. and its officers and employees, assume no responsibility and make no warranty or representations, as to the productivity, proper operations, or profitableness of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

ANADARKO PRODUCTION COMPANY

BALLARD GSA UNIT

1981 FRAC JOBS

Well	Date Treated	I.S.I.P (Surface)
Ballard GSA Unit #5-15	7/10/81	2050 p.s.i.g.
Ballard GSA Unit #5-16	7/07/81	1300 p.s.i.g.
Ballard GSA Unit #10-6	3/25/81	1700 p.s.i.g.
Ballard GSA Unit #11-6	7/17/81	1800 p.s.i.g.
Ballard GSA Unit #14-6	6/17/81	1600 p.s.i.g.
Ballard GSA Unit #15-7	7/02/81	1550 p.s.i.g.
Ballard GSA Unit #24-5	3/26/81	1850 p.s.i.g.
Ballard GSA Unit #26-3	6/11/81	2000 p.s.i.g.

Average I. S. I. P. = 1731 p.s.i.g.,

which is indicative of average surface fracturing pressure.

PRINTED IN U.S.A. DOWELL DIVISION OF DOW CHEMICAL U.S.A. 3-26-01

WELL NAME AND NUMBER: BGSAU T 24-5	LOCATION (LEGAL): Sec 5-18S-29E	DOWELL LOCATION: ARTESIA	TREATMENT NUMBER: 0868
FIELD: BALLARD	FORMATION: Grayburg - San Andres	JOB TYPE DOWN: TUBING ☐ CASING ☒ ANNULUS ☐	PAGE 1 OF PAGES
COUNTY / PARISH: Eddy	STATE: New Mexico	TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐	ALLOWABLE PRESSURE: TBG / CSG
TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other	SERVICE NAME: YFPSD	AGE OF WELL: NEW WELL ☒ REWORK ☐	OIL API GRAVITY / VAPOR PSI
			TOTAL DEPTH: 2700 / BHT (BOH)

CASING SIZE	WT	DEPTH	TUBING SIZE	WT	DEPTH
4½	10.5	2280			

TYPE OR GRADE	WT	TOP BOTTOM	PACKER TYPE	PACKER DEPTH

OPEN HOLE	CASING VOL.	TUBING VOL.	ANNULAR VOL.
	44	-	

CUST. NAME: ANADARKO Production Comp

ADDRESS: PO BOX 67

CITY, STATE ZIP CODE: Loco Hills New Mexico 88255

SERVICE INSTRUCTIONS:

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: LEFT LOCATION: DIAMETER OF PERFORATIONS =

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO OF HOLES	TOP	TO	BOTTOM	NO OF HOLES
2650	TO	659	9	2700	TO	28	8
2670	TO	673	3		TO		
2676	TO	686	10		TO		91
2690	TO	695	5		TO		

TIME (0001 to 2400)	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL. BBLS	CUM VOL. BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG.	TBG.	NOTATIONS
										Pre-Job Safety Meeting
										Pre-Job Pressure Test To ____ psi
1459		WF30		48				500		PAD
1503	25	YF3PSD		24	72			1950		PAD
1504	25			48	120	FLA100	2	2000		SAND
1506	25			24	144			1950		SPACER
1507	25			71	213	FLA100	4	2000		SAND
1510	27			24	237			1900		SPACER
1511	26			60	297	20/40	1	1900		SAND
1513	25½			60	357	20/40	2	1900		INCREASE SAND
1515	26			71	428	20/40	3	1900		INCREASE SAND
1518	27			95	523	20/40	4	1850		INCREASE SAND
1522	27	↓		71	594	10/20	4	1900		Switch SAND
1525	15	WF30		12	606			1800		Drop PLUG
1527	14	ACID		12	618			1800		ACID
1528	14	WF30		48	666			1800		PAD
1531	24	YF3PSD		24	690			2600		PAD

FRAC. GRADIENT: AVG INJECTION RATES: LIQ / W/PROP

TOTAL FLUID: BBLS TOTAL PROP: LBS.

TREATING PRESSURE SUMMARY: MAX / FINAL / AVG / IMMED. S.D.P. / 15 MIN. SIP

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE: DOWELL SERVICE SUPERVISOR: Leon King

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY

FORM 1906 PRINTED IN U.S.A. DOWELL DIVISION OF DOW CHEMICAL U.S.A. 3-26-81

WELL NAME AND NUMBER: BGSAU T 245 | LOCATION (LEGAL) | DOWELL LOCATION: ARTESIA | TREATMENT NUMBER: 0868

POOL / FIELD: BALLARD | FORMATION: Grayburg - San Andres | JOB DONE DOWN: TUBING ☐ CASING ☒ ANNULUS ☐ | PAGE 3 OF PAGES | ALLOWABLE PRESSURE: TBG / CSG

COUNTY / PARISH: Eddy | STATE: New Mexico | TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐ | OIL API GRAVITY / VAPOR PSI

TYPE OF SERVICE: ☐ Acidizing ☐ Sand Control ☒ Fracturing ☐ Other | SERVICE NAME: YFPSD | AGE OF WELL: NEW WELL ☒ REWORK ☐ | TOTAL DEPTH: 2750 | BHT (LOG)

CUST. NAME: Anadarko Production Company

ADDRESS: PO Box 67

CITY, STATE ZIP CODE: Loco Hills New Mexico 88255

SERVICE INSTRUCTIONS:

CASING SIZE	WT	DEPTH	TUBING SIZE	WT	DEPTH
4½	10.5	2750			

TYPE OR GRADE			TYPE OR GRADE	
LINER SIZE	WT	TOP / BOTTOM	PACKER TYPE	PACKER DEPTH

OPEN HOLE	CASING VOL	TUBING VOL	ANNULAR VOL

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO OF HOLES	TOP	TO	BOTTOM	NO OF HOLES
	TO				TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER OF PERFORATIONS =

TIME	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL BBLS	CUM VOL BBLS	PROP TYPE	PROP # GAL	PRESSURE: CSG	TBG	NOTATIONS
										Pre-Job Safety Meeting
					690					Pre-Job Pressure Test To ____ psi
1530	26	YF305D		48	738	F2A100	2	2500		SAND
1533	27			24	762			2450		SPACER
1534	28			71	833	F2A100	4	2500		SAND
1537	29			24	857			2500		SPACER
1538	28			60	917	20/40	1	2500		SAND
1540	29			60	977	20/40	2	2300		INCREASE SAND
1542	30			71	1048	20/40	3	2250		INCREASE SAND
1544	29			95	1143	20/40	4	2100		INCREASE SAND
1548	28	↓		71	1214	10/20	4	2150		Switch SAND
1551	12			12	1226			1900		DROP PLUG
1552	12			12	1238			1900		ACID
1553	12			48	1286			1900		PAD
1556	24			24	1310			2600		PAD
1557	27			48	1358	F2 SAND	2	2550		SAND
1559	28			24	1382			2500		SPACER

FRAC. GRADIENT: | AVG INJECTION RATES: LIQ | W/PROP

TOTAL FLUID: BBLS | TOTAL PROP: LBS

TREATING PRESSURE SUMMARY: MAX | FINAL | AVG | ISIP / 5 MIN. SIP

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE | DOWELL SERVICE SUPERVISOR

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE 3-26-81

WELL NAME AND NUMBER: 86 SAUT 24 -5 | LOCATION (LEGAL) | DOWELL LOCATION: ARTESIA | TREATMENT NUMBER 0068 | PAGE 4 OF 5 PAGES

FIELD: BALLARD | FORMATION: GRAYBURG - SAN ANDRES | JOB SHUT DOWN: TUBING ☐ CASING ☒ ANNULUS ☐ | ALLOWABLE PRESSURE: TBG | CSG

COUNTY / PARISH: Eddy | STATE: New Mexico | TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐ | OIL API GRAVITY | VAPOR PSI

TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other | SERVICE NAME: YFPSD | AGE OF WELL: NEW WELL ☒ REWORK ☐ | TOTAL DEPTH | BHT P.O.G.

CASING SIZE	WT	DEPTH	TUBING SIZE	WT	DEPTH

TYPE OR GRADE			TYPE OR GRADE	
LINER SIZE	WT	TOP BOTTOM	PACKER TYPE	PACKER DEPTH

OPEN HOLE	CASING VOL.	TUBING VOL.	ANNULAR VOL.

CUST. NAME: ANADARKO PRODUCTION COMPANY

ADDRESS: PO Box 67

CITY, STATE ZIP CODE: Loco Hills New Mexico 88255

SERVICE INSTRUCTIONS:

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO. OF HOLES	TOP	TO	BOTTOM	NO. OF HOLES
	TO				TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER OF PERFORATIONS =

TIME (0001 to 2400)	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL. BBLS	CUM VOL. BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG	TBG.	NOTATIONS
					1382					Pre-Job Safety Meeting
										Pre-Job Pressure Test To ____ psi
1600	28	YF350		71	1453	FLA100	4	2500		SAND
1602	29			24	1477			2500		SPACER
1603	29			60	1537	20/40	1	2500		SAND
1605	28			60	1597	20/40	2	2500		SAND
1607	29			71	1668	20/40	3	2500		SAND
1610	29			95	1763	20/40	4	2500		SAND
1612	29	↓		71	1834	10/20	4	2500		SWITCH SAND
1615	10			12	1846			2100		DROP PLUG
1616	13			12	1858			2100		ACID
1617	12			48	1906			2100		PAD
1621	25	YF350	PSD	24	1930			2600		PAD
1621	26			48	1988	FLA100	2	2550		SAND
1623	27			24	2012			2550		SPACER
1624	28			71	2083	FLA100	4	2550		SAND
1626	28			24	2107			2600		SPACER

FRAC. GRADIENT. | AVG INJECTION RATES: LIQ | W/PROP

TOTAL FLUID: BBLS | TOTAL PROP: LBS

TREATING PRESSURE SUMMARY: MAX. | FINAL | AVG | IMMED. S.D.P. | 15 MIN. SIP

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE | DOWELL SERVICE SUPERVISOR

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY

DOWELL PRINTED IN U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A. — 3-26-81

WELL NAME AND NUMBER: BGSAU T 24-5 | LOCATION (LEGAL) | DOWELL LOCATION: ARTESIA | TREATMENT NUMBER: 0826K | PAGE 5 OF 5 PAGES

FIELD: BALLARD | FORMATION: Grayburg-San | JOB DONE DOWN: TUBING ☐ CASING ☒ ANNULUS ☐ | ALLOWABLE PRESSURE: TBG | CSG

COUNTY / PARISH: Eddy | STATE: New Mexico | TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐ | OIL API GRAVITY | VAPOR PSI

TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other | SERVICE NAME: YF3PSD | AGE OF WELL: NEW WELL ☒ REWORK ☐ | TOTAL DEPTH | BHT (LOG)

CUST. NAME: Anadarko Production Company | CASING SIZE | WT. | DEPTH | TUBING SIZE | WT. | DEPTH

ADDRESS: PO Box 67 | TYPE OR GRADE | TYPE OR GRADE

CITY, STATE ZIP CODE: Loco Hills New Mexico 88255 | LINER SIZE | WT. | TOP/BOTTOM | PACKER TYPE | PACKER DEPTH

SERVICE INSTRUCTIONS: | OPEN HOLE | CASING VOL. | TUBING VOL. | ANNULAR VOL.

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO OF HOLES	TOP	TO	BOTTOM	NO OF HOLES
	TO				TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER OF PERFORATIONS =

TIME (0001 to 2400)	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	PROPPANT VOL. BBLS	CUM VOL. BBLS	PROP TYPE	PROP # GAL	PRESSURE: CSG	TBG.	NOTATIONS
										Pre-Job Safety Meeting
					2107					Pre-Job Pressure Test To ____ psi
1626	28	YF35D		60	2167	20/40	1	2550		SAND
1629	28	YF35D		60	2227	20/40	2	2550		SAND
1631	29	"		71	2298	20/40	3	2500		SAND
1633	30	"		95	2393	20/40	4	2500		SAND
1635	30	"		71	2464	10/20	4	2400		SAND
										CUT SAND
1638	31	WF30		44	2508			2450		FLUSH
1638								2450		SHUT DOWN
								1850		IMMED
								1850		5 MIN

FRAC GRADIENT: | AVG. INJECTION RATES: LIQ. 25.3 | W/PROP 27.8

TOTAL FLUID: 2508 BBLS | TOTAL PROP: 242000 LBS

TREATING PRESSURE SUMMARY: MAX 2600 | FINAL 2450 | AVG 2500 | IMMED SDP 1850 | 5 MIN SIP 1850

PRODUCTION PRIOR TO THIS TR. | ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE | DOWELL SERVICE SUPERVISOR: L Allen Ling

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY
F63	106 gal	10/20	48000 #
A200	8 gal	FLA106	6400 #
15%	4420 gal	D47	51 gal
YFPSD	92000 gal	M76	50 gal
J347	3,100 #	J66	1800 #
J218	306 #	J116	900 #
J318	100 #		
J221	460 gal		—
L10	46 #		
20/40	13000 #		

DOWELL A DIVISION OF THE DOW CHEMICAL U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A. — 3250.0

WELL NAME AND NUMBER: BGSAU T (10-6) | LOCATION (LEGAL): | DOWELL LOCATION: ARTESIA | TREATMENT NUMBER:

PAGE 2 OF 5 PAGES

POOL / FIELD: BALLARD | FORMATION: Grayburg, San Andres | JOB DONE DOWN: TUBING ☐ CASING ☒ ANNULUS ☐ | ALLOWABLE PRESSURE: TBG | CSG

COUNTY / PARISH: Eddy | STATE: New Mexico | TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐ | OIL API GRAVITY | VAPOR PSI

TYPE OF SERVICE: ☒ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other | SERVICE NAME: YF4PSD | AGE OF WELL: NEW WELL ☒ REWORK ☐ | TOTAL DEPTH | BHT (LOG)

CUST. NAME: ANADARKO PRODUCTION COMPANY

ADDRESS: PO Box 67

CITY, STATE ZIP CODE: Loco Hills New Mexico 88255

SERVICE INSTRUCTIONS:

CASING SIZE	WT.	DEPTH	TUBING SIZE	WT.	DEPTH
4½	10.5	2850			

TYPE OR GRADE			TYPE OR GRADE	
LINER SIZE	WT.	DEPTH BOTTOM	PACKER TYPE	PACKER DEPTH

OPEN HOLE	CASING VOL.	TUBING VOL.	ANNULAR VOL.

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO. OF HOLES	TOP	TO	BOTTOM	NO. OF HOLES
2783	TO	791	8		TO		
2796	TO	805	9		TO		
	TO				TO		
TOTAL	TO		73		TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER OF PERFORATIONS =

TIME	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL BBLS	CUM VOL BBLS	PROP TYPE	PROP # GAL	PRESSURE: CSG.	TBG.	NOTATIONS
										Pre-Job Safety Meeting
										Pre-Job Pressure Test To 4000 psi
1630		WF30		48					800	PAD
1631	25	YF3PSD		24	72				1950	PAD
1636	25	YF3PSD		48	120	FLA100	2		1950	SAND
1637	25	YF3PSD		24	144				1900	PAD
1638	25	YF3PSD		71	215	FLA100	4		1900	SAND
1641	25	YF3PSD		24	239				1850	SPACER
1642	25	YF3PSD		60	299	20/40	1		1900	SAND
1643	25	YF3PSD		60	359	20/40	2		1900	INCREASE SAND
1647	26	YF3PSD		71	430	20/40	3		1900	INCREASE SAND
1649	26½	YF3PSD		95	525	20/40	4		1850	INCREASE SAND
1652	27	YF3PSD		71	594	10/20	4		1750	SWITCH SAND
1654	13	YF3PSD		12	606				1700	DROP PLUG
1656	13	ACID		12	618				1650	ACID
1658	12	WF30		48	666				1650	PAD
1702	26	YF3PSD		24	690				2100	PAD

FRAC. GRADIENT: | AVG. INJECTION RATES: LIQ. | W/PROP

TOTAL FLUID: BBLS | TOTAL PROP: LBS

TREATING PRESSURE SUMMARY: MAX | FINAL | AVG | ISIP/VED. S.D.P. | 15 MIN. SIP

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE | DOWELL SERVICE SUPERVISOR

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

WELL NAME AND NUMBER: BGSAU-T 10-6	LOCATION (LEGAL)	DOWELL LOCATION: ARTESIA	TREATMENT NUMBER	PAGE 3 OF 5 PAGES
POOL / FIELD: BALLARD	FORMATION: GRAYBURG-SAN ANDRES	JOB DOWN: TUBING ☐ CASING ☒ ANNULUS ☐	ACCEPTABLE PRESSURE: TBG	CSG
COUNTY / PARISH: Eddy	STATE: New Mexico	TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐	OIL API GRAVITY	VAPOR PSI
TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other	SERVICE NAME: YF3PSD	AGE OF WELL: NEW WELL ☒ REWORK ☐	TOTAL DEPTH	BHT (LOG)

CASING SIZE	WT.	DEPTH	TUBING SIZE	WT.	DEPTH
TYPE OR GRADE			TYPE OR GRADE		
LINER SIZE	WT.	TOP/BOTTOM	PACKER TYPE		PACKER DEPTH
OPEN HOLE	CASING VOL.		TUBING VOL.		ANNULAR VOL.

CUST. NAME: ANADARKO PRODUCTION Company

ADDRESS: POBOX 67

CITY, STATE ZIP CODE: LOCO Hills New Mexico 88255

SERVICE INSTRUCTIONS:

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO. OF HOLES	TOP	TO	BOTTOM	NO. OF HOLES
	TO				TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: LEFT LOCATION: DIAMETER OF PERFORATIONS =

TIME (0001 to 2400)	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	PAYMENT VOL. BBLS	CUM VOL. BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG.	TBG.	NOTATIONS
										Pre-Job Safety Meeting
					690					Pre-Job Pressure Test To ____ psi
1703	26	YF3PSD		48	738	FLA100	2		2100	SAND
1705	27	YF3PSD		24	762				2100	SPACER
1706	26	YF3PSD		71	833	FLA100	4		2150	SAND
1708	25	YF3PSD		24	857				2200	SPACER
1708	25	YF3PSD		60	917	20/40	1		2200	SAND
1710	25½	YF3PSD		60	977	20/40	2		2200	INCREASE SAND
1712	26	YF3PSD		71	1048	20/40	3		2150	INCREASE SAND
1714	26	YF3PSD		95	1119	20/40	4		2100	INCREASE SAND
1717	26½	YF3PSD		71	1188	10/20	4		2100	SWITCH SAND
1719	12	YF3PSD		12	1200				1900	DROP PLUG
1720	12	ACID		12	1212				1800	ACID
1721	12	WF30		48	1260				1800	PAD
1724	26	YF3PSD		24	1284				2300	PAD
1725	26	FY3PSD		48	1332	FLA100	2		2450	SAND
1726	27	YF3PSD		24	1356				2300	SPACER

FRAC. GRADIENT:

AVG INJECTION RATES: LIQ. W/PROP

TOTAL FLUID: BBLS TOTAL PROP: LBS.

TREATING PRESSURE SUMMARY: MAX. FINAL AVG. IMMED. S.D.P. 15 MIN. SIP

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE DOWELL SERVICE SUPERVISOR

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY

DOWELL A DIVISION OF THE DOW CHEMICAL U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A.

WELL NAME AND NUMBER: [illegible] 6
LOCATION (LEGAL):
DOWELL LOCATION: ARTS
TREATMENT NUMBER:
PAGE 4 OF 5 PAGES
POOL / FIELD: [illegible]
FORMATION: [illegible]
PRESSURE LIMITATIONS: TUBING ☐ CASING ☒ ANNULUS ☐
ALLOWABLE PRESSURE: TBG: CSG:
COUNTY / PARISH: Eddy
STATE: New Mexico
TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐
OIL API GRAVITY: VAPOR PSI
TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other
SERVICE NAME: YF3PSD
AGE OF WELL: NEW WELL ☒ REWORK ☐
TOTAL DEPTH: BHT (LOG):

CASING SIZE / WT / DEPTH:
TUBING SIZE / WT / DEPTH:
TYPE OR GRADE:
TYPE OR GRADE:
LINER SIZE / WT / TOP / BOTTOM:
PACKER TYPE / PACKER DEPTH:
OPEN HOLE / CASING VOL / TUBING VOL / ANNULAR VOL:

CUST. NAME: [illegible] Production Company
ADDRESS: [illegible]
CITY, STATE ZIP CODE: [illegible]
SERVICE INSTRUCTIONS: [illegible]

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO. OF HOLES	TOP	TO	BOTTOM	NO. OF HOLES
	TO				TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS
ARRIVED ON LOCATION:
LEFT LOCATION:
DIAMETER OF PERFORATIONS =

TIME (0001 to 2400)	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL BBLS	CUM VOL BBLS	PROP TYPE	PROP # GAL	PRESSURE: CSG	TBG.	NOTATIONS
										Pre-Job Safety Meeting
					1350					Pre-Job Pressure Test To ____ psi
1726	27	YF35D		71	1527	FLA100	4		2350	SAND
1729	27	YF35D		24	1451				2208	SPACER
1730	26½	YF35D		60	1511	20/40	1		2200	SAND
1731	26½	YF35D		60	1571	20/40	2		2300	INCREASE SAND
1732	26½	YF35D		71	1642	20/40	3		2250	INCREASE SAND
1735	28	YF35D		95	1737	20/40	4		2150	INCREASE SAND
1737	28	YF35D		71	1808	10/20			2150	SWITCH SAND
1739	10	WF30		12	1820				1700	DROP PLUG
1741	10	Acid		12	1832				1600	ACID
1742	10	WF30		48	1880				1600	PAD
1744	24	YF35D		24	1904				2200	PAD
1745	26	YF35D		48	1952	FLA100	2		2500	SAND
1746	28	YF35D		24	1976				2400	SPACER
1747	29	YF35D		71	2047	FLA100	4		2400	SAND
1750	29	YF35D		24	2071				2300	SPACER

FRAC GRADIENT:
AVG. INJECTION RATES: LIQ 24.9 W. PROP 27.4
TOTAL FLUID: 2436 BBLS
TOTAL PROP: 242000 LBS
TREATING PRESSURE SUMMARY: MAX / FINAL / AVG / INVED. S.D.P. / 15 MIN. SIP

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY

PRODUCTION PRIOR TO THIS TR.
☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE:
DOWELL SERVICE SUPERVISOR: L. Dean King

1SAS

DOWELL DIVISION OF DOW CHEMICAL U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A. — 5-25-01

WELL NAME AND NUMBER: BGSAU-F 10-6 | LOCATION (LEGAL) | DOWELL LOCATION: ARTESIA | TREATMENT NUMBER | PAGE 5 OF 5 PAGES

FIELD: BALLARD | FORMATION: Grayburg San Andres | JOB DONE DOWN: TUBING ☐ CASING ☒ ANNULUS ☐ | ATTAINABLE PRESSURE: TBG CSG

COUNTY / PARISH: Eddy | STATE: New Mexico | TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐ | OIL API GRAVITY | VAPOR PSI

TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other | SERVICE NAME: YF3PSD | AGE OF WELL: NEW WELL ☒ REWORK ☐ | TOTAL DEPTH | BHT (LOG)

CASING SIZE | WT | DEPTH | TUBING SIZE | WT | DEPTH

TYPE OR GRADE | TYPE OR GRADE

LINER SIZE | WT | TOP/BOTTOM | PACKER TYPE | PACKER DEPTH

OPEN HOLE | CASING VOL | TUBING VOL | ANNULAR VOL

CUST. NAME: ANADARKO Production Company

ADDRESS: PO Box 67

CITY, STATE ZIP CODE: Loco Hills New Mexico 88255

SERVICE INSTRUCTIONS:

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO OF HOLES	TOP	TO	BOTTOM	NO OF HOLES
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER | PERFORATIONS =

TIME	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL BBLS	CUM VOL BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG.	TBG.	NOTATIONS
										Pre-Job Safety Meeting
					2071					Pre-Job Pressure Test To _____ psi
1751	29	YF3PSD		60	2131	20/40	1		2300	SAND
1753	27	YF3PSD		60	2191	20/40	2		2400	INCREASE SAND
1756	27	YF3PSD		71	2262	20/40	3		2350	INCREASE SAND
1800	27	YF3PSD		95	2357	20/40	4		2250	INCREASE SAND
1803	28	YF3PSD		71	2428	10/20	4		2200	SWITCH SAND
1806				60	2488				2300	FLUSH
									2500	SHUTDOWN
									2700	IMMED
									1700	5 min
									1700	10 min

FRAC. GRADIENT: | AVG INJECTION RATES: LIQ 24.9 | W/PROP 27.4

TOTAL FLUID: 2488 BBLS | TOTAL PROP: 24200 LBS

TREATING PRESSURE SUMMARY: MAX 2500 | FINAL 2100 | AVG. 2300 | IMMED. S.I.P. 1700 | 15 MIN SIP 1700

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE | DOWELL SERVICE SUPERVISOR

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY
F63	106 GAL	10/20	48000 #
A300	8 GAL	FLAKE	6400 #
15% HCL	4000 GAL	D47	51 GAL
YF3PSD	92000 GAL	M76	50 GAL
J347	300 LB	J66	1600 #
J218	30 LB	J116	900 #
J318	100 GAL	J122	100 #
J221	460 GAL	235	200 #
L10	46 LB		
20/40	13000 #		

WELL NAME AND NUMBER: *BALMD GSA-5-15 | LOCATION (LEGAL): SEC. 8-18-26E | DOWELL LOCATION: ARTESIA, N.M. | TREATMENT NUMBER 119 | PAGE 1 OF 3 PAGES

POOL / FIELD: Loco Hills | FORMATION: GRAYBURG | JOB DESCRIPTION: TUBING — | CASING X | ANNULUS — | ALLOWABLE PRESSURE: TBG 4000 CSG 4000

COUNTY / PARISH: EDDY | STATE: New Mexico | TYPE OF WELL: OIL X GAS — WATER — INJ — | OIL API GRAVITY — | MAXIMUM PSI

TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other | SERVICE NAME: YFPSD | AGE OF WELL: NEW WELL X REWORK — | TOTAL DEPTH 2912 | BHT (LOG)

CASING SIZE	WT	DEPTH	TUBING SIZE	WT	DEPTH
4½	J55	2850	—	—	—

TYPE OR GRADE	WT	TOP BOTTOM	TYPE OR GRADE	PACKER DEPTH
—	—	—	—	—

OPEN HOLE	CASING VOL	TUBING VOL	ANNULAR VOL
—	43.	—	—

CUST. NAME: Arrowhead Production Company

ADDRESS: P.O. Box 67

CITY, STATE ZIP CODE: Loco Hills, New Mexico

SERVICE INSTRUCTIONS:

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO OF HOLES	TOP	TO	BOTTOM	NO OF HOLES
2492	TO	2712.69			TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER OF PERFORATIONS =

TIME	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL BBLS	CUM VOL BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG	TBG	NOTATIONS
										Pre-Job Safety Meeting
										Pre-Job Pressure Test To ____ psi
1110	30	YFPSD		48				1900		START PAD YFPSD
1112	30	YFPSD		24	72	FLA-100	2#	1900		START SAND
1113	30	YFPSD		48	120			1800		SPACER
1114	30	YFPSD		24	144	20/40	1#	1900		START SAND
1115	30	YFPSD		71	215	20/40	2#	1900		INCREASE SAND
1117	30	YFPSD		24	239	20/40	3#	1950		INCREASE SAND
1119	30	YFPSD		60	299	20/40	4#	1950		INCREASE SAND
1122	30	YFPSD		60	359	8/12	1#	1950		CHANGE SAND
1124	30	YFPSD		12	430			1900		DROP PLUG
1125	15	15% HCl		12	525			1600		ACID
1127	28	WF30		34	559			1900		START PAD
1128	—	—						4700		SHUT DOWN / PLUG ON FORMATION
1130	16	WF30		8	567			3500		START PUMPING / SHUT DOWN
1132	—	—						1300		FLOW BACK
1155	FLUSH	WF30						3500		START PUMPING

FRAC GRADIENT: ? | AVG INJECTION RATES: ISIP 31.3 | W/PROP 34.3

TOTAL FLUID: 1700 + Plug BBLS | TOTAL PROP: 242,000 LBS

TREATING PRESSURE SUMMARY: MAX FLUSH | FINAL 2750 | AVG 2500 | 8050 ISIP | 5 MIN SIP

PRODUCTION PRIOR TO THIS TR. ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE: Ozzie Farris | DOWELL SERVICE SUPERVISOR: C.W. Dalle

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY
YFPSD	1920.50 GAL		
D47	50 GAL		
U71.8	3008		
U318	LIQUID 100 GAL		
U347	3000 LBS		
M76	50		
F-63	104		
A-200	8		
15%	1500		
J566			

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE 7/8/81

WELL NO. AND FARM OR LEASE: Ballard GSA-5-15 | LOCATION: SEC. 5-16S-24E | DOWELL LOCATION: ARTESIA, NM. | TREATMENT NUMBER 1191 | PAGE 2 OF 3

TIME	INJECTION RATE	TYPE OF FLUID	DENSITY	VOLUME BBLS	CUM BBLS	PROP TYPE	PROP CONC	PRESSURE CSG	PRESSURE TBG	NOTATIONS
2203	27	YF3PSD		48	740	F1A-100	2#	2500		START SAND
2209	27	YF3PSD		24	764			2400		SPACER
2205	27	YF3PSD		71	835	F1A-100	4#	2400		INCREASE SAND
2207	27	YF3PSD		24	859			2400		SPACER
2209	27	YF3PSD		60	919	20/40	1#	2400		START SAND
2209	27	YF3PSD		60	979	20/40	2#	2450		INCREASE SAND
2211	27	YF3PSD		71	1050	20/40	3#	2400		INCREASE SAND
2213	27	YF3PSD		95	1145	20/40	4#	2300		INCREASE SAND
2215	27	YF3PSD		71	1216	8/12	4#	2300		CHANGE SAND
2217	15	WF30		12	1228			2050		DROP PLUG
2218	27	ACID		12	1240			2300		START ACID
2219	27	WF30		48	1288			2300		SPACER WF30
2220	27	YF3PSD		24	1312			2350		SPACER YF3PSD
2221	27	YF3PSD		48	1360	2# F1A	2#	2300		START SAND
2222	27	YF3PSD		24	1384			2300		SPACER
2223	27	YF3PSD		71	1455	F1A-100	4#	2200		INCREASE SAND
2225	27	YF3PSD		24	1479			2300		SPACER
2225	27	YF3PSD		60	1539	20/40	1#	2400		START SAND
2226	27	YF3PSD		60	1599	20/40	2#	2450		INCREASE SAND
2227	28	YF3PSD		71	1670	20/40	3#	2450		INCREASE SAND
2229	29	YF3PSD		95	1765	20/40	4#	2450		INCREASE SAND
2230	30	YF3PSD		71	1836	8/12	4#	2400		CHANGE SAND
2232	15	WF30		12	1848			2100		DROP PLUG
2234	15	ACID		12	1860			2100		START ACID
2234	30	WF30		48	1908			2400		SPACER WF30
2235	30	YF3PSD		24	1932			2500		SPACER YF3PSD
2236	30	YF3PSD		48	1980	F1A-100	2#	2400		START SAND
2238	30	YF3PSD		24	2004			2450		SPACER
2238	30	YF3PSD		71	2075	F1A-100	4#	2650		INCREASE SAND
2239	30	YF3PSD		24	2099			2650		SPACER
2240	30	YF3PSD		60	2159	20/40	1#	2700		START SAND
2241	30	YF3PSD		60	2219	20/40	2#	2800		INCREASE SAND
2242	30	YF3PSD		71	2290	20/40	3#	2600		INCREASE SAND
2243	35	YF3PSD		95	2385	20/40	4#	2600		INCREASE SAND
2246	35	YF3PSD		71	2456	8/12	4#	2700		CHANGE SAND
2248	35	WF30		48	2504			2600		START FLUSH

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE 7/10/81

CUSTOMER WELL NAME AND NUMBER	LOCATION (LEGAL)	DOWELL LOCATION	TREATMENT NUMBER
Bx Hard GSA 5-15	Sec 8-18S-29E	Artesia 05-13	PAGE OF PAGES

TIME	INJECTION RECORD							PRESSURE		NOTATIONS
	RATE BPM	TYPE OF FLUID	DENSITY	VOLUME BBLS	CUM VOL BBLS	PROP TYPE	PROP #/GAL	CSG	TBG	
2250	-	-			250			2800		SHUT DOWN
2250								2050		ISIP
2255								1950		5 min
2300								1900		10 min
2305								1900		15 min

DALLAS, TEXAS U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A. — 6/11/81

WELL NO. & FARM: BARNSD GRAYBURG # 263	LOCATION (LEGAL):	DOWELL LOCATION: ARTESIA, NEW MEX	TREATMENT NUMBER: 1112
POOL / FIELD: BALLARD	FORMATION: SAN ANDRES		PAGE ___ OF ___ PAGES
COUNTY / PARISH: EDDY	STATE: NEW MEXICO	JOB GOING DOWN: TUBING ☐ CASING ☒ ANNULUS ☐	ALLOWABLE PRESSURE: TBG. ___ CSG. 4000
TYPE OF SERVICE: ☐ Acid-izing ☒ Fracturing ☐ Sand Control ☐ Other	SERVICE NAME: YF3PSD	TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐	OIL API GRAVITY: X VAPOR PSI: X
		AGE OF WELL: NEW WELL ☐ REWORK ☐	TOTAL DEPTH: 2899 DRY HOLE ☐

CASING SIZE	WT.	DEPTH	TUBING SIZE	WT.	DEPTH
TYPE OR GRADE			TYPE OR GRADE		
LINER SIZE	WT.	TOP / BOTTOM	PACKER TYPE	PACKER DEPTH	
—	—	—	—	—	
OPEN HOLE	CASING VOL.	TUBING VOL.	ANNULAR VOL.		
—	45	—	—		

CUST. NAME: ANADARKO PRODUCTION

ADDRESS: BOX 67

CITY, STATE ZIP CODE: LOCO HILLS NEW MEXICO

SERVICE INSTRUCTIONS:

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO. OF HOLES	TOP	TO	BOTTOM	NO. OF HOLES
2562	TO	2812	63		TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: LEFT LOCATION: DIAMETER OF PERFORATIONS =

TIME (1000 = 24:00)	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	SEGMENT VOL. BBLS	CUM. VOL. BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG	TBG.	NOTATIONS
1445										Pre-Job Safety Meeting
1430										Pre-Job Pressure Test To 4500 psi
1520	20	WF30		46				1700		START PAD
1523	25	YFPSD		24	72			1900		START YFPSD
1525	25	YFPSD		52	124	FLA 100	2#	2000		START SAND
1527	25	YFPSD		24	148			2000		SPACER
1529	25	YFPSD		84	232	FLA 100	4#	2000		INCREASE SAND
1532	25	YFPSD		24	256					SPACER
1533	25	YFPSD		63	319	20/40	1#	2000		START SAND
1535	25	YFPSD		65	384	20/40	2#	1950		INCREASE SAND
1537	25	YFPSD		81	465	20/40	3#	1950		INCREASE SAND
1541	25	YFPSD		112	577	20/40	4#	2150		INCREASE SAND
1552	25	YFPSD		84	661	16/20	4#	2000		CHANGE SAND
1555	25	WF30		12	673			1800		SPACER / DROP PLG
1559	10	15% HCL		12	685			1800		ACID
1600	10	WF30		48	733			1500		SPACER
		YFPSD		24	757			3700		SPACER

FRAC. GRADIENT: .99

AVG. INJECTION RATES: LIQ 17 W/PROP 18.1

TOTAL FLUID: 2504 BBLS

TOTAL PROP: 242,000 LBS

TREATING PRESSURE SUMMARY: MAX 3700 FINAL 3000 AVG 3400 IMMED. S.D.P. 2000 15 MIN. SIP 1750

PRODUCTION PRIOR TO THIS TR.

☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE: MIKE BRASWELL

DOWELL SERVICE SUPERVISOR: G. W. TOLLE

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY
YF3PSD	92000 GAL	J11L	900 #
L10	360 #	15%	4000 GAL
D47	50 GAL	A-200	8 GAL
J218	300 #	F-68	4 GAL
F63	100 GAL	FLA 100	64000 #
J347	3000 #	20/40	130000 #
M76	50 GAL	16/20	48000 #
35%	5 GAL	J122	126
J221	2300 GAL	J565	1600 #
J318	100 GAL		

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DWG. 494-1 PRINTED IN U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE: 6/11/81

CUSTOMER WELL NAME AND NUMBER: Pallard Grayburg 205 | LOCATION (LEGAL) | DOWELL LOCATION: Hobbs, N. Mex. | TREATMENT NUMBER | PAGE ___ OF ___ PAGES

TIME (HRS & MIN)	INJECTION RECORD 757 RATE (BPM)	TYPE OF FLUID	DENSITY	VOL. THIS INT. (BBLS)	CUM. VOL. (BBLS)	PROP TYPE	PROP CONC.	PRESSURE CSG	PRESSURE TBG	NOTATIONS
1606	10.0	YF3PSD		48	805	F/A 100	2#	3600		INCREASE SAND
1614	10.0	YF3PSD		24	829	·		3600		SPACER
1618	9.0	YF3PSD		71	900	F/A 100	4#	3550		INCREASE SAND
1625	9.0	YF3PSD		24	924			3500		SPACER
1627	9.0	YF3PSD		60	984	20/40	1#	3500		START SAND
1633	9.0	YF3PSD		60	1044	20/40	2#	3500		INCREASE SAND
1639	13.0	YF3PSD		71	1115	20/40	3#	3400		INCREASE SAND
1645	17.0	YF3PSD		95	1210	20/40	4#	3500		INCREASE SAND
1651	18.0	YF3PSD		71	1281	10/20	4#	3400		CHANGE SAND
1655	20	WF30		12	1293	PUMP SALT PACKAGE		3200		PUMP 100 LBS SALT 50 LBS BENZOATE
1658	20	ACID		12	1305			3200		ACID
1658	13.0	WF30		48	1353			3400		SPACER
1700	20.6	YF3PSD		24	1377			3500		SPACER
1703	20	YF3PSD		48	1425	F/A 100	2#	3450		INCREASE SAND
1705	20.0	YF3PSD		24	1449			3400		SPACER
1706	20.0	YF3PSD		71	1520	F/A 100	4#	3350		~~SPACER~~ INCREASE SAND
1710	20.0	YF3PSD		24	1544			3350		SPACER
1711	20.0	YF3PSD		60	1604	20/40	1#	3350		START SAND
1714	20.0	YF3PSD		60	1664	20/40	2#	3400		INCREASE SAND
1717	20.0	YF3PSD		71	1735	20/40	3#	3400		INCREASE SAND
1721	21.0	YF3PSD		95	1830	20/40	4#	3300		INCREASE SAND
1726	21.0	YF3PSD		71	1901	10/20	4#	3250		INCREASE SAND 10/20
1732	22	WF30		12	1913	—		3150		PUMP 100 LBS SALT 50 LBS BENZOATE BALLS
1733	23	ACID		12	1925	-		3150		ACID
1734	23	WF30 YF3PSD WF30		48	1973	-		3400		SPACER
1735	21			24	1997			3150		SPACER
1737	21	YF3PSD		48	2045	F/A	2#	3150		START SAND
1740	21	YF3PSD		24	2069			3200		SPACER
1740	21	YF3PSD		71	2140	4# F/A	4#	3250		INCREASE SAND
1742	20	YF3PSD		24	2164			3400		SPACER
1743	20	YF3PSD		60	2224	20/40	1#	3450		INCREASE SAND
1746	20	YF3PSD		60	2284	20/40	2#	3400		INCREASE SAND
1749	21	YF3PSD		71	2355	20/40	3#	3200		INCREASE SAND
1752	22	YF3PSD		95	2450	20/40	4#	3100		INCREASE SAND
1753	22	YF3PSD		74	2524	10/20	4#	3150		CHANGE SAND
1755	23	WF30	-	48	2572	—		3000		START FLUSH

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DW-1M PRINTED IN U.S.A.

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

CUSTOMER WELL NAME AND NUMBER	LOCATION (LEGAL)	DOWELL LOCATION	DATE
Brainard Gray Burg 26-3		Artesia, NM 05-13	6/11/81

TREATMENT NUMBER

PAGE ___ OF ___ PAGES

TIME HR:MIN	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOL BBLS	CUM VOL BBLS	PROP TYPE	PROP #/GAL	PRESSURE: CSG	TBG	NOTATIONS
1757	—	—	—		2572			3000		SHUT DOWN
1757	—	—	—					2000		ISIP
1802	—							1875		5 min
1812	—							1750		10 min
[illegible]917	—							1750		15 min

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE: 6/17/81

WELL NO. AND NAME: BAIRD GRAYBURG 14-6

LOCATION (SEC.): SEC 8-18S-29E

DOWELL LOCATION: ARTESIA OS-13

INVOICE NO. / TICKET NO.: 1185

TIME	INJECTION RECORD							PRESSURE		NOTATIONS
	RATE	TYPE OF FLUID	DENSITY	VOL. OF FLUID	VOL. IN CASING	PROP TYPE	CONC.	CSG	TBG	
1613	25	WF30		45	-			1200		START PAD
1619	25	YFPSD		24	72			1200		SPACER
1620	26	YFPSD		52	124	FLA 100	2#	1200		START SAND
1621	26	YFPSD		24	148			1250		SPACER
1624	26	YFPSD		71	219	FLA 100	4#	1250		INCREASE SAND
1625	26	YFPSD		24	240			1300		SPACER
1627	26	YFPSD		63	303	20/40	1#	1300		START SAND
1629	25	YFPSD		65	368	20/40	2#	1550		INCREASE SAND
1631	25	YFPSD		81	449	20/40	3#	1200		INCREASE SAND
1635	26	YFPSD		112	561	20/40	4#	1250		INCREASE SAND
1639	26	YFPSD		84	645	20/40	4#	1250		CARRIER SAND
1641	10	WF30		12	657	-		1250		DROP PLUG
1642	10	ACID		12	669			1300		ACID
1643	10	WF30		48	717			1400		SPACER
1648	10	YFPSD		24	741			1450		SPACER
1649	25	YFPSD		52	793	FLA 100	2#	1500		START SAND
1651	25	YFPSD		24	817			1400		SPACER
1652	25	YFPSD		84	901	FLA 100	4#	1600		INCREASE SAND
1655	26	YFPSD		63	964			1450		SPACER
1656	26	YFPSD		65	1029	20/40	1#	1500		START SAND
1658	26	YFPSD		81	1110	20/40	2#	1500		INCREASE SAND
1700	26	YFPSD		112	1222	20/40	3#	1450		INCREASE SAND
1703	26	YFPSD		84	1306	20/40	4#	1400		INCREASE SAND
1707	26	YFPSD		112	1418	20/40	4#	1450		INCREASE SAND
1710	10	WF30		12	1430			1500		PLUG
1711	10	ACID		12	1442			1500		ACID
1712	10	WF30		48	1490			1500		SPACER
1716	25	YFPSD		24	1514			1500		SPACER
1718	25	YFPSD		52	1566	FLA 100	2#	1600		START SAND
1720	25	YFPSD		24	1590			1700		SPACER
1721	25	YFPSD		54	1644	FLA 100	4#	1500		INCREASE SAND
1724	25	YFPSD		24	1668			1500		SPACER
1725	25	YFPSD		63	1731	20/40	1#	1550		START SAND
1727	25	YFPSD		65	1796	20/40	2#	1550		INCREASE SAND
1730	25	YFPSD		81	1907	20/40	3#	1500		INCREASE SAND
1733	25	YFPSD		112	2019	20/40	4#	1500		INCREASE SAND

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE 6/17/81

Bellino Gilespie 14 #1 | Sec 8-15S-29E | ARTESIA, N.M. 0513 | TREATMENT NUMBER 1165 | PAGE 2 OF 3 PAGES

TIME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PRESSURE CSG	TBG	NOTATIONS
1733	25	YFPSD		112	2111	10/20	4#	1250		CHANGE SAND
1740	10	WF30		12	2123			1400		Plug
1741	10	ACID		12	2135			1400		ACID
1743	10	WF30		48	2183			1500		Spacer
1745	10	YFPSD		24	2207			1500		Spacer
1748	10	YFPSD		54	2261	FLA100	2#	1300		Start Sand
1751	25	YFPSD		74	2335			1400		Spacer
1752	25	YFPSD		63	2378	FLA100	4#	1450		Increase Sand
1754	25	YFPSD		65	2443			1500		Spacer
1757	26	YFPSD		63	2506	20/40	1#	1600		Start Sand
1759	26	YFPSD		65	2571	20/40	2#	1600		Increase Sand
1801	26	YFPSD		81	2652	20/40	3#	1600		Increase Sand
1803	26	YFPSD		112	2764	20/40	4#	1600		Increase Sand
1805	26	YFPSD		54	2845	10/20	4#	1650		Change Sand
1809	26	YFPSD		48	2896			1650		Flush
1810	—	—		—		—		1550		Shut Down
								1500		5 min
								1400		10 min
								1300		15 min

2507 - Total Fluid — AVG RATE - 20.8

2896 w/ Prop — w/ Prop - 24.1

242,000# - Total Prop — AVG PRESS - 1400

1700 - Max Press

ISIP - 1600

1600 Final Press — 15 min - 1300

WELL NAME & NUMBER: Eguard GSA #15-71
LOCATION: Grayburg
COUNTY: Eddy
STATE: New Mexico
TYPE OF TREATMENT: Acidizing / Fracturing / Sand Control / Other
SERVICE NAME: YF3PSD
DATE: 05-23-93
PAGE 1 OF 1 PAGES
DOWN HOLE LOCATION: A-Fesp
TYPE OF WELL: OIL / GAS / WATER / TEU
ACID OF WELL: NEW WELL / RE-ENTRY
MAXIMUM ALLOWABLE PRESSURE: TBG / CSG 4000
OIL API GRAVITY
TOTAL DEPTH
CASING SIZE 5½ | WT | DEPTH
TUBING SIZE | WT | DEPTH
TYPE OF GRADE
PACKER TYPE | WT | TYPE SHOE | PACKER TYPE | PACKER DEPTH
OPEN HOLE | CASING VOL 4K | TUBING VOL | ANNULAR VOL

CUSTOMER NAME: Anadarko Production Co.
ADDRESS
CITY STATE ZIP CODE

SERVICE INSTRUCTIONS: Frac w/ 42,000 gal YF3PSD 16,000 # WF30, 130,000 # 20/40, 64,000 # RCS, 48,000 # 8/12, 1500 gal 15% HCL

PERFORATED INTERVALS

TOP	TO/BOTTOM	SHOTS	TOP	TO/BOTTOM	SHOTS
1950	2154	65			

FOR CONVERSION PURPOSES 42 BBLS EQUALS 1000 GALLONS
ARRIVED ON LOCATION: 0600 LEFT LOCATION 1530
DIAMETER OF PERFORATIONS =

TIME	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	VOLUME GAL/BBLS	CUM GAL/BBLS	PROP TYPE	PROP CONC	PRESSURE: CSG	TBG	NOTATIONS
										Pre-Job Safety Meeting
										Pre-Job Pressure Test To 6500psi
1120	25	WF30		48	48			400		START PAD WF30
1124	25	YF3PSD		24	72			1110		START YF3PSD
1125	25	" "		48	120	FLA 100	2#	1200		START FLA 100
1128	25	" "		24	144			1200		SPACER
1128	25	" "		72	216	FLA 100	4#	1250		4# FLA 100
1132	25	" "		24	240			1275		SPACER
1130	28	" "		60	300	20/40	1#	1350		1# 20/40
1134	28	" "		60	360	20/40	2#	1450		2# 20/40
1136	28	" "		72	432	20/40	3#	1415		3# 20/40
1138	28	" "		96	528	20/40	4#	1450		4# 20/40
1140	28	" "		72	600	8/12	4#	1450		4# 8/12
1142	10	WF30		12	612			1450		WF30 + 300# 16, 300# SM
1143	10	15% HCL		12	624			1450		Acid
1144	18	WF30		48	672			1400		WF30
1145	24	YF3PSD		24	696			1410		SPACER

FINAL DISCHARGE RATE: .83
AVG FOR DISCHARGE RATES: 10 25 MAX/DISP 27.5
TOTAL FLUID: 2604 BBLS
TOTAL PROP: 242,000 LBS
BREAKING PRESSURE SUMMARY: MAX 1700 AVG 1680 MIN 1675 INITIAL SDP 1550 FINAL SDP/SIP 1500
PRODUCTION PRIOR TO THIS JOB
Test / Stabilized

MATERIALS CHARGED FOR:

MATERIAL	QUANTITY	MATERIAL	QUANTITY
D47	50 gal	FLA 100	64,000 #
J314	300 #	20/40	130,000 #
J318	100 GAL	8/12	48,000 #
J347	3000 #		
F63	102 gal		
B200	6 gal		
15% HCL	1500 gal		
M76	50 gal		
J316	1700 #		
J316	1700 #		

CUSTOMER REPRESENTATIVE: Ozzie Rocio
DOWELL SERVICE SUPERVISOR: Monty Green

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

Customer & Well Name: Guadalupe Blkd 15-7

Dowell Location: A-Tex-A

Date: 7-2-81

Treatment Number: 1163

Page 2 of 2 Pages

TIME	INJECTION RECORD: Rate BPM	Type of Fluid	[illegible]	[illegible]	[illegible]	Prop Type	[illegible]	PRESSURE: CSG	TBG	NOTATIONS
146	29	YF3PSD		48	744	FLA	2#	1650		FLA SAND
148	29	" "		24	768			1650		Spacer
149	29	" "		72	840	FLA	4#	1650		FLA SAND
152	29	"		24	864			1680		Spacer
153	29	"		60	924	20/40	1#	1680		Sand
155	29	"		60	984	20/40	2#	1680		Increase Sand
157	29	"		72	1056	20/40	3#	1700		" "
159	29	"		96	1152	20/40	4#	1720		" "
202	29	"		72	1224	8/12	4#	1740		START 8/12 Sand
205	10	WF30		12	1236			1650		WF30 +600# salt 600# [illegible]
206	10	15% HCL		12	1248			1650		Acid
207	16	WF30		48	1296			1700		WF30
209	28	YF3PSD		24	1320			1750		YF3PSD Spacer
210	29	" "		48	1368	FLA	2#	1800		SAND
211	30	" "		24	1392			1820		Spacer
213	29	" "		72	1464	FLA	4#	1830		SAND
216	29	" "		24	1488			1840		Spacer
218	29	" "		60	1548	20/40	1	1860		Sand
220	29	" "		60	1608	20/40	2	1860		Increase Sand
223	29	" "		72	1680	20/40	3	1875		" "
226	29	" "		96	1776	20/40	4	1875		" "
229	29	" "		72	1848	8/12	4	1880		8/12 SAND
232	10	WF30		12	1860			1900		WF30 800# [illegible] - 800# salt
233	10	15% HCL		12	1872			1900		Acid
234	18	WF30		48	1920			1875		WF30 PAD
236	28	YF3PSD		24	1944			1850		Spacer
238	30	" "		48	1992	FLA	2	1850		FLA SAND
240	30	" "		24	2016			1825		Spacer
241	30	" "		72	2088	FLA	4#	1830		FLA
243	30	" "		24	2112			1850		Spacer
244	16	" "		60	2172	20/40	1	1650		SAND Turbine Down
246	16	" "		60	2232	20/40	2	1650		
248	16	WF30		36	2268			1650		CUT SAND
250										Shut Down

SUPPLEMENTAL LOG

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE 7-28-81

CUSTOMER WELL NAME AND NUMBER: BALLARD 15-7

LOCATION (FIELD):

DOWELL LOCATION: A-TEXLA

TREATMENT NUMBER 1163

PAGE 3 OF 3 PAGES

TIME	INJECTION RECORD							PRESSURE		NOTATIONS
358	12	WF30		48	2336			1800		START WF30
401	29	YF30SD		72	2388	20/40	3#	1600		START SAND
404	29	" "		96	2484	20/40	4#	1650		INCREASE SAND
408	29	" "		72	2556	8/12	4#	1700		START 8/12 SAND
410	29	WF30		48	2604			1750		START FLUSH
412	29	WF30						1780		SHUT DOWN
										JOB @ 1550

FORM 1 PRINTED IN U.S.A. — DOWELL DIVISION OF DOW CHEMICAL U.S.A. — 7/7/81

WELL NAME AND NUMBER: Ballard Gray Burg 5-16	LOCATION (LEGAL): Sec 8 - T 18S - R 29E	DOWELL LOCATION: Artesia, N.M.	TREATMENT NUMBER 11176
FIELD / FIELD: Ballard Gray Burg	FORMATION: Gray Burg	JOB CONFIGURATION: TUBING ☐ CASING ☒ ANNULUS ☐	PAGE 1 OF 2 PAGES
COUNTY / PARISH: Eddy	STATE: New Mexico	TYPE OF WELL: OIL ☒ GAS ☐ WATER ☐ INJ ☐	ALLOWABLE PRESSURE: TBG 4000 CSG 4000
TYPE OF SERVICE: ☐ Acidizing ☒ Fracturing ☐ Sand Control ☐ Other	SERVICE NAME: YFPSD	AGE OF WELL: NEW WELL ☒ REWORK ☐	OIL API GRAVITY: X VALVE PSI: X
CUST. NAME: Anadarko Production Company		CASING SIZE 5 1/2, WT 15.5, DEPTH 2830	TOTAL DEPTH 2530, BHT (LOG) 95°
ADDRESS: Box 671		TYPE OR GRADE: LINER SIZE —, WT —, TOP/BOTTOM —	TUBING SIZE —, WT —, DEPTH —
CITY, STATE ZIP CODE: Loco Hills, New Mexico			TYPE OR GRADE: PACKER TYPE —, PACKER DEPTH —
		OPEN HOLE —, CASING VOL 65	TUBING VOL —, ANNULAR VOL —

SERVICE INSTRUCTIONS: Frac w/ 92000 Gal YF3PSD w/ 130,000 20/40, 6,400# FLA 100, 48000 8/12 Sand.

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: | LEFT LOCATION: | DIAMETER OF PERFORATIONS =

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO OF HOLES	TOP	TO	BOTTOM	NO OF HOLES
2502	TO	2723	42		TO		
	TO				TO		
	TO				TO		
	TO				TO		

TIME	INJECTION RECORD: RATE BPM	TYPE OF FLUID	DENSITY	PROPPANT VOL LBS	CUM VOL LBS	PROP TYPE	PROP #/GAL	PRESSURE: CSG	TBG.	NOTATIONS
0815										Pre-Job Safety Meeting 0830
0830										Pre-Job Pressure Test To 4500 psi
0845	27	WF30		48				1000		START PAD WF30
0847	27	YFPSD		24	72			1200		START YFPSD PAD
0848	27	YFPSD		48	120	FLA 100	2#	1750		START SAND
0850	27	YFPSD		24	144			1200		SPACER
0852	30	YFPSD		71	215	FLA 100	4#	1700		SAND
0853	30	YFPSD		24	239			1200		SPACER
0855	30	YFPSD		60	299	20/40	1#	1200		START SAND
0857	30	YFPSD		60	359	20/40	2#	1200		INCREASE SAND
0858	30	YFPSD		71	430	20/40	3#	1200		INCREASE SAND
0859	30	YFPSD		95	525	20/40	4#	1300		INCREASE SAND
0902	30	YFPSD		71	596	8/12	4#	1400		CHANGE SAND
0904	17	WF30		12	608			1450		DROP PLUG
0905	17	WF30		12	620			1450		ACID
0907	30	WF30		48	668			1700		SPACER WF30
0909	30	YFPSD		24	692			1600		SPACER YFPSD

FRAC GRADIENT: | AVG INJECTION RATES: TR 28.8 W/PROP 31.5

TOTAL FLUID: 2504 BBLS | TOTAL PROP: 242,000 LBS

TREATING PRESSURE SUMMARY: MAX 1700 | FINAL 1400 | AVG 1600 | IMMED. S.D.P. 1300 | 15 MIN. SIP 1200

PRODUCTION PRIOR TO THIS TR. | ☐ Test ☐ Stabilized

CUSTOMER REPRESENTATIVE: Ozzie Farris | DOWELL SERVICE SUPERVISOR: C. W. Dollie

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY
YF3PSD	92,000 Gal	J615	1800
D47	50 Gal	J116	900
J218	300 #	J227	21,000
J221	540 Gal	FLA 100	6400 #
J318	100 Gal	20/40	130,000 #
J347	3400 lb	8/12	48,000
M76	50 Gal	IC-ES	6 Gal
F-L3	103 Gal	M-2	85 #
A-200	6 Gal		
15% HCL	1500 Gal		

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DWL-PA-1 PRINTED IN U.S.A. — DOWELL DIVISION OF THE DOW CHEMICAL U.S.A.

DATE: 7/7/81

CUSTOMER WELL NAME AND NUMBER: Ballard S-16 | LOCATION (LEGAL): Sec-8-T8S-R9E | DOWELL LOCATION: Artesia OS-17 | TREATMENT NUMBER: 1176 | PAGE 2 OF 3 PAGES

TIME	INJECTION RECORD							PRESSURE		NOTATIONS
	RATE BPM	TYPE OF FLUID	EX-NOTE	VOL PUMPED	CUM VOL PUMPED	PROP TYPE	PROP CONC	CSG	TBG	
0909	30	YFPSD		48	740	FIA-100	2#	1500		START SAND
0910	30	YFPSD		24	764			1400		SPACER
0911	30	YFPSD		71	835	FIA-100	4#	1400		INCREASE SAND
0912	30	YFPSD		24	859			1400		SPACER
0913	30	YFPSD		60	919	20/40	1#	1450		START SAND
0915	30	YFPSD		60	979	20/40	2#	1450		INCREASE SAND
0916	30	YFPSD		71	1050	20/40	3#	1450		INCREASE SAND
—	—	YFPSD		9	[illegible]	20/40	4#	1400		ATR-WENT-DOWN
0920	30	YFPSD		95	1145	20/40	4#	1450		INCREASE SAND
0922	30	YFPSD		71	1218	8/12	4#	1700		CHANGE SAND
0926	17	WF30		12	1228			1600		DROP PLUG
0927	17	ACID		12	1240			1500		ACID
0928	30	WF30		48	1288			1500		SPACER
0929	30	YFPSD		24	1312			1500		SPACER
0930	30	YFPSD		48	1365	FIA100	2#	1600		START SAND
0931	30	YFPSD		71	1384			1700		SPACER
0932	30	YFPSD		24	1455	FIA100	4#	1600		INCREASE SAND
0933	30	YFPSD		60	1479			1500		SPACER
0935	30	YFPSD		60	1539	20/40	1#	1600		START SAND
0937	30	YFPSD		71	1599	20/40	2#	1500		INCREASE SAND
0939	30	YFPSD		95	1670	20/40	3#	1400		INCREASE SAND
0942	30	YFPSD		71	1765	20/40	4#	1400		INCREASE SAND
0945	12	YFPSD		12	1836	8/12	4#	1400		CHANGE SAND
0946	12	WF30		12	1848			1500		DROP PLUG
0947	12	ACID		48	1860			1500		ACID
0948	30	WF30		24	1908			1700		SPACER
0949	30	YFPSD		48	1932			1600		SPACER
0951	30	YFPSD		24	1950	FIA100	2#	1500		START SAND
0953	30	YFPSD		71	2004			1400		SPACER
0955	32	YFPSD		24	2015	FIA100	4#	1500		INCREASE SAND
0956	32	YFPSD		60	2099			1500		SPACER
0958	33	YFPSD		60	2159	20/40	1#	1500		START SAND
1000	33	YFPSD		71	2219	20/40	2#	1450		INCREASE SAND
1002	33	YFPSD		95	2296	20/40	3#	1450		INCREASE SAND
1005	33	YFPSD		71	2355	20/40	4#	1400		INCREASE SAND
1007	33	YFPSD		48	2396	8/12	4#	1400		CHANGE SAND

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

DW. 454 PRINTED IN U.S.A.

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

DATE 7/7/81

CUSTOMER WELL NAME AND NUMBER: BALLARD 5-16

LOCATION (LEGAL): Sec 8. - 8S - 21E

DOWELL LOCATION: VERNAL

TREATMENT NUMBER 1176

PAGE 3 OF 3 PAGES

TIME	INJECTION RECORD							PRESSURE		NOTATIONS
	RATE BPM	TYPE OF FLUID	DENSITY	VOL. IN WELL BBLS	CUM VOL. BBLS	PROP TYPE	PROP CONC.	CSG	TBG	
1060	33	WF30		48				1500		FLUSH
1013	--	—			2504			11400		SHUT DOWN
1013								13000		ISIP
1015								1250		5 MIN
1023								1200		10 MIN
1028								1200		15 MIN

DOWELL DIVISION OF DOW CHEMICAL U.S.A.

WELL NAME AND NUMBER	LOCATION (LEGAL)	DOWELL LOCATION	TREATMENT NUMBER 02-23- 1212
Ballard 11-6		Artesia	PAGE 1 OF 1 PAGES
FIELD: Loco Hills	FORMATION: Gray Burg	JOB DONE DOWN: TUBING [ ] CASING [X] ANNULUS [ ]	ALLOWABLE PRESSURE: TBG — CSG 4000
COUNTY / PARISH: Eddy	STATE: New Mexico	TYPE OF WELL: OIL [X] GAS [ ] WATER [ ] INJ [ ]	OIL API GRAVITY / VAPOR PSI
TYPE OF SERVICE: [ ] Acidizing [X] Fracturing [ ] Sand Control [ ] Other	SERVICE NAME: YF3PSD	AGE OF WELL: NEW WELL [ ] REWORK [X]	TOTAL DEPTH: PBTD 2831 · BHT (LOG) 80°

CASING SIZE	WT.	DEPTH	TUBING SIZE	WT.	DEPTH
5 1/2	15.5	2850	—	—	—

LINER SIZE	WT.	TOP BOTTOM	PACKER TYPE	PACKER DEPTH
—	—		—	—

OPEN HOLE	CASING VOL.	TUBING VOL.	ANNULAR VOL.
—	60	—	—

CUST. NAME: Anadarko Production Co.

ADDRESS: P.O. Box 67

CITY, STATE ZIP CODE: Loco Hill, New Mexico, 88255

SERVICE INSTRUCTIONS: Frac with 92,000 gal YF3PSD, 12,000 gal WF30, 64,000# FLA, 130,000# 20/40, 48,000 8/12, 1500 gal 15% HCl.

PERFORATED INTERVALS

TOP	TO	BOTTOM	NO. OF HOLES	TOP	TO	BOTTOM	NO. OF HOLES
2552	TO	2733	51		TO		
	TO				TO		
	TO				TO		
	TO				TO		

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION: 0500 LEFT LOCATION: 1530

DIAMETER OF PERFORATIONS:

TIME (0001 to 2400)	RATE BPM	TYPE OF FLUID	DENSITY	INCREMENT VOLUME	CUM VOLUME	PROP TYPE	PPG	PRESSURE CSG	PRESSURE TBG	NOTATIONS
										Pre-Job Safety Meeting
										Pre-Job Pressure Test To 6000 psi
1235	20	WF30		48		—		1000		START WF30 PAD
1237	30	YF3PSD		24				1300		START Spacer
1238	30	" "		48		FLA	2#	1450		START FLA 100
1239	30	" "		24				1450		START Spacer
1240	30	" "		72		FLA	4#	1450		START FLA 100
1243	30	" "		24				1450		START Spacer
1244	30	" "		60		20/40	1	1450		START 20/40 sand
1246	30	" "		60		20/40	2	1450		Increase sand
1248	30	" "		72		20/40	3	1400		Increase sand
1251	30	" "		96		20/40	4	1300		Increase sand
1254	30	" "		72		8/12	4	1250		START 8/12 sand
1257	10	WF30		12				1400		START WF30 + Plus 300
1258	10	15% HCL		12				1250		START Acid
1259	25	WF30		48				1250		START WF30 PAD
1301	32	YF3PSD		24				1500		START YF3PSD Spacer

FRAC GRADIENT	AVG. INJECTION RATES	
1.12	LIQ 29.7	W/ PROP 33.4

TOTAL FLUID: 2532 BBLS TOTAL PROP: 242,000 LBS

TREATING PRESSURE JOB SUMMARY: MAX 2100 FINAL 2000 AVG 1800 INSTD. SIP 1800 15 MIN SIP 1600

PRODUCTION PRIOR TO THIS TR.

[ ] Test [ ] Stabilized

MATERIALS CHARGED FOR:

MTRL	QUANTITY	MTRL	QUANTITY
YF3PSD	92,000 gal	[illegible]	[illegible]
FLA 100	64,000#	J 166	
20/40	130,000#	J 227	
8/12	48,000#	J 318	100 gal
15% HCL	1500 gal	M 2	85
J-347	2000#	U 28	26 gal
M 76	50 gal		
F 43	102 gal		
O 77	50 gal		
J 218	300#		

CUSTOMER REPRESENTATIVE: Charles Copeland

DOWELL SERVICE SUPERVISOR: Tony Brown

WELL TREATMENT REPORT
SUPPLEMENTAL LOG

PRINTED IN U.S.A. — DOWELL DIVISION OF THE DOW CHEMICAL U.S.A.

DATE: 7-17-81

CUSTOMER WELL NAME AND NUMBER: Ballard 11-6

LOCATION (LEGAL):

DOWELL LOCATION: Artesia

TREATMENT NUMBER: 53-7217

PAGE 2 OF 2 PAGES

TIME	INJECTION RECORD							PRESSURE		NOTATIONS
	RATE BPM	TYPE OF FLUID	DENSITY	VOLUME AT YIELD BBLS	CUM VOLUMES	PROP TYPE	CONC. #/GAL	CSG	TBG	
1302	32	YF3PSD		48		FLA	2	1700		START Spacer
1303	33	" "		24		~~FLA~~	~~2~~	1650		~~START~~ FLUSH Spacer
1304	33	" "		72		FLA	4	1650		Increase Sand
1306	33	" "		24		~~FLA~~	~~4~~	1700		Spacer
1307	33	" "		66		20/40	1	1700		START 20/40
1309	33	" "		60		20/40	2	1700		Increase Sand
1311	33	" "		72		20/40	3	1700		Increase Sand
1313	33	" "		96		20/40	4	1800		Increase Sand
1315	33	" "		72		8/12	4	1800		START 8/12
1317	10	WF30		12				1700		START WF30 + Flush 300 300
1318	10	15% HCL		12				1700		START Acid
1319	25	WF20		48				1700		START WF20 PAD
1320	29	YF3PSD		24				1900		START YF3PSD Spacer
1321	29	" "		48		FLA	2	1900		START FLA 100
1322	29	" "		24				1700		START Spacer
1324	29	" "		72		FLA	4	1650		Increase Sand
1327	29	" "		24				1750		Spacer
1328	29	" "		60		20/40	1	1750		START Sand
1330	29	" "		60		20/40	2	1800		Increase Sand
1332	29	" "		72		20/40	3	1750		" " "
1335	29	" "		96		20/40	4	1850		" " "
1337	29	" "		72		8/12	4	1906		START 8/12 Sand
1338	10	WF30		12				1800		START WF30 + Flush 600 600
1339	10	15% HCL		12				1600		START Acid
1341	25	WF30		48				1600		START PAD
342	29	YF3PSD		24				1850		START Spacer
344	29	" "		48		FLA	2	1906		START FLA 100
345	29	" "		24				1800		START Spacer
347	29	" "		72		FLA	4	1750		INCREASE SAND
348	29	" "		24				1906		Spacer
350	29	" "		60			1	1900		START 20/40
352	29	" "		60			2	2000		INCREASE SAND
354	29	" "		72			3	2000		" " "
357	29	" "		96			4	1800		" " "
359	29	" "		72			4	2000		START 8/12 Sand
401	29	WF30		60				2000		Flush:
403	20	" "						2000		Shut down

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

COMPANY : ANADARKO
DATE : 2-5-82
FIELD,LEASE&WELL : WINDMILL SE/4 SW/4 SEC.10,T-18S,R-29E
SAMPLING POINT:
DATE SAMPLED : 2-1-82

SPECIFIC GRAVITY = 1.005
TOTAL DISSOLVED SOLIDS = 7651
PH = 7.4

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	38.6	774.
MAGNESIUM	(MG)+2	33.3	405.
SODIUM	(NA).CALC.	56.0	1287.
ANIONS			
BICARBONATE	(HCO3)-1	2.2	134.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	46.8	2250
CHLORIDES	(CL)-1	78.9	2799.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		1.3
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.293
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	.071
CALCIUM SULFATE SCALING	LIKELY

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

COMPANY : ANADARKO
DATE : 2-5-82
FIELD,LEASE&WELL : OGALLALA FRESH WATER SUPPLY; BALLARD
SAMPLING POINT:
DATE SAMPLED : 2-1-82

SPECIFIC GRAVITY = 1
TOTAL DISSOLVED SOLIDS = 1069
PH = 7.72

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	3.4	68.1
MAGNESIUM	(MG)+2	4.6	55.9
SODIUM	(NA).CALC.	9.5	219.
ANIONS			
BICARBONATE	(HCO3)-1	3.6	219.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	.96	46.5
CHLORIDES	(CL)-1	12.9	459.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		.4
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	1.49
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-18.
CALCIUM SULFATE SCALING	UNLIKELY

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

COMPANY : ANADARKO
DATE : 2-5-82
FIELD,LEASE&WELL : BALLARD UNIT WELL #14-2 PRODUCED WATER
SAMPLING POINT:
DATE SAMPLED : 2-1-82

SPECIFIC GRAVITY = 1.05
TOTAL DISSOLVED SOLIDS = 74424
PH = 6.79

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	53.3	1068.
MAGNESIUM	(MG)+2	46.6	567.
SODIUM	(NA).CALC.	1169.	26877.
ANIONS			
BICARBONATE	(HCO3)-1	16	976.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	40.4	1944.
CHLORIDES	(CL)-1	1212.	42990.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		10.2
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.107
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-1.1
CALCIUM SULFATE SCALING	UNLIKELY

UNICHEM INTERNATIONAL

401 NORTH LEECH P O BOX 1499

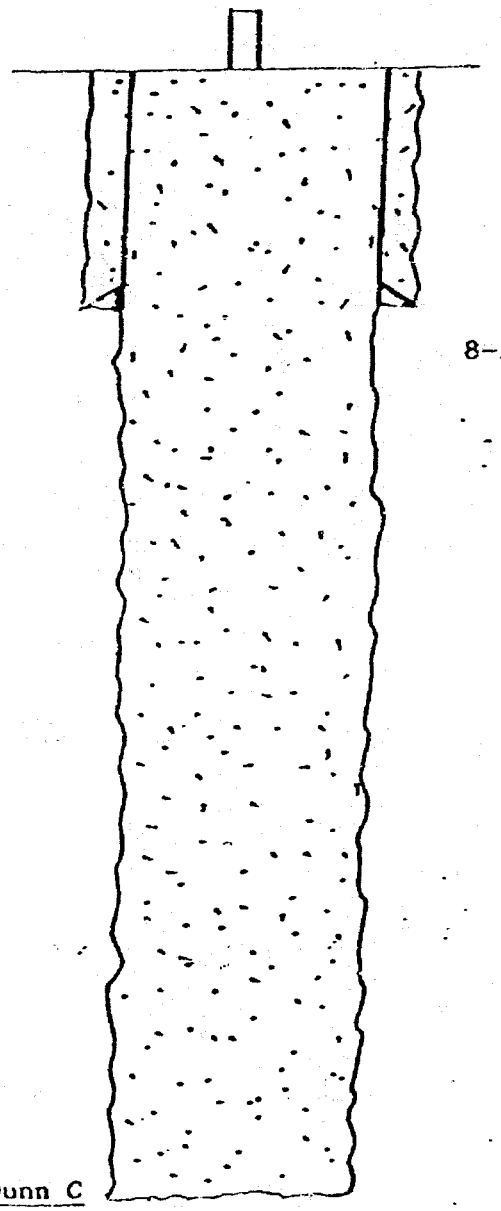
HOBBS, NEW MEXICO 88240

COMPANY : ANADARKO
DATE : 2-6-82
FIELD,LEASE&WELL . OCALLALA FRESH WATER SUPPLY 50%/BALLARD UNIT WEL
814-2 50%
SAMPLING POINT:
DATE SAMPLED : 2-1-82

SPECIFIC GRAVITY = 1.025
TOTAL DISSOLVED SOLIDS = 37717
PH = 7.255

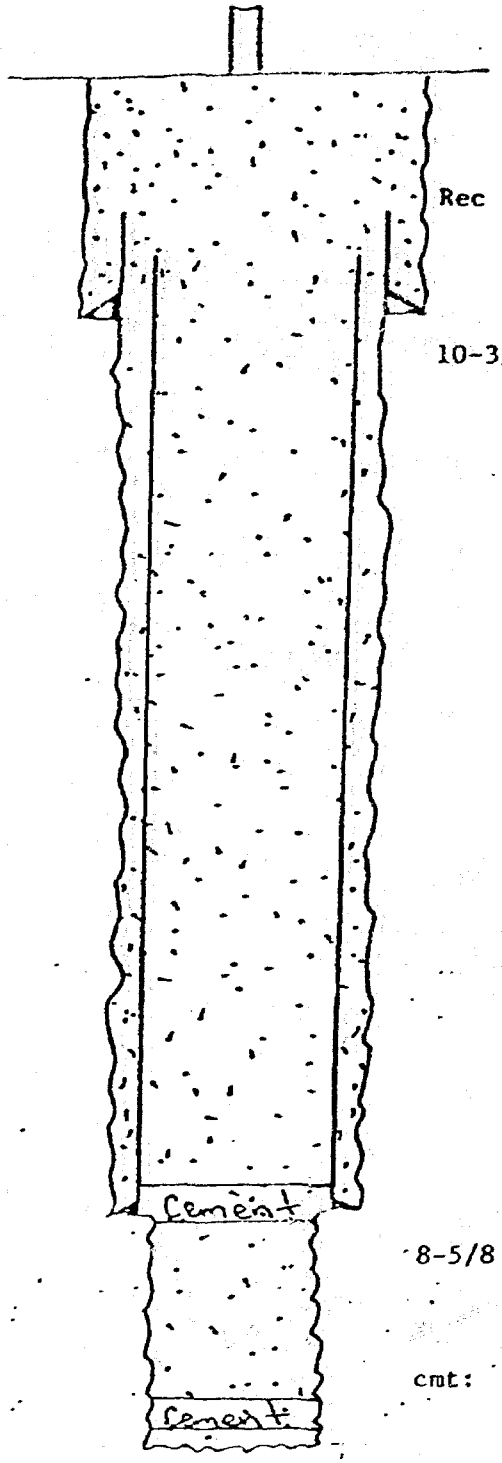
		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	28.3	568.
MAGNESIUM	(MG)+2	25.6	312.
SODIUM	(NA),CALC.	589.	13548.
ANIONS			
BICARBONATE	(HCO3)-1	9.8	597.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	20.7	995.
CHLORIDES	(CL)-1	612.	21725.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		5.3
BARIUM	(BA)+2	NOT RUN	
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.210
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-2.3
CALCIUM SULFATE SCALING	UNLIKELY



8-5/8 @ 315 w/50 sks

Well Name & No. Depco #2 Dunn C
County Eddy State NM
Location sec 7-18S-29E
660 FSL & 1980 FEL
Status: Dry & Abandoned



Rec 150' - 10-3/4" csg

10-3/4 @ 340 w/50 sks

Rec 250' - 8-5/8" csg

cmt: 750 - 800'

8-5/8 @ 770 w/150 sks

cmt: 2095 - 2540'

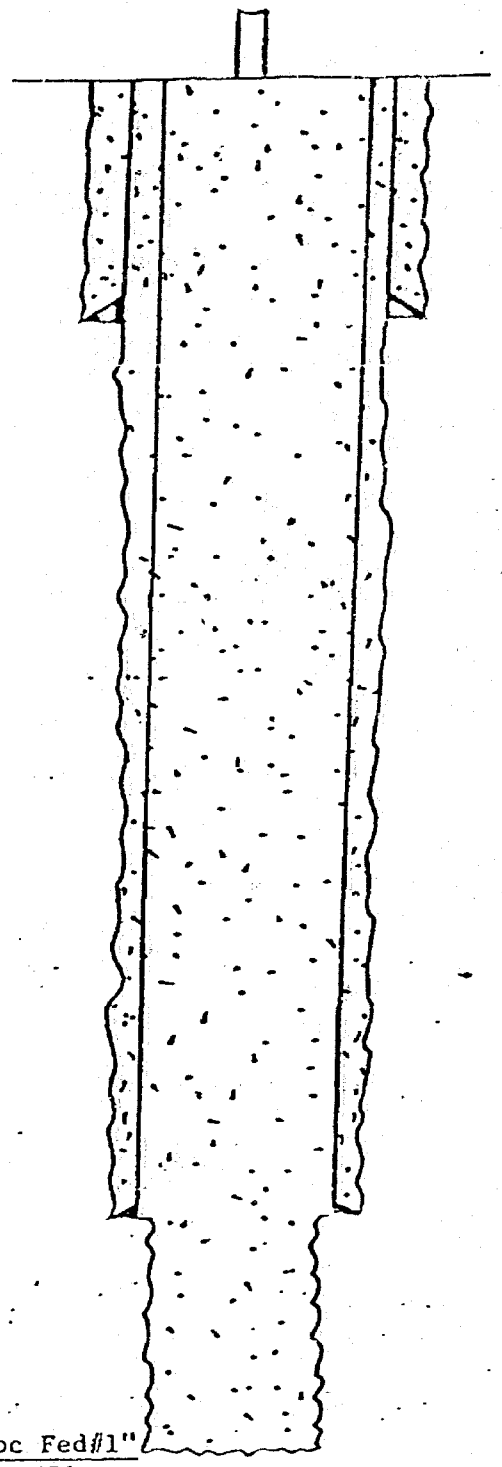
TD 2590

Well Name & No. Texas American Oil Corp "Metex" #4

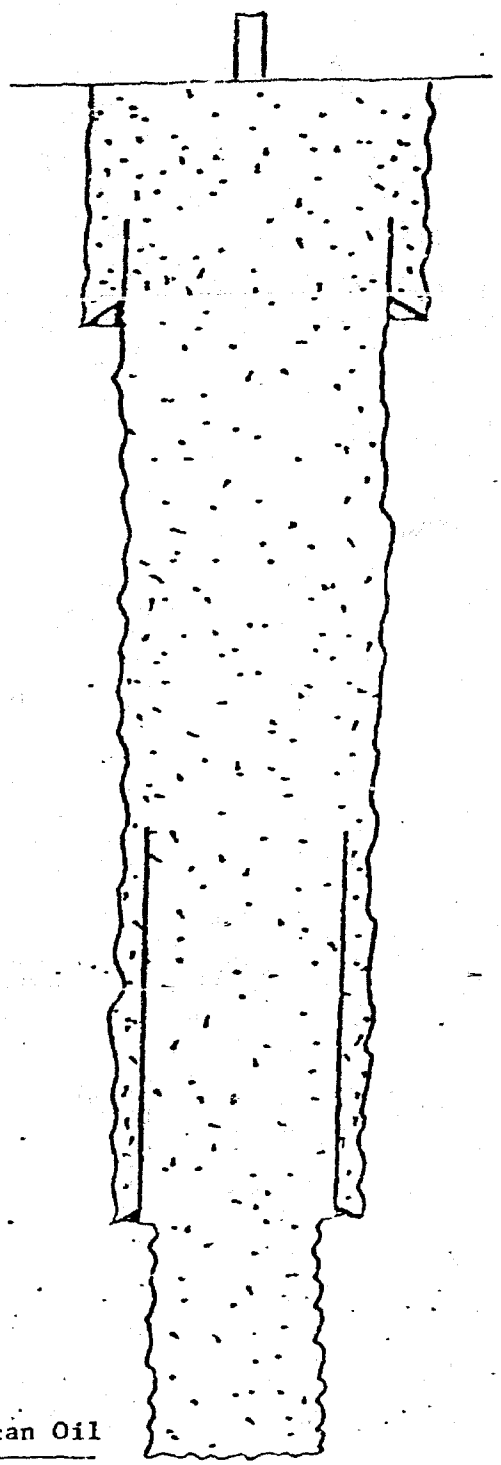
County Eddy State NM

Location sec 5-18S-29E 1980 FSL & 1980 FWL

Welded cap @ surface



Well Name & No. Yates "Penroc Fed#1"
County Eddy State NM
Location sec 6-18S-29E 2310 FNL &
653 FWL
Status Temp. Abandoned

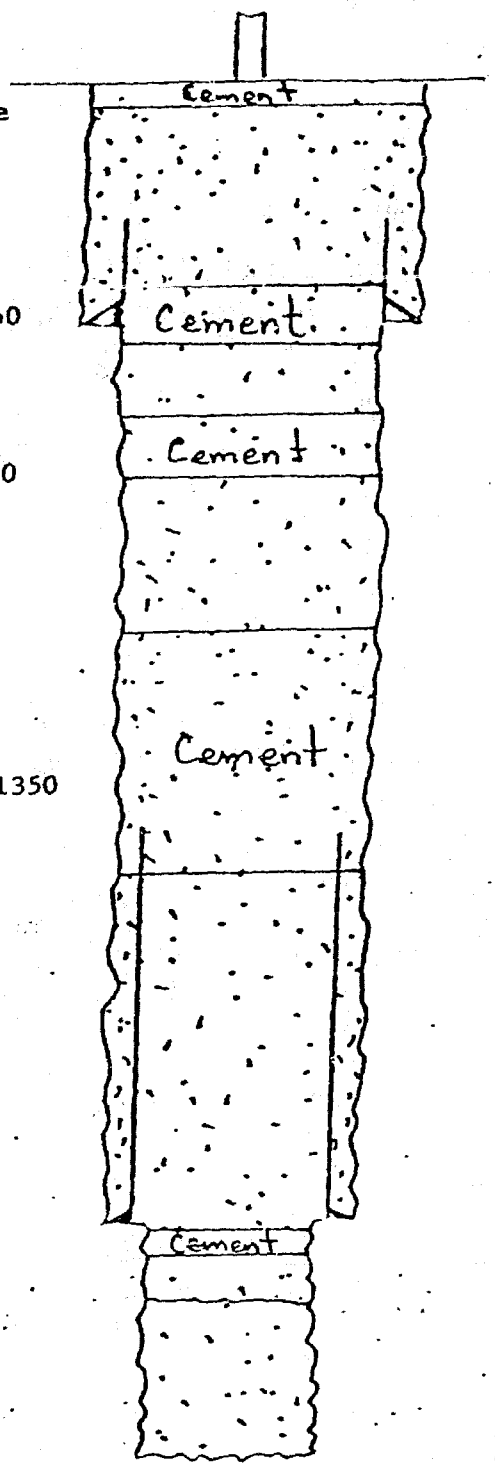


Well Name & No Texas American Oil Corp. #1 Ballard B

County Eddy State NM

Location sec 8-18S-29E 660 FNL & 660 FWL

Status: P&A - no records available



10 sks @ surface

Cmt Plug: 450-350

Cmt Plug: 850-750

Cmt Plug: 2100-1350

8-5/8" @ 400' w/100 sks

Rec 2050' - 5½"

5½" @ 2768 w/100 sks

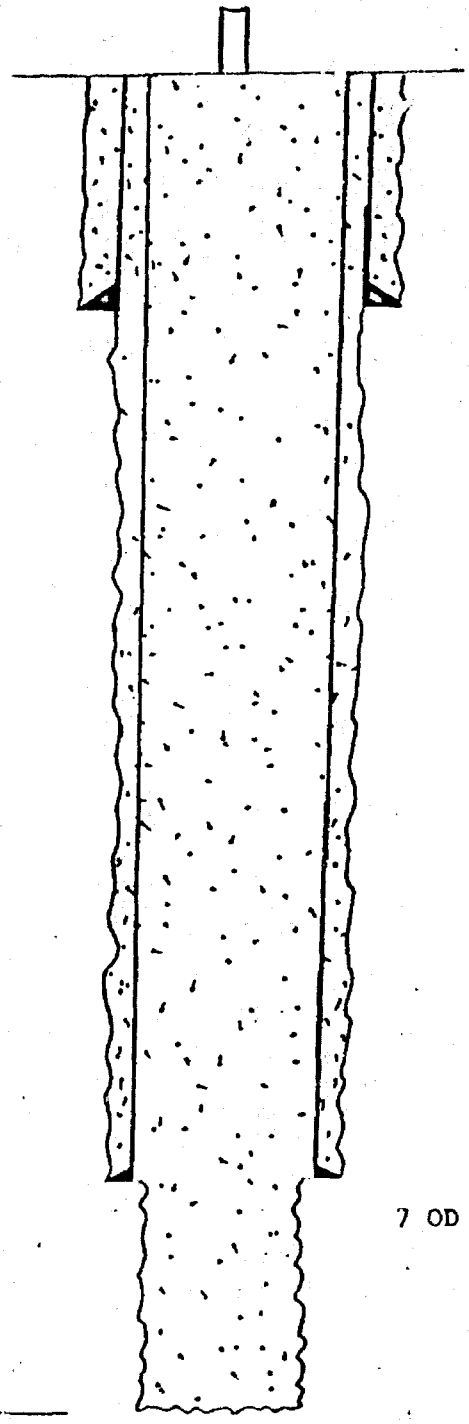
10 sks @ 2775

PBTD 2810

TD 3056

Well Name and No. Ballard GSAU 5-11
County Eddy State NM
Location Sec 8-18S-29E

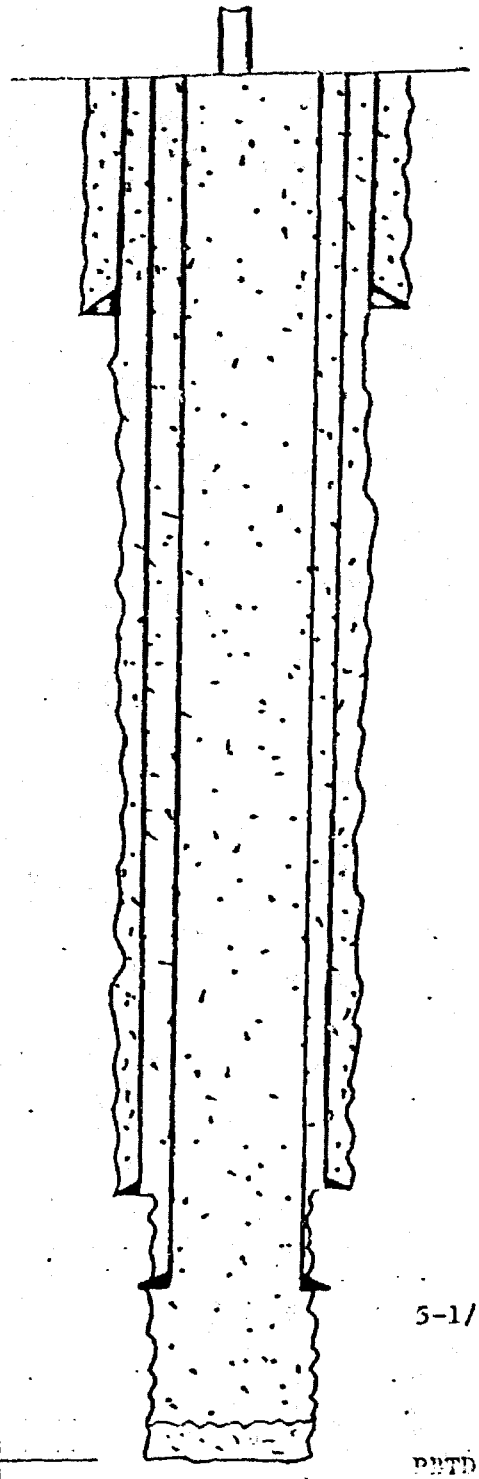
8-5/8 OD @ 308 w/50 sks



7 OD @ 2200 w/100 sks

TD 2657

Well Name & No. BGSAU 20-5
County Eddy State NM
Location Sec 17-18S-29E
1650 FNL & 990 FWL
Status: TA effective 9/12/80



8-5/8 @ 320 w/50 sks

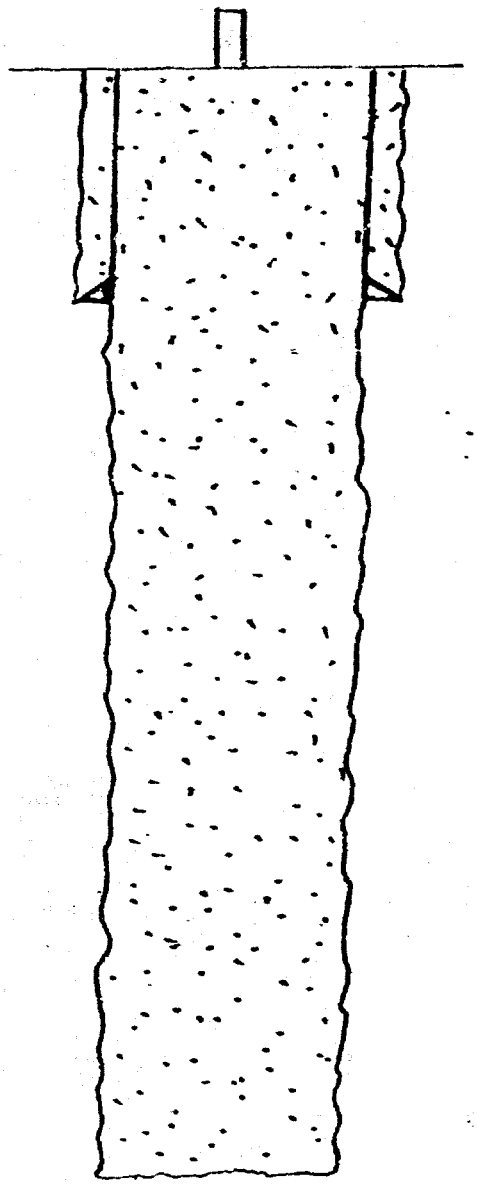
7" @ 2215 w/100 sks

5-1/2 @ 2858 w/50 sks

Well Name & No. BGSAU 20-3
County Eddy State NM
Location sec 17-18S-29E
330 FNL & 990 FWL
Status: TA effective 4/1/80

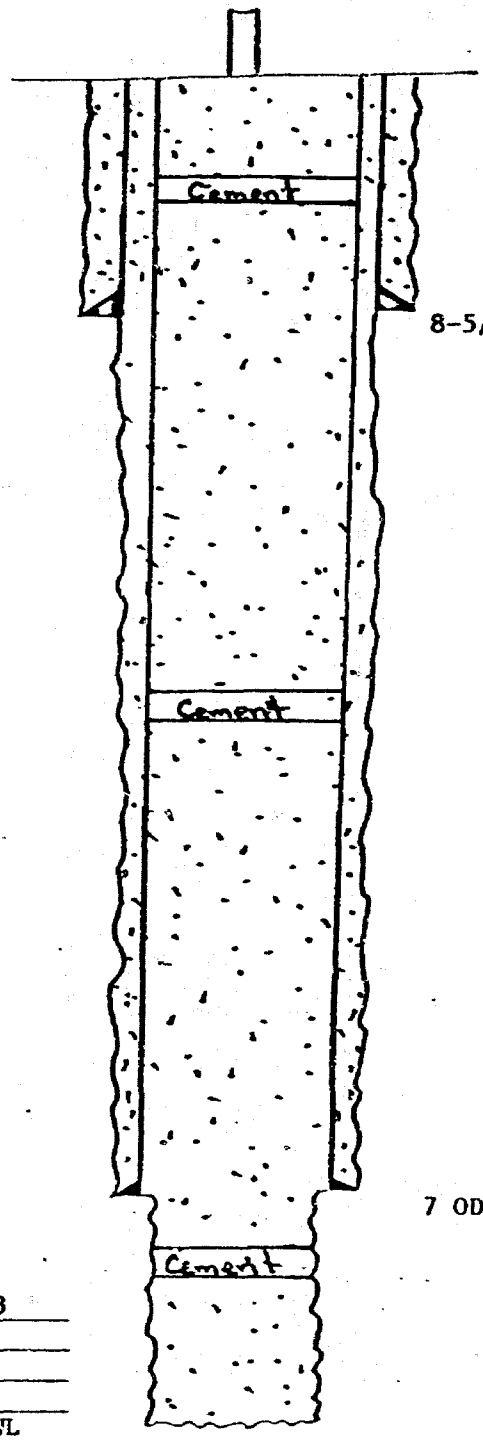
PBTD 3241

TD 3254



Well Name & No. #4 Jeffers
County Eddy State NM
Location sec 6-18S-29E 2310 FNL & 1650 FEL
Status: P&A - No records available

10 sks @ 180



8-5/8 OD @ 346 w/50 sks

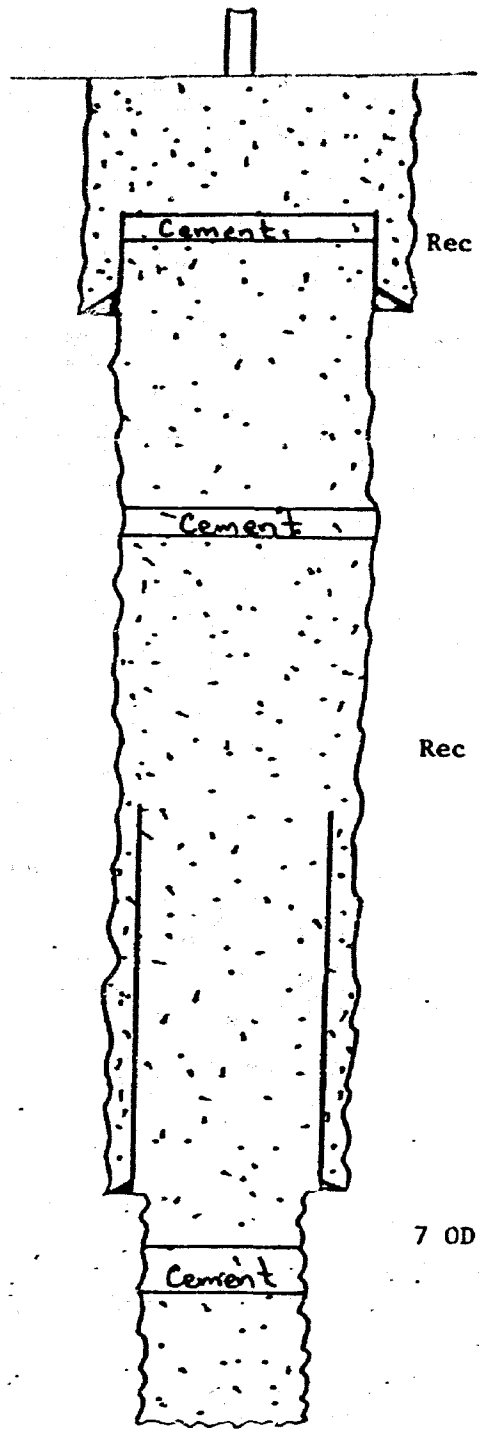
10 sks @ 1000

7 OD @ 2287 w/100 sks

10 sks @ 2445

Well Name & No. BGSAU 15-3
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
1650 FNL & 990 FWL

TD 2728



10 sks @ 240

8-5/8 OD @ 375 w/50 sks

Rec 220' - 8-5/8 csg

20 sks @ 800

Rec 1600' - 7" csg

7 OD @ 2285 w/100 sks

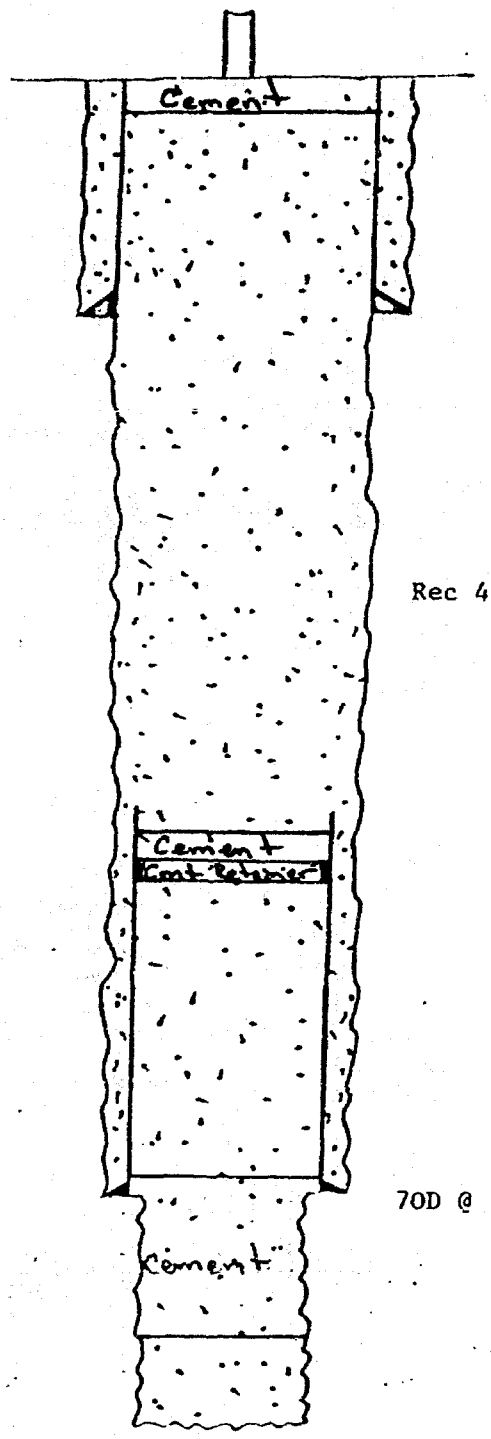
50 sks @ 2360

TD 2719

Well Name & No. BGSAU 5-2
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
2310 FSL & 2310 FEL

10 sks @ surface

8-5/8 OD @ 330 w/50 sks



Rec 469' - 7" csg

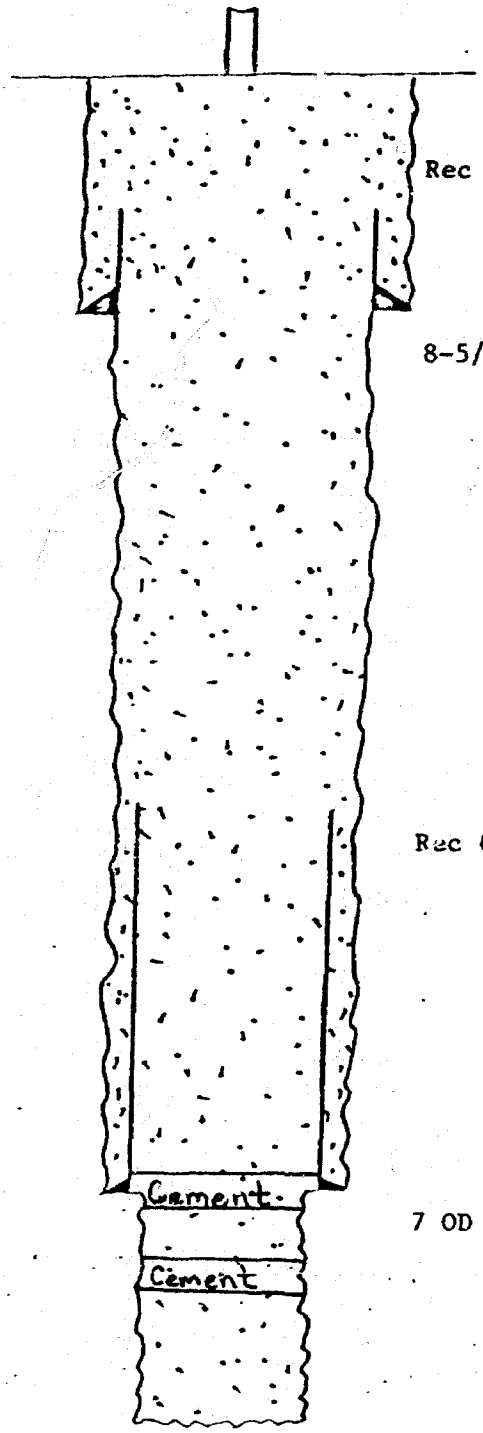
Cmt Ret @ 482 w/70 sks

650 sks @ 2360

7OD @ 2360 w/100 sks

Well Name BGSAU 14-1
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
2310 FSL & 2310 FWL

TD 2660



Rec 18' - 8-5/8" csg

8-5/8 OD @ 366' w/50 sks

Rec 600' - 7" csg

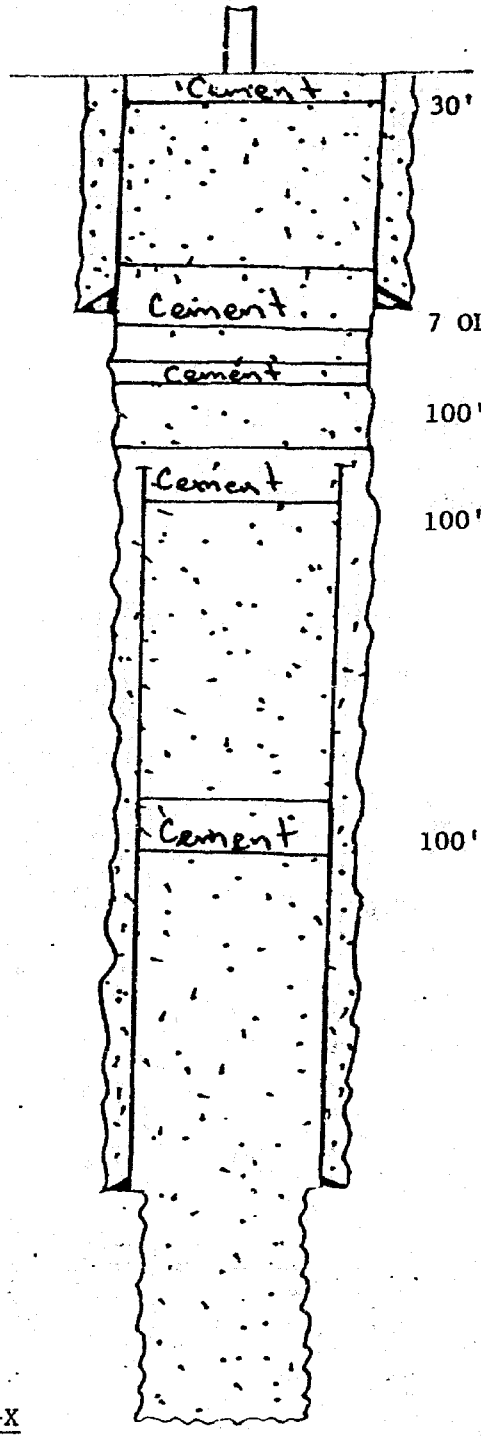
10 sks @ 2270

30 sks @ 2400

7 OD @ 2267 w/100 sks

TD 3148

Well Name & No. BGSAU 5-1
Field Loco Hills
County Eddy State NM
Location Sec 8-18S-29E
660 FNL & 660 FEL



30' cmt @ surface

7 OD @ 324 w/50 sks

100' cmt @ 730

100' cmt @ 1850

100' cmt @ 2300

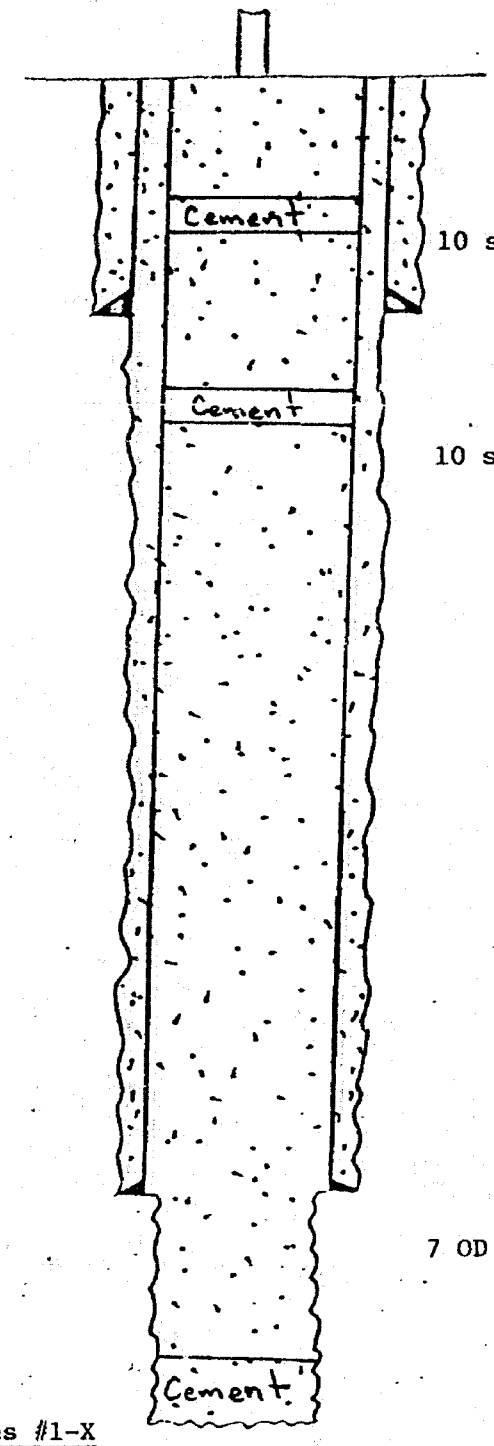
TD 3339

100' cmt @ 275

Rec 1900'- 4-1/2" csg

4-1/2 OD @ 2898' w/75 sks

Well Name Depco "Dunn" #1-X
County Eddy State NM
Location sec 7-18S-29E



8-5/8 OD @ 450 w/50 sks

10 sks @ 295'

10 sks @ 760'

20 sks @ 2555

7 OD @ 2340 w/100 sks

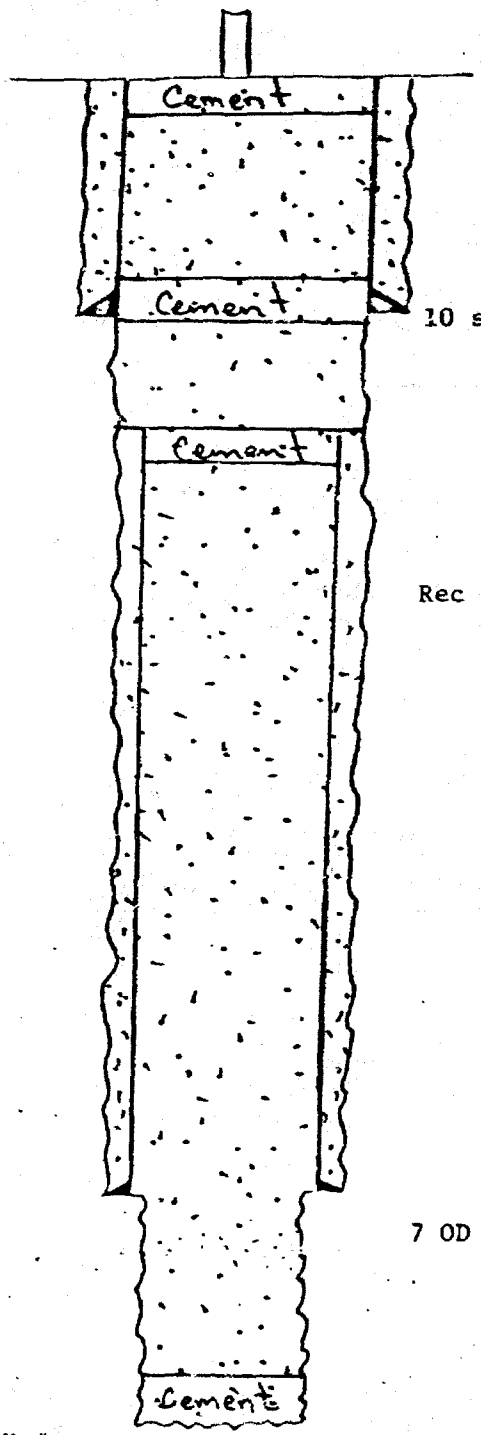
TD 2594

Well Name & No. Stroup Yates #1-X
County Eddy State NM
Location sec 5-18S-29E

10 sks @ surface

8-5/8 OD @ 310 2/50 sks

10 sks @ 750



10 sks @ 305

Rec 750' - 7" csg

25 sks @ 2450

7 OD @ 2257 w/100 sks

TD 2450

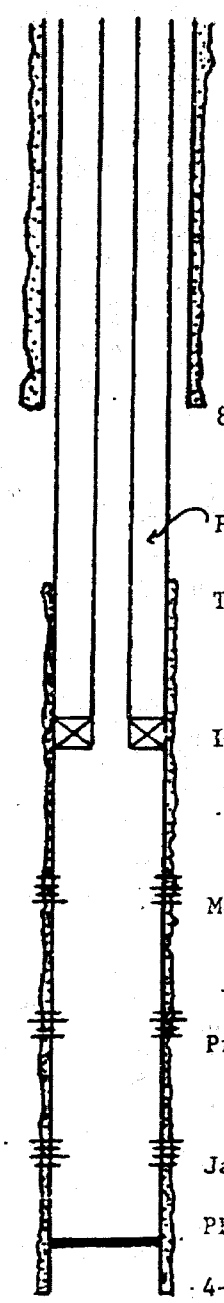
Well Name & No. Depco "Dunn" #1
County Eddy State NM
Location sec 7-18S-29E

N.M.C.F. MICROGRAPHICS

BEST AVAILABLE COPY

APPLICATOR	LEASE			
Anadarko Production Co.	Ballard GSA Unit			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
3-1	1980 FNL & 660 FEL	7	18S	29E

Schematic



Metex: 2415-18, 45-48, 56-61, 70-74, 81-86.

Premier: 2556-61, 2570-74, 81-86, 2588-90, 2609-12, 14-18, 20-23, 32-36, 40-43

Jackson: 2954-3001 (selectively)

PBTD 3091

Tabular Data

Surface Casing

Size 8-5/8" Cemented with 250 sx.

TOC Surface feet determined by Circulation

Hole size 12-1/4

Intermediate Casing

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2" Cemented with 500 sx.

TOC 1140 feet determined by Temp Survey

Hole size 7-7/8

Total depth 3124 (3091 PBTD)

Injection interval

2415 feet to 2643 feet
(perforated or open-hole, indicate which)

Tubing size 2-3/8 lined with Plastic (material) set in a

Guiberson Uni-One (brand and model) packer at 2365 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Grayburg

2. Name of Field or Pool (if applicable) Loco Hills Queen Grayburg San Andres

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

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

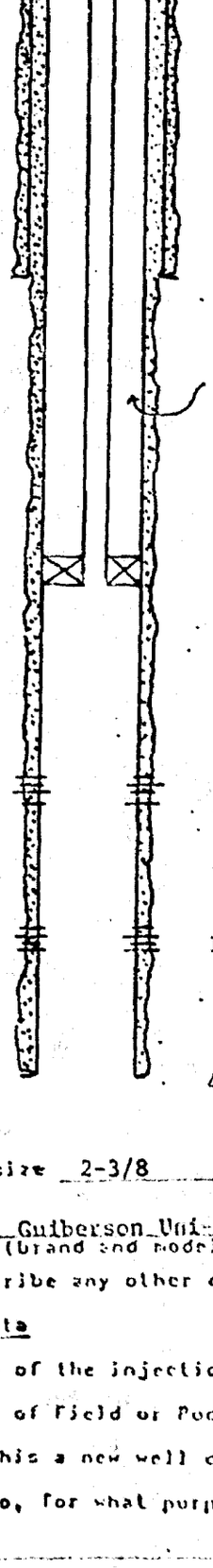
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) Jackson: 2954-3001 intend to set bridge plug or cement squeeze to block off perfs.

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. overlying: none; underlying: Loco Hills Cisco 9000-10,000 ft.

Anadarko Production Company — Ballard GSA Unit

WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
"type well" - see attached list of well numbers & locations				

Schematic



Tabular Data

Surface Casing

Size 8-5/8" Cemented with 250 s

TOC Surface feet determined by circulate

Hole size 12-1/4

Intermediate Casing

Size ____" Cemented with ____ s

TOC ____ feet determined by ____

Hole size ____

Long string

Size 4-1/2" Cemented with 500 s

TOC Surface feet determined by circulate

Hole size 6-1/4

Total depth 2800

Injection interval

2400 feet to 2650 feet

(perforated or open-hole, indicate which)

Metex: selectively according to well logs

Premier: selectively according to well logs

Tubing size 2-3/8 lined with Plastic (material) set in a

Guiberson Uni-One (brand and model) packer at 2350 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Grayburg

2. Name of Field or Pool (if applicable) Loco Hills Queen Grayburg San Andres

3. Is this a new well drilled for injection? [X] Yes [ ] No

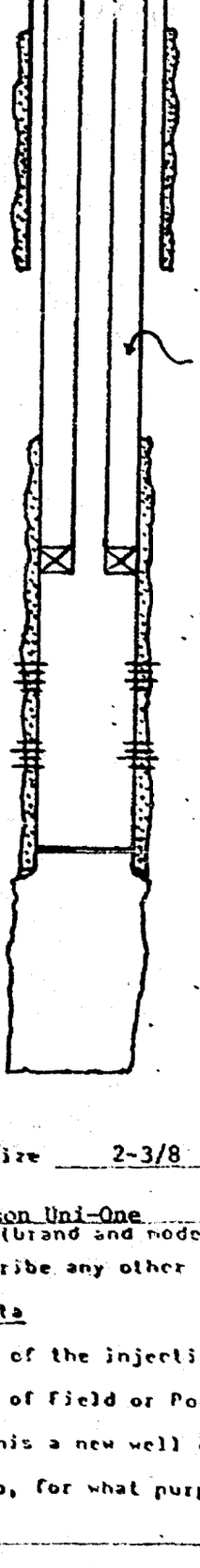
If no, for what purpose was the well originally drilled? ____

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. overlying: none; underlying: Loco Hills Cisco 9000-10,000 ft.

OPERATOR	LEASE			
Anadarko Production Company	Ballard GSA Unit			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
6-17	660 FSL & 3300 FEL	6	18S	29E

Schematic



Tubular Data

Surface Casing

Size 7 " Cemented with 75 s

TOC 120 feet determined by est.

Hole size 9-5/8

Intermediate Casing

Size _____ " Cemented with _____ s

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2 " Cemented with 200 s

TOC 1000 feet determined by est.

Hole size 6-1/4

Total depth 4637 [3625-PBTD]

Injection interval

inj pkr @ 2400 2454 feet to 2656 feet
(perforated or open-hole, indicate which)

Metex: 2454-58, 2481-85, 2490-94, 2504-10, 2519-23

Premier: 2583-86, 2600-04, 06-12, 2618-23, 46-56

PBTD

4-1/2" @ 3638

Tubing size 2-3/8 lined with Plastic (material) set in a

Guiberson Uni-One (brand and model) packer at 2400 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Grayburg

2. Name of field or Pool (if applicable) Loco Hills Queen Grayburg San Andres

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

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

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) None

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. overlying-none; underlying: Loco Hills Cisco 9000-10,000 ft.

BALLARD GSA UNIT
18S-29E

WIW's	LOCATION
#6-18	600 FSLEL Sec. 6
#15-8	2310 FNL & 1980 FWL Sec. 8
#23-4	330 FSL & 1980 FWL Sec. 5
#1-7	2310 FNL & 1600 FWL Sec. 7
#19-3	1650 FSL & 2310 FEL Sec. 7
#4-1	330 FSL & 990 FEL Sec. 7
#16-1	2310 FNL & 1980 FWL Sec. 17
#14-7	400 FSL & 2000 FWL Sec. 8

Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
eum Co. #1 es	Unit L, Sec 5-18S-29E, 2310 FSL & 990 FWL	Oil Producer	7/23/43	9/14/43	2700	-	-	-NA-
rod. Co. #23-3 SA Unit	Unit L, Sec 5-18S-29E, 1900' FSL & 890' FWL	Wtr Injection	2/20/74	4/6/74	2750	-	Metex Premier	Perfs: 2493-98,2500-07,21-25,34-37, 2620-23,63-78,82-88. Plastic Csg: 8-5/8" @ 353' w/150 sks., 4-1 @ 2750' w/250 sks, 2-3/8" tb w/Johnston 101-S tension pkr
rod. Co. #24-3 SA Unit	Unit K, Sec 5-18S-29E, 2180' FSL & 2255' FWL	Oil Producer	12/13/77	3/11/78	2810	2796	Metex Premier	Perfs: 2492-95,2506-12,16-22,34-40, 2630-36,40-43,55-59,68-72,82- 90-2700,04-12. Csg: 8-5/8" @ 373' w/150 sks., 4-1 @ 2810' w/400 sks., 2-3/8" tb
ican Oil #4	Unit K, Sec 5,18S,29E 1980 FSL & 1980 FWL	P&A	12/16/39	5/15/40	2590	Surface	Grayburg	P&A: 2540-2095,cmt, 750-800 cmt, 8" 10-3/4 150' rec.
Empire So.	Unit K, Sec 5,18S,29E 1980 FSL & 2120 FWL	Gas Well	11/5/76	2/1/77	11,165	11,130	Morrow	Perfs: 10,642-656,730-750,888-900 Csg: 13-3/8" - 425 400 sks 9-5/8 - 2900 2275 sks 5-1/2 - 11,165 2225 sks
od. #3	Unit J, Sec. 5-18S-29E 1980 FSL & 1980 FEL	Oil Producer Scout Ticket	Respud 4/8/64	Recomplete 4/17/64	2781	-	Grayburg San Andres	OH 2371-2781 7" @ 2371 w/100 sks.
Prod. Co. #25-4 SA Unit	Unit J, Sec 5, 18S, 29E 1980' FSL & 1780' FEL	Wtr Injection	3/1/74	4/12/74	2800	2795	Metex Premier	Perfs: 2550-62,92-95,2624-27,31-34,2 2712-18,30-45,53-60. Csg: 8-5/8" @ 359' w/150 sks, 4-1/ @ 2786' w/250 sks, 2-3/8" tb w/Johnston 101 S tension pkr. @ 2523'.
Prod. Co. #25-1 SA Unit	Unit M, Sec 5-18S-29E 660' FSL & 660' FWL	Oil Producer	5/28/39	7/15/39	2735	-	Premier	OH 2515-2735 Csg: 8-5/8" @ 417' w/50 sks, 7" @ w/100 sks.
Prod. Co. #23-2 SA Unit	Unit N, Sec 5-18S-29E 990' FSL & 2310' FWL	Oil Producer	12/21/43	2/20/44	3101	3067	Grayburg San Andres	Perfs: 2450-80,2656-60,2672-76,2502- 2616-22. Csg: 8-5/8" @ 326' w/50 sks, 7" @ w/100 sks, 5-1/2" liner, 2212 2861' w/50 sks.
Prod. Co. #24-5 SA Unit	Unit O, Sec 5-18S-29E 450' FSL & 2100' FEL	Oil Producer	2/24/81	3/31/81	2800	2784	Metex Premier	Perfs: 2490-2504,2516-22,31-36,63-70, 84,2600-07; 2631-37,42-47,50-50,70-73,76-8 90-95,2700-08. Csg: 8-5/8" @364 w/250 sks, 4½ @ 2

..., Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
...o Prod. Co. #24-2 ...GSA Unit	Unit P, Sec 5-18S-29E 660' FSL & 990' FEL	Oil Producer	12/1/77	3/3/78	2850'	2799'	Metex Premier	Perfs: 2511-14,26-32,36-42,55-59,7 2658-62,69-72,85-88,99-2702 20-30,44-48,52-56 Csg: 8 5/8" @ 381' w/150 sks, 7" w/400 sks., 5-1/2" @ 1787'.
...1-X Yates	Unit P, Sec5-18S-29E	P&A	5/17/40	7/17/40	2594	Surface	-	8-5/8 @ 450' w/50 sx 7" @ 2340 w/100 sxs Shot 2565-2585 (Completion) P&A as follows: 20 sxs @ 25 10 sxs @ 760', cmt 320'-295' Mud to Surface.
...ed #1	Unit E, Sec 6-18S-29E 2310 FNL & 653 FWL	T&A	10/31/70 Respud	12/15/70 Recomplete	1215	Surface	-	8-5/8 @ 420 w/ 50 sks Welded cap @ surface.
...#4 ...r Unknown	Unit G, Sec 6-18S-28E 2310 FNL & 1650 FEL	T&A 4-27-64	3/13/64	4/27/64	3984	-	-	NA
...GSA Unit #11-1 ...o Prod Company	Unit H, Sec 6-18S-29E 2310' FNL & 330' FEL	Oil Producer	11/20/39	1/13/40	2695	2674		Perfs: OH 2460-2695 Metex & Premier Csg: 8-5/8" @ 358' w/50 sks., 7" @ 2352' w/100 sks.
...mpire Deep	Unit K, Sec 6-18S-29E 1980 FSL & 1900 FWL	Gas Well	3/29/72	6/8/72	10,992	10,946	Morrow	Perfs: 10,874-10,890 Csg: 12-3/4 @ 318 w/ 300 sks. 8-5/8 @ 4500 w/350 sks 4-1/2 @ 10,992 w/800 sks.
...GSA Unit #6-3 ...o Prod. Company	Unit J, Sec 6-18S-29E 1980' FSL & 2080' FEL	Wtr Injection	8/20/76	11/8/76	2750	-	Metex Premier	Perfs: 2466-70,78-82,94-98,2503-08 32-38,40-44,64-68. 2603-10,13-20,34-38,49-52,5 Plastic lined. Csg: 8-5/8" @ 373' w/150 sks, 4- @ 2750' w/250 sks, 2-3/8" lined tbg w/Guiberson Uni- pkr @ 2381'.
...GSA Unit #6-2 ...o Prod Co.	Unit I, Sec 6-18S-29E 2310' FSL & 990' FEL	Oil Producer	7/12/40	9/15/40	3157	2723	Grayburg	OH 2645-2675 Csg: 8-5/8", @ 380' w/50 sks, 7" 2400' w/100 sks.
...GSA Unit #6-17 ...o Production Co.	Unit N, Sec 6-18S-29E 660' FSL & 3300' FEL	Oil Producer	7/1/62	8/26/62	4637	3625	Metex Premier	Perfs: 2454-58,2481-85,2490-94,250 2519-23; 2583-86,2600-04,06 2618-23,46-56. Csg: 7" @ 452' w/75 sks, 4½" @ 3 w/200 sks.

e, Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
SA Unit #6-7 Prod. Co.	Unit O, Sec 6-18S-29E 660' FSL & 1980' FEL	Oil Producer	9/28/51	1/19/52	3522'	3462'	-	Perfs: 2446-54,58-61,71-75,83-86, 2502,12-16,40-46,75-79,92- 2604-10. 2636-46, 50-58 Csg: 8-5/8" @463'w/50 sks; 5-1/ w/178 sks.
GSA Unit #6-1 Prod. Co.	Unit P, Sec 6-18S-29E 660' FSL & 330' FEL	Oil Producer	1/6/39	4/15/39	2651	2640	Grayburg	Perfs: OH 2400-2575 Csg: 8-5/8" @ 358' w/50 sks, 7" w/100 sks.
Dunn "A"	Unit A, Sec 12-18S-28E	Oil	2/6/79	2/27/79	2850	2845	Premier Lovington	Perfs: 2656-64 2821-31 Csg: 10-3/4 @ 547 w/575 sks 7" @ 2850 w/1050 sks
Dunn "A"	Unit H, Sec 12-18S-28E	Oil	10/28/57	12/4/57	2846	-	Grayburg Lovington	Perfs: 2640-54,2660-65,2818-30, & 2600. Csg: 8-5/8 @ 530 w/75 sks 4-1/2 @ 2847 w/200.
7 Dunn "B"	Unit I, Sec 12,18S,28E	WIW	2/20/58	3/24/58	2867	2730	Penrose Grayburg Lovington	Csg: 8-5/8 @ 422 w/75 sks. 4-1/2 @ 2867 w/200. 2-3/8 pl w/4-1/2 Johnston tension pkr @ 2512 Perfs: 2185-2205, 2621-25,2613-19 2652-77, 2833-48.
Prod. Co GSA Unit #1-6	Unit D, Sec 7,18S,29E 990' FNL 7 330' FWL	WIW	6/17/67	6/30/67 Converted to inj 6/25/76	2719	2696	Metex Premier	Perfs: 2438-42,74-78,95-98,2508- 2590-94,2600-04,13-17,46- Plastic lined. Csg: 8-5/8" @ 509' w/125 sks., @ 2719 w/330 sks; 3-3/8" Guiberson Uni-one pkr @ 2
Prod. Co. GSA Unit #2-5	Unit C, Sec 7,18S,29E 660' FNL & 1655' FWL	Oil	5/17/64	6/25/64	2666	2652	Grayburg	Perfs: OA 2463-2624 (9 shots) Csg: 8-5/8" @ 472' w/75 sks, 4- @ 2666' w/150 sks.
Prod. Co. GSA Unit #2-3	Unit B, Sec 7,18S,29E 660' FNL & 1980' FEL	WIW	10/24/64 Converted to inject. 6/16/76	11/20/64	2668	2665	Metex Premier	Perfs: 2418-22, 54-60,74-80,88-9 2569,71,78-82,95-99,2610- Plastic lined. Csg: 8-5/8" @ 375' w/75 sks, 4 @ 2688' w/150 sks, 2-3/8" w/Guiberson Uni-one pkr.
Prod Co. GSA Unit #2-1	Unit A, Sec 7,18S,29E 660' FNL & 660' FEL	Oil	9/1/43	9/27/43	2733'	-	Grayburg	Perfs: 2414-2733 (OH) Csg: 8-5/8" @ 371' w/50 sks, 7" 2465' w/100 sks.

ame; Number or	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
rko Prod Co. rd GSA Unit #1-4	Unit E, Sec 7,18S,29 E 1810' FNL & 500' FWL	Oil	1/22/64	3/6/64	2878	2876	Metex Premier San Andres	Perfs: 2452-56,90-96,2522-26 2604-10,14-18,28-34-43-47 2828-34 Csg: 8-5/8" @ 452' w/75 sks, @ 2878' w/200 sks.
mpire So Deep Unit	Unit G, Sec 7,18S,29E	Gas	9/22/77	11/18/77	11085	-	Morrow	Csg: 13-3/8 @ 390 w/450 sks. 9-5/8 @ 2955 w/1200 sks. 5-1/2 @ 11085 w/2100 sks. Perfs: 10,918-36.
rkp Prod Co. rd GSA Unit #3-1	Unit H, Sec7,18S,29E 1980' FNL & 660' FEL	Oil Producer	11/2/78	12/11/78	3100	3091	Metex Premier San Andres	Perfs: 2415 -18,45-48,56-61,70-7 2588-90, 2609-12,14-18,20 36, 40-43, 2556-61, 2570- Csg: 8-5/8" @ 353 w/250 sks 4- 3100 W/500 sks.
#1 Travis, et al	Unit J, Sec 7,18S,29E	Gas	12/15/77	2/21/78	11,210	11,161	Morrow	Csg: 12-3/4 @ 416 w/425 8-5/8 @ 2900 w/300 5-1/2 @ 11,193 w/875 Perfs: 10,901-10,914
rko Prod Co. rd GSA Unit #19-1	Unit I, Sec 7,18S,29E 2310' FSL & 330' FEL	Oil	8/1/42	9/26/42	3070	3067	Metex Premier	Perfs: 2435-39,51-55,69-75 2542-46,62-68,79-85,2601- Csg: 8-5/8" @ 315' w/50 sks, 7' w/100 sks, 5-1/2" @ 2835'
#2 Dunn "C"	Unit O, Sec 7,18S,29E	P&A	1/14/44	2/7/44	3595	Surface	-	Csg: 8-1/2 @ 315 w/50 sks P&A No record
#1 Dunn	Unit P, Sec 7, 18S, 29E	P&A	5/7/42	6/30/42	2450	Surface	-	Rec 750' 7" Csg: 8-5/8 @ 310 w/30 7" @ 2257 w/100 P&A: 25 sks @ 2450 10 sks @ 750 10 sks @ 305 10 Sks @ surface
#1-X Dunn	Unit P, Sec 7,18S,29E	P&A	3/7/60	3/16/60	3339	Surface	-	7" @ 324 w/20 sks, 4-1/2 @ 2898 w Rec 1900' 4-1/2; plugged as foll 100' cmt, 2300-2400; 100' cmt, 1 1950, 730-830, 275-375; 30 ' @ s

me, Number r	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
erican Oil Corp. rd "B"	Unit D, Sec 8,18S,29E 660 FNL & 660 FWL	P&A (1953)	6/6/39	9/5/39	3017	Surface	Grayburg	OH Completion P&A: No Record
Prod Co. GSA Unit #15-2	Unit C, Sec 8,18S,29E 660' FNL & 1980' FWL	Oil Producer	11/18/43	1/19/44	3065	3060	Grayburg	Perfs: 2474-82,2506-14,70-74,2664- OH 2900-81, OH 2990-30,60. Csg: 8-5/8" @ 368' w/50 sks, 7" w/100 sks. 5-1/2 2250-2858.
Prod Co. GSA Unit #5-6	Unit B, Sec 8,18S,29E 990' FNL & 2310' FEL	WIW	10/12/55	12/9/55	3058	-	Metex Premier Jackson	Perfs: 2453-60,63-68,81-84,92-99,2 89-92,97-99,2604-08,15-21,4 2662-70 2943-46,55-58,77-85,88-3000 OH 3033-58. Csg: 8-5/8" @ 345' w/50 sks, 5-1 3034' w/180 sks, 2-3/8 plas lined tbg w/Guiberson Uni- @ 3040.
ko Prod Co. d GSA Unit #5-12	Unit B, Sec 8,18S,20E 330' FNL & 1650' FEL	Oil	11/8/61	2/1/62	3008	2730	Metex Premier	Perfs: 2489-95,2514-20,34-38 2602-06,28-34,42-45,2666-86 2702-08 Csg: 8-5/8 @ 340 w/50 sks, 5-1/2 @ 2762 w/125 sks.
ko Prod. Co. d GSA Unit #5-15	Unit A, Sec 8,18S,29E 960' FNL & 1130' FEL	Oil	4/26/81	8/20/81	2850	2814	Metex Premier	Perfs: 2492-2507,2508-25,35-40,68- 2605-11,2625-28,34-37 2655-58,71-87,2704-12 Csg: 8-5/8" @ 378 w/250 sks, 4- 2847 w/1350 sks.
ko Prod. Co. d GSA Unit #5-10	Unit A, Sec 8,18S,29E 990' FNL & 990' FEL	WIW	7/15/56	9/11/56	3130	-	Jackson Lovington	Perfs: 2950-66-70-80, OH 2992-31 2830-40 sq cmt'd Csg: 8-5/8" @ 380' w/50 sks. 7" @ 2992' w/175 sks. 2-3/8" Plastic lined w/Gu Uni one pkr @ 2855' PL.
#15 Empire So. Unit	Unit E, Sec 8,18S,29E	Gas	8/8/77	11/2/77	10,997	-	Morrow	Csg: 13-3/8 @ 426 w/400 sks, 9- 2872 w/1250 sks, 5-1/2 @ w/200 sks (10,824-80 perf

me; Number r	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
o Prod Co. #15-3 GSA Unit	Unit E, Sec 8,18S,29E 1650' FNL & 990' FWL	P&A	3/7/43	10/19/43	2728	Surface	-	Rec 180' 8-5/8" 1000' 7" Csg: 8-5/8" @ 346' w/50 sks, 7" w/100 sks. P&A: 10 sks @ 2445', 10 sks @ 1 10 sks @ 180, 10 sks @ sur
o Prod Co. GSA Unit #15-5	Unit E, 8,18S,29E 1750' FNL & 990' FWL	Oil	8/31/49	11/3/49	3028	-	Jackson Grayburg	Csg: 8-5/8 @ 351 w/50 sks 7" @ 2873 w/100 sks Perfs: 2648-56, 20-30, 2570-78, 5 2485-89, 2472-75,54-60, 44
o Prod. Co. GSA Unit #15-7	Unit E, Sec 8,18S,29E 2150' FNL & 840 FWL	Oil	6/15/81	8/7/81	2775	2762	Metex Premier	Perfs: 2450-52, 56-62, 72-78, 88- 2518-20, 22-26, 36-40, 54- 2572-77, 98-2608, 16-20, 2 50-54 Csg: 8-/58" @ 363' w/300 sks, 5 @ 2774 w/650 sks.
o Prod. Co. GSA Unit 15-4	Unit F, Sec 8,18S,29E 1650' FNL & 2310' FWL	Oil	3/4/44	5/16/44	3075	3041	Jackson	Perfs: OH 2903-3047 Csg: 8-5/8" @ 361' w/50 sks, 7" w/100 sks, 5-1/2" liner @ 2850 w/225 sks.
o Prod. Co. GSA Unit #15-6	Unit F, Sec 8,18S,29E 1980' FNL & 1980' FWL	Oil	4/1/75	7/16/75	3089	-	Grayburg	Perfs: 2454-58,65-68,81-84,92-98, 66,80-86,2624-28,32-40,58- 2975,2988,2995, 3004,303? Csg: 8-5/8" @ 343' w/150 sks, 4 @ 3089' w/400 sks.
o Prod. Co. GSA Unit #5-5	Unit G, Sec 8,18S,29E 2310 FNL & 2290 FEL	Oil	4/22/49	9/7/49	3050	3034	Metex Premier Jackson	Perfs: 2458-62,2468-74,80-88,2498 2566-72,88-92,2600-06,16-2 70-80; OH 2882-3034 Csg: 8-5/8" @ 355' w/50 sks, 7" 2882' w/100 sks.
/1 Welch Fed.	Unit G, Sec 8,18S,29E	Oil	10/6/77	1/7/78	11,150	9156	Cisco	Csg: 13-3/8 400-1430 sks w/430 8-5/8 290 w/1300 sks 5-1/2 9909 w/500 sks Perfs 9120-35

Name, Number or	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construct
rko Prod. Co. d GSA Unit #5-9	Unit H, Sec 8, 18S, 29E 1980' FNL & 990' FEL	Oil	3/17/56	6/2/56	3054	-	Metex Premier	Perfs: 2546-50,28-36,11-15,2490- 2698-2708,2674-82,66-72, 30-34,18-22,2596-2602. Csg: 8-5/8" @350' w/60 sks, 5-1/2" @ 3054' w/150 sks.
rko Prod Co. d GSA Unit #21-1	Unit L, Sec 8,18S,29E 2310 FSL & 990' FWL	WIW	7/21/43 Converted to injection 12/28/73	8/26/43	3040	-	Jackson	Perfs: OH 2887-3040 Csg: 8-5/8" @ 345' w/50 sks, 2302' w/100 sks, 5-1/2" w/35 sks. 2-3/8 w/ Johnston 101 S PL @ 2774
rko Prod Co. d GSA Unit #21-2	Unit L, Sec 8,18S,29E 1980' FSL & 660 FWL	WIW	8/4/76	11/26/76	2712	-	Metex Premier	Perfs: 2409-15,50-60,73-78,84-9 2534-38,51-55;2570-74,78- 2594-2602,2614-28,37-44. Csg: 8-5/8" @363' w/150 sks, @ 2712' w/250 sks, 2-3/8" tbg W/Johnston 101 S tens @ 2315'
rko Prod. Co. rd GSA Unit #14-4	Unit K, Sec 8,18S,29E 1980' FSL & 1980 FWL	Oil	5/5/50	9/6/50	3305	3116		Perfs: 2410-18,50-60,75-79,89-95 2556-62,76-82,2605-09,20- Csg: 8-5/8" @ 335' w/50 sks, @ 2872 w/100 sks.
rko Prod. Co. ard CSA Unit #14-1	Unit K, Sec 8, 18S,29E 2310 FSL & 2310 FWL	P&A	11/27/40 (P&A in 1974)	1/30/41	2660	Surface	Grayburg	Perfs: OH 2360-2660 Csg: 8-5/8" @ 330' w/50 sks, 2360' w/100 sks. P&A rec 460' of 7" csg 650 sk cmt ret + 70 sks @ 482, @ surf.
arko Prod. Co. ard GSA Unit #5-2	Unit J, Sec 8,18S,29E 2310 FSL & 2310 FEL	P&A	2/24/41 (P&A in 1956)	6/10/41	2770	Surface	-	Perfs: OH 2628-2674 Csg: 8-5/8" @ 375' w/50 sks; w/100 sks. P&A: rec 220' of 8-5/8" csg, of 7" csg, 50 sks @ 2360 @ 800', 10 sks @ 240', 1 Surface.
arko Prod. Co. #5-8 ard GSA Unit	Unit J, Sec 8,18S,29E 2310' FSL & 1980' FEL	WIW	3/12/56	5/8/56	3044	-	Jackson	Perfs: 3003-3025 (perfs) 8-5/8-368' 50 sks Csg: 4-1/2 @ 2994 w/125 sks uni I @ 2970 Plastic line

ame, Number or	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Record of Completion: Zone(s)	Perf(s) and Well Construct
rko Prod. Co. rd GSA Unit #5-4	1650' FSL & 2310' FEL Unit J, Sec 8,18S,29E	WIW	2/5/49	4/13/49	3050	-	Metex Premier	Perfs: 2438-42,85-89,2503-07,16- 90,2606-10 2654-58, 60-64 Csg: 8-5/8" @ 380' w/50 sks, 7 2776' w/100 sks. 2-3/8" P w/Guiberson Uni-one pkr @
rko Prod Co. rd GSA Unit #5-7	Unit I, Sec 8,18S,29E 2310' FSL & 990' FEL	Oil Producer	1/2/56	3/8/56	2860	2850	Metex Premier Loving- ton	Perfs: 2494-2500,2504-08,21-25,3 2629-34,43-47,58-68,84-9 2710-18, 2605-25; 2795-28 Csg: 8-5/8 @ 334' w/50 sks, 4- @ 2860 w/70 sks.
rko Prod. Co. rd GSA Unit #14-6	660' FSL & 660' FWL Unit M, Sec 8,18S,29E	Oil	5/30/81	6/24/81	2778	2723	Metex Premier	Perfs: 2407-12,50-54,56-60,85-90 2518-25,37-41,54-57,72-79 2601-08,18-22,24-32,35-37 Csg: 8-5/8 @ 377 w/300 sks, 5- 2775 w/725 sks.
rko Prod Co. rd GSA Unit #14-3	Unit M, Sec 8,18S,29E 990' FSL & 990' FWL	WIW	5/22/41	7/18/41	3045	-	Grayburg San Andres	Perfs: 2444-66; 2610-54 Csg: 8-5/8" @ 330' w/50 sks, 7 w/220 sks, 5-1/2" @ 2910' sks; 2-3/8" PL tbg w/John tension pkr@ 2811'.
rko Prod Co. rd GSA Unit #14-5	Unit N, Sec 8,18S,29E 990' FSL & 1650' FWL	Oil	6/26/53	8/25/53	3056	3053	Grayburg San Andres	Perfs: OH OA 2460-3053 Csg: 8-5/8" @ 330' w/50 sks, 7 2426' w/100 sks.
rko Prod. Co. rd GSA Unit #14-2	Unit N, Sec 8,18S,29E 990' FSL & 2310' FWL	Oil	3/26/41	5/14/41	3087	-	Grayburg	Perfs: 2416-20,27-33,72-80,92-96 2596-2600,2608-14,18-22,4 57, 60-64,74-86. Csg: 8-5/8" @350 w/50 sks, 7" w/100 sks, 5-1/2" @ 2912'
rko Prod. Co. rd GSA Unit #5-3	Unit O, Sec 8,18S,29E 330' FSL & 2310' FEL	WIW	6/30/41	9/26/41	3045	3040	Grayburg San Andres	Perfs: OH 2863-3040 Csg: 8-5/8 @ 360' w/50 sks, 7' w/100 sks, 5-1/2" liner @ 2578' w/230 sks, 2-3/8" P w/Johnston 101-S tension 2850'.
rko Prod. Co. rd GSA Unit #5-16	Unit O, Sec 8,18S,29E 400' FSL & 2130 FEL	Oil	6/7/81	8/24/81	2830	2816	Metex Premier	Perfs: 2502-08,34-38,66-76,2602- 22-28;2646-50,58-62,78-8 2716-23. Csg: 8-5/8" @ 346 w/250 sks, 2829 w/575 sks

Name, Number tor	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Record of Completion: Zone(s)	Record of Completion: Perf(s) and Well Constr
arko Prod. Co. ard GSA Unit #5-14	Unit P, Sec 8,18S,29E 990' FSL & 1310' FEL	Oil	10/20/78	12/16/78	3100	3091	Metex Premier	Perfs: 2494-96,2504-09,36-44, 85-94,2701,17-21,26-29 Csg: 8-5/8" @ 396' w/250 sk @ 3095' w/500 sxs.
arko Prod. Co. ard GSA Unit #5-1	Unit P, Sec 8,18S,29E 660' FSL & 660' FEL	P&A	1/17/40 (P&A IN 1957)	4/1/40	3148	Surface	Grayburg	Perfs: 2403-24 2625-40 Csg: 8-5/8" @ 366' w/50 sks w/100 sks. P&A: rec 18' of 8-5/8" csg; of 7" csg; 30 sks @ 24 @ 2270'; 10 sks @ surf
arko Prod. Co. ard GSA Unit #5-11	Unit P, Sec 8,18S,29E 990' FSL & 990' FEL	P&A	1/1/57 (P&A in 1959)	5/14/57	3056	Surface	Grayburg San Andres	Perfs: OH 2780-86 Csg: 8-5/8" @ 400' w/100 sk @ 2768' w/100 sks.
arko Prod. Co. ard GSA Unit #12-2	Unit D, 8,18S,29E 990' FNL & 990' FWL	WIW	10/25/52	3/13/53	3086	-	Metex Premier	Perfs: 2453-55,63-65,79-81,92 2554-58,76-89,2618-32. Baker Lok set @ 2686 Model B tension pkr @ Model BF flow Regulato Csg: 8-5/8" @365' w/50 sks; 2695' w/100 sks; 2-3/8 w/ Baker Pkr & reg. fo
arko Prod. Co. ard GSA Unit #20-3	Unit D, Sec 17,18S,29E 330' FNL & 990' FWL	TA	7/21/41	9/1/41	3254	3241	Grayburg	Perfs: OA 2765-2800 Csg: 8-5/8" @ 320' w/50 sks w/100 sks; 5-1/2" @ 28
arko Prod. Co. ard GSA Unit #20-6	Unit D, Sec 18,18S,29E 760 FNL 7 560 FWL	WIW	9/2/76	11/8/76	2700'	-	Metex Premier	Perfs: 2398-2404,36-39,45-52, 2553-57,74-78,84-88,94 16, 20-30,44-55 Plasti Csg: 8-5/8" @ 379' w/150 sk @ 2700' w/250 sks; 2-3 W/Guiberson Uni-one pk
arko Prod. Co. ard GSA Unit #20-11	Unit C, Sec 17,18S,29E 990' FNL & 1650' FWL	Oil	8/4/58	9/15/58	3052	2950	Metex Premier Grayburg San Andres	Perfs: 2490-94,2505-09,40-44, 2594-2600;2608-12,28-3 2410-14-21-25-68-76,26 Csg: 8-5/8" @ 362 w/50 sks; 3052' w/200 sks.
arko Prod Co. ard GSA Unit # 20-4	Unit C, Sec 17, 18S, 29E 330' FNL & 1980' FWL	Oil	10/8/41	11/14/41	3068	3018	Grayburg Jackson	Perfs: OA 2225-3018 Csg: 8-5/8" @ 331' w/50 sks w/150 sks; 4-1/2" line

Name, Number ator	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construc
rko Prod. Co. rd GSA Unit #7-3	Unit B, Sec 17, 18S,29E 660' FNL & 1980' FEL	WIW	8/26/76	11/8/76	2770	-	Metex Premier	Perfs: 2454-57,66-70,2506-20,36-84-90; 2640-44,48-52,73-94-2704-09-14,30-40 Csg: 8-5/8" @ 386' w/150 sks, @ 2770 w/250 sks, 2-3/8" Guiberson Uni-one pkr @
rko Prod. Co. rd GSA Unit #7-1	330' FNL & 1650' FEL Unit B, Sec 17, 18S, 29E	Oil	7/17/39	8/31/39	3090	3047	Premier Metex	Perfs: OH 2500-2585 OH 2630-2740 Csg: 8-1/4" @ 335' w/50 sks; 7 w/100 sks.
rko Prod. Co. rd GSA Unit #20-5	Unit E, Sec 17,18S,29E 1650' FNL & 990' FWL	TA	12/17/41	2/1/42	2657	-	Metex Premier	Perfs: 2415-2485 2537-2657 Csg: 8-5/8" @ 308' w/50 sks; 7 w/100 sks.
rko Prod. Co. rd GSA Unit #7-2	Unit G, Sec 17,18S,29E 1800' FNL & 1650' FEL	Oil	9/25/39	11/13/39	2807	2803	Grayburg	Perfs: OH 2396-2803 Csg: 8-1/4" @ 335' W/50 sks; 7 w/100 sks.
rko Prod. Co. s "D" Fed #18	Unit H, Sec 17,18S,29E	Oil	1/23/79	2/24/79	2885	2878	Metex Premier	Perfs: 2526,27,69,70,71,72,90,91 38,39,40 2755-57,64-66,78-80 Csg: 8-5/8 @ 376 w/275 4-1/2 @ 2884 - 1450
rko Prod. Co. is "D" Fed. #12	Unit J, Sec 17,18S,29E	Oil	7/13/61	8/4/61	3360	2823	Loco Hills	Perfs: 2428-31,2493-98,2537-42 2554-58,2566-70 Csg: 8-5/8@ 419 w/75 sx 4-1/2 @ 2823 w/230 sx.
y E. Yates Co. #1 avis	Unit F, Sec 17,18S,29E	Gas	12/7/79	2/2/80	11,300	-	Morrow	Perfs: 10,978-10,988 Csg: 13-3/8 @ 372 w/375 sx. 8-5/8 @ 2900 w/ 900 sx. 5-1/2 @ 11,300 w/675 sx.
y E. Yates Co. #2 avis "17"	Unit J, Sec 17,18S,29E	Gas	3/19/80	5/2/80	11,200	11,132	Morrow	Perf: 11,052-11,072 Csg: 13-3/8 @ 350 w/370 sx. 8-5/8 @ 3000 w/1100 sx. 5-1/2 @ 11,200 w/655 sx.

. Number	Location: Unit, Sec., Twp., Range	Type	Date Spudded	Date Completed	Depth TD	Depth PBTD	Zone(s)	Record of Completion: Perf(s) and Well Construction
SA Unit #16A-1 Production Co.	Unit A, Sec 18,18S,29E 330' FNL & 330' FEL	Oil	11/18/43	1/6/44	3111	2750	Grayburg	Perfs: OH 2470-2520 Csg: 8-5/8" @ 351' w/50 sks; 7" @ w/100 sks.
Yates Co. #4 ep Unit	Unit H, Sec. 18,18S,29E	Gas	10/8/78	12/14/78	11,155	11,072	Morrow	Csg: 13-3/4 @ 400 w/475 sx. 8-5/8 @ 2910 w/500 sx. 4-1/2 @ 11,113 w/890 sx. Perfs: 10,915-10,928
Yates Co. #1	Unit G, Sec 18,18S,29E	Gas	1/9/77	3/22/77	11,375	11,335	Morrow	Perfs: 10,844-10,851 12-3/4 @ 364 w/425 sx. Csg: 8-5/8 @ 3500 w/300 sx 4-1/2 @ 11,375 w/950 sx.

Dresser Atlas

Compensated Neutron
GAMMA RAY

FILE NO.

COMPANY ANADARKO PRODUCTION COMPANY

WELL BALLARD UNIT NO. 6-17

FIELD LOCO HILLS QUEEN GSA

COUNTY EDDY STATE NEW MEXICO

LOCATION:
660'FSL & 1980'FWL

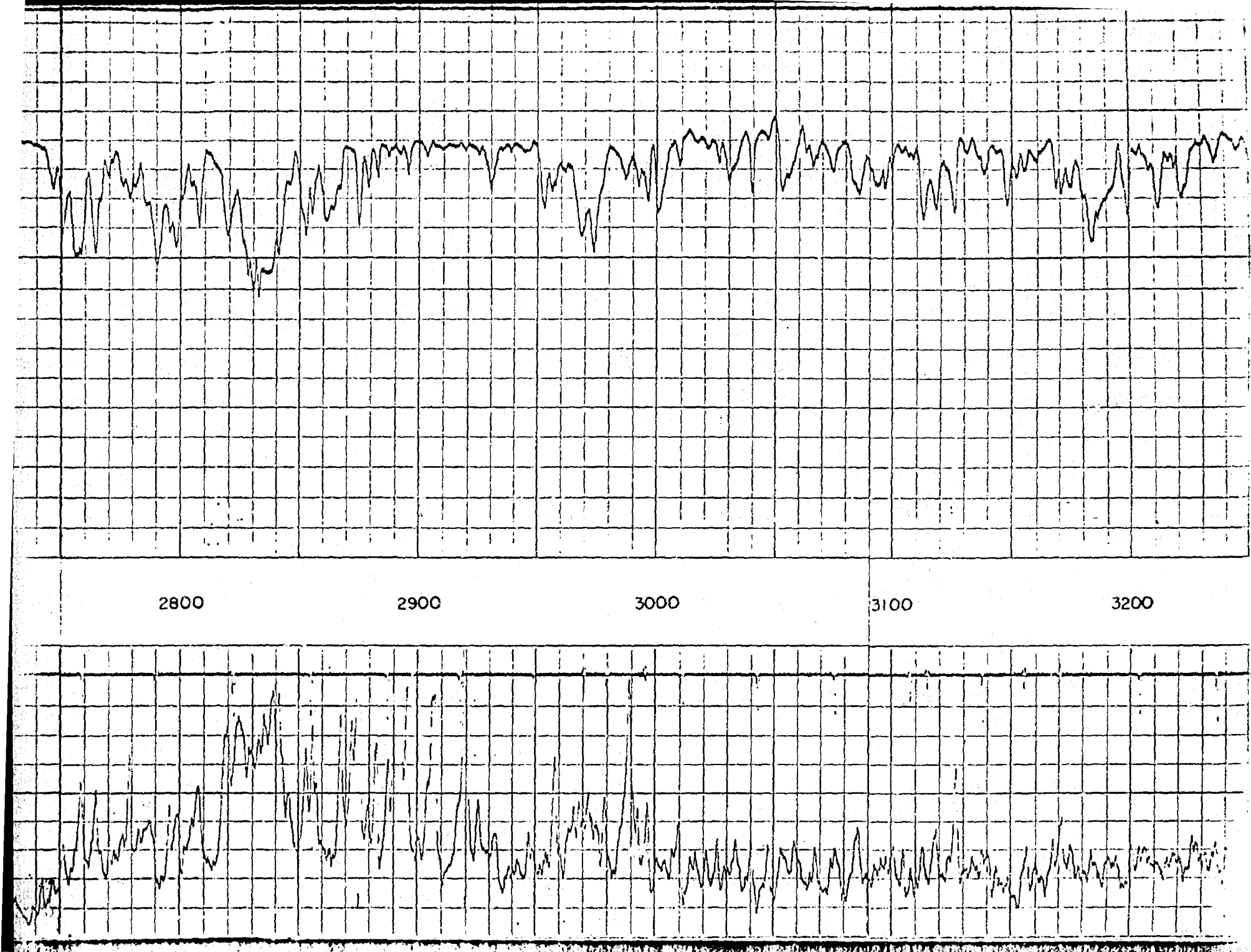
SEC 6 TWP 18-S RGE 29-E

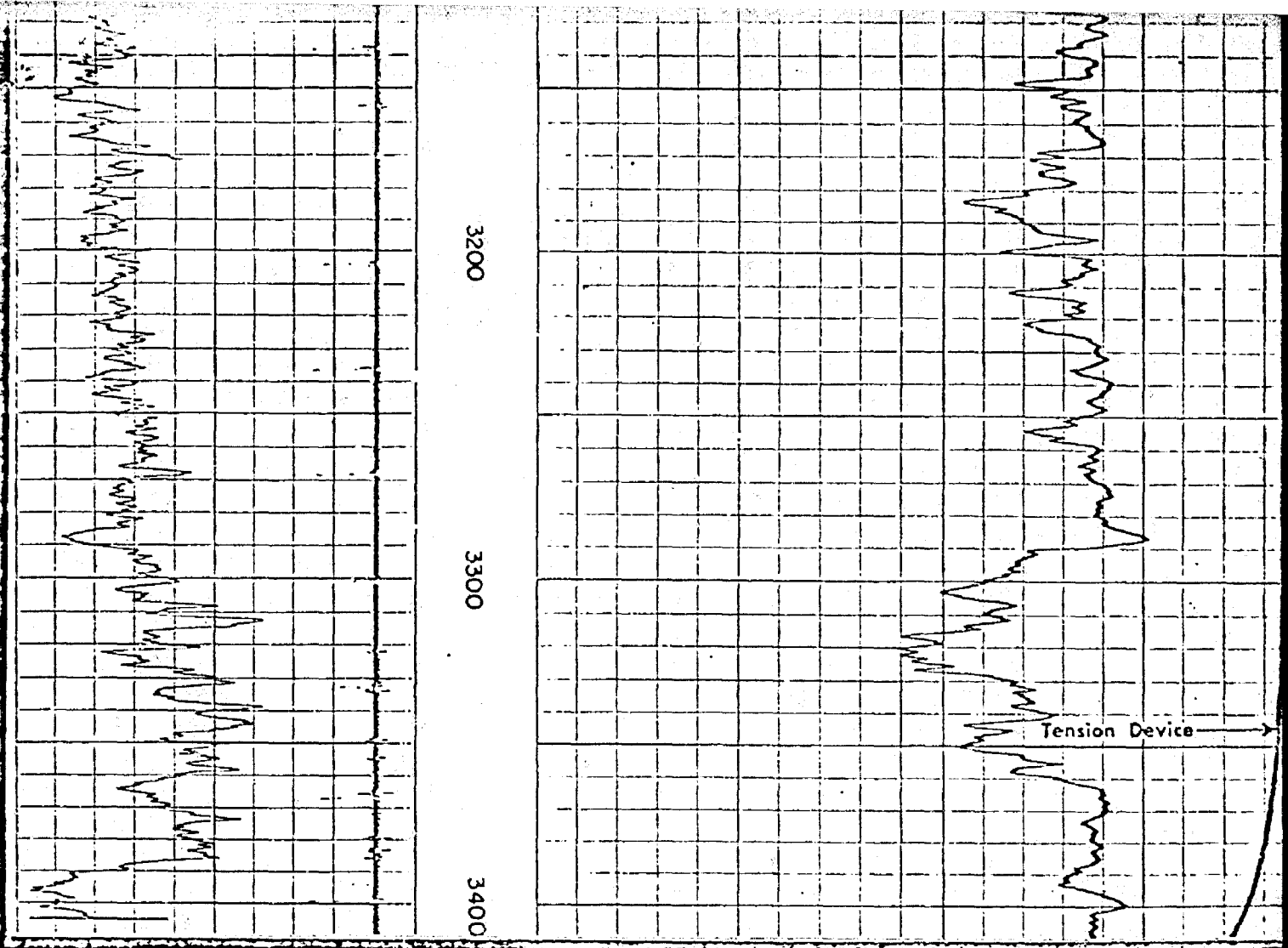
Other Servi

Permanent Datum	GROUND LEVEL	Elev. 3618	Elevations KB
Log Measured from	G. L.	0 Ft. Above Permanent Datum	DF
Drilling Measured from	G. L.		GL 3618

Date	5-20-77		
Run No.	ONE		
Type Log	CN/GR		
Depth-Driller	3417 PBTD		
Depth Logger	3412		
Bottom Logged Interval	3410		
Top Logged Interval	1400		
Type Fluid in Hole	WATER		
Salinity Ppm Cl.	-		
Density Lb./Gal.	-		
Level	-		
Max. Rec. Temp. Deg. F	-		
Opr. Rig Time	-		
Equip. No. and Location	6124 HOBBS		
Recorded By	JACKSON		
Witnessed By	ENGLISH		

Run	Bore Hole Record			Casing Record			
No.	Bit	From	To	Size	Wgt.	From	To
1				4 1/2"		SURF.	3412


2800
2900
3000
3100
3200



6 16
HOLE SIZE - INCHES
0 100
API UNITS
10 API/CD

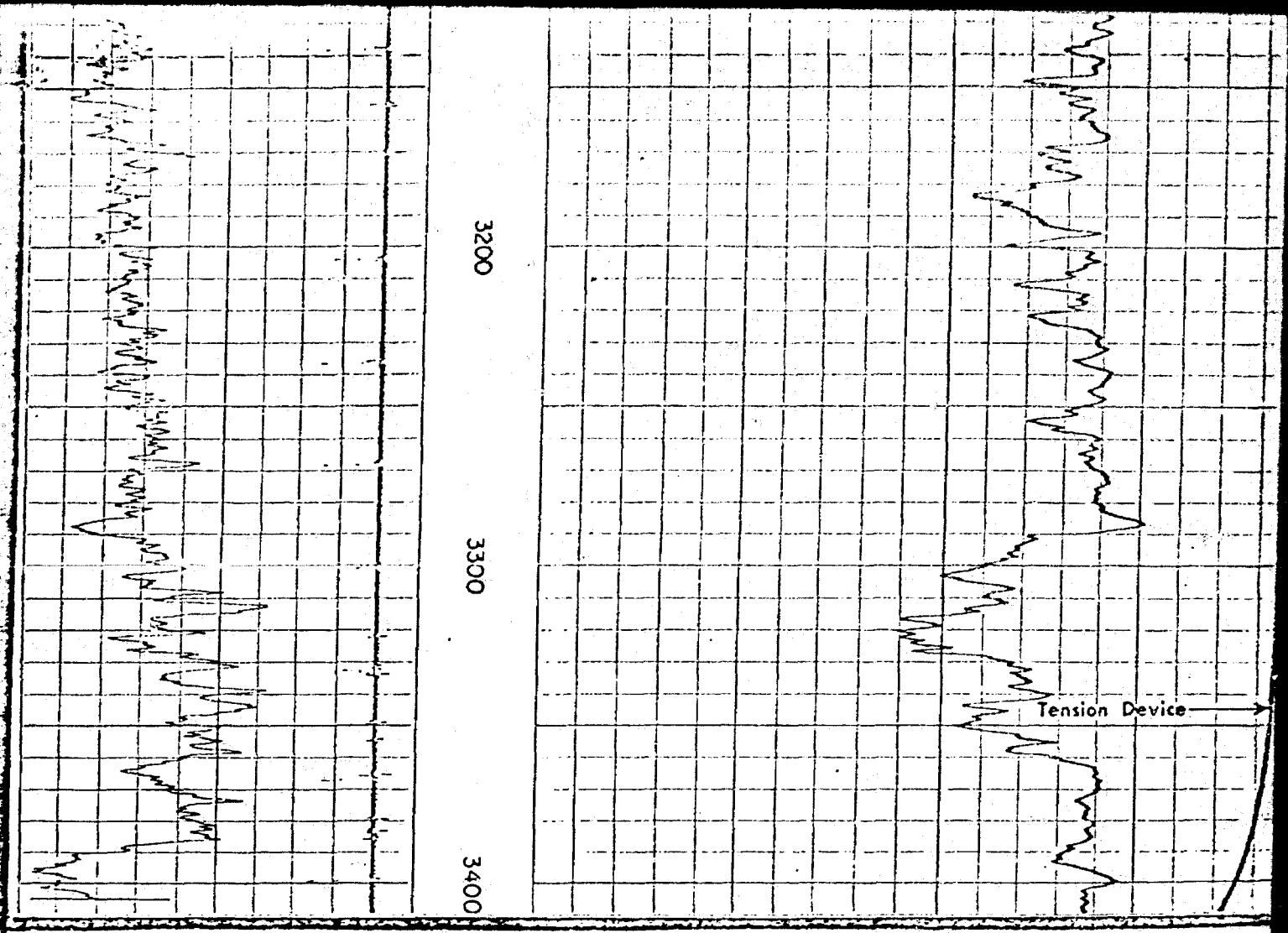
30% 20% 10% 0
COMPENSATED NEUTRON POROSITY
LIMESTONE

GAMMA RAY & CALIPER

DEPTH

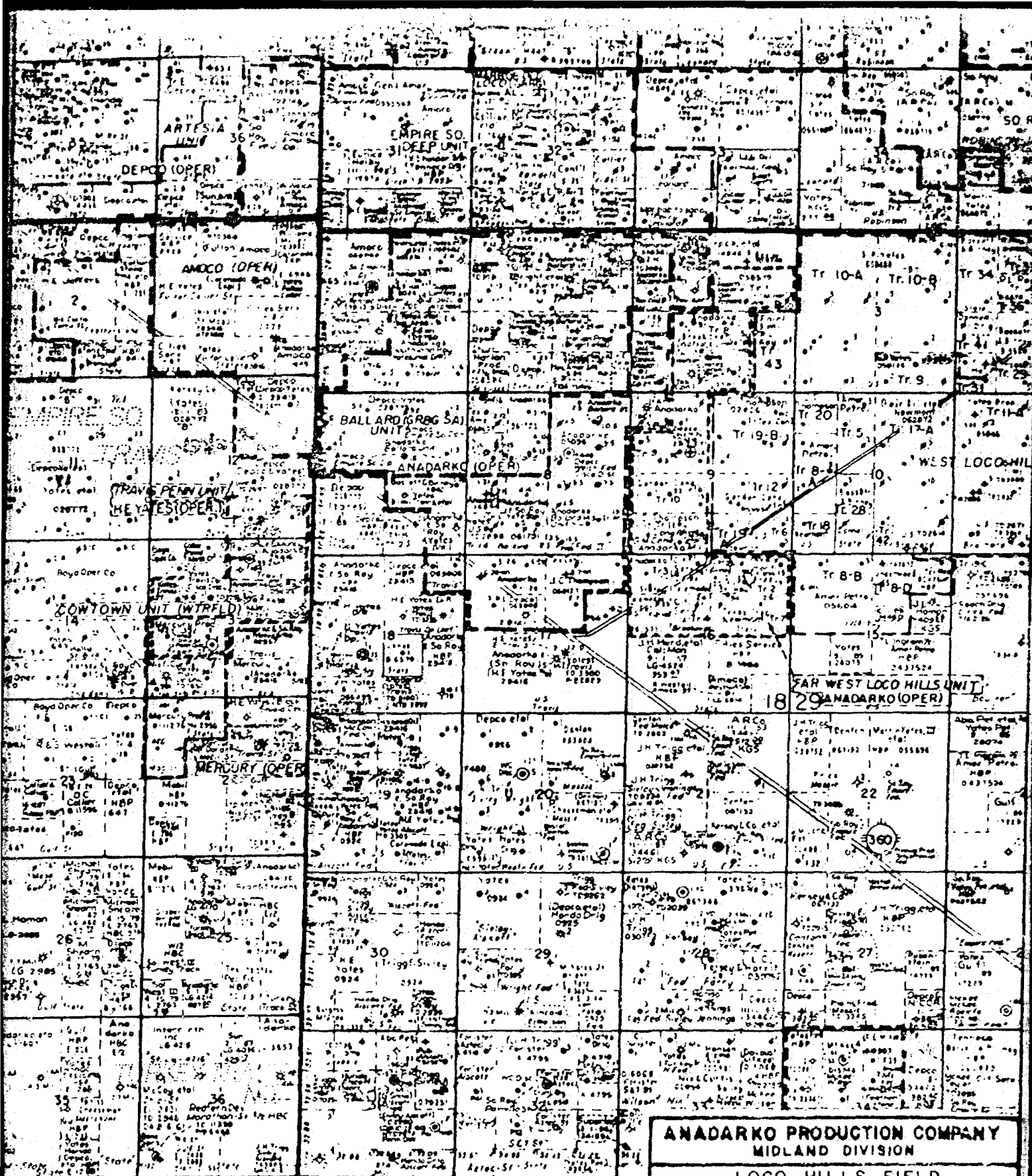
POROSITY %

Company	ANADARKO PRODUCTION COMPANY	Drillers T.D.	3417' PBTD
Well	BALLARD UNIT NO. 6-17	Log F.R.	3410'
Field	LOCO HILLS QUEEN GSA	Log T.D.	3412'
County	EDDY	Elevations:	
State	NEW MEXICO	K.B. D.F.	G.L. 3618'



6 — HOLE SIZE - INCHES — 16	30% — 20% — 10% — 0
	COMPENSATED NEUTRON POROSITY LIMESTONE
0 — API UNITS 10 API/CD — 100	
GAMMA RAY & CALIPER	DEPTH
	POROSITY %

Company	ANADARKO PRODUCTION COMPANY	Drillers T.D.	3417' PBTD
Well	BALLARD UNIT NO. 6-17	Log F.R.	3410'
Field	LOCO HILLS QUEEN GSA	Log T.D.	3412'
County	EDDY	Elevations:	
State	NEW MEXICO	K.B. D.F.	G.L. 3618'



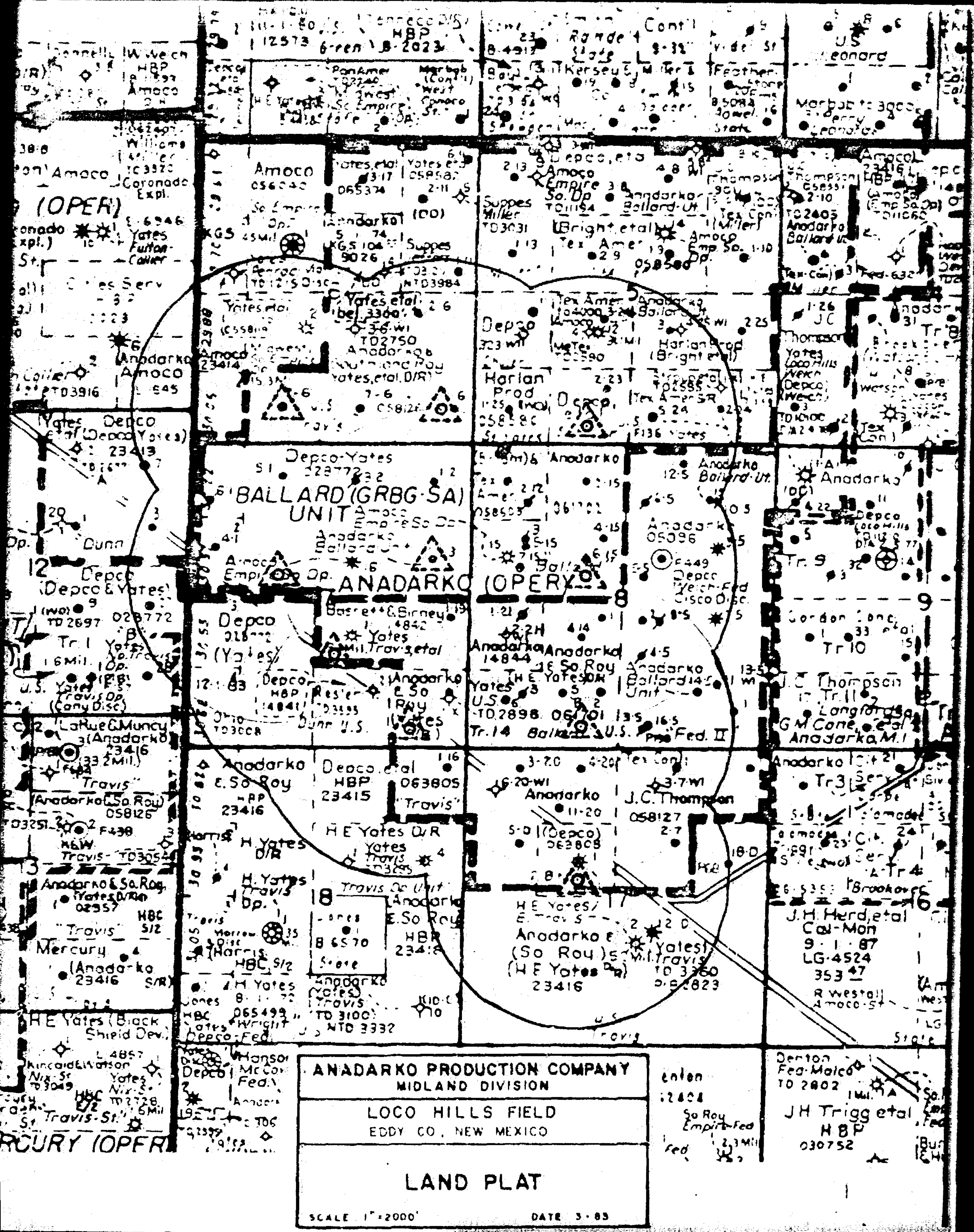
ANADARKO PRODUCTION COMPANY
MIDLAND DIVISION

LOCO HILLS FIELD
EDDY CO., NEW MEXICO

LAND PLAT

SCALE 1" = 4000'

DATE: 3/82



ANADARKO PRODUCTION COMPANY
MIDLAND DIVISION

LOCO HILLS FIELD
EDDY CO., NEW MEXICO

LAND PLAT

SCALE 1" = 2000'   DATE 3-83

KELLAHIN and KELLAHIN
Attorneys at Law
506 Don Gaspar Avenue
Post Office Box 1769
Santa Fe, New Mexico 87501

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

April 21, 1982

Dear Offset Operator:

Our firm represents Anadarko Production Company before the New Mexico Oil Conservation Division.

Anadarko has filed the enclosed application for approval to add certain injection wells to its currently approved Ballard GSA Waterflood Project, Eddy County, New Mexico.

In accordance with Division Rules we are required to notify all offset operators within a one-half mile radius of any injection well of the pending application. A hearing on this application will be held on May 12, 1982.

If you have any objection to this application you are required by Division rules to file a written objection with the Division within fifteen (15) days of the date of this letter.

If you desire further information, please contact Mrs. C. K. Stegall, Senior Reservoir Engineer, Anadarko, Midland, Texas (915) 682-1666.

Very truly yours,

W. Thomas Kellahin

WTK:rb
cc: Mrs. C. K. Stegall
(Anadarko)
Enclosures
Mailing List of Offset Operators
and Surface Owners
Application for Injection
Letter to OCD Identifying Injectors

ANADARKO PRODUCTION COMPANY

PROPOSED BALLARD GSA UNIT WATER INJECTION WELLS

OFFSET OPERATORS

Amoco Production Company
P. O. Box 68
Hobbs, New Mexico 88240

Depco, Inc.
1025 Petroleum Club Bldg.
Denver, Colorado 80201

Thompson Petroleum Corp.
4500 Republic Nat'l. Bank Tower
Dallas, Texas 75201

Harvey E. Yates Co.
P. O. Box 1933
Suite 300 Security Nat'l. Bank Bldg.
Roswell, New Mexico 88201

ANADARKO PRODUCTION COMPANY

BALLARD GSA UNIT

SURFACE OWNERSHIP OF ACREAGE WITH PROPOSED WATER INJECTION WELLS

1) E/2 & SE/4 SW/4 Section 6, W/2 Section 8, T-18S, R-29E, Eddy County, New Mexico
(Ballard GSA Unit #6-17, 6-18, 14-7, & 15-8)

Bogle Farms, Inc.
P. O. Box 358
Dexter, New Mexico 88230

2) S/2 Section 5, N/2 & NW/4 SE/4 & SE/4 SE/4, Section 7, NW/4 Section 17, T-18S, R-29E, Eddy County, New Mexico
(Ballard GSA Unit #1-7, 3-1, 4-1, 16-1, 19-3 & 23-4)

United States of America

N.M.C.F. MICROGRAPHICS

BASE

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. 7572

Order No. R-7000

BEST AVAILABLE COPY

APPLICATION OF ANADARKO PRODUCTION
COMPANY FOR A WATERFLOOD EXPANSION,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 12, 1982, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

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

FINDS:

C.F. MICROGRAPHICS

AVAILABLE COPY

(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, Anadarko Production Company, seeks authority to expand its Ballard GSA Unit Waterflood project by the completion for injection or conversion to water injection of ten wells located in Unit N of Section 5, Units N and P of Section 6, Units F, H, J, and P of Section 7, Units F and N of Section 8, and Unit F of Section 17, all in Township 18 South, Range 29 East, Loco Hills Pool, Eddy County, New Mexico.

(3) That the proposed waterflood expansion should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(4) That the proposed expansion provides for additional injection offsetting five wells which may not be completed or plugged in such a manner as to confine the injected fluids in the waterflood interval.

(5) The five wells are identified as the Dunn Well No. 1 and No. 1X in Unit P and Dunn C Well No. 2 in Unit O in Section 7 and Unit Wells 20-3 in Unit D and 20-5 in Unit E of Section 17, all in Township 18 South, Range 29 East, NMPM, Eddy County, New Mexico.

(6) That the applicant should consult with the supervisor of the Division's district office at Artesia to develop an acceptable plan for repairing or replugging such wells or for monitoring for determination of fluid movement from the injected interval in order to protect neighboring properties and to protect other oil or gas zones or fresh water.

(7) That the operator should otherwise 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 from injection, production, or plugged and abandoned wells.

(8) That the injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 1550 psi, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(9) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Anadarko Production Company, is hereby authorized to expand its Ballard GSA Unit Waterflood Project by the completion for injection or conversion to water injection of ten wells in Township 18 South, Range 29 East, NMPM, Loco Hills Pool, Eddy County, New Mexico as set out below:

Well No.	Section	Approximate Location	Section
23-4	5	330' FSL and 1980' FWL	5
6-17	6	660' FSL and 3300' FEL	6
6-18	6	660' FSL and 660' FEL	6
1-7	7	2310' FNL and 1600' FWL	7
3-1	7	1980' FNL and 660' FEL	7
4-1	8	330' FSL and 990' FEL	7
19-3	17	1650' FSL and 2310' FEL	7
14-7		400' FSL and 2000' FWL	8
16-8		2310' FNL and 1980' FWL	8
16-1		2310' FNL and 1980' FWL	17

(2) That injection into each of said wells shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) That the operator shall, prior to injection into nearby wells, consult with the district supervisor of the Division's district office at Artesia to develop an acceptable plan for repairing, replugging, and/or monitoring for out-of-zone fluid movement for the five wells identified in Finding No. (5) of this order.

(5) That the injection wells herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 1550 psi, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(6) That the subject waterflood project is hereby and shall continue to be governed by the provisions of Rules 701 through 708 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

S E A L

May 26, 19[illegible]

[illegible]

Cont to
May 26, 1982

Thanks
Dan

CASE 7573: ANADARKO PRODUCTION COMPANY FOR A WATERFLOOD EXPANSION, EDDY COUNTY, NEW MEXICO

DOCKET MAILED

4/30/82

5/14/82.