CASE 6461: OCC -- PLUGGING CASE
MAYOR EDDIE ARMENTA, VILLAGE OF JEMEZ SPRINGS AND OTHER INTERESTED PARTIES, SANDOVAL COUNTY, NEW MEXICO

CASE NO.

6461

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC. . . .

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

Re: CASE NO. 6461
ORDER NO. R-5941

Mr. Booker Kelly
White, Koch, Kelly & McCarthy
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico 87501

Applicant:

OCD (Mayor Eddie Armenta, Village of Jemez Springs)

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Tom Kleeman

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6461
Order No. R-5941

APPLICATION OF THE OIL CONSERVATION COMMISSION TO PERMIT MAYOR EDDIE ARMENTA, THE VILLAGE OF JEMEZ SPRINGS, AND ALL OTHER INTERESTED PARTIES TO APPEAR AND SHOW CAUSE WHY THE JEMEZ WELL NO. 1 LOCATED IN UNIT A OF SECTION 26, TOWNSHIP 18 NORTH, RANGE 2 EAST, SANDOVAL COUNTY, NEW MEXICO, SHOULD NOT BE PLUGGED AND ABANDONED IN ACCORDANCE WITH A DIVISION-APPROVED PLUGGING PROGRAM.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 23, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 2nd day of March, 1979, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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 Jemez Well No. 1 located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, was spudded on January 3, 1979, and was drilled to a total depth of 824 feet.

(3) That the operator of record of said well is Eddie Armenta, Mayor of the Village of Jemez Springs.

(4) That said well encountered waters in excess of 150°F at a depth of approximately 80-90 feet and another naturally heated water at a depth of approximately 500 feet.

(5) That 7-inch casing was set in said well at approximately 120 feet.

(6) That the cementing of said 7-inch casing was inadequate to prevent waters from escaping from the strata in which they are found into other strata and to the surface.

(7) That water from the 80-90 foot zone is flowing from the well to the surface of the ground outside the 7-inch casing at a rate of approximately 1000 gallons per hour.

(8) That said waters flowing to the surface of the ground are of sufficient temperature to be considered a geothermal resource.

(9) That allowing said water to flow unrestricted from the well without being utilized constitutes waste of a geothermal resource.

(10) That allowing said well to flow unrestricted could result in injury to neighboring properties.

(11) That caving has occurred both within the wellbore and around the 7-inch casing, creating a hole and resultant pond at the wellhead of sufficient size to be a hazard to human life and health.

(12) That said pond should be fenced in a manner sufficient to prevent access by children and livestock and other animals.

(13) That said well should be repaired in such a manner that geothermal resources will be contained within the 7-inch casing.

(14) That if said well cannot be repaired, then said well should be plugged and abandoned in a manner that will confine all waters to the strata in which they are found.

IT IS THEREFORE ORDERED:

(1) That the Mayor Eddie Armenta Jemez Springs Well No. 1, located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, shall be re-entered and repaired in such a manner that geothermal resources are contained within the 7-inch casing.

(2) That the water flow encountered at approximately 500 feet shall be isolated by setting a cement plug across the shoe of the 7-inch casing.

(3) That in the event re-work operations are unsuccessful in containing the geothermal resources inside the 7-inch casing, the well shall be plugged and abandoned in a manner prescribed by the Santa Fe district office of the Oil Conservation Division.

(4) That, so long as the hazardous conditions described in Finding No. 12 above shall prevail, the area surrounding said well shall be fenced in a manner sufficient to prevent access by children and livestock and other animals.

(5) That re-work or plugging and abandonment operations shall be commenced immediately and shall be concluded within 14 days following the date of this order.

(6) That the Santa Fe District Office shall be notified at least 48 hours prior to commencing re-work or plugging and abandonment operations.

(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 herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION
State Land Office Building
Santa Fe, New Mexico
23 February 1979

COMMISSION HEARING

IN THE MATTER OF:

The hearing called by the Oil Conservation Commission on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs, and all other interested parties to appear and show cause why the Jemez Well No. 1 located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6461

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Lynn Teschendorf, Esq.
Legal Counsel for the Commission
State Land Office Bldg.
Santa Fe, New Mexico 87503

For Mr. McAllister, et al: W. BOOKER KELLY, ESQ.
WHITE, KOCH, KELLY, & McCARTHY
200 Otero Street
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. RAMEY: We have one case on the docket this morning, Case 6461, in the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs, and all other interested parties to appear and show cause why the Jemez Well No. 1 should not be plugged and abandoned in accordance with a Division-approved plugging program.

We sent out several subpoenas, one for Tom Kleeman, Eddie Armenta, and Gary McAllister. I understand these have all been served.

Are those persons present?

MR. KLEEMAN: Yes.

MR. RAMEY: Mr. Kleeman. Is the Mayor?

MR. ARMENTA: Yes.

MR. RAMEY: And Gary McAllister?

MR. McALLISTER: Yes.

MR. RAMEY: Ms. Teschendorf, would you call your first witness, please?

Oh, are there any other appearances in the case this morning?

MS. TESCHENDORF: I'm Lynn Teschendorf, appearing on behalf of the Division. My first witness is Carl Ulvog.

MR. RAMEY: All right, we'll ask Mr. Kleeman, Mr. Ulvog, Mr. Armenta, and Mr. McAllister to stand at this

time and be sworn.

(Witnesses sworn.)

MR. KELLY: Mr. Ramey, my name is Booker Kelly. I'm appearing on behalf of Mr. McAllister, and I'd like to just clarify one point.

The order is addressed to other interested parties, however we are appearing here under a subpoena and we do not consider ourselves parties in the sense that any order of the Commission is directed against us, and I'd like to just clarify the status of the people who you have subpoenaed before we get into this hearing.

MR. RAMEY: I think we have subpoenaed everyone here to find out all the information we can, Mr. Kelly, about the well.

Are you representing Mr McAllister, is that --

MR. KELLY: Yes, I am. I just -- I would not want to be classified -- he or his company to be classified as a party, is my position.

MR. RAMEY: I think we're going to ask him to testify as to what work he did on the well.

MR. KELLY: Yes.

MR. RAMEY: So that we can have a complete file on the well.

MR. KELLY: That's fine.

CARL ULVOG

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you state your name, by whom you're employed, and in what position?

A. Yes, ma'am. Carl Ulvog, Senior Geologist for the Oil Conservation Commission in Santa Fe.

Q. Have you previously testified before this Commission and had your credentials made a matter of record?

A. I have and they are.

Q. Are you familiar with the circumstances and the subject matter of this case?

A. Yes, I am.

MS. TESCHENDORF: Is the witness considered qualified?

MR. RAMEY: We consider the witness qualified.

Q. (Ms. Teschendorf continuing.) Mr. Ulvog, do your duties as District Supervisor include making recommendations to the Commission as to when wells should be plugged and abandoned?

A Yes, that is correct.

Q And does that include geothermal wells as well as oil and gas wells, is that right?

A That is right.

Q Would you please refer to Exhibit One in this case and describe that?

A I believe Exhibit One is actually the official well file that we maintain here, and it consists of a Form G-101, which is the application for a permit to drill, and in this case it's an application for a permit to drill a temperature observation well, and it states that the operator would be Mayor Eddie Armenta and the address of the operator would be the Village of Jemez Springs, New Mexico.

It states that the well, which is described by the docket, I believe, would be drilled with 8-3/4 inch hole with 7-inch casing set at 100 feet with 30 sacks of cement circulated to the surface.

Then there would be a 5-inch hole drilled to some unspecified depth and nothing more stated about the casing, and so on, of the well.

But the total depth was proposed to be 750 feet.

That permit was approved on December 28th, 1978.

Accompanying that form was a Form G-102, which is a land plat, or acreage dedication plat, and it describes the location of this well. And that -- I beg your pardon?

Q. For the record would you state the location of that well?

A. Yes, I will. That would be located in Unit A, which is actually described as being 90 feet west of the Town Hall in Section 26 of Township 18 NOrth, Range 2 East, Sandoval County.

Q. I notice from the G-101 that the drilling contractor is Stuart Brothers in Grants, New Mexico. Were we able to get service on them?

A. Were we able to what?

Q. Did we subpoena anyone from Stuart Brothers?

A. Not to my knowledge. I'm not sure if we did. I didn't notice that subpoena.

Did you mention that, Mr. Ramey?

MR. RAMEY: No, I had heard from counsel that those -- we had subpoenaed two people from Stuart Drilling, or at least one, Don Kelly. We understand he went to Texas and we weren't able to serve him.

A. I see. All right.

Q. Do you have anything further on Exhibit One?

A. That actually is all that our official well

file contains.

Q Will you now refer to Exhibit Two and describe that?

A That, I believe, is a letter, undated, captioned the Village of Jemez Springs, New Mexico, and it is simply a letter from Mr. Eddie Armenta, as Mayor of the Village of Jemez Springs, and I would like to call that in that letter it states that the Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in the Rules and Regulations.

That is, of course, the primary interest in that exhibit.

Q Would you now refer to Exhibit Three and describe that?

A Exhibit Three, I believe, is a copy -- pardon me, yes, Exhibit Three is a portion of a proposal for this project, and this proposal is unsigned. I couldn't tell you who prepared it; it doesn't say, but it's dated 5th of July of 1978.

And it lists several items involving the drilling of this well.

But the pertinent paragraph that I would like to point out appears about in the middle of that ex-

hibit and it's entitled item four, and I would just like to read that.

Drilling will be carried out under the supervision and with the advice of the project geologist. Two test wells of a diameter of four inches to six inches, to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 feet. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

I'll dispense with reading the rest of that exhibit, if I may.

Q How did you first hear that this well had been spudded?

A Actually, the only way that I knew that it had been started was through the medium of a newspaper article, which appeared in the Albuquerque Journal Friday, January 5th.

Q That is marked as Exhibit Four, is it not?

A Yes, that is how I knew that the well had been started. We never did receive a report of the spudding of the well.

Q And what did you do after reading the newspaper article?

A Well, of course, I investigated the well,

when we did not receive an official report that the well had been started, or anything, so I went out and inspected it.

Q. Will you refer to Exhibit Five, then, and describe what that shows?

A. Exhibit Five, I think, is a series of pictures. There are three pictures that I took out there and the uppermost picture is looking at the site from a distance of approximately 25 to 30 feet away.

The next one is right up at the very edge of it. There is a large hole where the water is coming up, and bubbling and running off to the river.

And then the third picture near the bottom of the page is a real close up of the casing, approximately 3-inch casing that is projecting from that hole with water flowing around it.

Q. What date were these pictures taken?

A. They were all taken on January 29, 1979.

Q. Do you have an estimate as to how much water is coming out of the hole?

A. Yes. I estimated it in the vicinity of 1000 gallons an hour is flowing from the hole at a temperature of approximately 150 degrees at the surface.

MR. RAMEY: Mr. Ulvog, you said this is about 3-inch casing?

A. Something in that order. I didn't get up to it. I didn't feel like swimming over, so I would estimate it was about a 3-inch tubing, casing, pipe, whatever, with valves at the top.

MR. RAMEY: I'd understood from Exhibit One they were going to run 7-inch casing in the hole.

A. I did not see any 7-inch casing.

MR. RAMEY: Thank you.

Q. (Ms. Teschendorf continuing.) Mr. Ulvog, what did you do after discovering that the well was in this condition?

A. Well, I wrote two letters to the operator of record, and first of all requesting that the now delinquent data be filed with this office.

Q. These are both listed on Exhibit Six, are they not?

A. Yes, that was the first letter.

The second one, then, I simply sent by registered mail or --

Q. What's the date of that letter?

A. Beg pardon?

Q. What is the date of that letter?

A. That's February 1, 1979.

And in this letter I mentioned that there were violations of the State Regulations and that upon the --

in fact I'll read it.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Q What was the date of that first letter?

A That was January 30th.

Q What rules have been violated?

A Well, this was a permit for a temperature observation well, and a temperature observation well is never produced, and the fact that there is water flowing from this well, I would have to call it a -- it is being produced, so it is now a producing well.

Number two, there were never any reports filed, official reports, telling us the well had been spudded. There were no reports telling us when casing was being run or cementing being done, or anything of that sort, or tests being made, and all of those are conditions of the permit for an observation well.

An observation well is simply for the measure-

ment of temperature, nothing else.

Q So these rules you're referring to are shown on Exhibit Seven, are they not?

A Yes, that's right. I have some -- just a few items that I pointed out; comes from the rule book, and under A, which appears on page A-1 of the rules, --

Q These are geothermal rules.

A That's correct, that's geothermal rules, I'm sorry.

About in the middle of that page there I've indicated a geothermal observation well shall mean a well drilled solely for temperature observation purposes and which shall not be completed as a geothermal producing well or as an injection well.

That's the primary thing I wanted to point out in that page.

And when you go to page -- well, item B under miscellaneous rules, well we find there under Rule 3, I've indicated that, that pertains to waste. Waste is prohibited.

Under A, the production or handling of geothermal resources of any type or in any form, or the handling of products thereof, in such a manner or under such conditions, or in such an amount as to constitute or result in waste, is hereby prohibited.

And I might point out that this includes also heat, if that is allowed to escape, that would be considered waste.

And under sub-paragraph B, all owners, operators, contractors, drillers, transporters, service companies, pipe pulling and salvage contractors, and all other persons shall at all times conduct their operations in drilling, equipping, operating, producing, and plugging and abandoning a geothermal resource well in a manner that will prevent waste of geothermal resources and shall not wastefully utilize geothermal resources or allow leakage of such resources from a geothermal reservoir, or from wells, tanks, containers, or pipes, or other storage conduit or operating equipment.

And on page D-2 conforms to the filing of Form G-103, and I would just point out briefly that under that it states that the Form G-103 is a subsequent report of operation which shall be filed in accordance with this rule applicable to the particular operation being reported, and among those, number one, commencement of drilling operations; number two, casing and cement; number three, altering a well casing installation; number four, temporary abandonment; and so on and so on.

And it further states that within ten days following the commencement of drilling operations, the oper-

ator of the well shall file a report thereof on a Form G-103, and so on.

And on the following page, D-3, it states that report results of test of casing and cement job, and so on, those reports to be filed within ten days following the setting of the string or using cement.

And then number 3 is a report of temporary abandonment, and of course, at the times I have visited the well it has definitely been abandoned. There was no one there and nothing there, and so on, so I would have to consider it to be temporary abandonment, even though there has never been a permit applied for for that.

Q Have you made a second inspection of this well?

A Yes, I have.

Q And what date did you make that inspection?

A That date was on -- that was taken on February 21st, 1979.

Q Will you refer to Exhibit Eight and describe what that shows?

A Exhibit Eight consists of two pictures that were taken on that date, both of them show the condition of the hole and the casing, which is leaning off to the side; it shows the valve assumbly at the top, and there's a yardstick there for scale, which indicates thatthe hole

would be approximately ten feet across. The casing is fallen or collapsed or washed out or something, but it's laying off to the side of the hole.

That's what those two pictures show, plus, of course, the water coming from that.

Q In your opinion, Mr. Ulvog, are geothermal resources being wasted?

A Well, yes, I don't believe there's much question about that. The water flowing and the heat that's escaping, you'd have to say that it's being wasted.

Q And is fresh water being contaminated?

A Yes, this is running right into the river, the Jemez River.

Q Are there migration of fluids in the wellbore from the strata in which they are found to other strata?

A Well, there certainly is migration of fluids to the surface. Now how many zones are exposed, I have no way of knowing, but in conversations with people at the site and others, there is definitely more than one zone of water.

Q In your opinion is there a possibility that caving is the wellbore?

Q I would think so, yes. There would have to be some erosion taking place by the fact that the water is flowing from it. Now whether there's caving going on, of

course I wouldn't know, but I would certainly suspect it.

Q Is the well in such a condition that injury is being caused to neighboring properties?

A. I have no analyses of water and so on at my disposal, but the condition of the casing is shown in that Exhibit -- the first set of pictures -- that was Exhibit what? Exhibit Number Five. I believe that indicates that there's something occuring on that casing. It's being discolored, and so on, so there's some chemical action taking place there, and from this I would assume that there would be some pollution occurring to the water.

Q Isn't there a bathhouse nearby here?

A. That is correct, there is.

Q And has that suffered injury by the condition of this well?

A. Well, the original well that, or spring, that supplied the bathhouse, the flow has been reduced so badly that the bathhouse operator obtains water by pumping it from this pool around this pipe, because there is not enough water coming from the original spring any more.

Q What do you propose should be done about this situation, Mr. Ulvog?

A Well, I believe that the hole should be plugged all throughout its entire length, since we have no way of knowing how many fluid zones or porosity zones, for

that matter, that may be barren but could be acting as seep zones in that case, we have no idea where they are, how many there are, so I would feel that the obvious solution would be to plug the entire wellbore.

Q. Were Exhibits One through Eight -- Exhibit One is the well file. Exhibit Two is the letter from the Mayor. The pictures on Exhibits Five and Eight were taken by you, is that correct?

A. That is correct.

Q. Do they absolutely reflect the situation as it was on those dates?

A. That's correct.

Q. And the letters on Exhibit Six were written by you?

A. That's right.

MS. TESCHENDORF: At this time I'll offer Exhibits One through Eight in evidence.

MR. RAMEY: Exhibits One through Eight will be admitted.

MS. TESCHENDORF: And I have nothing further of this witness.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Ulvog, I notice in comparing your ex-

hibits Five and Eight, in Exhibit Five there was a little fence of some kind around the well.

A. That's right.

Q. Around the well and the hole there.

A. True.

Q. And this fence seems to have been removed.

A. Yes.

Q. Is this well in a populated area?

A. Yes, it is. It's right down behind the -- it's right in the Village of Jemez Springs, right below the City Hall, and there are residences, and so on, all around there.

Q. And you say the temperature of the water in hole was 150 degrees?

A. Right at the surface, yes.

Q. What would be the effect of a small child falling into it?

A. I don't believe it would survive very long.

Q. So it's also a hazard to the people of Jemez Springs, particularly the young children?

A. I would think so.

Q. Small animals or livestock?

A. It's pretty muddy around there, I guess you could sure slip in easy.

MR RAMEY: Any other questions of the wit-

ness?

MR. KLEEMAN: Yes. May I ask a question?

MR. RAMEY: Yes, let me ask one more, Mr. Kleeman.

Q (Mr. Ramey continuing.) Now, you're recommending that the well be plugged. If we get a report from Mayor Armenta or Mr. Kleeman that something can be done to the well to repair the well and contain the water the way they should be contained, would you still recommend it be plugged?

A Well, we would have to look at that proposal and consider whether it was satisfactory, but we do have to remember that this is a temperature observation well and not to be produced.

We do have --

Q But if the well resulted in a clean completion and they did have a possible geothermal source, why, don't you think it would be possible for the Commission or the Division to waive the requirements of an observation well being plugged?

A Yes, I think that is possible, but then I think we should also go to the section pertaining to producing wells and then operate under those provisions, and not to consider this as a temperature observation well. Otherwise, the statutes would be violated. We wouldn't be

doing our job. If it's produced, it's not a temperature observation well, in other words, and that's our permit at the moment.

I think we could perhaps go to an entire different set-up, that is, as a geothermal producer, but you see, we have an entire set of operating conditions for those.

Q Okay.

MR. RAMEY: Mr. Kleeman, did you have a question?

MR. KLEEMAN: Yes, I did have one question.

MR. RAMEY: Would you identify yourself for the record?

MR. KLEEMAN: I am Tom Kleeman, Project Manager for the Jemez Springs No. 1 Well.

CROSS EXAMINATION

BY MR. KLEEMAN:

Q I believe you stated that you saw a 2-inch casing leaning over to the side?

A No, I didn't think I said anything about a 2-inch. I said I thought there was a 3-inch casing protruding from this hole. I'm estimating that. I didn't measure it.

Q And you did not see a 7-inch casing?

A. I did not see any 7-inch casing at all at any time.

MR. KLEEMAN: That's all I wanted to get on the record.

MR. RAMEY: Any other questions of the witness? We may be excused.

MS. TESCHENDORF: I'd like to call Mr. Eddie Armenta.

EDDIE ARMENTA

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you please state your name and place of residence?

A. Eddie Armenta, Jemez Springs, New Mexico.

Q. And you are the mayor of the Village of Jemez Springs?

A. Yes, I am.

Q. Let me show you what we've already introduced as Exhibit Number One. That is a drilling permit. That was signed by you, was it not? As operator?

A. Yes, it was.

Q Would you please describe the chain of events leading up to the drilling of this well?

A Leading up to it?

Q Uh-huh, how you -- who first proposed the drilling of the well, did you decide that the Village of Jemez Springs needed a geothermal well, or what was your interest in the drilling of this well?

A Well, we always knew it was a possibility it was there.

Back in '78 Mr. Kleeman, Tom Kleeman, was passing through and made the proposal to the Village Council as to the possibilities of using geothermal heat to heat the village.

It was discussed and approved by the council and the proposal was it was up to Mr. Kleeman to get together with us and make a proposal for funding to drill.

Q Where did you get this funding?

A From the State of New Mexico.

Q I'd like to show you what we've introduced as Exhibit Two, and that is your letter guaranteeing that the Village of Jemez Springs would see that the well was properly plugged in accordance with the Division Rules and Regulations.

A Uh-huh.

Q I want to ask you some questions about the

Village of Jemez Springs financial responsibility in the situation.

There is no bond covering this well, but by your letter you have guaranteed that the financial responsibility for the plugging of this well is there. Are you still in that position? Can you still guarantee that the Village of Jemez Springs will assume financial responsibility and see that this well is properly plugged or repaired?

A. If my signature is on it saying I guaranteed it, I guess it is.

Q. On whose property is this well located?

A. The Village of Jemez Springs.

Q. And you are the listed operator.

A. I am.

MS. TESCHENDORF: I have nothing further of this witness.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Did you, Mr. Mayor, did you have anything to do with the drilling of the well?

A. No.

Q. You had nothing to do with it, Mr. Kleeman has been the supervisor of the drilling of the well?

A. Yes, he was.

MR. RAMEY: Any other questions of the witness?

MR. ARMENTA: Can I add something?

MR. RAMEY: Yes, you may add anything you want.

MR. ARMENTA: The last person that was here, the geologist, made a statement as to the bathhouse.

That bathhouse belongs to the Village of Jemez Springs. It is not privately owned. So any effect to that bathhouse would affect the Village, and it does belong to the Village.

One other thing he said about the possibility of the water flowing into the river affecting the fresh water, all along that area, along that one-mile strip, there are several open springs going into that water, and have been going into that river for many years. many years, and has not had any effect. I doubt that one more little spring would affect it that much.

That doesn't mean it should not be taken care of, but -- that's all I had to say.

MR. RAMEY: Thank you, Mayor.

MS. TESCHENDORF: I'd like to call Tom Kleeman next.

TOM KLEEMAN

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you please state your name and by whom you're employed?

A. My name is Tom Kleeman and I am under -- I'm a subcontractor to the Village of Jemez Springs for this project.

Q. Are you a professional engineer or some kind, or what is your educational background?

A. My educational background? Economics and resource management.

Q. What are your work experience background?

A. As regards geothermal resources?

Q. Yes, drilling, and so on.

A. While working for the State of Texas General Land Office, I was responsible for studying feasibilities of developing various energy resources on State-owned lands, and impacts from development.

I have subsequently worked for the last four and a half years as an independent consultant in the energy field in everything from doing environmental impact

analyses for pipelines, to planning new energy development projects, studying the economics of energy development.

Q. Mr. Armenta, Mayor Armenta, has stated that a grant was obtained from the State of New Mexico. Were you instrumental in obtaining that grant?

A. I played a role in it, yes.

Q. Can you tell me from whom the grant was obtained, for what purpose, and how much it was?

A. Yes. The grant came from the -- what is now the New Mexico Energy and Minerals Department. The amount, the original amount was some $31,400. The purpose was to drill, to do test drilling in Jemez Springs to determine whether or not there was a viable geothermal resource there.

Q. And what was your -- you were the project engineer or --

A. Project manager.

Q. -- project manager.

A. The project engineer was James Copeland-Moran in Albuquerque.

Q. Who was the driller on this well?

A. The driller was Stuart Brothers, Grants, New Mexico.

Q. Did you contact them and hire them to do this work?

A. Yes.

Q. Who was the cementing company?

A. National Cement.

Q. And did you hire them to do the cementing?

A. No. All third party work done on the well was carried out by Stuart Brothers.

Q. Okay. Do you have any drilling experience at all?

A. Have I drilled wells? No.

Q. Well, have you been connected with the drilling of wells --

A. Only in the analysis of results.

Q. Do you have any knowledge in this particular case, the depth to which the well was drilled?

A. Yes.

Q. What was that depth?

A. The TD was 824.

Q. Do you know the depths at which the water zones were encountered?

A. Yes. The first zone was encountered at approximately 80 feet and the only other zone of water encountered was approximately 500 feet.

Q. Can you describe the water that was encountered in each of those zones?

A. Yes. If I may, if you'll accept this as evidence, the reason I was tardy was that -- apparently these

geothermal vapors have affected my memory, and I went off and left a chemical analysis of the water sitting on the Xerox machine at Energy and Minerals Department, and so I called Los Alamos and talked to the chemist who was analyzing the water, and I have a very brief summary of the chemistry of the water, which if you will accept, I can provide you with more detailed a summary later, but the purpose of this exhibit is I think it will show that the water at 500 feet is substantially less saline and has less chemical content than the water at 80 feet and two other geothermal springs which are present in the area.

The chemist did a much more extensive survey. He sampled several springs in the area as well as the water from the well. But I think this will convey the essence of the difference, that the water at the surface is coming up at the surface in these springs is substantially more contaminated than the water that's coming up inside of the well.

So, if I may, I'd like to enter this as an exhibit.

MS. TESCHENDORF: I think, if the Commission please, I'll just mark this as OCD Exhibit Nine, and offer that in evidence.

MR. RAMEY: It will be accepted.

Q Mr. Kleeman, do you have any knowledge as to

any pipe that was set?

A. In terms of casing?

Q. Uh-huh.

A. Yes.

Q. What casing was set, to your knowledge, and at what depth?

A. We have a 7-inch casing that's been set to the depth of approximately 120 feet.

Q. That's all, to your knowledge?

A. That is -- that's all the casing I bought.

Q. You have no knowledge of smaller 3-inch casing?

A. I'd like to clarify that matter.

The staff geologist commented that he saw a 3-inch casing leaning over to the side. This, in fact, is a 2-inch steel pipe, which has been welded onto a cap, which has been placed on top of the casing.

The reason he could not see the 7-inch casing is, if I may explain briefly, we dug out a cellar to allow for a blowout preventer to be placed atop the casing during drilling, and still leave clearance for the rig. With the subsequent flow that comes up the outside of the casing, which has developed since drilling, I'm afraid that he couldn't see the 7-inch casing because his view was obscured by the water.

The purpose of the 2-inch pipe was to -- it does have a valve at the top of it -- and it was to reduce the -- stop the flow of water coming up from the top and be able to control it.

I have found out strictly secondhand information, apparently the hotshot driver that came to pick up the blowout preventer was fooling around with the 2-inch pipe and somehow loosened this cap from the casing. I can no longer thread the cap onto the casing and going to have to replace this device. But the casing is quite firm and if you would care to, I will explain exactly how it is set.

Q Thank you.

A I think it should satisfy the Commission's interest in this matter.

We originally tried to set the casing at 80 feet and the witness from National Cement can give you the exact figures, but I know I bought an awful lot of cement from that gentleman, approximately 350 bags, and there was some discoloration at the top of the casing, indicating that concrete was washing back to the surface; however, when we subsequently tested the casing, it did not prove to be firm and since there was concern that we might hit a hot zone, we wanted to make sure that the casing would withstand any pressures and would accommodate the blowout preventer.

So we then pulled the casing out and redrilled,

this time to 140 feet, approximately, and then at that point we -- this was with a 9-3/4 inch bit -- and we lowered the 7-inch casing back down to approximately 120 feet, pumped more concrete down the hole, again some discoloration was occurring at the surface, indicating the concrete was coming back up the outside of the casing.

We let it set for overnight, nearly 24 hours, when we came back we ran a pressure check on the casing, and it held 3500 pounds of pressure. We knew, based upon the cuttings we were getting, that we were well into the lime-stone, so we were satisfied that the casing would do the job.

Now at that time we didn't have a problem with the water flow on the outside of the casing. It was subsequent to that, while we were drilling, that apparently the vibrations set up from drilling shook the casing loose from whatever cement existed in the annulus between the alluvial material and the casing, and I think the combination of those vibrations and the pressure of the water coming up from 80 feet washed out whatever cement was there, and that's why we now have water flowing up the outside of the casing.

Q. You said you bought 350 sacks. Is that how much you --

A. That was the first go-round.

Q. That was the first go-round? How much cement totally have you bought and tried to use in this hole?

A. I will, if you don't mind, defer to the records of the comenter. Enough for him to have a very nice vacation, I'm sure.

Well, let's see. I bought 350 bags of cement on the 4th of January, and then I bought another 80 bags on the 6th of January, and I think I bought another 20 on the 6th of January. That's a lot of cement.

Q. It certainly is. Did you bring any records with you concerning this well, other than this water analysis?

A. Yes, I did.

Q. What records do you have?

A. Okay. I have an, at this point, incomplete but very detailed assessment of the cuttings from the well and these are being analyzed, the cuttings are being analyzed at Los Alamos Scientific Laboratory. Their speed may not be everything I could wish, but their thoroughness is beyond question. And I will submit these for the inspection of the Commission. I think you'll find that, as we have stated, I have told you on previous occasions, that from ground level to 80 feet, approximately 80 feet, the material encountered is alluvial; that at about 80 to 90 feet we entered the limestone formation. This assessment stops at 460 feet.

Indications are that there's a transition zone between the limestone and Sandia conglomerate at somewhere around 500 feet, give or take 50 feet either direction. For sure we know that the Precambrian granite begins at 790 feet.

Q. Would you have any objection to having that Xeroxed and introduced as an exhibit?

A. None at all.

Q. Okay, that will be Exhibit Ten.

Do you have any other records with you?

A. Yes, I do. I have a proposal which I have brought before the OCD on previous occasions and would at this time submit it formally.

It's a proposal to control -- titled, Proposal to Control Waterflow at Jemez Springs Well No. 1, in which we discuss the situation at the well and what we propose to do with it, and if you like, I'll give a verbal description at this time, if it's helpful.

Q. I think you should.

A. All right. Maybe I can clear up something. The staff geologist has stated that he thought the well was in a condition of temporary abandonment and I think it's quite reasonable that he could come to that conclusion, but there are circumstances which also argue quite reasonably that we have not abandoned the well.

A combination of weather and other factors. Originally when the rig went off the well a crew from Los Alamos was going to come in and lower tubing to do temperature gradient measurements, and this was the 15th of January; they were going to come in in two days. Unfortunately, this was the time that the snows hit, and which it seemed about the time that Highway 4 would be cleared and you could get a crew over from Los Alamos, another snowstorm would come in.

And after three weeks of this, when the crew finally did get into the site and was able to start to lower some instruments down the hole, they discovered that bridging had occurred at about 140 feet.

With this situation it no longer seemed feasible to discuss trying to do the temperature gradient measurement and we were ready to abandon that aspect of the project.

And so what we have now is -- and let me add here, previously water coming up inside the casing was flowing at a rate of approximately 18 gallons per minute. A geologist from Los Alamos and I were at the site last week and we estimate it to be at less than 5 gallons a minute at this time, coming up inside the casing.

The apparent bridging at the depth of approximately 140 feet had substantially decreased the flow

of water coming up inside the casing.

We are proposing to test this bridge for its strength with river sand and gravel. If it appears to be quite solid, we would like to pump concrete down the inside of the casing and plug the hole back up to inside the casing from, say, around 130 feet. I have a schematic here that shows it. Back inside the casing to prevent any movement of water from the 500 foot zone up into the 80 foot zone; we would segregate the two aquifers.

After that plugging is completed, we then propose to open the casing, probably using what is known as a mills knife, or casing knife, to allow the water at 80 feet to enter the casing and reduce it, or possibly stop even altogether, the flow of water up the outside of the casing.

With this flow controlled on the inside we would then lower a treime pipe, or treime tube, wash it down the outside of the casing, and pump cement down the outside of the casing to prevent any future flow of water up the outside of the casing, and then cement the area at ground level around the casing. The main reason for this being spring occurrence in the area there is rather erratic and unpredictable, and if there are going to be any others popping up, I don't want them popping up near this well.

The alluvial material and the highly mineralized water act in such a way that you have artesian flow,

which creates its own caprock by precipitating out minerals, and so then the water starts seeking new courses to come to the surface.

Q. Who prepared this proposal?

A. Well, I prepared it with the advice of geologist from Los Alamos.

Q. You are not an engineer or geologist yourself?

A. No, that's why I go to other people to assist in these things.

Q. Is that all the records you brought, then?

A. That is all I had to submit at this time, yes.

Q. I'll mark the proposal as our Exhibit Eleven.

Have you prepared C-103 and the various other forms that Mr. Ulvog has stated are delinquent in this and necessary?

A. Right, I have.

Q. Have you submitted those to the Division or would you like to do that at this time?

A. I have -- I have tentatively prepared these forms based upon my conversations with the Division staff geologist and staff engineer. Let me state that part -- well, the responsibility is entirely mine and I'm not shirking it, but part of the problem with the tardiness of the 103

forms was a misunderstanding between myself and the staff geologist as to when these had to occur. I was under the impression that we filed them after the well was completed, and since the well obviously is not in a state of completion, I held up on filing them.

I subsequently learned that this was not the case and have prepared them and am prepared to submit them, but if the Commission does not mind waiting, I'd like to sit down with the staff geologist and engineer and go over them and make sure they're filled out properly.

Q I'm sure that would be acceptable.

MS. TESCHENDORF: I'll offer Exhibits Ten and Eleven, and I don't think I have anything further of this witness.

MR. RAMEY: Exhibits Ten and Eleven will be admitted.

CROSS EXAMINATION

BY MR. RAMEY:

Q Mr. Kleeman, you state that you have encountered water at 80 feet and at 500 feet in this well?

A. That is correct, yes, sir.

Q And then in your proposed reworking you do not propose to do anything to the hole from where the bridge is at approximately 100 feet to the 800 plus feet that the

well is?

A. Well, no, sir. We did not encounter any other aquifer zones and feel that as long as we are segregating two zones in question that we would be preventing any contamination. In fact, if there were any contamination to occur, it would be the water below contaminated by the water atop.

Q. And both of these flows are artesian flows.

A. Yes, sir.

Q. Have you analyzed the -- what we've marked Exhibit Ten, have you analyzed the limestones and such that are in the deeper part of the hole to see if there's any porosity present in those?

A. Well, that -- the indications are that the most significant porosities correspond with the -- with the presence of the aquifers. In terms of the analysis, it is still being conducted by the geologists and chemists at Los Alamos.

I would say that their impression seems to be there are no other significant zones of porosity.

Q. Well, how could -- how could the Commission and Division be assured that if you -- if you seal off just the top part of the hole right below the 7-inch casing that the waters encountered at 500 feet would stay in the 500 foot zone?

A. Well, let me -- let me state that the water we encountered at 80 feet is apparently an aquifer which is at the top of the limestone formation. Indications are -- this is a zone, a high faulted area, and indications are that this aquifer is coming up at some point north of the drill site in some proximity to Soda Dam and the Ranger Station along a fault from depth. The exact location is unknown, but flowing along the top of the limestone formation and finding an advantageous situation along the river there by the bathhouse for coming up.

The water at 500 feet, there is no other recorded incidence of water of this composition in the area, and it appears to be flowing through the limestone to some other point to the west and south of this well.

Now the fractures and faults in this area do continue in that direction and it probably comes up at some point to the west and south of the well.

Q. Well, I'm looking at your water analysis here and there doesn't seem to be any correlation between any of the waters insofar as chemical analysis is concerned.

You have, say, for example, chlorides in the 80-foot water 705; and in the third one here you show 936; in the fourth one you show 653. Are you -- are you saying any of these waters are connected or the same water?

A. Well, the water in the springs and waters

at 80 feet are much more mineralized than, for the most part, than the water is at 500 feet.

Q Do you agree with Mr. -- with Mayor Armenta's statement that the springs are flowing into the river and therefore -- I took it from his analysis, that the additional 1000 gallons an hour that are coming out of this well would not contaminate the river any more than it's naturally being contaminated?

A Yes, sir. I would appreciate the opportunity to comment on that for the record.

Prior to our drilling there was a well that had developed the springs that were behind the bathhouse, to the north of the bathhouse, and there was a cistern at this well that filled up and fed the bathhouse when it was used. There was a 3-inch pipe going from the cistern to the bathhouse; however, during periods in which the bathhouse was not using the water, there was a runoff pipe from the cistern. There was a rather large travertine deposit just to the west and south of this cistern, which shows that the runoff water, the water ran off that travertine deposit and down into the river, where all the other springs fed it.

Since we have drilled this well, we have diverted the flow of water that was going to this well that fed the bathhouse to the new geothermal well, so that any

water that's coming up from the geothermal well is essentially the same water which was going into the bathhouse well and flowing into the river.

It's a point of diversion rather than an additional amount of water going into the river.

Q. So you've just taken the bathhouse water that was going into the river and it's now coming up around your well and going into the river, and so the net effect is that there's no -- no further contamination of the river by your well?

A. Not to my knowledge. No, sir, there is not.

Q. Have you seen Mr. Ulvog's Exhibit Five and Eight?

A. The pictures?

Q. Yes.

A. I haven't seen his pictures, but I'm quite familiar with the site.

Q. Would you classify this as a hazard to any small children or maybe --

A. Well, I certainly wouldn't advise keeping it in that condition. I'm more concerned with somebody getting scalded than I am drowning, but I think as soon as we can get a permit to proceed with this matter, we would like to definitely fill it in.

I think I can speak for the Mayor in saying we're not happy with the present situation and definitely intend to see it corrected.

Q Well, I would think you should have some kind of a fence around this installation, Mr. Kleeman.

The 2-inch pipe that was sticking straight up, which is now laying off to the side there, that was put in to, I suppose, seal off the bottom aquifer, to contain it.

A. Right.

Q And is that -- you say now that that is no longer serving that purpose?

A. No, it's -- because of the stripping of the threads in the cap, it's -- well, it reduces the flow somewhat but there's still water seeping out between the cap and the casing.

So that will have to be replaced.

MR. RAMEY: Do you want to ask some questions?

CROSS EXAMINATION

BY MR. ARNOLD:

Q Mr. Kleeman, you may have answered or may have mentioned this in your testimony, but I didn't hear you say how you did this sampling at the 80-foot and the 500-foot zones.

A Well, the water -- the water coming up from 80-feet was easy to sample. It was on the outside of the casing.

The water coming up from 500-feet, we pumped down the water in the hole so that water coming from 80 feet was below the top of the casing, and allowad the inside to flow for 20 minutes, which satisfied the geochemist and he then took samples of the water coming up the inside of the casing.

Q You had the shallow water outside the casing and the deep water on the inside?

A Yes, sir.

Q Are you certain you didn't have any mixing along the way or --

A Oh, I know there was no mixing inside the casing. That's sealed off. The water at 80 feet is on top of the limestone and the casing is cemented to the limestone.

The only place it could have mixed is at the surface, and that's why we pumped the water level down below the top of the casing.

MR. ARNOLD: Okay, thank you.

RECROSS EXAMINATION

BY MR. RAMEY:

Q. Let's go into the cementing on the 7-inch. You said at one time you tried to set the cement or set the casing at 80 feet?

A. Yes, sir.

Q. And you cemented with several sacks of cement at that point and it did not -- you did not get a cement job.

A. Right; we were not satisfied with the cement job.

Q. And then when you set it at 120 feet, did you have -- did you have shutoff of the water from 80 feet when you finished cementing?

A. I do not recall any water from 80 feet coming up the outside of the casing at that time.

Q. And how many sacks of cement did you use at that point?

A. Well, we used either 60 or 80, according to our witness from National Cement.

Q. Well, maybe Mr. McAllister can answer that question a little better.

A. We did use -- I know we did pump some cement down the outside of the casing subsequent to that to make sure that it was -- it was sealed off, because we assumed that probably a good bit of the concrete was being washed out the aquifer at 80 feet, and weren't sure how reliable that cement job was. So we did pump some down from the top,

as well.

Q. Cemented both from the bottom and at the top at that 120 feet, then. And subsequent drilling operations evidently jarred the upper cement loose.

A. That's what I have concluded.

MR. RAMEY: Any other questions of the witness?

MR. ULVOG: I have a couple I'd like to ask.

MR. RAMEY: Okay, Mr. Ulvog.

CROSS EXAMINATION

BY MR. ULVOG:

Q. I believe in the proposal that was submitted here for this project, that prior to the drilling geologic mapping of the area, part of the on-going San Diego Canyon mapping program will be completed by a geologist from Los Alamos Scientific Laboratory. These maps will be necessary in locating the drilling site.

Was that mapping done?

A. Yes, sir.

Q. So there are geologic maps, then, of the area.

A. Let me say that there are geologic maps and field notes supporting the conclusions of the geologist. The final map has only completed in terms of ready for pub-

lication to a point just, say, in proximity to Soda Dam. He does have his field notes and his own field sketching.

Q. What is the geologic formation that is the limestone in which you set the 7-inch casing? What's that formation, do you know?

A. I believe it's mostly Madera.

Q. I see, and at the total depth?

A. Total depth is Precambrian granite.

Q. Now, in the cementing of this 7-inch casing, as I understand it, you pumped cement down inside the casing and then later you poured -- pumped some down on the outside?

A. That's correct.

Q. Where would that cement on the outside have been? I mean at what depth would that be that you cemented outside the casing?

A. Well, our intention was for it to be from the top down to 80 feet.

Q. Don't you feel that the waters that were circulating might have washed that out?

A. That was the reason we went back and took a shot from the top, was that even though we knew the casing was cemented in the -- into the limestone formation, having lost 350 bags of cement previously at that 80-foot zone, I was somewhat concerned that we might have lost additional

limestone -- or additional cement at that depth, even though, like I said, we had some discoloration coming to the top, we went back and pumped down the outside.

Q Well, now, I was just reviewing some of your drilling reports here, and I notice that there was quite a bit of material, weighted material, added to your mud, so you had -- I don't know what your density of your mud was, I don't see anything on there anywhere, but I notice quick gel, and so on, hulls occasionally were added, and so on. So you had weighted material in the hole. You had weighted drilling mud at the time that you went in and drilled inside the casing when you deepened the well?

A I believe, let's check this, I believe that -- let's check the date on the -- on the mud. Okay, waiting for mud to be delivered on the 3rd of January. We are at a depth of 80 feet.

As I recall, I'm not sure this record reflects it, as I recall, we lost circulation somewhere in the proximity of that 80-foot zone. In other words at the top of the limestone in the alluvial material.

My memory is somewhat vague because it was at 4:00 o'clock in the morning and it was a rather tough day, but I had taken about an hour and a half nap and the driller came in and woke me up and said we have to buy $2000 worth of mud, so I do remember that we put substantial

quantities of mud and hulls and quick gel, probably whatever else was available at that time.

Q. Well, I'm wondering, you had a weighted mud column at any rate when you were drilling.

A. Right.

Q. Isn't it conceivable that this, this weighted mud column, the hydrostatic pressure being exerted on the formation could have contained some fluids -- I'm talking now about below the casing -- below the casing when you were drilling? Isn't it conceivable that you could have had porosity zones either acting as seep zones or actually attempting to give up fluid but the weight of the mud column held it in, so you wouldn't know about other porosity zones above that 500-foot level?

A. I would say that that would be entirely possible, except that we did not have any other problem with, as I recall, losing drilling fluids.

Q. Uh-huh.

A. By encountering some porosity zone where it made lateral movement, and secondly, from the time we stopped drilling until the discovery of the bridging, the flow of water didn't change, that flow from 500 feet stayed 18, approximately 18 gallons per minute until the time the bridging occurred, and which reduced it.

Q. Oh, what date did drilling begin?

A. I believe it was on 3 January. The reports which you have, I believe, indicate it was 3 January.

Q. Well, of course, that's a newspaper article.

A. No, sir, I mean these reports.

Q. January 3rd.

A. I believe so.

Q. And when you finished your drilling and left the location?

A. Again, I refer to these reports and I think the last date was 15 January.

Q. What effect would the -- after you had set and cemented your 7-inch and continued drilling to 800-some feet, what effect would the vibration and beating of the drill pipe on the side of tha- 7-inch have on the cement which, of course, it's only cemented near the bottom, right?

A. As a --

Q. Obviously it would have to be loose at least from, what, 80 feet where you tried to cement and couldn't? The pipe would have to be loose at least from there on up, right?

A. Or there would be no flow.

Q. So you would have vibration caused by the drill pipe and so on hitting the side of that 7-inch, what do you suppose the effect of that would be where it is cemented? Couldn't it break it loose?

A. I don't doubt that it could break it loose; however, during the time while we were drilling, on a couple of different occasions, oh, like around from 400 to 430 feet, we stopped, did a pressure check, again it held 3500 pounds, and then after we encountered the water at 500 feet and at this point it's an unknown depth below 500 feet, we ran another pressure check of 3500 pounds and it did hold, so I do know that, because of our concern with high pressures, the cement was holding.

Q. Uh-huh.

MR. ULVOG: I believe that's all the questions I have.

RECROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Kleeman, you said that James Copeland was the project engineer.

A. Yes, sir.

Q. Was he advised or was he present at all during the drilling of the well?

A. Mr. Copeland's responsibilities and functions in this project in no way encompassed drilling operations. His stated purpose in this project was to analyze whatever data we had in the post-drilling in terms of heat content of the fluids, volumes, chemistry, and what have you, for

the potential use of this resource, to space heat the Village of Jemez Springs, so his knowledge of what occurred during drilling is strictly informal, that which I've passed on in our discussing the project and its incumbent headaches.

Q So when you were having problems with cementing your 7-inch pipe, why, you -- who did you go to?

A Well, I had -- of course we had the crew from Stuart Brothers present which having before I ever contacted this firm I checked out their reputation and they were quite reputable. They have a great deal of drilling experience. They even drilled some geothermal test wells for Los Alamos Scientific Laboratories.

Given that background I had them there. We discussed the project before we started drilling, and so their expertise was at hand, and also there was a considerable amount of advice made available from Los Alamos.

Q And how much have you spent on this project? To date?

A If it is permissible, I would prefer to defer on that question until such time as I could put together all the figures and there are some costs that are not -- I could only be very rough about.

Q Well, I read a second article in the paper that stated you drilled the well and when you ran out of money, why, you quit drilling. Is that true or --

A. Well, Mr. Chairman, some of the things I've read in the paper about this project are -- I find rather amazing.

That's not true. We -- we ran out of money more than once but managed to secure additional funding.

What really made me decide to stop drilling was that we were approaching the end of the period on this last increment. We got an additional $3000 from the Energy and Minerals Department and then subsequent to that I received another $3500 from Sunoco, and while we were starting to run short on that, I had found another source to sustain continued drilling, but my last Tricone rotary bit went for one hour and fifteen minutes and 5 feet, and I decided that there was no point buying bits. We had reached the Precambrian. We had learned a lot of significant information about the geology in the area. It appeared that the hottest producing zone was going to be at 80 feet and it would be pointless to continue drilling.

Q. Well, do you have a -- do you have a money source for the proposed work that you intend to do now?

A. I believe so. I have not got in hand a detailed budget from the driller of what it would take to conduct this work, but, you know, my feeling is that it's going to be somewhere between $1000 and $3000, and if that's the case, I think we will be all right, but it's -- David

Stuart is in Texas and I've only talked to him about it on the telephone and we haven't had a chance to sit down for me to show him the proposal and to go over the exact cost of everything involved.

But based on my discussions with the people at Los Alamos, I think we'll be all right, based on this proposal.

Q. Okay. If this Commission directs you to repair this well or plug it, how much time is it going to take you to do the work?

A. Prior to drilling this well I would have been quite confident in answering that question. I have led to believe that we could complete it in two to two and a half days, provided that it doesn't snow and provided that everything goes according to plan.

Q. Well, if we directed you to do this today you couldn't have it done by the weekend.

A. Let me -- let me bring up a point here, and I'm not trying to criticize anybody, but we also are dealing with the State Engineer's Office and I have to clear what I do with them, and make sure that they're going to accept the proposals or the participation of all involved, and since the proposed driller is out of state -- he will be back in town on Monday -- I would prefer to wait until next week.

Q Well, I really would tend to disagree with you. I don't -- I think if this Commission directed you to do something, I don't think you would have to clear it with the State Engineer's Office.

A Well, Mr. Chairman, I do not mean to imply that I have to clear the directions of the Commission with the State Engineer's Office, but I think there may be some question about the actions of the driller, between the driller and the State Engineer's Office. I do not feel privileged to comment on those, but I'm aware that they exist.

I seem to be caught in a double bind here.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. STUART: Mr. Ramey?

MR. RAMEY: Yes.

MR. STUART: My name is Steve Stuart. I'm from Stuart Drilling Company. I'm not contracting officer for the company and so -- and I was not subpoenaed to be here. I'm mainly here as a matter of interest to see what, if anything, our involvement is, but if there is anything I can answer, I will.

I want to be honest about what my limited knowledge is about the situation and don't want to over-represent it, but I want you to know that I'm here and I'll

be of what help I can.

MR. RAMEY: Thank you, Mr. Stuart.

Let's take about a fifteen minute recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order, please.

Did we excuse you, Mr. Kleeman?

MR. KLEEMAN: I believe you did, sir.

MR. RAMEY: Okay.

MS. TESCHENDORF: I'd like to call Gary McAllister.

GARY McALLISTER

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you please state your name and by whom you're employed?

A. Gary McAllister, National Cement Corporation.

Q. And what is your position with that company?

A. Station Manager and Service Foreman.

Q. What is the scope of your duties in that

position?

A. To cement all wells that we are called on to do work on.

Q. Could you briefly summarize your experience in cementing?

A. I worked for Byron Jackson, Incorporated, for 8-1/2 years in Wyoming, which is one of the major cementing companies in the world, and I moved down here in 1975 to work for Fleet Cementers, and that company was bought out a year ago by National Supply Company.

MR. RAMEY: So you are a subsidiary of National Supply, National Cementers are a subsidiary of National Supply?

A. Yeah, Armco Steel, National Supply, yes, sir.

MR. RAMEY: Okay, thank you.

Q. (Ms. Teschendorf continuing.) What records have you brought with you concerning this well?

A. The tickets that I used for each cement job.

Q. Do you or your attorney have any objections to our copying those and introducing them as an exhibit?

A. No, ma'am.

MS. TESCHENDORF: I think we'll mark those as Exhibit 12 and I'll introduce them later.

Q. Referring to those records, Mr. McAllister, will you please describe the cementing program, including the

amounts of cement, the class of cement, what happened to it, and the whole sequence of events?

A. Yes, ma'am.

The first time they called me they had run 7-inch casing to 74 feet.

Q. Who is "they"?

A. Stuart Brothers. And 9-3/4 hole they had drilled at that time because the 8-3/4 hole they couldn't get the pipe down.

I ran -- they wanted me to pump cement until we got it to the surface because they wanted a cement job, and the truck I took holds 350 sacks, and we emptied it. They had circulation on the hole but it never did bring any cement back.

And after we got done, I displaced it down to 54 feet so they'd have cement in the casing to drill out, and we didn't get any cement back to the surface and they could move the pipe with the rig.

So they decided we didn't have a cement job and pulled the casing.

Q. What date was this, do you know?

A. 4th of January. They released me and I went home and they called me back on the 6th and they had drilled to 140 feet, and they ran 115 foot of 7-inch casing and we cemented it with 60 sacks of cement, which would be over

100 percent excess for the hole. And we did not get any cement back to the surface on it.

So I ran my home into the hole 20 feet -- 15 feet, I think it was, and mixed 20 sacks, and we did get good cement back to the surface then. It fell about 2 feet, which was where the bottom of the -- the top of the casing was set underground, and they released me.

MR. RAMEY: This was on the outside --

A. Right.

MR. RAMEY: Between the hole and the pipe.

A. Right. And they released me and I left and they called me when I was about half way from Grants to Albuquerque going home, and the cement had fallen and they wanted to try to do it again.

I came back and put my hose in the hole again and we cemented it with 20 sacks and brought it back, and it was holding at the time, and they released us and shut the rig down, I believe, for 24 hours, because they'd been working for 3 or 4 days straight, and that's the last time I had anything to do with the well.

Q. Do you have any opinion as to what happened to this cement? That it didn't circulate back?

A. It may have fallen down the hole like the first one did and created a channel, maybe, and eventually when they started drilling it broke loose, possibly.

That's all I would know.

Q. You've no other explanation for where that 350 sacks went?

A. I do not, except that we may have -- it may have went into that water zone that they encountered at 80 feet. That's where we think it went.

Q. And Stuart Brothers Drilling hired your company to do the cementing?

A. Yes, they called me.

Q. So at this point, to your knowledge, there is no cement job in the well?

A. Not on top, no.

Q. What do you --

A. If they pressured up to 3500 when they got ready to drill the cement -- I left 20 feet of cement in the pipe when they shut down for 24 hours, and eventually it was there if they pressured up to 3500, which they said they did, there should be a cement job from 115 foot to 80 foot, anyway.

Q. May I look at those records you brought with you?

A. Yeah, there's two, three.

Q. Okay.

MR. RAMEY: So you feel, Mr. McAllister, that the bottom of the 7-inch is cemented in at this time?

A. I feel it is, yes, sir.

Q. What type of cement did you use on this well?

A. Class B.

Q. Is this a heat resistant cement?

A. It's supposed to be at that temperature, yes.

Q. Set up all right at 150 degrees?

A. Right.

MR. RAMEY: Do you have anything further, Ms. Teschendorf?

MS. TESCHENDORF: I'd like to offer Exhibit 12 in evidence.

MR. RAMEY: Okay, it will be admitted.

MR. KELLY: Mr. Examiner, I'd just like to request, I think you were going to make copies and let us have the originals back.

MS. TESCHENDORF: Okay.

MR. RAMEY: Do you have anything further?

MS. TESCHENDORF: No, I have nothing further.

MR. RAMEY: Does anyone have any questions of the witness? Mr. Nutter?

CROSS EXAMINATION

BY MR. NUTTER:

Q. My name is Dan Nutter. I'm with the Oil Conservation Division.

Apparently water is coming up around the outside of this casing. You probably heard that testimony this morning.

Do you have any suggestions as an experienced cementer as to how this water coming up outside the casing could be remedied?

A. No, I don't, sir. We put 350 sacks in it, which woujld be approximately 1000 percent excess on the amount of pipe we have in the hole and couldn't touch it.

Q. So it is a common occurrence, is it not, that you have difficulty setting cement in flowing water?

A. Sometimes, yes, sir.

Q. Uh-huh. Are there any substitutes for cement that are effective in setting in flowing water conditions? Any types of plastic or anything like that?

A. I believe there is. My superior might know of some. I do not.

Q. Uh-huh.

A. In our company there isn't, that I know of.

Q. So you don't have any recommendation, then, as to how the upper part of this casing could be cemented to adequately shut off that water flow?

A. Not other than running 1 or 2-inch pipe down it, like he suggested and tried to do it.

Q. Well, again we'd have the flowing water and

difficulty in getting it to set, wouldn't we?

A. Yes, mixing as heavy a cement as we could, we could cement it and get it up to 16 to 17 pounds a gallon.

Q. And then would that resist a flow of water of the volume that we've got in this well, do you think?

A. Yes, I killed it one -- I had resisted -- there's no pressure on it, that I know of.

It's not flowing hard enough to have any pressure behind it, from our wells that we have cemented up around Nose Rock for Phillips. They've got wells that flow 180 to 200 gallons a minute.

Q. Artesian type wells and they cement against that flow?

A. Yes, sir, kill them off.

Q. With 16 or 17 pound cement?

A. 15 pound cement will kill them.

Q. Okay, thank you, that's all.

MR. HAHN: There's several techniques that you could use.

MR. RAMEY: Would you identify yourself for the record, please?

MR. HAHN: Yes, sir, I'm Jamie Hahn with National Cement.

There are several techniques that could be used but it would be a trial and error thing of finding

whatever your hydrostatic pressure is would hold the water down and hold the cement in place, too.

If you make your cement too heavy it will force the water down and your cement will go to the water zone. I'm sure I'm not telling you anything.

But if you make it light enough where you do nothing but hold the water pressure down, it gives the cement an opportunity to hydrate, then in fact we probably could get a good cement job, you know, from 20 to 30 feet up. I don't believe there's any way we can go down to the top of the water zone again, on account of cement.

The primary cementing job, there are a lot of techniques you could have used which would have got you a good primary cementing job of your surface casing, but right now there's nothing you can do about it.

MR. NUTTER: Thank you.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Ms. Teschendorf?

MS. TESCHENDORF: I don't believe so.

MR. RAMEY: Anyone present have anything to add to this case? Any statements?

Yes, sir, Mayor Armenta.

MR. ARMENTA: I'd like to say something.

On behalf of the Village there's been a lot

of money and time spent on this project.

The nomenclature of the original proposal probably should have been changed to maybe a resource well. Everything was -- this is a fairly new thing, I think, around the state. I can assure you that no one involved in this project maliciously disregarded any regulations, and not to comply with any regulations set forth by this Commission.

I would not like to see that well plugged up. I'm sure there are problems with it now as far as the flow.

If it is, if you order us to plug it up, I feel it would be a waste and it would slow down energy projects that are taking place in the state.

That's all.

MR. RAMEY: Thank you, Mr. Mayor, and I want to assure you that the Commission is certainly interested in seeing geothermal development and if this well can be utilized as a possible geothermal project for space heating, why, we certainly are sympathetic toward that end and we'll do everything that we can to see that the well is utilized.

MR. ARMENTA: Thank you.

DR. DAW: I'm Harold Daw, New Mexico State University.

MR. RAMEY: Yes, Dr. Daw.

DR. DAW: And the Energy Institute has the

responsibility for the development of geothermal in the State from a research standpoint, and we would sure like to see if possible for that to be preserved as a viable geothermal program.

MR. RAMEY: Thank you, Dr. Daw.

Anything further?

Mr. Kleeman, we don't prescribe to tell you how to do your well, how to try to repair your well. We are going to tell you to repair it as soon as possible.

We will approve the plugging back operations that you oroposed in your schematic and your proposal, which is marked as Exhibit Eleven. That is as to testing the bridge and we do request that you get as much cement as possible on that plug and, if possible, put in some in the open hole and some in the pipe, and if you could bring it up to the base of your perforations, why, that would be ideal.

As to repairing the outside of the hole, now, that is your problem. We're not going to try to attempt to tell you how. We may have the expertise but we wouldn't ~~want to bet on it, so we will direct you to do this just as~~ soon as possible and there will be an order probably issued early next week that will state that you do this, and we will probably put a time limitation on it, and I would suggest that you do it as soon as possible and probably the Commission

would give you something like ten days or two-week period to get the work done.

So you can make your plans accordingly.

MR. KLEEMAN: Yes, sir.

MR. RAMEY: Mr. Ulvog?

MR. ULVOG: Yes, I would like to request that some sort of a protective device be put around this well in the meantime because there's no question about it but it would be a hazard to small children, animals, and so on.

MR. KLEEMAN: May I suggest, Mr. Chairman, that I am going to go back to the site this weekend and I'd like to put back the fence that we had there before and then next week we can complete operations on the well.

MR. RAMEY: Well, Mr. Kleeman, in looking at Mr. Ulvog's Exhibit Five where the fence was in place, I wouldn't consider that a child-proof fence. I would suggest you put something better than that in.

MR. KLEEMAN: All right.

MR. RAMEY: And with that, the hearing is adjourned.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Court Reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Commission, 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, knowledge, and skill, from my notes taken at the time of the hearing.

Sally W. Boyd CSR

NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date FEBRUARY 23, 1979 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
~~Jim Bruce~~	U.S. Geological Survey	Salt Lake City, Utah
Burt Kelly	White Knight, et al	Santa Fe
D. Fedor	NMEMD	Santa Fe
~~Kyle Rae Berger~~	Union Geothermal	Rio Rancho
Harold A. Daw	NMSU	Las Cruces
Bob Rogers	Water Resources	Santa Fe
Tom Keesman	Village of Deming Springs	Deming Springs
Jerald McAllister	National Cementers	Grants, N.M.
Steve Stewart	Stewart Bros. Drlg Co	Grants, NM
Jamie Hahn	National Cementers Corp	Grand Junction Co
G. Scudella	EMD	S.F.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION
State Land Office Building
Santa Fe, New Mexico
23 February 1979

COMMISSION HEARING

IN THE MATTER OF:

The hearing called by the Oil Conservation Commission on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs, and all other interested parties to appear and show cause why the Jemez Well No. 1 located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6461

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Lynn Teschendorf, Esq.
Legal Counsel for the Commission
State Land Office Bldg.
Santa Fe, New Mexico 87503

For Mr. McAllister, et al: W. BOOKER KELLY, ESQ.
WHITE, KOCH, KELLY, & McCARTHY
200 Otero Street
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. RAMEY: We have one case on the docket this morning, Case 6461, in the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs, and all other interested parties to appear and show cause why the Jemez Well No. 1 should not be plugged and abandoned in accordance with a Division-approved plugging program.

We sent out several subpoenas, one for Tom Kleeman, Eddie Armenta, and Gary McAllister. I understand these have all been served.

Are those persons present?

MR. KLEEMAN: Yes.

MR. RAMEY: Mr. Kleeman. Is the Mayor?

MR. ARMENTA: Yes.

MR. RAMEY: And Gary McAllister?

MR. McALLISTER: Yes.

MR. RAMEY: Ms. Teschendorf, would you call your first witness, please?

Oh, are there any other appearances in the case this morning?

MS. TESCHENDORF: I'm Lynn Teschendorf, appearing on behalf of the Division. My first witness is Carl Ulvog.

MR. RAMEY: All right, we'll ask Mr. Kleeman, Mr. Ulvog, Mr. Armenta, and Mr. McAllister to stand at this

time and be sworn.

(Witnesses sworn.)

MR. KELLY: Mr. Ramey, my name is Booker Kelly. I'm appearing on behalf of Mr. McAllister, and I'd like to just clarify one point.

The order is addressed to other interested parties, however we are appearing here under a subpoena and we do not consider ourselves parties in the sense that any order of the Commission is directed against us, and I'd like to just clarify the status of the people who you have subpoenaed before we get into this hearing.

MR. RAMEY: I think we have subpoenaed everyone here to find out all the information we can, Mr. Kelly, about the well.

Are you representing Mr McAllister, is that --

MR. KELLY: Yes, I am. I just -- I would not want to be classified -- he or his company to be classified as a party, is my position.

MR. RAMEY: I think we're going to ask him to testify as to what work he did on the well.

MR. KELLY: Yes.

MR. RAMEY: So that we can have a complete file on the well.

MR. KELLY: That's fine.

CARL ULVOG

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you state your name, by whom you're employed, and in what position?

A. Yes, ma'am. Carl Ulvog, Senior Geologist for the Oil Conservation Commission in Santa Fe.

Q. Have you previously testified before this Commission and had your credentials made a matter of record?

A. I have and they are.

Q. Are you familiar with the circumstances and the subject matter of this case?

A. Yes, I am.

MS. TESCHENDORF: Is the witness considered qualified?

MR. RAMEY: We consider the witness qualified.

Q. (Ms. Teschendorf continuing.) Mr. Ulvog, do your duties as District Supervisor include making recommendations to the Commission as to when wells should be plugged and abandoned?

A. Yes, that is correct.

Q. And does that include geothermal wells as well as oil and gas wells, is that right?

A. That is right.

Q. Would you please refer to Exhibit One in this case and describe that?

A. I believe Exhibit One is actually the official well file that we maintain here, and it consists of a Form G-101, which is the application for a permit to drill, and in this case it's an application for a permit to drill a temperature observation well, and it states that the operator would be Mayor Eddie Armenta and the address of the operator would be the Village of Jemez Springs, New Mexico.

It states that the well, which is described by the docket, I believe, would be drilled with 8-3/4 inch hole with 7-inch casing set at 100 feet with 30 sacks of cement circulated to the surface.

Then there would be a 5-inch hole drilled to some unspecified depth and nothing more stated about the casing, and so on, of the well.

But the total depth was proposed to be 750 feet.

That permit was approved on December 28th, 1978.

Accompanying that form was a Form G-102, which is a land plat, or acreage dedication plat, and it describes the location of this well. And that -- I beg your pardon?

Q. For the record would you state the location of that well?

A. Yes, I will. That would be located in Unit A, which is actually described as being 90 feet west of the Town Hall in Section 26 of Township 18 NOrth, Range 2 East, Sandoval County.

Q. I notice from the G-101 that the drilling contractor is Stuart Brothers in Grants, New Mexico. Were we able to get service on them?

A. Were we able to what?

Q. Did we subpoena anyone from Stuart Brothers?

A. Not to my knowledge. I'm not sure if we did. I didn't notice that subpoena.

Did you mention that, Mr. Ramey?

MR. RAMEY: No, I had heard from counsel that those -- we had subpoenaed two people from Stuart Drilling, or at least one, Don Kelly. We understand he went to Texas and we weren't able to serve him.

A. I see. All right.

Q. Do you have anything further on Exhibit One?

A. That actually is all that our official well

file contains.

Q. Will you now refer to Exhibit Two and describe that?

A. That, I believe, is a letter, undated, captioned the Village of Jemez Springs, New Mexico, and it is simply a letter from Mr. Eddie Armenta, as Mayor of the Village of Jemez Springs, and I would like to call that in that letter it states that the Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in the Rules and Regulations.

That is, of course, the primary interest in that exhibit.

Q. Would you now refer to Exhibit Three and describe that?

A. Exhibit Three, I believe, is a copy -- pardon me, yes, Exhibit Three is a portion of a proposal for this project, and this proposal is unsigned. I couldn't tell you who prepared it; it doesn't say, but it's dated 5th of July of 1978.

And it lists several items involving the drilling of this well.

But the pertinent paragraph that I would like to point out appears about in the middle of that ex-

hibit and it's entitled item four, and I would just like to read that.

Drilling will be carried out under the supervision and with the advice of the project geologist. Two test wells of a diameter of four inches to six inches, to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 feet. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

I'll dispense with reading the rest of that exhibit, if I may.

Q. How did you first hear that this well had been spudded?

A. Actually, the only way that I knew that it had been started was through the medium of a newspaper article, which appeared in the Albuquerque Journal Friday, January 5th.

Q. That is marked as Exhibit Four, is it not?

A. Yes, that is how I knew that the well had been started. We never did receive a report of the spudding of the well.

Q. And what did you do after reading the newspaper article?

A. Well, of course, I investigated the well,

when we did not receive an official report that the well had been started, or anything, so I went out and inspected it.

Q. Will you refer to Exhibit Five, then, and describe what that shows?

A. Exhibit Five, I think, is a series of pictures. There are three pictures that I took out there and the uppermost picture is looking at the site from a distance of approximately 25 to 30 feet away.

The next one is right up at the very edge of it. There is a large hole where the water is coming up, and bubbling and running off to the river.

And then the third picture near the bottom of the page is a real close up of the casing, approximately 3-inch casing that is projecting from that hole with water flowing around it.

Q. What date were these pictures taken?

A. They were all taken on January 29, 1979.

Q. Do you have an estimate as to how much water is coming out of the hole?

A. Yes. I estimated it in the vicinity of 1000 gallons an hour is flowing from the hole at a temperature of approximately 150 degrees at the surface.

MR. RAMEY: Mr. Ulvog, you said this is about 3-inch casing?

A. Something in that order. I didn't get up to it. I didn't feel like swimming over, so I would estimate it was about a 3-inch tubing, casing, pipe, whatever, with valves at the top.

MR. RAMEY: I'd understood from Exhibit One they were going to run 7-inch casing in the hole.

A. I did not see any 7-inch casing.

MR. RAMEY: Thank you.

Q. (Ms. Teschendorf continuing.) Mr. Ulvog, what did you do after discovering that the well was in this condition?

A. Well, I wrote two letters to the operator of record, and first of all requesting that the now delinquent data be filed with this office.

Q. These are both listed on Exhibit Six, are they not?

A. Yes, that was the first letter.

The second one, then, I simply sent by registered mail or --

Q. What's the date of that letter?

A. Beg pardon?

Q. What is the date of that letter?

A. That's February 1, 1979.

And in this letter I mentioned that there were violations of the State Regulations and that upon the --

in fact I'll read it.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Q. What was the date of that first letter?

A. That was January 30th.

Q. What rules have been violated?

A. Well, this was a permit for a temperature observation well, and a temperature observation well is never produced, and the fact that there is water flowing from this well, I would have to call it a -- it is being produced, so it is now a producing well.

Number two, there were never any reports filed, official reports, telling us the well had been spudded. There were no reports telling us when casing was being run or cementing being done, or anything of that sort, or tests being made, and all of those are conditions of the permit for an observation well.

An observation well is simply for the measure-

ment of temperature, nothing else.

Q. So these rules you're referring to are shown on Exhibit Seven, are they not?

A. Yes, that's right. I have some -- just a few items that I pointed out; comes from the rule book, and under A, which appears on page A-1 of the rules, --

Q. These are geothermal rules.

A. That's correct, that's geothermal rules, I'm sorry.

About in the middle of that page there I've indicated a geothermal observation well shall mean a well drilled solely for temperature observation purposes and which shall not be completed as a geothermal producing well or as an injection well.

That's the primary thing I wanted to point out in that page.

And when you go to page -- well, item B under miscellaneous rules, well we find there under Rule 3, I've indicated that, that pertains to waste. Waste is prohibited.

Under A, the production or handling of geothermal resources of any type or in any form, or the handling of products thereof, in such a manner or under such conditions, or in such an amount as to constitute or result in waste, is hereby prohibited.

And I might point out that this includes also heat, if that is allowed to escape, that would be considered waste.

And under sub-paragraph B, all owners, operators, contractors, drillers, transporters, service companies, pipe pulling and salvage contractors, and all other persons shall at all times conduct their operations in drilling, equipping, operating, producing, and plugging and abandoning a geothermal resource well in a manner that will prevent waste of geothermal resources and shall not wastefully utilize geothermal resources or allow leakage of such resources from a geothermal reservoir, or from wells, tanks, containers, or pipes, or other storage conduit or operating equipment.

And on page D-2 conforms to the filing of Form G-103, and I would just point out briefly that under that it states that the Form G-103 is a subsequent report of operation which shall be filed in accordance with this rule applicable to the particular operation being reported, and among those, number one, commencement of drilling operations; number two, casing and cement; number three, altering a well casing installation; number four, temporary abandonment; and so on and so on.

And it further states that within ten days following the commencement of drilling operations, the oper-

ator of the well shall file a report thereof on a Form G-103, and so on.

And on the following page, D-3, it states that report results of test of casing and cement job, and so on, those reports to be filed within ten days following the setting of the string or using cement.

And then number 3 is a report of temporary abandonment, and of course, at the times I have visited the well it has definitely been abandoned. There was no one there and nothing there, and so on, so I would have to consider it to be temporary abandonment, even though there has never been a permit applied for for that.

Q. Have you made a second inspection of this well?

A. Yes, I have.

Q. And what date did you make that inspection?

A. That date was on -- that was taken on February 21st, 1979.

Q. Will you refer to Exhibit Eight and describe what that shows?

A. Exhibit Eight consists of two pictures that were taken on that date, both of them show the condition of the hole and the casing, which is leaning off to the side; it shows the valve assumbly at the top, and there's a yardstick there for scale, which indicates thatthe hole

would be approximately ten feet across. The casing is fallen or collapsed or washed out or something, but it's laying off to the side of the hole.

That's what those two pictures show, plus, of course, the water coming from that.

Q. In your opinion, Mr. Ulvog, are geothermal resources being wasted?

A. Well, yes, I don't believe there's much question about that. The water flowing and the heat that's escaping, you'd have to say that it's being wasted.

Q. And is fresh water being contaminated?

A. Yes, this is running right into the river, the Jemez River.

Q. Are there migration of fluids in the well-bore from the strata in which they are found to other strata?

A. Well, there certainly is migration of fluids to the surface. Now how many zones are exposed, I have no way of knowing, but in conversations with people at the site and others, there is definitely more than one zone of water.

Q. In your opinion is there a possibility that caving is the wellbore?

Q. I would think so, yes. There would have to be some erosion taking place by the fact that the water is flowing from it. Now whether there's caving going on, of

course I wouldn't know, but I would certainly suspect it.

Q. Is the well in such a condition that injury is being caused to neighboring properties?

A. I have no analyses of water and so on at my disposal, but the condition of the casing is shown in that Exhibit -- the first set of pictures -- that was Exhibit what? Exhibit Number Five. I believe that indicates that there's something occuring on that casing. It's being discolored, and so on, so there's some chemical action taking place there, and from this I would assume that there would be some pollution occurring to the water.

Q. Isn't there a bathhouse nearby here?

A. That is correct, there is.

Q. And has that suffered injury by the condition of this well?

A. Well, the original well that, or spring, that supplied the bathhouse, the flow has been reduced so badly that the bathhouse operator obtains water by pumping it from this pool around this pipe, because there is not enough water coming from the original spring any more.

Q. What do you propose should be done about this situation, Mr. Ulvog?

A. Well, I believe that the hole should be plugged all throughout its entire length, since we have no way of knowing how many fluid zones or porosity zones, for

that matter, that may be barren but could be acting as seep zones in that case, we have no idea where they are, how many there are, so I would feel that the obvious solution would be to plug the entire wellbore.

Q. Were Exhibits One through Eight -- Exhibit One is the well file. Exhibit Two is the letter from the Mayor. The pictures on Exhibits Five and Eight were taken by you, is that correct?

A. That is correct.

Q. Do they absolutely reflect the situation as it was on those dates?

A. That's correct.

Q. And the letters on Exhibit Six were written by you?

A. That's right.

MS. TESCHENDORF: At this time I'll offer Exhibits One through Eight in evidence.

MR. RAMEY: Exhibits One through Eight will be admitted.

MS. TESCHENDORF: And I have nothing further of this witness.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Ulvog, I notice in comparing your ex-

hibits Five and Eight, in Exhibit Five there was a little fence of some kind around the well.

A. That's right.

Q. Around the well and the hole there.

A. True.

Q. And this fence seems to have been removed.

A. Yes.

Q. Is this well in a populated area?

A. Yes, it is. It's right down behind the -- it's right in the Village of Jemez Springs, right below the City Hall, and there are residences, and so on, all around there.

Q. And you say the temperature of the water in hole was 150 degrees?

A. Right at the surface, yes.

Q. What would be the effect of a small child falling into it?

A. I don't believe it would survive very long.

Q. So it's also a hazard to the people of Jemez Springs, particularly the young children?

A. I would think so.

Q. Small animals or livestock?

A. It's pretty muddy around there, I guess you could sure slip in easy.

MR. RAMEY: Any other questions of the wit-

ness?

MR. KLEEMAN: Yes. May I ask a question?

MR. RAMEY: Yes, let me ask one more, Mr. Kleeman.

Q (Mr. Ramey continuing.) Now, you're recommending that the well be plugged. If we get a report from Mayor Armenta or Mr. Kleeman that something can be done to the well to repair the well and contain the water the way they should be contained, would you still recommend it be plugged?

A Well, we would have to look at that proposal and consider whether it was satisfactory, but we do have to remember that this is a temperature observation well and not to be produced.

We do have --

Q But if the well resulted in a clean completion and they did have a possible geothermal source, why, don't you think it would be possible for the Commission or the Division to waive the requirements of an observation well being plugged?

A Yes, I think that is possible, but then I think we should also go to the section pertaining to producing wells and then operate under those provisions, and not to consider this as a temperature observation well. Otherwise, the statutes would be violated. We wouldn't be

doing our job. If it's produced, it's not a temperature observation well, in other words, and that's our permit at the moment.

I think we could perhaps go to an entire different set-up, that is, as a geothermal producer, but you see, we have an entire set of operating conditions for those.

Q. Okay.

MR. RAMEY: Mr. Kleeman, did you have a question?

MR. KLEEMAN: Yes, I did have one question.

MR. RAMEY: Would you identify yourself for the record?

MR. KLEEMAN: I am Tom Kleeman, Project Manager for the Jemez Springs No. 1 Well.

CROSS EXAMINATION

BY MR. KLEEMAN:

Q. I believe you stated that you saw a 2-inch casing leaning over to the side?

A. No, I didn't think I said anything about a 2-inch. I said I thought there was a 3-inch casing protruding from this hole. I'm estimating that. I didn't measure it.

Q. And you did not see a 7-inch casing?

A. I did not see any 7-inch casing at all at any time.

MR. KLEEMAN: That's all I wanted to get on the record.

MR. RAMEY: Any other questions of the witness? He may be excused.

MS. TESCHENDORF: I'd like to call Mr. Eddie Armenta.

EDDIE ARMENTA

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you please state your name and place of residence?

A. Eddie Armenta, Jemez Springs, New Mexico.

Q. And you are the mayor of the Village of Jemez Springs?

A. Yes, I am.

Q. Let me show you what we've already introduced as Exhibit Number One. That is a drilling permit. That was signed by you, was it not? As operator?

A. Yes, it was.

Q. Would you please describe the chain of events leading up to the drilling of this well?

A. Leading up to it?

Q. Uh-huh, how you -- who first proposed the drilling of the well, did you decide that the Village of Jemez Springs needed a geothermal well, or what was your interest in the drilling of this well?

A. Well, we always knew it was a possibility it was there.

Back in '78 Mr. Kleeman, Tom Kleeman, was passing through and made the proposal to the Village Council as to the possibilities of using geothermal heat to heat the village.

It was discussed and approved by the council and the proposal was it was up to Mr. Kleeman to get together with us and make a proposal for funding to drill.

Q. Where did you get this funding?

A. From the State of New Mexico.

Q. I'd like to show you what we've introduced as Exhibit Two, and that is your letter guaranteeing that the Village of Jemez Springs would see that the well was properly plugged in accordance with the Division Rules and Regulations.

A. Uh-huh.

Q. I want to ask you some questions about the

Village of Jemez Springs financial responsibility in the situation.

There is no bond covering this well, but by your letter you agreed that the financial responsibility for the [illegible] is well is there. Are you still in that p[illegible] can you still guarantee that the Village of Jemez Springs will assume financial responsibility and see that this well is properly plugged or repaired?

A. If my signature is on it saying I guaranteed it, I guess it is.

Q. On whose property is this well located?

A. The Village of Jemez Springs.

Q. And you are the listed operator.

A. I am.

MS. TESCHENDORF: I have nothing further of this witness.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Did you, Mr. Mayor, did you have anything to do with the drilling of the well?

A. No.

Q. You had nothing to do with it, Mr. Kleeman has been the supervisor of the drilling of the well?

A. Yes, he was.

MR. RAMEY: Any other questions of the witness?

MR. ARMENTA: Can I add something?

MR. RAMEY: Yes, you may add anything you want.

MR. ARMENTA: The last person that was here, the geologist, made a statement as to the bathhouse.

That bathhouse belongs to the Village of Jemez Springs. It is not privately owned. So any effect to that bathhouse would affect the Village, and it does belong to the Village.

One other thing he said about the possibility of the water flowing into the river affecting the fresh water, all along that area, along that one-mile strip, there are several open springs going into that water, and have been going into that river for many years, many years, and has not had any effect. I doubt that one more little spring would affect it that much.

That doesn't mean it should not be taken care of, but -- that's all I had to say.

MR. RAMEY: Thank you, Mayor.

MS. TESCHENDORF: I'd like to call Tom Kleeman next.

TOM KLEEMAN

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you please state your name and by whom you're employed?

A. My name is Tom Kleeman and I am under -- I'm a subcontractor to the Village of Jemez Springs for this project.

Q. Are you a professional engineer or some kind, or what is your educational background?

A. My educational background? Economics and resource management.

Q. What are your work experience background?

A. As regards geothermal resources?

Q. Yes, drilling, and so on.

A. While working for the State of Texas General Land Office, I was responsible for studying feasibilities of developing various energy resources on State-owned lands, and impacts from development.

I have subsequently worked for the last four and a half years as an independent consultant in the energy field in everything from doing environmental impact

analyses for pipelines, to planning new energy development projects, studying the economics of energy development.

Q. Mr. Armenta, Mayor Armenta, has stated that a grant was obtained from the State of New Mexico. Were you instrumental in obtaining that grant?

A. I played a role in it, yes.

Q. Can you tell me from whom the grant was obtained, for what purpose, and how much it was?

A. Yes. The grant came from the -- what is now the New Mexico Energy and Minerals Department. The amount, the original amount was some $31,400. The purpose was to drill, to do test drilling in Jemez Springs to determine whether or not there was a viable geothermal resource there.

Q. And what was your -- you were the project engineer or --

A. Project manager.

Q. -- project manager.

A. The project engineer was James Copeland-Moran in Albuquerque.

Q. Who was the driller on this well?

A. The driller was Stuart Brothers, Grants, New Mexico.

Q. Did you contact them and hire them to do this work?

A. Yes.

Q. Who was the cementing company?

A. National Cement.

Q. And did you hire them to do the cementing?

A. No. All third party work done on the well was carried out by Stuart Brothers.

Q. Okay. Do you have any drilling experience at all?

A. Have I drilled wells? No.

Q. Well, have you been connected with the drilling of wells --

A. Only in the analysis of results.

Q. Do you have any knowledge in this particular case, the depth to which the well was drilled?

A. Yes.

Q. What was that depth?

A. The TD was 824.

Q. Do you know the depths at which the water zones were encountered?

A. Yes. The first zone was encountered at approximately 80 feet and the only other zone of water encountered was approximately 500 feet.

Q. Can you describe the water that was encountered in each of those zones?

A. Yes. If I may, if you'll accept this as evidence, the reason I was tardy was that -- apparently these

geothermal vapors have affected my memory, and I went off and left a chemical analysis of the water sitting on the Xerox machine at Energy and Minerals Department, and so I called Los Alamos and talked to the chemist who was analyzing the water, and I have a very brief summary of the chemistry of the water, which if you will accept, I can provide you with more detailed a summary later, but the purpose of this exhibit is I think it will show that the water at 500 feet is substantially less saline and has less chemical content than the water at 80 feet and two other geothermal springs which are present in the area.

The chemist did a much more extensive survey. He sampled several springs in the area as well as the water from the well. But I think this will convey the essence of the difference, that the water at the surface is coming up at the surface in these springs is substantially more contaminated than the water that's coming up inside of the well.

So, if I may, I'd like to enter this as an exhibit.

MS. TESCHENDORF: I think, if the Commission please, I'll just mark this as OCD Exhibit Nine, and offer that in evidence.

MR. RAMEY: It will be accepted.

Q. Mr. Kleeman, do you have any knowledge as to

any pipe that was set?

A. In terms of casing?

Q. Uh-huh.

A. Yes.

Q. What casing was set, to your knowledge, and at what depth?

A. We have a 7-inch casing that's been set to the depth of approximately 120 feet.

Q. That's all, to your knowledge?

A. That is -- that's all the casing I bought.

Q. You have no knowledge of smaller 3-inch casing?

A. I'd like to clarify that matter.

The staff geologist commented that he saw a 3-inch casing leaning over to the side. This, in fact, is a 2-inch steel pipe, which has been welded onto a cap, which has been placed on top of the casing.

The reason he could not see the 7-inch casing is, if I may explain briefly, we dug out a cellar to allow for a blowout preventer to be placed atop the casing during drilling, and still leave clearance for the rig. With the subsequent flow that comes up the outside of the casing, which has developed since drilling, I'm afraid that he couldn't see the 7-inch casing because his view was obscured by the water.

The purpose of the 2-inch pipe was to -- it does have a valve at the top of it -- and it was to reduce the -- stop the flow of water coming up from the top and be able to control it.

I have found out strictly secondhand information, apparently the hotshot driver that came to pick up the blowout preventer was fooling around with the 2-inch pipe and somehow loosened this cap from the casing. I can no longer thread the cap onto the casing and going to have to replace this device. But the casing is quite firm and if you would care to, I will explain exactly how it is set.

Q. Thank you.

A. I think it should satisfy the Commission's interest in this matter.

We originally tried to set the casing at 80 feet and the witness from National Cement can give you the exact figures, but I know I bought an awful lot of cement from that gentleman, approximately 350 bags, and there was some discoloration at the top of the casing, indicating that concrete was washing back to the surface; however, when we subsequently tested the casing, it did not prove to be firm and since there was concern that we might hit a hot zone, we wanted to make sure that the casing would withstand any pressures and would accommodate the blowout preventer.

So we then pulled the casing out and redrilled,

this time to 140 feet, approximately, and then at that point we -- this was with a 9-3/4 inch bit -- and we lowered the 7-inch casing back down to approximately 120 feet, pumped more concrete down the hole, again some discoloration was occurring at the surface, indicating the concrete was coming back up the outside of the casing.

We let it set for overnight, nearly 24 hours, when we came back we ran a pressure check on the casing, and it held 3500 pounds of pressure. We knew, based upon the cuttings we were getting, that we were well into the limestone, so we were satisfied that the casing would do the job.

Now at that time we didn't have a problem with the water flow on the outside of the casing. It was subsequent to that, while we were drilling, that apparently the vibrations set up from drilling shook the casing loose from whatever cement existed in the annulus between the alluvial material and the casing, and I think the combination of those vibrations and the pressure of the water coming up from 80 feet washed out whatever cement was there, and that's why we now have water flowing up the outside of the casing.

Q. You said you bought 350 sacks. Is that how much you --

A. That was the first go-round.

Q. That was the first go-round? How much cement totally have you bought and tried to use in this hole?

A. I will, if you don't mind, defer to the records of the cementer. Enough for him to have a very nice vacation, I'm sure.

Well, let's see. I bought 350 bags of cement on the 4th of January, and then I bought another 80 bags on the 6th of January, and I think I bought another 20 on the 6th of January. That's a lot of cement.

Q. It certainly is. Did you bring any records with you concerning this well, other than this water analysis?

A. Yes, I did.

Q. What records do you have?

A. Okay. I have an, at this point, incomplete but very detailed assessment of the cuttings from the well and these are being analyzed, the cuttings are being analyzed at Los Alamos Scientific Laboratory. Their speed may not be everything I could wish, but their thoroughness is beyond question. And I will submit these for the inspection of the Commission. I think you'll find that, as we have stated, I have told you on previous occasions, that from ground level to 80 feet, approximately 80 feet, the material encountered is alluvial; that at about 80 to 90 feet we entered the limestone formation. This assessment stops at 460 feet.

Indications are that there's a transition zone between the limestone and Sandia conglomerate at somewhere around 500 feet, give or take 50 feet either direction. For sure we know that the Precambrian granite begins at 790 feet.

Q. Would you have any objection to having that Xeroxed and introduced as an exhibit?

A. None at all.

Q. Okay, that will be Exhibit Ten.

Do you have any other records with you?

A. Yes, I do. I have a proposal which I have brought before the OCD on previous occasions and would at this time submit it formally.

It's a proposal to control -- titled, Proposal to Control Waterflow at Jemez Springs Well No. 1, in which we discuss the situation at the well and what we propose to do with it, and if you like, I'll give a verbal description at this time, if it's helpful.

Q. I think you should.

A. All right. Maybe I can clear up something. The staff geologist has stated that he thought the well was in a condition of temporary abandonment and I think it's quite reasonable that he could come to that conclusion, but there are circumstances which also argue quite reasonably that we have not abandoned the well.

A combination of weather and other factors. Originally when the rig went off the well a crew from Los Alamos was going to come in and lower tubing to do temperature gradient measurements, and this was the 15th of January; they were going to come in in two days. Unfortunately, this was the time that the snows hit, and which it seemed about the time that Highway 4 would be cleared and you could get a crew over from Los Alamos, another snowstorm would come in.

And after three weeks of this, when the crew finally did get into the site and was able to start to lower some instruments down the hole, they discovered that bridging had occurred at about 140 feet.

With this situation it no longer seemed feasible to discuss trying to do the temperature gradient measurement and we were ready to abandon that aspect of the project.

And so what we have now is -- and let me add here, previously water coming up inside the casing was flowing at a rate of approximately 18 gallons per minute. A geologist from Los Alamos and I were at the site last week and we estimate it to be at less than 5 gallons a minute at this time, coming up inside the casing.

The apparent bridging at the depth of approximately 140 feet had substantially decreased the flow

of water coming up inside the casing.

We are proposing to test this bridge for its strength with river sand and gravel. If it appears to be quite solid, we would like to pump concrete down the inside of the casing and plug the hole back up to inside the casing from, say, around 130 feet. I have a schematic here that shows it. Back inside the casing to prevent any movement of water from the 500 foot zone up into the 80 foot zone; we would segregate the two aquifers.

After that plugging is completed, we then propose to open the casing, probably using what is known as a mills knife, or casing knife, to allow the water at 80 feet to enter the casing and reduce it, or possibly stop even altogether, the flow of water up the outside of the casing.

With this flow controlled on the inside we would then lower a treime pipe, or treime tube, wash it down the outside of the casing, and pump cement down the outside of the casing to prevent any future flow of water up the outside of the casing, and then cement the area at ground level around the casing. The main reason for this being spring occurrence in the area there is rather erratic and unpredictable, and if there are going to be any others popping up, I don't want them popping up near this well.

The alluvial material and the highly mineralized water act in such a way that you have artesian flow,

which creates its own caprock by precipitating out minerals, and so then the water starts seeking new courses to come to the surface.

Q. Who prepared this proposal?

A. Well, I prepared it with the advice of geologist from Los Alamos.

Q. You are not an engineer or geologist yourself?

A. No, that's why I go to other people to assist in these things.

Q. Is that all the records you brought, then?

A. That is all I had to submit at this time, yes.

Q. I'll mark the proposal as our Exhibit Eleven. Have you prepared C-103 and the various other forms that Mr. Ulvog has stated are delinquent in this and necessary?

A. Right, I have.

Q. Have you submitted those to the Division or would you like to do that at this time?

A. I have -- I have tentatively prepared these forms based upon my conversations with the Division staff geologist and staff engineer. Let me state that part -- well, the responsibility is entirely mine and I'm not shirking it, but part of the problem with the tardiness of the 103

forms was a misunderstanding between myself and the staff geologist as to when these had to occur. I was under the impression that we filed them after the well was completed, and since the well obviously is not in a state of completion, I held up on filing them.

I subsequently learned that this was not the case and have prepared them and am prepared to submit them, but if the Commission does not mind waiting, I'd like to sit down with the staff geologist and engineer and go over them and make sure they're filled out properly.

Q I'm sure that would be acceptable.

MS. TESCHENDORF: I'll offer Exhibits Ten and Eleven, and I don't think I have anything further of this witness.

MR. RAMEY: Exhibits Ten and Eleven will be admitted.

CROSS EXAMINATION

BY MR. RAMEY:

Q Mr. Kleeman, you state that you have encountered water at 80 feet and at 500 feet in this well?

A That is correct, yes, sir.

Q And then in your proposed reworking you do not propose to do anything to the hole from where the bridge is at approximately 100 feet to the 800 plus feet that the

well is?

A. Well, no, sir. We did not encounter any other aquifer zones and feel that as long as we are segregating two zones in question that we would be preventing any contamination. In fact, if there were any contamination to occur, it would be the water below contaminated by the water atop.

Q. And both of these flows are artesian flows.

A. Yes, sir.

Q. Have you analyzed the -- what we've marked Exhibit Ten, have you analyzed the limestones and such that are in the deeper part of the hole to see if there's any porosity present in those?

A. Well, that -- the indications are that the most significant porosities correspond with the -- with the presence of the aquifers. In terms of the analysis, it is still being conducted by the geologists and chemists at Los Alamos.

I would say that their impression seems to be there are no other significant zones of porosity.

Q. Well, how could -- how could the Commission and Division be assured that if you -- if you seal off just the top part of the hole right below the 7-inch casing that the waters encountered at 500 feet would stay in the 500 foot zone?

A. Well, let me -- let me state that the water we encountered at 80 feet is apparently an aquifer which is at the top of the limestone formation. Indications are -- this is a zone, a high faulted area, and indications are that this aquifer is coming up at some point north of the drill site in some proximity to Soda Dam and the Ranger Station along a fault from depth. The exact location is unknown, but flowing along the top of the limestone formation and finding an advantageous situation along the river there by the bathhouse for coming up.

The water at 500 feet, there is no other recorded incidence of water of this composition in the area, and it appears to be flowing through the limestone to some other point to the west and south of this well.

Now the fractures and faults in this area do continue in that direction and it probably comes up at some point to the west and south of the well.

Q. Well, I'm looking at your water analysis here and there doesn't seem to be any correlation between any of the waters insofar as chemical analysis is concerned.

You have, say, for example, chlorides in the 80-foot water 705; and in the third one here you show 936; in the fourth one you show 653. Are you -- are you saying any of these waters are connected or the same water?

A. Well, the water in the springs and waters

at 80 feet are much more mineralized than, for the most part, than the water is at 500 feet.

Q. Do you agree with Mr. -- with Mayor Armenta's statement that the springs are flowing to the river and therefore -- I took it from his analysis, that the additional 1000 gallons an hour that are coming out of this well would not contaminate the river any more than it's naturally being contaminated?

A. Yes, sir. I would appreciate the opportunity to comment on that for the record.

Prior to our drilling there was a well that had developed the springs that were behind the bathhouse, to the north of the bathhouse, and there was a cistern at this well that filled up and fed the bathhouse when it was used. There was a 3-inch pipe going from the cistern to the bathhouse; however, during periods in which the bathhouse was not using the water, there was a runoff pipe from the cistern. There was a rather large travertine deposit just to the west and south of this cistern, which shows that the runoff water, the water ran off that travertine deposit and down into the river, where all the other springs fed it.

Since we have drilled this well, we have diverted the flow of water that was going to this well that fed the bathhouse to the new geothermal well, so that any

water that's coming up from the geothermal well is essentially the same water which was going into the bathhouse well and flowing into the river.

It's a point of diversion rather than an additional amount of water going into the river.

Q. So you've just taken the bathhouse water that was going into the river and it's now coming up around your well and going into the river, and so the net effect is that there's no -- no further contamination of the river by your well?

A. Not to my knowledge. No, sir, there is not.

Q. Have you seen Mr. Ulvog's Exhibit Five and Eight?

A. The pictures?

Q. Yes.

A. I haven't seen his pictures, but I'm quite familiar with the site.

Q. Would you classify this as a hazard to any small children or maybe --

A. Well, I certainly wouldn't advise keeping it in that condition. I'm more concerned with somebody getting scalded than I am drowning, but I think as soon as we can get a permit to proceed with this matter, we would like to definitely fill it in.

I think I can speak for the Mayor in saying we're not happy with the present situation and definitely intend to see it corrected.

Q. Well, I would think you should have some kind of a fence around this installation, Mr. Kleeman.

The 2-inch pipe that was sticking straight up, which is now laying off to the side there, that was put in to, I suppose, seal off the bottom aquifer, to contain it.

A. Right.

Q. And is that -- you say now that that is no longer serving that purpose?

A. No, it's -- because of the stripping of the threads in the cap, it's -- well, it reduces the flow somewhat but there's still water seeping out between the cap and the casing.

So that will have to be replaced.

MR. RAMEY: Do you want to ask some questions

CROSS EXAMINATION

BY MR. ARNOLD:

Q. Mr. Kleeman, you may have answered or may have mentioned this in your testimony, but I didn't hear you say how you did this sampling at the 30-foot and the 500-foot zones.

A. Well, the water -- the water coming up from 80-feet was easy to sample. It was on the outside of the casing.

The water coming up from 500-feet, we pumped down the water in the hole so that water coming from 80 feet was below the top of the casing, and allowed the inside to flow for 20 minutes, which satisfied the geochemist and he then took samples of the water coming up the inside of the casing.

Q. You had the shallow water outside the casing and the deep water on the inside?

A. Yes, sir.

Q. Are you certain you didn't have any mixing along the way or --

A. Oh, I know there was no mixing inside the casing. That's sealed off. The water at 80 feet is on top of the limestone and the casing is cemented to the limestone.

The only place it could have mixed is at the surface, and that's why we pumped the water level down below the top of the casing.

MR. ARNOLD: Okay, thank you.

RECROSS EXAMINATION

BY MR. RAMEY:

Q. Let's go into the cementing on the 7-inch. You said at one time you tried to set the cement or set the casing at 80 feet?

A. Yes, sir.

Q. And you cemented with several sacks of cement at that point and it did not -- you did not get a cement job.

A. Right; we were not satisfied with the cement job.

Q. And then when you set it at 120 feet, did you have -- did you have shutoff of the water from 80 feet when you finished cementing?

A. I do not recall any water from 80 feet coming up the outside of the casing at that time.

Q. And how many sacks of cement did you use at that point?

A. Well, we used either 60 or 80, according to our witness from National Cement.

Q. Well, maybe Mr. McAllister can answer that question a little better.

A. We did use -- I know we did pump some cement down the outside of the casing subsequent to that to make sure that it was -- it was sealed off, because we assumed that probably a good bit of the concrete was being washed out the aquifer at 80 feet, and weren't sure how reliable that cement job was. So we did pump some down from the top,

as well.

Q. Cemented both from the bottom and at the top at that 120 feet, then. And subsequent drilling operations evidently jarred the upper cement loose.

A. That's what I have concluded.

MR. RAMEY: Any other questions of the witness?

MR. ULVOG: I have a couple I'd like to ask.

MR. RAMEY: Okay, Mr. Ulvog.

CROSS EXAMINATION

BY MR. ULVOG:

Q. I believe in the proposal that was submitted here for this project, that prior to the drilling geologic mapping of the area, part of the on-going San Diego Canyon mapping program will be completed by a geologist from Los Alamos Scientific Laboratory. These maps will be necessary in locating the drilling site.

Was that mapping done?

A. Yes, sir.

Q. So there are geologic maps, then, of the area.

A. Let me say that there are geologic maps and field notes supporting the conclusions of the geologist. The final map has only completed ir terms of ready for pub-

lication to a point just, say, in proximity to Soda Dam. He does have his field notes and his own field sketching.

Q. What is the geologic formation that is the limestone in which you set the 7-inch casing? What's that formation, do you know?

A. I believe it's mostly Madera.

Q. I see, and at the total depth?

A. Total depth is Precambrian granite.

Q. Now, in the cementing of this 7-inch casing, as I understand it, you pumped cement down inside the casing and then later you poured -- pumped some down on the outside?

A. That's correct.

Q. Where would that cement on the outside have been? I mean at what depth would that be that you cemented outside the casing?

A. Well, our intention was for it to be from the top down to 80 feet.

Q. Don't you feel that the waters that were circulating might have washed that out?

A. That was the reason we went back and took a shot from the top, was that even though we knew the casing was cemented in the -- into the limestone formation, having lost 350 bags of cement previously at that 80-foot zone, I was somewhat concerned that we might have lost additional

limestone -- or additional cement at that depth, even though, like I said, we had some discoloration coming to the top, we went back and pumped down the outside.

Q. Well, now, I was just reviewing some of your drilling reports here, and I notice that there was quite a bit of material, weighted material, added to your mud, so you had -- I don't know what your density of your mud was, I don't see anything on there anywhere, but I notice quick gel, and so on, hulls occasionally were added, and so on. So you had weighted material in the hole. You had weighted drilling mud at the time that you went in and drilled inside the casing when you deepened the well?

A. I believe, let's check this, I believe that -- let's check the date on the -- on the mud. Okay, waiting for mud to be delivered on the 3rd of January. We are at a depth of 80 feet.

As I recall, I'm not sure this record reflects it, as I recall, we lost circulation somewhere in the proximity of that 80-foot zone. In other words at the top of the limestone in the alluvial material.

My memory is somewhat vague because it was at 4:00 o'clock in the morning and it was a rather tough day, but I had taken about an hour and a half nap and the driller came in and woke me up and said we have to buy $2000 worth of mud, so I do remember that we put substantial

quantities of mud and hulls and quick gel, probably whatever else was available at that time.

Q. Well, I'm wondering, you had a weighted mud column at any rate when you were drilling.

A. Right.

Q. Isn't it conceivable that this, this weighted mud column, the hydrostatic pressure being exerted on the formation could have contained some fluids -- I'm talking now about below the casing -- below the casing when you were drilling? Isn't it conceivable that you could have had porosity zones either acting as seep zones or actually attempting to give up fluid but the weight of the mud column held it in, so you wouldn't know about other porosity zones above that 500-foot level?

A. I would say that that would be entirely possible, except that we did not have any other problem with, as I recall, losing drilling fluids.

Q. Uh-huh.

A. By encountering some porosity zone where it made lateral movement, and secondly, from the time we stopped drilling until the discovery of the bridging, the flow of water didn't change, that flow from 500 feet stayed 18, approximately 18 gallons per minute until the time the bridging occurred, and which reduced it.

Q. Oh, what date did drilling begin?

A. I believe it was on 3 January. The reports which you have, I believe, indicate it was 3 January.

Q. Well, of course, that's a newspaper article.

A. No, sir, I mean these reports.

Q. January 3rd.

A. I believe so.

Q. And when you finished your drilling and left the location?

A. Again, I refer to these reports and I think the last date was 15 January.

Q. What effect would the -- after you had set and cemented your 7-inch and continued drilling to 800-some feet, what effect would the vibration and beating of the drill pipe on the side of tha- 7-inch have on the cement which, of course, it's only cemented near the bottom, right?

A. As a --

Q. Obviously it would have to be loose at least from, what, 80 feet where you tried to cement and couldn't? The pipe would have to be loose at least from there on up, right?

A. Or there would be no flow.

Q. So you would have vibration caused by the drill pipe and so on hitting the side of that 7-inch, what do you suppose the effect of that would be where it is cemented? Couldn't it break it loose?

A. I don't doubt that it could break it loose; however, during the time while we were drilling, on a couple of different occasions, oh, like around from 400 to 430 feet, we stopped, did a pressure check, again it held 3500 pounds, and then after we encountered the water at 500 feet and at this point it's an unknown depth below 500 feet, we ran another pressure check of 3500 pounds and it did hold, so I do know that, because of our concern with high pressures, the cement was holding.

Q. Uh-huh.

MR. ULVOG: I believe that's all the questions I have.

RECROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Kleeman, you said that James Copeland was the project engineer.

A. Yes, sir.

Q. Was he advised or was he present at all during the drilling of the well?

A. Mr. Copeland's responsibilities and functions in this project in no way encompassed drilling operations. His stated purpose in this project was to analyze whatever data we had in the post-drilling in terms of heat content of the fluids, volumes, chemistry, and what have you, for

the potential use of this resource, to space heat the Village of Jemez Springs, so his knowledge of what occurred during drilling is strictly informal, that which I've passed on in our discussing the project and its incumbent headaches.

Q. So when you were having problems with cementing your 7-inch pipe, why, you -- who did you go to?

A. Well, I had -- of course we had the crew from Stuart Brothers present which having before I ever contacted this firm I checked out their reputation and they were quite reputable. They have a great deal of drilling experience. They even drilled some geothermal test wells for Los Alamos Scientific Laboratories.

Given that background I had them there. We discussed the project before we started drilling, and so their expertise was at hand, and also there was a considerable amount of advice made available from Los Alamos.

Q. And how much have you spent on this project? To date?

A. If it is permissible, I would prefer to defer on that question until such time as I could put together all the figures and there are some costs that are not -- I could only be very rough about.

Q. Well, I read a second article in the paper that stated you drilled the well and when you ran out of money, why, you quit drilling. Is that true or --

A. Well, Mr. Chairman, some of the things I've read in the paper about this project are -- I find rather amazing.

That's not true. We -- we ran out of money more than once but managed to secure additional funding.

What really made me decide to stop drilling was that we were approaching the end of the period on this last increment. We got an additional $3000 from the Energy and Minerals Department and then subsequent to that I received another $3500 from Sunoco, and while we were starting to run short on that, I had found another source to sustain continued drilling, but my last Tricone rotary bit went for one hour and fifteen minutes and 5 feet, and I decided that there was no point buying bits. We had reached the Precambrian. We had learned a lot of significant information about the geology in the area. It appeared that the hottest producing zone was going to be at 80 feet and it would be pointless to continue drilling.

Q. Well, do you have a -- do you have a money source for the proposed work that you intend to do now?

A. I believe so. I have not got in hand a detailed budget from the driller of what it would take to conduct this work, but, you know, my feeling is that it's going to be somewhere between $1000 and $3000, and if that's the case, I think we will be all right, but it's -- David

Stuart is in Texas and I've only talked to him about it on the telephone and we haven't had a chance to sit down for me to show him the proposal and to go over the exact cost of everything involved.

But based on my discussions with the people at Los Alamos, I think we'll be all right, based on this proposal.

Q. Okay. If this Commission directs you to repair this well or plug it, how much time is it going to take you to do the work?

A. Prior to drilling this well I would have been quite confident in answering that question. I have led to believe that we could complete it in two to two and a half days, provided that it doesn't snow and provided that everything goes according to plan.

Q. Well, if we directed you to do this today you couldn't have it done by the weekend.

A. Let me -- let me bring up a point here, and I'm not trying to criticize anybody, but we also are dealing with the State Engineer's Office and I have to clear what I do with them, and make sure that they're going to accept the proposals or the participation of all involved, and since the proposed driller is out of state -- he will be back in town on Monday -- I would prefer to wait until next week.

Q Well, I really would tend to disagree with you. I don't -- I think if this Commission directed you to do something, I don't think you would have to clear it with the State Engineer's Office.

A Well, Mr. Chairman, I do not mean to imply that I have to clear the directions of the Commission with the State Engineer's Office, but I think there may be some question about the actions of the driller, between the driller and the State Engineer's Office. I do not feel privileged to comment on those, but I'm aware that they exist.

I seem to be caught in a double bind here.

MR. RAMEY: Any other questions of the witness? He may be excused.

MR. STUART: Mr. Ramey?

MR. RAMEY: Yes.

MR. STUART: My name is Steve Stuart. I'm from Stuart Drilling Company. I'm not contracting officer for the company and so -- and I was not subpoenaed to be here. I'm mainly here as a matter of interest to see what, if anything, our involvement is, but if there is anything I can answer, I will.

I want to be honest about what my limited knowledge is about the situation and don't want to over-represent it, but I want you to know that I'm here and I'll

be of what help I can.

MR. RAMEY: Thank you, Mr. Stuart.

Let's take about a fifteen minute recess.

(Thereupon a recess was taken.)

MR. RAMEY: The hearing will come to order, please.

Did we excuse you, Mr. Kleeman?

MR. KLEEMAN: I believe you did, sir.

MR. RAMEY: Okay.

MS. TESCHENDORF: I'd like to call Gary McAllister.

GARY McALLISTER

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

DIRECT EXAMINATION

BY MS. TESCHENDORF:

Q. Would you please state your name and by whom you're employed?

A. Gary McAllister, National Cement Corporation.

Q. And what is your position with that company?

A. Station Manager and Service Foreman.

Q. What is the scope of your duties in that

position?

A. To cement all wells that we are called on to do work on.

Q. Could you briefly summarize your experience in cementing?

A. I worked for Byron Jackson, Incorporated, for 8-1/2 years in Wyoming, which is one of the major cementing companies in the world, and I moved down here in 1975 to work for Fleet Cementers, and that company was bought out a year ago by National Supply Company.

MR. RAMEY: So you are a subsidiary of National Supply, National Cementers are a subsidiary of National Supply?

A. Yeah, Armco Steel, National Supply, yes, sir.

MR. RAMEY: Okay, thank you.

Q. (Ms. Teschendorf continuing.) What records have you brought with you concerning this well?

A. The tickets that I used for each cement job.

Q. Do you or your attorney have any objections to our copying those and introducing them as an exhibit?

A. No, ma'am.

MS. TESCHENDORF: I think we'll mark those as Exhibit 12 and I'll introduce them later.

Q. Referring to those records, Mr. McAllister, will you please describe the cementing program, including the

amounts of cement, the class of cement, what happened to it, and the whole sequence of events?

A. Yes, ma'am.

The first time they called me they had run 7-inch casing to 74 feet.

Q. Who is "they"?

A. Stuart Brothers. And 9-3/4 hole they had drilled at that time because the 8-3/4 hole they couldn't get the pipe down.

I ran -- they wanted me to pump cement until we got it to the surface because they wanted a cement job, and the truck I took holds 350 sacks, and we emptied it. They had circulation on the hole but it never did bring any cement back.

And after we got done, I displaced it down to 54 feet so they'd have cement in the casing to drill out, and we didn't get any cement back to the surface and they could move the pipe with the rig.

So they decided we didn't have a cement job and pulled the casing.

Q. What date was this, do you know?

A. 4th of January. They released me and I went home and they called me back on the 6th and they had drilled to 140 feet, and they ran 115 foot of 7-inch casing and we cemented it with 60 sacks of cement, which would be over

100 percent excess for the hole. And we did not get any cement back to the surface on it.

So I ran my home into the hole 20 feet -- 15 feet, I think it was, and mixed 20 sacks, and we did get good cement back to the surface then. It fell about 2 feet, which was where the bottom of the -- the top of the casing was set underground, and they released me.

MR. RAMEY: This was on the outside --

A. Right.

MR. RAMEY: Between the hole and the pipe.

A. Right. And they released me and I left and they called me when I was about half way from Grants to Albuquerque going home, and the cement had fallen and they wanted to try to do it again.

I came back and put my hose in the hole again and we cemented it with 20 sacks and brought it back, and it was holding at the time, and they released us and shut the rig down, I believe, for 24 hours, because they'd been working for 3 or 4 days straight, and that's the last time I had anything to do with the well.

Q. Do you have any opinion as to what happened to this cement? That it didn't circulate back?

A. It may have fallen down the hole like the first one did and created a channel, maybe, and eventually when they started drilling it broke loose, possibly.

That's all I would know.

Q. You've no other explanation for where that 350 sacks went?

A. I do not, except that we may have -- it may have went into that water zone that they encountered at 80 feet. That's where we think it went.

Q. And Stuart Brothers Drilling hired your company to do the cementing?

A. Yes, they called me.

Q. So at this point, to your knowledge, there is no cement job in the well?

A. Not on top, no.

Q. What do you --

A. If they pressured up to 3500 when they got ready to drill the cement -- I left 20 feet of cement in the pipe when they shut down for 24 hours, and eventually it was there if they pressured up to 3500, which they said they did, there should be a cement job from 115 foot to 80 foot, anyway.

Q. May I look at those records you brought with you?

A. Yeah, there's two, three.

Q. Okay.

MR. RAMEY: So you feel, Mr. McAllister, that the bottom of the 7-inch is cemented in at this time?

A. I feel it is, yes, sir.

Q. What type of cement did you use on this well?

A. Class B.

Q. Is this a heat resistant cement?

A. It's supposed to be at that temperature, yes.

Q. Set up all right at 150 degrees?

A. Right.

MR. RAMEY: Do you have anything further, Ms. Teschendorf?

MS. TESCHENDORF: I'd like to offer Exhibit 12 in evidence.

MR. RAMEY: Okay, it will be admitted.

MR. KELLY; Mr. Examiner, I'd just like to request, I think you were going to make copies and let us have the originals back.

MS. TESCHENDORF: Okay.

MR. RAMEY: Do you have anything further?

MS. TESCHENDORF: No, I have nothing further.

MR. RAMEY: Does anyone have any questions of the witness? Mr. Nutter?

CROSS EXAMINATION

BY MR. NUTTER:

Q. My name is Dan Nutter. I'm with the Oil Conservation Division.

Apparently water is coming up around the outside of this casing. You probably heard that testimony this morning.

Do you have any suggestions as an experienced cementer as to how this water coming up outside the casing could be remedied?

A. No, I don't, sir. We put 350 sacks in it, which woujld be approximately 1000 percent excess on the amount of pipe we have in the hole and couldn't touch it.

Q. So it is a common occurrence, is it not, that you have difficulty setting cement in flowing water?

A. Sometimes, yes, sir.

Q. Uh-huh. Are there any substitutes for cement that are effective in setting in flowing water conditions? Any types of plastic or anything like that?

A. I believe there is. My superior might know of some. I do not.

Q. Uh-huh.

A. In our company there isn't, that I know of.

Q. So you don't have any recommendation, then, as to how the upper part of this casing could be cemented to adequately shut off that water flow?

A. Not other than running 1 or 2-inch pipe down it, like he suggested and tried to do it.

Q. Well, again we'd have the flowing water and

difficulty in getting it to set, wouldn't we?

A. Yes, mixing as heavy a cement as we could, we could cement it and get it up to 16 to 17 pounds a gallon.

Q. And then would that resist a flow of water of the volume that we've got in this well, do you think?

A. Yes, I killed it one -- I had resisted -- there's no pressure on it, that I know of.

It's not flowing hard enough to have any pressure behind it, from our wells that we have cemented up around Nose Rock for Phillips. They've got wells that flow 180 to 200 gallons a minute.

Q. Artesian type wells and they cement against that flow?

A. Yes, sir, kill them off.

Q. With 16 or 17 pound cement?

A. 15 pound cement will kill them.

Q. Okay, thank you, that's all.

MR. HAHN: There's several techniques that you could use.

MR. RAMEY: Would you identify yourself for the record, please?

MR. HAHN: Yes, sir, I'm Jamie Hahn with National Cement.

There are several techniques that could be used but it would be a trial and error thing of finding

whatever your hydrostatic pressure is would hold the water down and hold the cement in place, too.

If you make your cement too heavy it will force the water down and your cement will go to the water zone. I'm sure I'm not telling you anything.

But if you make it light enough where you do nothing but hold the water pressure down, it gives the cement an opportunity to hydrate, then in fact we probably could get a good cement job, you know, from 20 to 30 feet up. I don't believe there's any way we can go down to the top of the water zone again, on account of cement.

The primary cementing job, there are a lot of techniques you could have used which would have got you a good primary cementing job of your surface casing, but right now there's nothing you can do about it.

MR. NUTTER: Thank you.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Ms. Teschendorf?

MS. TESCHENDORF: I don't believe so.

MR. RAMEY: Anyone present have anything to add to this case? Any statements?

Yes, sir, Mayor Armenta.

MR. ARMENTA: I'd like to say something.

On behalf of the Village there's been a lot

of money and time spent on this project.

The nomenclature of the original proposal probably should have been changed to maybe a resource well. Everything was -- this is a fairly new thing, I think, around the state. I can assure you that no one involved in this project maliciously disregarded any regulations, and not to comply with any regulations set forth by this Commission.

I would not like to see that well plugged up. I'm sure there are problems with it now as far as the flow.

If it is, if you order us to plug it up, I feel it would be a waste and it would slow down energy projects that are taking place in the state.

That's all.

MR. RAMEY: Thank you, Mr. Mayor, and I want to assure you that the Commission is certainly interested in seeing geothermal development and if this well can be utilized as a possible geothermal project for space heating, why, we certainly are sympathetic toward that end and we'll do everything that we can to see that the well is utilized.

MR. ARMENTA: Thank you.

DR. DAW: I'm Harold Daw, New Mexico State University.

MR. RAMEY: Yes, Dr. Daw.

DR. DAW: And the Energy Institute has the

responsibility for the development of geothermal in the State from a research standpoint, and we would sure like to see if possible for that to be preserved as a viable geothermal program.

MR. RAMEY: Thank you, Dr. Daw.

Anything further?

Mr. Kleeman, we don't prescribe to tell you how to do your well, how to try to repair your well. We are going to tell you to repair it as soon as possible.

We will approve the plugging back operations that you oroposed in your schematic and your proposal, which is marked as Exhibit Eleven. That is as to testing the bridge and we do request that you get as much cement as possible on that plug and, if possible, put in some in the open hole and some in the pipe, and if you could bring it up to the base of your perforations, why, that would be ideal.

As to repairing the outside of the hole, now, that is your problem. We're not going to try to attempt to tell you how. We may have the expertise but we wouldn't want to bet on it, so we will direct you to do this just as soon as possible and there will be an order probably issued early next week that will state that you do this, and we will probably put a time limitation on it, and I would suggest that you do it as soon as possible and probably the Commissio

would give you something like ten days or two-week period to get the work done.

So you can make your plans accordingly.

MR. KLEEMAN: Yes, sir.

MR. RAMEY: Mr. Ulvog?

MR. ULVOG: Yes, I would like to request that some sort of a protective device be put around this well in the meantime because there's no question about it but it would be a hazard to small children, animals, and so on.

MR. KLEEMAN: May I suggest, Mr. Chairman, that I am going to go back to the site this weekend and I'd like to put back the fence that we had there before and then next week we can complete operations on the well.

MR. RAMEY: Well, Mr. Kleeman, in looking at Mr. Ulvog's Exhibit Five where the fence was in place, I wouldn't consider that a child-proof fence. I would suggest you put something better than that in.

MR. KLEEMAN: All right.

MR. RAMEY: And with that, the hearing is adjourned.

(Hearing concluded.)

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
3010 Plaza Blanca (505) 471-2462
Santa Fe, New Mexico 87501

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Court Reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Commission, 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, knowledge, and skill, from my notes taken at the time of the hearing.

Sally W. Boyd CSR

Sally W. Boyd CSR

Form G-101
Adopted 10/1/74

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NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [ ] Village Property FEE [ ]
5.a State Lease No.: N.A.

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]
b. Type of Well: Geothermal Producer [ ] Temp Observation [X] Low-Temp Thermal [ ] Injection/Disposal [ ]
7. Unit Agreement Name: N.A.
8. ~~Farm or~~ Lease Name: Jemez Lease
2. Name of Operator: Mayor Eddie Armenta
9. Well No.: 1
3. Address of Operator: Village of Jemez Springs, New Mexico
10. Field and Pool, or Wildcat: UNDES.
4. Location of Well: UNIT LETTER A LOCATED 90 FEET ~~FROM THE~~ West of Town Hall ~~LINE~~
AND FEET FROM THE LINE OF SEC. TWP. RGE. NMPM
12. County: Sandoval

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
750 ft.	Madera Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
6275 G.L.	Exempt	Stuart Bros./Grants, NM	2 January 1979

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8 3/4 in.	7 in. O.D.	14 lbs./ft.	100 ft.	30	circ.
5 in.					

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 3/28/79
UNLESS DRILLING UNDERWAY

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Order No. 1
Case Number: OCC
Hearing Date: 2-23-79

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevenier program, if any.

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

Signed [signature] Title Mayor, Village of Jemez Springs Date 22 December 1978

(This space for State Use)

APPROVED BY [signature] TITLE DANIEL S. NUTTER CHIEF ENGINEER DATE 12/28/78

CONDITIONS OF APPROVAL, IF ANY:

1

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

Form G-102
Adopted 10/1/74

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Mayor Eddie Armenta	Village	1

Unit Letter	Section	Township	Range	County
A	26	18 North	2 East	Sandoval

Actual Footage Location of Well:
90 feet ~~from the~~ west of town hall ~~line and feet from the~~ line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6275	Madera Limestone	UNDEST.	None Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

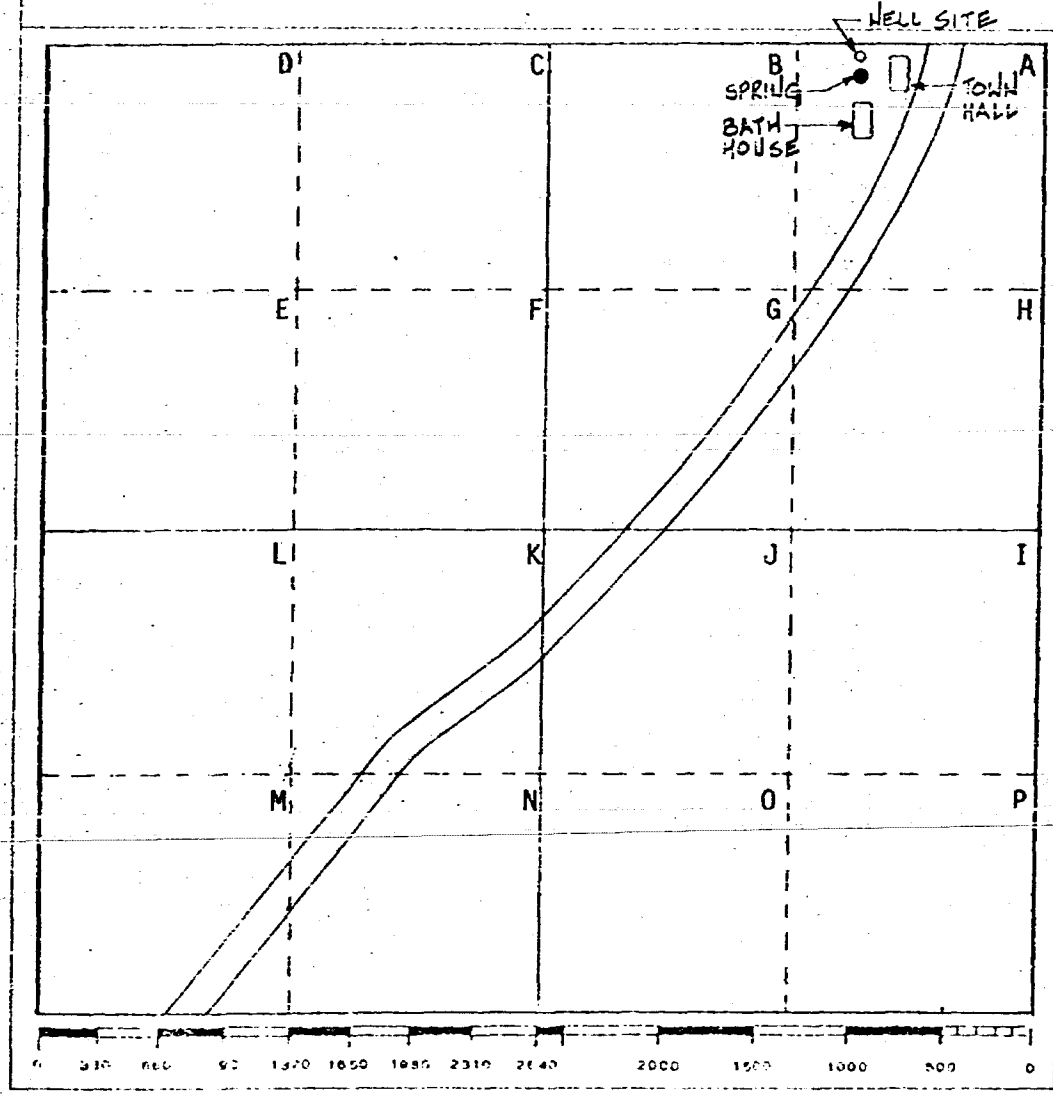
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: Tom Kleeman

Position: Consultant

Company: Coupland, Moran & Assoc.

Date: 21 December 1978

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

Date Surveyed

Registered Professional Engineer ~~and/or Land Surveyor~~

Certificate No.

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 2
Submitted by OCC
Hearing Date 2-23-79

JEMEZ No. 1
A-26-18N-2E, Sandoval County

Case No. 6461 Exhibit No. 3
Submitted by OCC
Hearing Date 2-23-79

III. PROPOSED WORK EFFORT

The Village of Jemez Springs, New Mexico proposes using State funds for drilling geothermal test wells and assessing the results. These wells will make it possible to ascertain the deliverable quantities of geothermal fluids (flow rates, their temperatures and chemical makeup). This data will lend more precision to determining the engineering and economic feasibility of utilizing the resource.

The work plan, shown on the following chart, calls for execution of assignments in the following order:

1. Prior to drilling, geologic mapping of the area, part of the ongoing San Diego Canyon mapping program, will be completed by geologists from Los Alamos Scientific Laboratories. These maps will be necessary in locating the drilling site.

2. Upon the completion of the mapping, expected in early August, personnel from L.A.S.L. will lend expertise in locating an optimal drilling site along a controlling fault. Given the extant information on geothermal and hydrological phenomena in the area, the locations of hot springs and wells and the data yielded from mapping, it should be possible to locate a favorable test site.

3. Upon locating a test site that meets with the satisfaction of the project geologist and the principal investigator, the project director will secure the services of a drilling subcontractor.

4. Drilling will be carried out under the supervision and with the advise of the project geologist. Two test wells, of a diameter of 4" - 6", to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 Ft. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

5. After the well is completed the project geologist will inform the project director and project engineer of the relevent engineering data, e.g. temperatures, flow rates (determined by draw down tests) etc. The project geologist will analyze the well data for its geologic significance regarding the geothermal resource. Upon the completion of this effort, he will present the project director with a short report on his findings which will be included in the final project report.

6. The project engineer will use the findings of the geologists to determine engineering and, with the participation of the project director, economic feasibility of resource utilization. At the end of this assessment the project engineer will present his findings to the project director.

7. The project director will then write a final report based on the findings of the participants. This final report is expected to include a clear, precise and acceptable determination of the efficacy of the utilization of geothermal resources ~~utilization~~ in the Village of Jemez Springs, New Mexico. After the report is issued pipes will be laid to deliver hot water from the well to the Town Hall to be used for space heating.

Project Heating Up Energy Prospects At Jemez Springs

By TOMAS O. MARTINEZ
Assistant State Editor

JEMEZ SPRINGS — The Village of Jemez Springs may become energy self-sufficient if a test project, currently under way, shows that geothermal energy can provide the village with heat and electricity.

The Village of Jemez Springs, located about 50 miles northwest of Albuquerque, is drilling a test well on village property to locate underground volcanic-heated water to use as a power source.

The drilling, project management, and feasibility studies are being funded through a $32,000 grant from the New Mexico Department of Energy.

Jemez Springs Mayor Eddie Armenta, 39, said he hopes the well will produce water heated at 250 degrees Fahrenheit. Hot water or steam from that well would be used to heat homes within the village and generate electricity.

"It's a tremendous project. If it works, we could become energy self-sufficient. Residents would be able to cut their utility costs by about 50 percent. I hope it works. We all do," Armenta, a retired Treasury Department agent and former Albuquerque police officer, said.

The well is being dug on village property behind the Jemez Springs City Hall. The project is the brain child of Project Engineer Tom Kleeman.

Armenta said Kleeman visited Jemez Springs in late 1977 to bathe in the hot springs near the village.

"He (Kleeman) came up with the idea," Armenta said. "The village hired him to study the possiblity of such a project, and to write a proposal to the federal government for funding.

"The federal government (Department of Energy) turned down our $4 million proposal. They said they could not fund exploratory projects. In July 1978 we submitted a proposal to the state. It was approved in late November. If the well produces water at 250 degrees, we will resubmit our proposal to the federal government for construction of a generating plant," Armenta said.

Kleeman said, "If the test is a success, it will be a tremendous event for New Mexico."

Kleeman, who represents Copeland-Moran Associates of Albuquerque, said drilling began Wednesday.

The drilling is being done by Stuart Brothers Drilling Co. of Grants. The firm has drilled similar wells for Los Alamos Scientific Labs in the Valle Grande area between Los Alamos and Jemez Springs.

Two Los Alamos scientists, Bill Laughlin and Francis West of LASL's Geothermal Groups, were at the drilling site Thursday to provide technical advice. West said the hot water the village is trying to locate escapes through faults from the Valle Grande, the site of a gigantic extinct volcano.

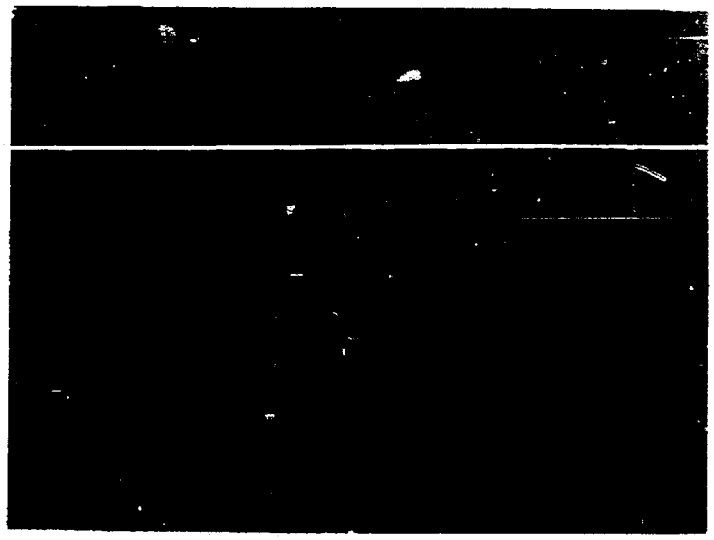
Laughlin said the volcano last erupted about 40,000 years ago and hot rocks heat the water in the calderon. That water escapes through faults, and one of those faults runs through the area where the well is being dug.

If the drilling project is a success, Armeta said that included in the second proposal to the U.S. Department of Energy will be a request to fund construction of village greenhouses.

Armenta said village greenhouses would represent a cooperative village effort to provide residents with vegetables and other food stuffs.

"It's a tremendous opportunity for the Village of Jemez Springs. If the well is a success, we hope the federal government will fund this as a pilot project," Armenta said.

Kleeman anticipates the possibility of geothermal energy for Jemez Springs could become a reality by late 1980. That is, if the well comes through, and the federal government funds the project.



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR
NICK FRANKLIN
SECRETARY

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

February 1, 1979

Mr. Eddie Armenta
Mayor of Jemez Springs Village
P. O. Box 87
Jemez Springs, New Mexico 87025

Dear Sir:

You are the recorded operator of a geothermal temperature observation well located in Unit A of Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico. According to the permit granted by this office the total depth would not exceed seven hundred fifty feet (750'), would have seven inch (7") casing set at one hundred feet (100') and cemented into the full length of the hole (cemented circulated). Furthermore, your letter to this agency requesting a waiver of bonding requirements states that your well will be plugged and the location cleaned in accord with State regulations.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is the immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR
NICK FRANKLIN
SECRETARY

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

January 30, 1979

Mayor Eddie Armenta
Village of Jemez Springs
Jemez, New Mexico

Subject: Jemez Lease Well No. 1
Unit A, Section 26, Township
18 North, Range 2 East,
NMPM, Sandoval County,
New Mexico

Dear Sir:

The subject well appears to have been drilled. It was permitted as a "Temperature Observation" well by this agency on December 28, 1978. To date, no reports or other information concerning that operation have been received in this office.

Kindly refer to the New Mexico State Regulations and supply all of the now-delinquent data. Also, because this agency was not notified prior to the setting and/or cementing of any casing in the subject well, please submit affidavits from the companies or individuals employed for such operations.

Yours truly,

Carl Ulvog

CARL ULVOG
Senior Geologist

CU/og
cc: Lynn Teschendorf
Oil Conservation Division
General Counsel

BEFORE THE
OIL CONSERVATION COMMISSION
Case No. 6466
Submitted by OCC
Hearing Date 2-23-79

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

(1) Commencement of drilling operations

(2) Casing and cement test

(3) Altering a well's casing installation

(4) Temporary abandonment

(5) Plugging and Abandonment

(6) Plugging back or deepening

(7) Remedial work

(8) Change in ownership of a drilling well

(9) Such other operations which affect the original status of the well but which are not specifically covered herein.

C. Filing Form G-103 as a Subsequent Report

Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form C-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

(2) Report of Results of Test of Casing and Cement Job; Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 108 B(5). The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

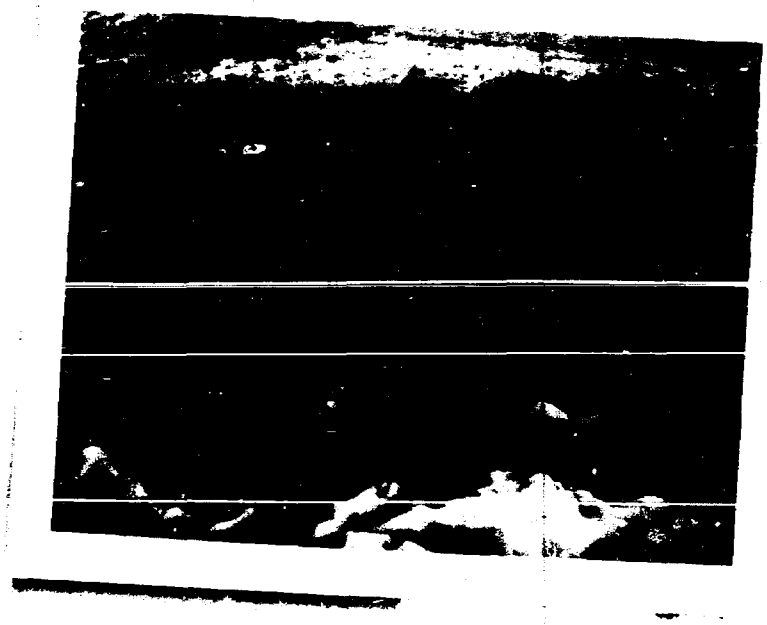
(3) Report of Temporary Abandonment

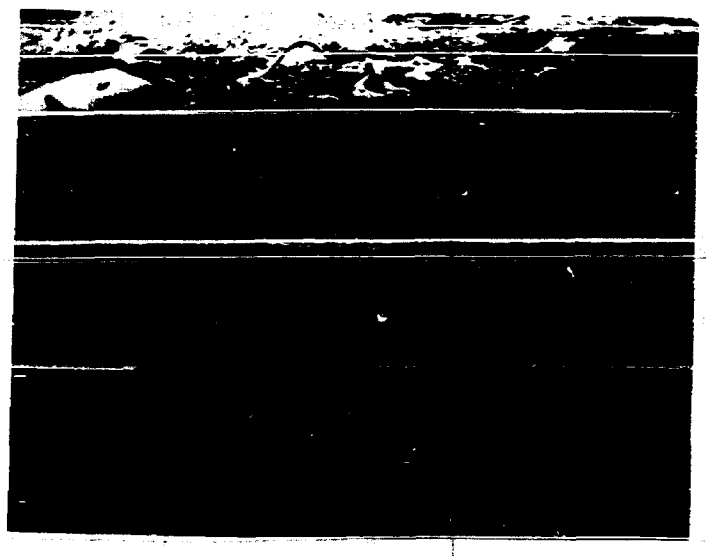
A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in DUPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and other pertinent information relative to the overall status of the well.

(4) Report on Plugging of Well

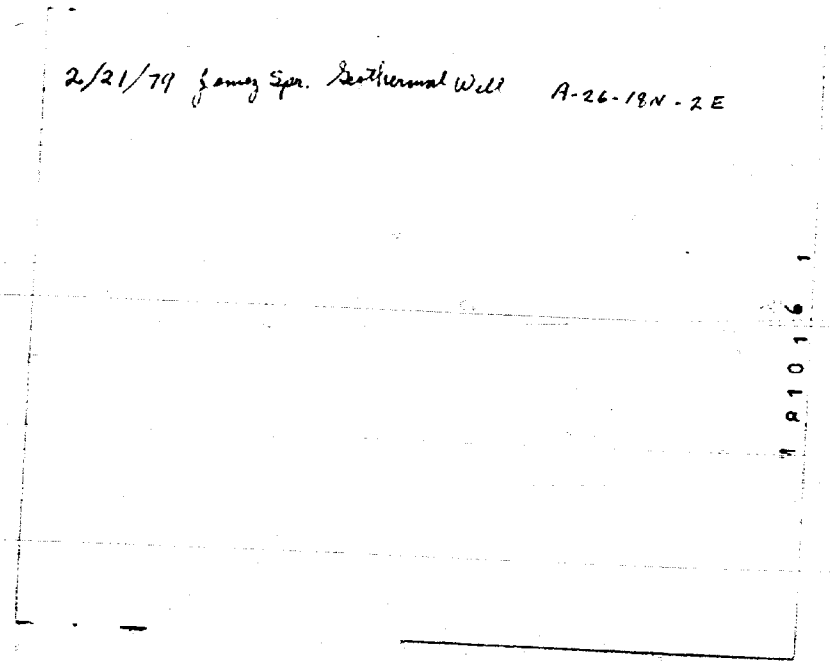
A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, and any other pertinent information. (See Rules 301-303 regarding plugging operations.)

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 7
Submitted by OCC
Hearing Date 2-23-79

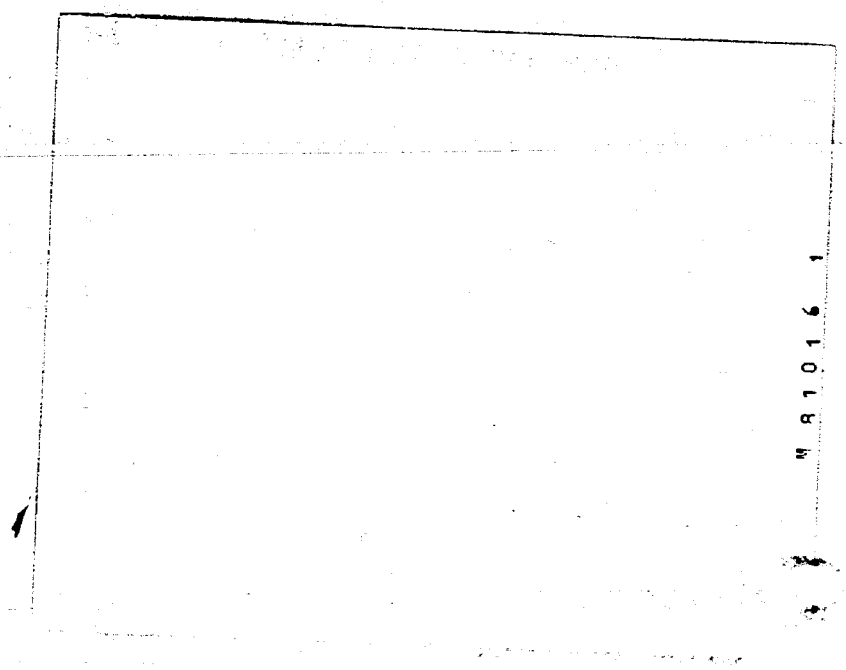




2/21/79 Jemez Spr. Geothermal Well A-26-18N-2E



MR1016-1



MR1016-1

mg/Liter

	Al	Fe	Mn	Ca	Mg	Na	K	Li	HCO_3	SO_4	Cl	F	SiO_2	Ph.
80 FT. 68°C	.013	0.39	0.11	122	5.76	546	61.6	6.96	642	45	705	4.42	70.4	6.64
500 FT 41°C	.018	.39	.02	120	9.31	185	29.9	2.27	479	38	243	3.30	24.2	6.69
Travertine Mound 72°C	.016	.15	.11	114	4.48	612	70.3	8.46	714	43.2	936	505	82.8	6.66
K. Ranch 50°C	.013	.16	.19	128	7.50	494	57.8	6.96	708	40.6	653	3.96	72	6.59

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. _____ Exhibit No. 9
Submitted by OCC
Hearing Date _____

Notes on cuttings from Jemez Springs well.

Andi Kron
G-9
LASL
2/22/79

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exh. No. 10
Submitted by OCC
Hearing Date

Ex 10

1-30-79

0-10'; Alluvium, sanidine, basalt, qtz, fldsp, etc.

10-20'; Alluvium; qtz, sanidine, fldsp, etc

20-30'

30-40'; Alluvium; qtz, calcite, fldsp, biotite, volcanics

40-50'; Alluvium, qtz, calcite, fldsp, volcanics, sanidine

50-60'; Alluvium; basalt, alg, qtz, tuff, calcite

60-70'; Alluvium; largely volcanics - basalt, tuffs w/ sanidine; some qtz, fldsp + l.s.

70-80'; limestone; w/ some basalt + fldsp

1-31-79

80-90'; mostly grey limestone slivers

90-100'; Limestone, light grey; v. minor black shale slivers, calcite

100-110; Mainly limestone - gray slivers ... mostly gray ... calcite; v. minor basalt ... sandstone

110-120;	Mainly light grey, ~~fine gr.~~ micritic limestone; + calcite; minor impurities of Abo basalt, tuff, qtz.
120-130	Limestone; mainly light grey, ~~fine~~ micritic ~~grained~~ slivers, calcite; minor tuffs.
130-140	Limestone; light grey slivers, whitish powdery l.s., calcite, minor red sandstone, minor qtz. + tuff + basalt
140-150	Limestone - light grey, + med. gray w/ black spots,
150-160	Limestone - light + med. gray
160-170	Limestone: dom. med gray, f.gr. blocky; some light gray slivers, (micritic).
170-180	Limestone - whitish gray w/ tiny black inclusions (?) (spots).
180-190	Limestone - med gray w/ small black grains (biotite?) v. fine gr.
190-200	Limestone (same as above)
200-210	Limestone: med. gray + lighter gray, [illegible] w/ smaller [illegible] and [illegible] of black grains

Calcite [illegible] indicates porosity (due recrystallization)

210-220	Limestone - med-dark gray, v. fine grained
220-230	Limestone - (same as above)
230-240	Limestone - med - light gray, fine grained
240-250	Limestone - light gray micritic and v. fine grained; both w/ minor black mineral specs.
250-260	Limestone: mainly light gray micritic; few pieces w/ minor black mineral specs; minor pyrite
260-270	Limestone; homogeneous light gray micritic; few pieces white l.s.
270-280	Limestone - med. gray, v. fine grained to micritic
280-290	Limestones; white, light gray, med. gray; brachiopod, some grains yellow stained
290-300	Limestone; light gray micrite, crinoid stems, fusilinids? Iron stains - v. few + localized
300-310	Limestone; mainly white (cream) micrite; few darker gray pieces; minor black mineral specs.

(poss. fine sand) limestone

d. white sandy f.g. w/ biotite & microcline(?).

310-320	Limestone; mainly white, crystalline, pure;
	2/9/79
320-330	(A) white clean crystalline 20%
	(B) light gray-murky " microcrystalline (micrite?) 2%
20%	(C) Muddy, ~~shaly~~, silty limestone fine sand
	(D) Sandy limestone w/ biotite & microcline?
320-330	30% C+D; crinoid stem in C. 70% A+B; fossils in both
320-340	~~Dark gray~~ muddy, silty limestone, ranging in color from dark to
50%	red. gray, stone purple. Some white, sandy l.s. w/ Biotite
50%	white, crystalline l.s. (A) and light, gray microcrystalline (B)

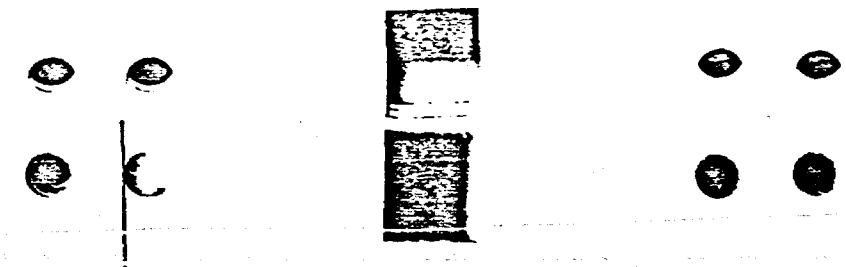
1

A. White, clear, crystalline

B. light grey, microcrystalline (micritic?)

C. Dark grey - brown muddy, silty (poss. fine sand) limestone

D. white sandy L.S. w/ biotite & microcline(?).



310-320	Limestone; mainly white, crystalline, pure;

2/9/79

2-12-79

340-350 { dark grey microcrystalline limestone
50% { dark grey muddy limestone

50% { white-gray biotite sandy limestone
white clean crystalline l.s.
1 large fragment of pelloidal l.s.

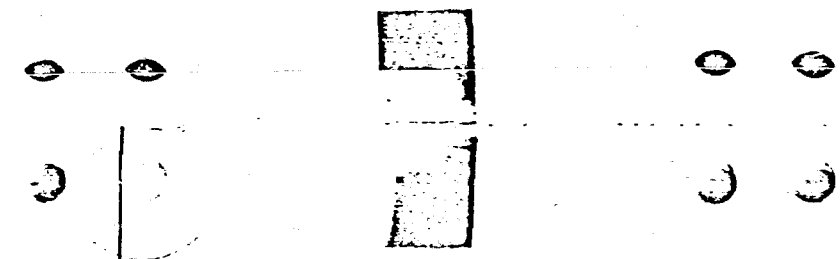
350-360 2-2mm piece of pyrite - crystals are small & cubic

60% { Sandy, biotite l.s. (whitish)
white, clean, crystalline l.s.
1-chunk white, powdery, opaque
light grey microcrystalline calcite

40% { dark grey - purple, muddy l.s.
dark grey silty l.s.

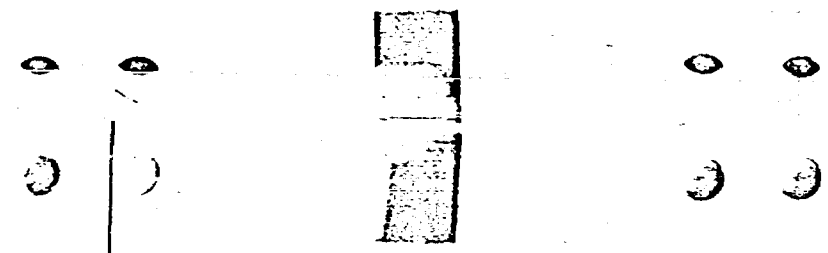
360-370 Size of rock fragments in sample considerably smaller than average (majority are 1-2mm) sample

10% quartz, - some with inclusions of biotite (?)
some iron staining [illegible] yellow
color; mostly [illegible]



90%	light grey microcrystalline l.s. white clean, crystalline l.s. white-grey biotite l.s.
	1 flake (5 mm) goethite (?) 2 pieces sandstone (3 mm) (red) 1 piece (2 mm) pyrite
	many fragments show slight fine stain on portion of surface from iron.
370-380	50% fragments 1-2 mm (unknown mine) taken out
	white crystalline, clean l.s. (some pelletoidal)
95%	light grey microcrystalline l.s. chalky white, chalky calcite 5% clear quartz minor white biotite l.s.
5%	dark grey limestone: some microcrystalline, fine, muddy
	1 flake goethite (?) fine sandy piece basalt

1



150-390

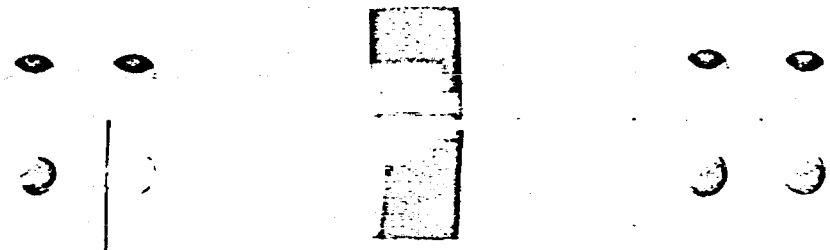
5% dark grey muddy-silty l.s.
few l.s. fragments are red from coating of hematite
minor quartz
V. minor iron mineral(?) probably goethite

20% light grey microcrystalline l.s.

75% { 25% white, biotite l.s.
50% white, clean, crystalline l.s.
25% white, colloidal l.s.

340-400 fine grained, sandy(?) biotite (v. fine grained)(?), sulfides, oxide vein,

Sample taken for thin section



400-410
Sample taken for thin section

Either: 1) volcanic dike w/ aplitic texture or

2) large boulder of fine grained Precambrian rock

We prefer interpretation in 1) but are getting some samples prepared for further study.

410-420
sample taken for thin section

50% limestone

50% of shelf in 400-410 ft Log

420-430 sample taken for thin secn	Mostly limestone
430-440	majority of fragments 1mm:
74%	white, clean crystalline l.s (one frag. dark pink from Fe staining); Shape of fragments flakey, minor pyrite in crystal aggregates minor goethite 1 frag. basalt; 1 frag. mudstone
5%	quartzite - white, v. fine grained, calcite cement. Minute black inclusions
1%	[illegible] - mainly clear, some milky. [illegible] minute black mineral [illegible] on surface of grains

Iron stain = water flowing thru with [illegible]

20%	V. fine grained, salt + pepper texture rock (aplite?)
(look at again)	
2-20-79	
440-450	
70%	V. Light brown to white microcrystalline limestone. Some sandy, ~~to~~ minor hematite, minor fossil.
15%	dark brown siltstone / mudstone
15%	Igneous (aplite?)
	minor volcanics, qtz.

~~Hematite~~ [illegible]

1

~~Ross Taylor Lunar Science~~

2-21-79

450-460 — white, sandy limestone (cream written above "white")

60% — cream colored, microcrystalline l.s.

white chalky looking, microcrystallin l.s. (w/hematite written above)

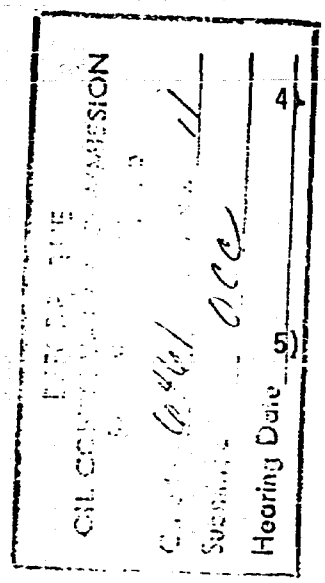
PROPOSAL TO CONTROL WATER FLOW
AT JEMEZ SPRINGS WELL NO. 1

At present warm water, 150°-155°F, is flowing up the outside of the 7 inch casing in the Jemez Springs no. 1 geothermal well. Cooler water, 120°-125°F, is flowing up the inside of the well from approximately 500 feet. It is proposed here to do the following:

1) Fill the hole from 140 feet back to 130 feet with river sand and gravel. This material will sit on a bridge which has developed at 140 feet.

2) The upward flow of water would be stopped and the well plugged at 130 feet with 30 feet of concrete poured into the hole. This would leave a concrete column from 130 feet back to 110 feet, cementing off the well below the casing to 10 feet into the casing. The casing is cemented into the limestone from 120 feet back to approximately 90 feet.

3) After the flow inside the casing has been stopped the casing will be opened between the depths of 80-90 feet. This will allow the water which is presently flowing up the outside of the casing to flow inside.



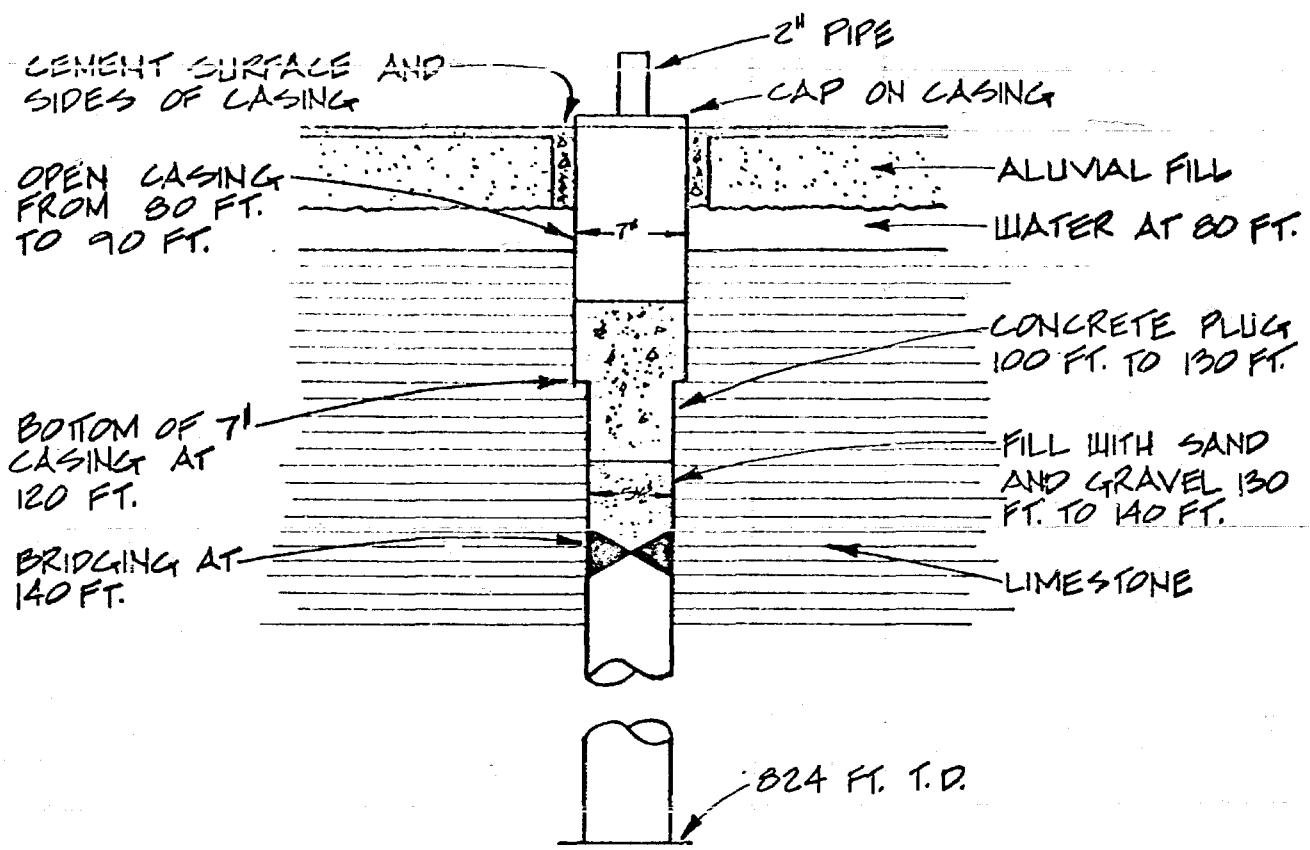
4) Once the flow from 80 feet has been directed inside the casing a tremie pipe will be lowered down the outside of the casing and concrete will be pumped into the space between the casing and the well wall, where water is flowing at present.

5) Upon completion of the cementing of the outside of the casing the surface around the top of the casing for 3 feet will also be cemented to prevent future seeping from shallow water.

6) A two inch pipe attached to a 7 inch collar will be placed on the top of the casing. The 2 inch pipe will have a value to shut off and control the flow of water coming up the well.

Attached is a schematic of the proposed work.

CM&A DATE 2-13-79 SUBJECT JEMEZ SPRINGS PROJECT SHEET NO. 1 OF 1
CM&A 2-13-79 JOB NO.



JEMEZ PROJECT
NO SCALE

National Cementers Corporation

№ 189

Home Office
Phone (303) 243-4358
P. O. Box 2370
Grand Junction, Colorado 81501

Phone (505) 325-9491
Aztec, New Mexico 87410

Phone (505) 287-4596
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State
Well Number & Farm		**Location**			**Contractor**	**Owner**

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To

(OWNER, OPERATOR OR HIS AGENT)

and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed:

WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE CASING	SIZE HOLE	
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB

PRICE REF:	EXPLANATION:		
D-1	Pump Truck Charge	295	00
D-20	140 miles @ 1.23 / mile	172	20
D-29	2 men @ $35 each	70	00
D-29	1 hr @ $20.00/hr	20	00

JOB COMMENTS:

Ex 12

SUB-TOTAL	752	20
TAX 4%	30	09
TOTAL	782	29

GRADO PRINTING CO., GRAND JUNCTION, COLO.

SIGNED:

OWNER, OPERATOR OR HIS AGENT

…, Colorado
… 358
…w Mexico
… 334-9491
…nts, New Mexico
05 287-4596

NATIONAL CEMENTERS CORPORATION

№ 489

SALES DELIVERY TICKET

Date	Customer Order No.	Section	Township	Range	County	State
[illegible]	[illegible]				[illegible]	[illegible]

Well Number & Farm	Location	Contractor	Owner
[illegible]	[illegible]	[illegible]	[illegible]

Charge To: [illegible] Bros Drlg

NATIONAL CEMENTERS CORP. is hereby requested to furnish material

To [illegible]

[illegible], N.M. 87[illegible]

DESCRIPTION	QUANTITY ISSUED	UNIT PRICE		AMOUNT	
[illegible] Cement	80 [illegible]	4	75	380	[illegible]
2-4d Handling Charge	80 sk		61	48	80
[illegible]-59 7520# Per [illegible] mile [illegible]	7520#		42	226	[illegible]

Job Comments:

SUB-TOTAL	655 15
TAX 4%	26 21
TOTAL	681 36

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

COLORADO PRINTING CO. GRAND JUNCTION, COLO

Signed: [illegible]

OWNER, OPERATOR OR HIS AGENT

National Cementers Corporation

№ 188

Home Office
Phone (303) 243-4358
P. O. Box 2370
Grand Junction, Colorado 81501

Field Operations
Phone (505) 334-9191
Aztec, New Mexico 87410

Phone (505) 287-4356
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State
Well Number & Farm		Location			Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To

(OWNER, OPERATOR OR HIS AGENT)

and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed: X

WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE CASING	SIZE HOLE	
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB

PRICE REF:	EXPLANATION:		
R-1			
R-37	140 miles @ $1.33 unit		

JOB COMMENTS:

SUB-TOTAL	567	20
TAX 4%	22	69
TOTAL	589	89

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

SIGNED: X

OWNER, OPERATOR OR HIS AGENT

NATIONAL CEMENTERS CORPORATION

No 488

...ico
...491
..., New Mexico
...287-4596

SALES DELIVERY TICKET

Date	Customer Order No.	Section	Township	Range	County	State
	45 76					
Well Number & Farm		Location			Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish material

To

DESCRIPTION	QUANTITY ISSUED	UNIT PRICE	AMOUNT

Job Comments:

SUB-TOTAL	
TAX	
TOTAL	

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

Signed: _____

OWNER, OPERATOR OR HIS AGENT

National Cementers Corporation

№ 190

Home Office
Phone (303) 243-4358
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Aztec, New Mexico 87410
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State

Well Number & Farm	Location	Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To

(OWNER, OPERATOR OR HIS AGENT)

and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed:

WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE CASING	SIZE HOLE	
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB

PRICE REF:	EXPLANATION:		
12-25			
12-27			

JOB COMMENTS:

SUB-TOTAL		
TAX	4%	
TOTAL		

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

SIGNED:

OWNER, OPERATOR OR HIS AGENT

orado

NATIONAL CEMENTERS CORPORATION

No 490

exico
9491
, New Mexico
287-4596

SALES DELIVERY TICKET

Date	Customer Order No.	Section	Township	Range	County	State
Well Number & Farm		Location			Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish material

To

DESCRIPTION	QUANTITY ISSUED	UNIT PRICE	AMOUNT

Job Comments:

SUB-TOTAL .....

TAX .....

TOTAL .....

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

Signed: X

OWNER, OPERATOR OR HIS AGENT

Memo

From
D. S. NUTTER
CHIEF ENGINEER

dockets to:

To

Campbell, Moran
& Associates
200 Alty SE
Albuquerque NM 87123
attn: mr. Campbell and mr. moran

Mr. W. T. Kleeman Jr
C/o Campbell, Moran
& Associates
200 Alty SE
Albuquerque N Mex 87123

Memo

From
D. S. NUTTER
CHIEF ENGINEER

To

Mr. Larry Kehoe
Secretary Energy
and Minerals Department

Mr. Steve Reynolds
State Engr

Memo

From
D. S. NUTTER
CHIEF ENGINEER

To

Dr. Harold Daw
Associate Academic
Vice President
P.O. Box 3445
New Mexico State University
Las Cruces N Mex 88003

Mayor Eddie Armenta
~~Village of Jemez Springs~~
P.O. Box 87
Jemez Springs
New Mexico 87025

Form G-101
Adopted 10/1/74

NO. OF COPIES RECEIVED		
DISTRIBUTION		
File	/	✓
N.M.B.M.	/	
U.S.G.S.	/	
Operator	/	
Land Office		

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK---GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [ ] Village Property FEE [ ]
5.a State Lease No.: N.A.

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Temp Observation [X]
Low-Temp Thermal [ ] Injection/Disposal [ ]

7. Unit Agreement Name: N.A.

8. ~~Farm or~~ Lease Name: Jemez Lease

2. Name of Operator: Mayor Eddie Armenta

9. Well No.: 1

3. Address of Operator: Village of Jemez Springs, New Mexico

10. Field and Pool, or Wildcat: UNDES.

4. Location of Well: UNIT LETTER A LOCATED 90 FEET ~~FROM THE~~ West of Town Hall ~~LINE~~
AND FEET FROM THE LINE OF SEC. TWP. RGE. NMPM.

12. County: Sandoval

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
750 ft.	Madera Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
6275 G.L.	Exempt	Stuart Bros./Grants, NM	2 January 1979

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8 3/4 in.	7 in. O.D.	14 lbs./ft.	100 ft.	30	circ.
5 in.					

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 1
Submitted by OCC
Hearing Date 2-23-79

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 3/28/79
UNLESS DRILLING UNDERWAY

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [signature] Title Mayor, Village of Jemez Springs Date 22 December 1978

(This space for State Use)

APPROVED BY [signature] TITLE DANIEL S. NUTTER CHIEF ENGINEER DATE 12/28/78

CONDITIONS OF APPROVAL, IF ANY:

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

Form G-102
Adopted 10/1/74

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Mayor Eddie Armenta	Village	1

Unit Letter	Section	Township	Range	County
A	26	18 North	2 East	Sandoval

Actual Footage Location of Well:
90 feet ~~from the~~ west of town hall ~~line and~~ ~~feet from the~~ ~~line~~

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6275	Madera Limestone	UNDEST.	None Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

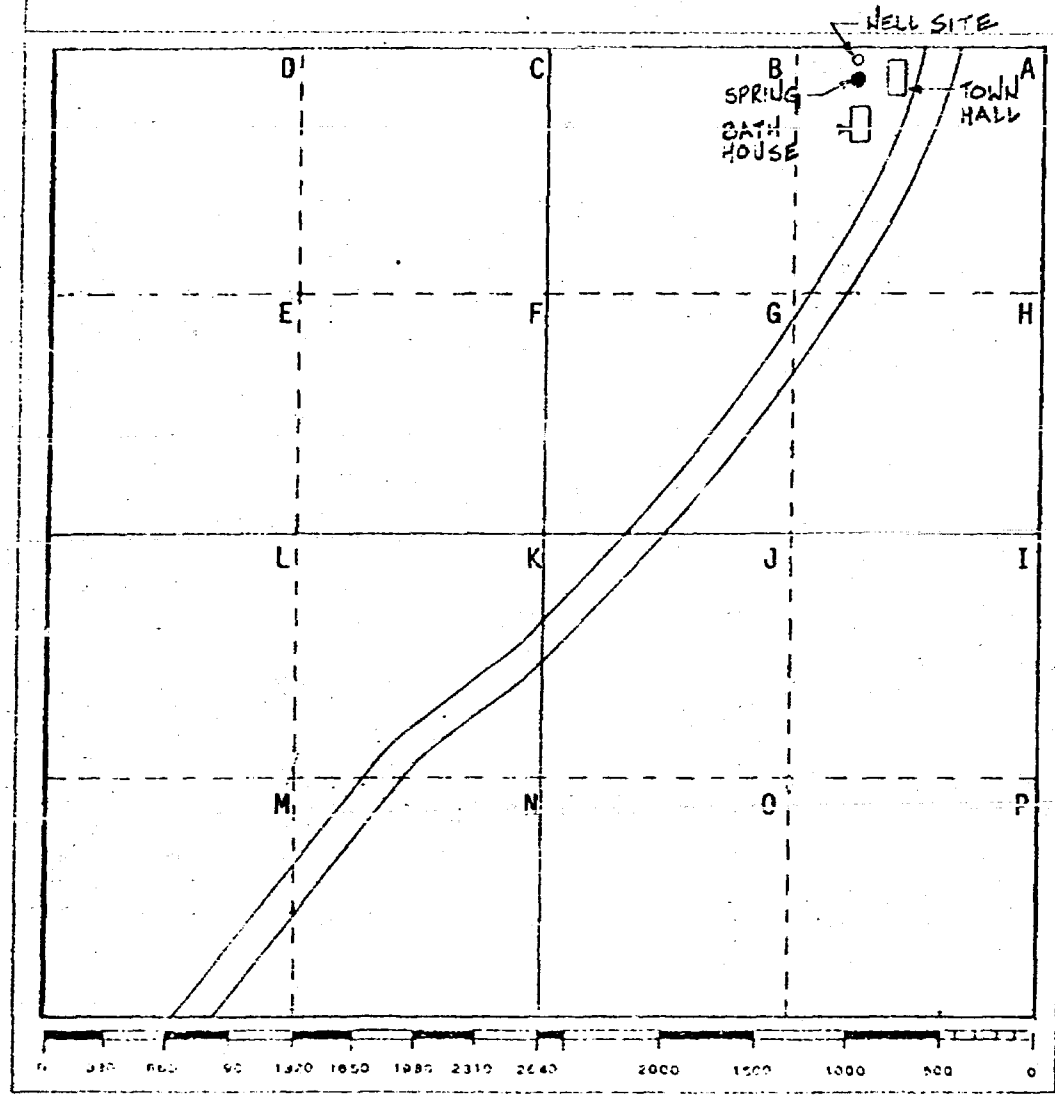
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: Tom Kleeman

Position: Consultant

Company: Coupland, Moran & Assoc.

Date: 21 December 1978

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

Date Surveyed

Registered Professional Engineer ~~and/or Land Surveyor~~

Certificate No.

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 2
Submitted by OCC
Hearing Date 2-23-79

JEMEZ No. 1
A-20-18N-2E, Sandoval County

1

III. PROPOSED WORK EFFORT

The Village of Jemez Springs, New Mexico proposes using State funds for drilling geothermal test wells and assessing the results. These wells will make it possible to ascertain the deliverable quantities of geothermal fluids (flow rates, their temperatures and chemical makeup). This data will lend more precision to determining the engineering and economic feasibility of utilizing the resource.

The work plan, shown on the following chart, calls for execution of assignments in the following order:

1. Prior to drilling, geologic mapping of the area, part of the ongoing San Diego Canyon mapping program, will be completed by geologists from Los Alamos Scientific Laboratories. These maps will be necessary in locating the drilling site.

2. Upon the completion of the mapping, expected in early August, personnel from L.A.S.L. will lend expertise in locating an optimal drilling site along a controlling fault. Given the extant information on geothermal and hydrological phenomena in the area, the locations of hot springs and wells and the data yielded from mapping, it should be possible to locate a favorable test site.

3. Upon locating a test site that meets with the satisfaction of the project geologist and the principal investigator, the project director will secure the services of a drilling subcontractor.

4. Drilling will be carried out under the supervision and with the advise of the project geologist. Two test wells, of a diameter of 4" - 6", to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 Ft. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

5. After the well is completed the project geologist will inform the project director and project engineer of the relevent engineering data, e.g. temperatures, flow rates (determined by draw down tests) etc. The project geologist will analyze the well data for its geologic significance regarding the geothermal resource. Upon the completion of this effort, he will present the project director with a short report on his findings which will be included in the final project report.

6. The project engineer will use the findings of the geologists to determine engineering and, with the participation of the project director, economic feasibility of resource utilization. At the end of this assessment the project engineer will present his findings to the project director.

7. The project director will then write a final report based on the findings of the participants. This final report is expected to include a clear, precise and acceptable determination of the efficacy of the utilization of geothermal resources ~~utilization~~ in the Village of Jemez Springs, New Mexico. After the report is issued pipes will be laid to deliver hot water from the well to the Town Hall to be used for space heating.

1

Project Heating Up Energy Prospects At Jemez Springs

By TOMAS O. MARTINEZ
Assistant State Editor

JEMEZ SPRINGS — The Village of Jemez Springs may become energy self-sufficient if a test project, currently under way, shows that geothermal energy can provide the village with heat and electricity.

The Village of Jemez Springs, located about 50 miles northwest of Albuquerque, is drilling a test well on village property to locate underground volcanic-heated water to use as a power source.

The drilling, project management, and feasibility studies are being funded through a $32,000 grant from the New Mexico Department of Energy.

Jemez Springs Mayor Eddie Armenta, 39, said he hopes the well will produce water heated at 250 degrees Fahrenheit. Hot water or steam from that well would be used to heat homes within the village and generate electricity.

"It's a tremendous project. If it works, we could become energy self-sufficient. Residents would be able to cut their utility costs by about 50 percent. I hope it works. We all do," Armenta, a retired Treasury Department agent and former Albuquerque police officer, said.

The well is being dug on village property behind the Jemez Springs City Hall. The project is the brain child of Project Engineer Tom Kleeman.

Armenta said Kleeman visited Jemez Springs in late 1977 to bathe in the hot springs near the village.

"He (Kleeman) came up with the idea," Armenta said. "The village hired him to study the possiblity of such a project, and to write a proposal to the federal government for funding.

"The federal government (Department of Energy) turned down our $4 million proposal. They said they could not fund exploratory projects. In July 1978 we submitted a proposal to the state. It was approved in late November. If the well produces water at 250 degrees, we will resubmit our proposal to the federal government for construction of a generating plant," Armenta said.

Kleeman said, "If the test is a success, it will be a tremendous event for New Mexico."

Kleeman, who represents Copeland-Moran Associates of Albuquerque, said drilling began Wednesday.

The drilling is being done by Stuart Brothers Drilling Co. of Grants. The firm has drilled similar wells for Los Alamos Scientific Labs in the Valle Grande area between Los Alamos and Jemez Springs.

Two Los Alamos scientists, Bill Laughlin and Francis West of LASL's Georthermal Groups, were at the drilling site Thursday to provide technical advice. West said the hot water the village is trying to locate escapes through faults from the Valle Grande, the site of a gigantic extinct volcano.

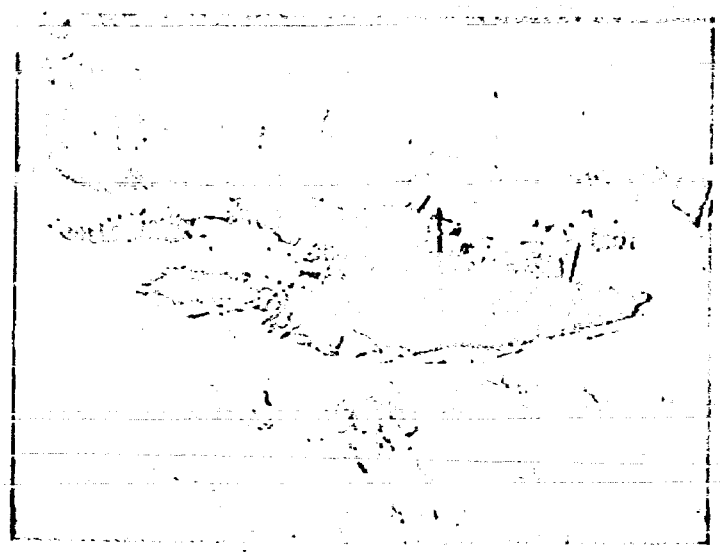
Laughlin said the volcano last erupted about 40,000 years ago and hot rocks heat the water in the calderon. That water escapes through faults, and one of those faults runs through the area where the well is being dug.

If the drilling project is a success, Armeta said that included in the second proposal to the U.S. Department of Energy will be a request to fund construction of village greenhouses.

Armenta said village greenhouses would represent a cooperative village effort to provide residents with vegetables and other food stuffs.

"It's a tremendous opportunity for the Village of Jemez Springs. If the well is a success, we hope the federal government will fund this as a pilot project," Armenta said.

Kleeman anticipates the possibility of geothermal energy for Jemez Springs could become a reality by late 1980. That is, if the well comes through, and the federal government funds the project.



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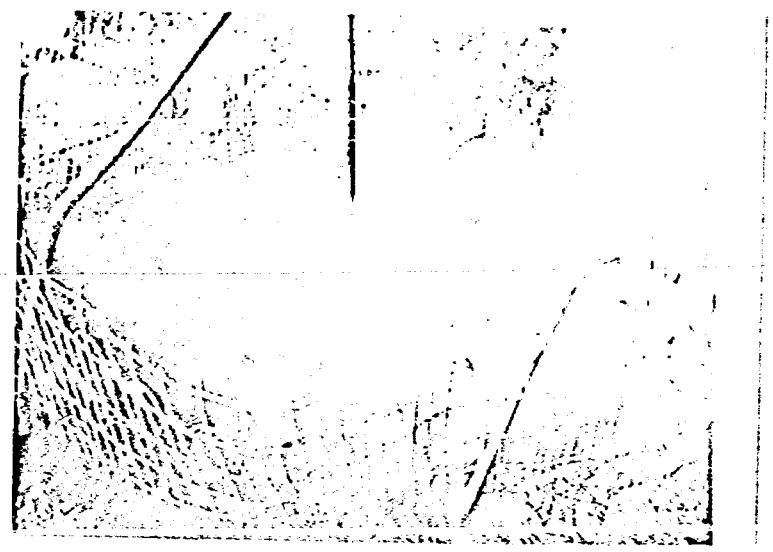
Taken 1/29/79
C.U.



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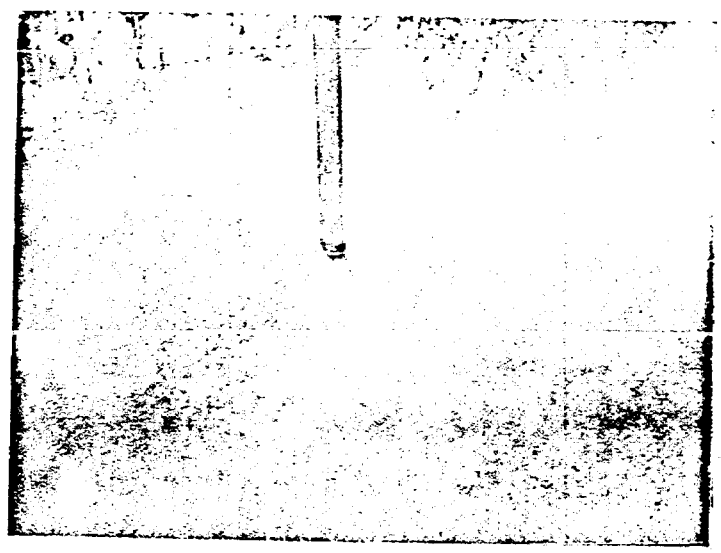
Taken 1/29/79
C.U.



A-26-18N-2E
Taken 1/29/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
New Mexico
Case No. 6461 Exhibit No. 5
Submitted by OCC
Hearing Date 2-23-79

1

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

February 1, 1979

Mr. Eddie Armenta
Mayor of Jemez Springs Village
P. O. Box 87
Jemez Springs, New Mexico 87025

Dear Sir:

You are the recorded operator of a geothermal temperature observation well located in Unit A of Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico. According to the permit granted by this office the total depth would not exceed seven hundred fifty feet (750'), would have seven inch (7") casing set at one hundred feet (100') and cemented into the full length of the hole (cemented circulated). Furthermore, your letter to this agency requesting a waiver of bonding requirements states that your well will be plugged and the location cleaned in accord with State regulations.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is the immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

January 30, 1979

Mayor Eddie Armenta
Village of Jemez Springs
Jemez, New Mexico

Subject: Jemez Lease Well No. 1
Unit A, Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico

Dear Sir:

The subject well appears to have been drilled. It was permitted as a "Temperature Observation" well by this agency on December 28, 1978. To date, no reports or other information concerning that operation have been received in this office.

Kindly refer to the New Mexico State Regulations and supply all of the now-delinquent data. Also, because this agency was not notified prior to the setting and/or cementing of any casing in the subject well, please submit affidavits from the companies or individuals employed for such operations.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og
cc: Lynn Teschendorf
Oil Conservation Division
General Counsel

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 6
Submitted by OCC
Hearing Date 2-23-79

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

(1) Commencement of drilling operations

(2- Casing and cement test

(3) Altering a well's casing installation

(4) Temporary abandonment

(5) Plugging and Abandonment

(6) Plugging back or deepening

(7) Remedial work

(8) Change in ownership of a drilling well

(9) Such other operations which affect the original status of the well but which are not specifically covered herein.

C. Filing Form G-103 as a Subsequent Report

Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form G-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

(2) Report of Results of Test of Casing and Cement Job; Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 108 B(5). The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

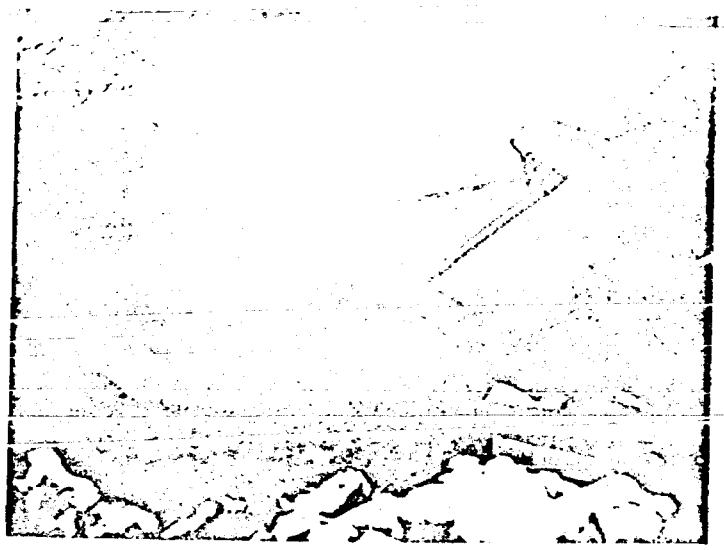
(3) Report of Temporary Abandonment

A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in DUPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and other pertinent information relative to the overall status of the well.

(4) Report on Plugging of Well

A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, and any other pertinent information. (See Rules 301-303 regarding plugging operations.)

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 7
Submitted by OCC
Hearing Date 2-23-79



A-26-18N-2E
Taken 2/21/79
C.U.

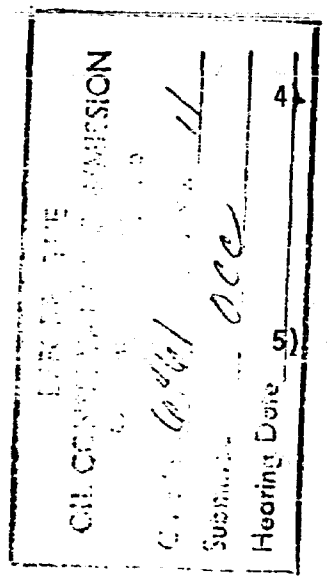
A-26-18N-2E
Taken 2/21/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
New Mexico
Case No. 8461 Exhibit No. 8
Submitted by: OCC
Hearing Date 2-23-79

PROPOSAL TO CONTROL WATER FLOW
AT JEMEZ SPRINGS WELL NO. 1

At present warm water, 150°-155°F, is flowing up the outside of the 7 inch casing in the Jemez Springs no. 1 geothermal well. Cooler water, 120°-125°F, is flowing up the inside of the well from approximately 500 feet. It is proposed here to do the following:

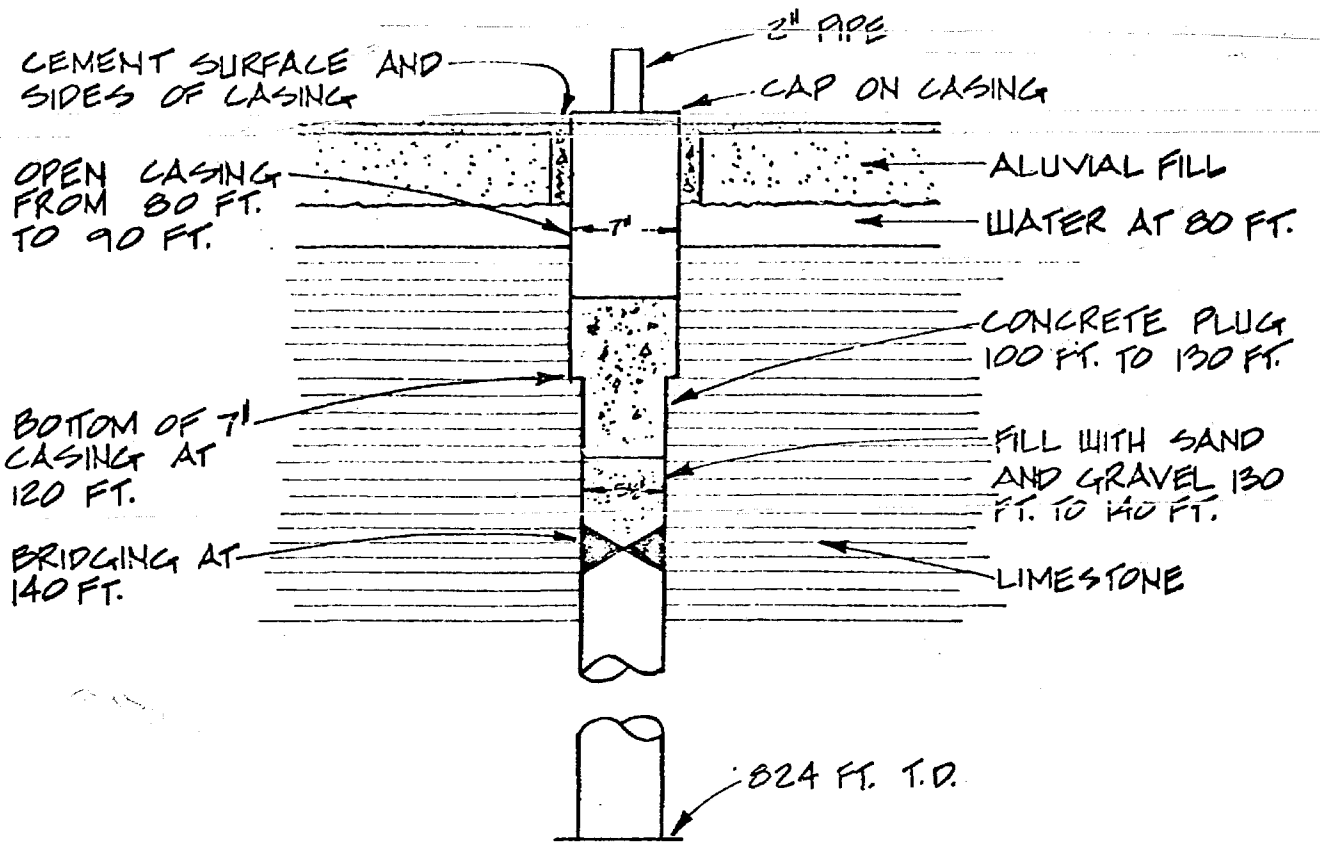
1) Fill the hole from 140 feet back to 130 feet with river sand and gravel. This material will sit on a bridge which has developed at 140 feet.
2) The upward flow of water would be stopped and the well plugged at 130 feet with 30 feet of concrete poured into the hole. This would leave a concrete column from 130 feet back to 110 feet, cementing off the well below the casing to 10 feet into the casing. The casing is cemented into the limestone from 120 feet back to approximately 90 feet.
3) After the flow inside the casing has been stopped the casing will be opened between the depths of 80-90 feet. This will allow the water which is presently flowing up the outside of the casing to flow inside.
4) Once the flow from 80 feet has been directed inside the casing a tremie pipe will be lowered down the outside of the casing and concrete will be pumped into the space between the casing and the well wall, where water is flowing at present.
5) Upon completion of the cementing of the outside of the casing the surface around the top of the casing for 3 feet will also be cemented to prevent future seeping from shallow water.



6) A two inch pipe attached to a 7 inch collar will be placed on the top of the casing. The 2 inch pipe will have a value to shut off and control the flow of water coming up the well.

Attached is a schematic of the proposed work.

BY GM&A DATE 2-13-79 SUBJECT JEMEZ SPRINGS PROJECT SHEET NO. 1 OF 1
CHKD. BY GM&A DATE 2-13-79 JOB NO.



JEMEZ PROJECT
NO SCALE

National Cementers Corporation

№ 489

Home Office
Phone (303) 243-4358
P. O. Box 2370
Grand Junction, Colorado 81501

Field Operations
Phone (505) 334-9491
Aztec, New Mexico 87410

Phone (505) 287-4596
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State

Well Number & Farm	Location	Contractor	Owner
[illegible]	[illegible]	[illegible]	[illegible]

Charge To: Stewart Bros Drlg Co

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To Box 2067

(OWNER, OPERATOR OR HIS AGENT)

Milan, N.M. [illegible]

and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed: X

WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA
7" Csg to 115'	9 3/4 to 115'

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE CASING	SIZE HOLE	50 sx
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB
	[illegible] 10:00 Am	[illegible] 10:00 Am	[illegible] [illegible] Am	[illegible]

PRICE REF:	EXPLANATION:		
D-1	Pump truck charge	290	00
D-27	140 miles @ 1.23/mile	172	20
D-29	3 men @ $95 each	285	00
D-28	1 hr @ 500.00/hr	[illegible]	00

JOB COMMENTS:

SUB-TOTAL	752	20
TAX 4%	30	09
TOTAL	782	29

COLORADO PRINTING CO. GRAND JUNCTION, COLO.

Exhibit 12
case 6461

SIGNED: X [signature]

OWNER, OPERATOR OR HIS AGENT

National Cementers Corporation

№ 489

Home Office
Phone (303) 243-4358
P. O. Box 2370
Grand Junction, Colorado 81501

Field Operations
Phone (505) 334-9491
Aztec, New Mexico 87410

Phone (505) 287-4596
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State

Well Number & Farm	Location	Contractor	Owner

Charge To: Stevens Bros Drlg Co

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To Box 3267

(OWNER, OPERATOR OR HIS AGENT)

Midland, New Mexico

and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed: X

WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA
7" Csg to 115	9 3/4 to 115'

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE CASING	SIZE HOLE	60 sx
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB
	10:00 AM	10:00 AM	11:00 AM	

PRICE REF:	EXPLANATION:		
D-1	Pump Truck Charge	295	00
D-27	140 miles @ 1.23/mile	172	20
D-29	2 men @ 35 each	70	00
D-28	1 hr @ 90.00/hr	90	00

JOB COMMENTS:

SUB-TOTAL	752	20
TAX 4%	30	09
TOTAL	782	29

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

Exhibit 12
case 6461

SIGNED: X

OWNER, OPERATOR OR HIS AGENT

NATIONAL CEMENTERS CORPORATION

№ 433

. . 358
..w Mexico
334-9491
..nts, New Mexico
.05 287-4596

SALES DELIVERY TICKET

Date	Customer Order No.	Section	Township	Range	County	State
[illegible]					[illegible]	[illegible]

Well Number & Farm	Location	Contractor	Owner
[illegible]	[illegible]	[illegible]	[illegible]

Charge To: [illegible] Bros Drlg

NATIONAL CEMENTERS CORP. is hereby requested to furnish material

To Box [illegible]

[illegible], N.M. 87[illegible]

DESCRIPTION	QUANTITY ISSUED	UNIT PRICE	AMOUNT
[illegible] Cement	80sx	4.75	380.[illegible]
[illegible] Handling Charge	80sx	.61	48.80
[illegible] [illegible] mile [illegible]	[illegible]	[illegible]	[illegible]

Job Comments:

SUB-TOTAL 655.15

TAX 4% 26.21

TOTAL 681.36

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

COLORADO PRINTING CO. GRAND JUNCTION, COLO

Signed: X [illegible]
OWNER, OPERATOR OR HIS AGENT

National Cementers Corporation

№ 488

Home Office
Phone (303) 243-4358
P. O. Box 2370
Grand Junction, Colorado 81501

Field Operations
Phone (505) 334-9491
Aztec, New Mexico 87410

Phone (505) 287-4596
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State
	4576					

Well Number & Farm	Location	Contractor	Owner
[illegible]	[illegible]	[illegible]	[illegible]

Charge To: [illegible]

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To [illegible]
(OWNER, OPERATOR OR HIS AGENT)
[illegible]
and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed: X
WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA
[illegible] 74'	[illegible] 74'

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE: CASING	SIZE: HOLE	[illegible]
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB
74'	[illegible]	[illegible]	[illegible]	[illegible]

PRICE REF:	EXPLANATION:		
[illegible]	Pump truck charge to cement csg	[illegible]	[illegible]
[illegible]	140 miles @ $1.22 mile	[illegible]	[illegible]

JOB COMMENTS:

SUB-TOTAL	567	[illegible]
TAX 4%	22	[illegible]
TOTAL	589	[illegible]

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

SIGNED: X
OWNER, OPERATOR OR HIS AGENT

NATIONAL CEMENTERS CORPORATION

№ 488

SALES DELIVERY TICKET

, New Mexico
287-4596

Date	Customer Order No.	Section	Township	Range	County	State
	9576					

Well Number & Farm	Location	Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish material

To

[illegible], N.M. 87021

DESCRIPTION	QUANTITY ISSUED	UNIT PRICE	AMOUNT
[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Handling Charge	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Job Comments:

SUB-TOTAL .... [illegible]

TAX [illegible] .... [illegible]

TOTAL .... [illegible]

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

Signed: ______________________
OWNER, OPERATOR OR HIS AGENT

National Cementers Corporation

№ 490

Home Office
Phone (303) 242-4358
P. O. Box 2220
Grand Junction, Colorado 81501

Field Operations
Phone (505) 334-9401
Aztec, New Mexico 87410

Phone (505) 287-4596
P. O. Box 206
Grants, New Mexico 87020

Date	Customer Order No.	Section	Township	Range	County	State
Well Number & Farm		Location			Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish cementing equipment

To

(OWNER, OPERATOR OR HIS AGENT)

and service men to deliver and operate same, as an independent contractor

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

Date: Time: Signed:

WELL OWNER, OPERATOR or CONTRACTOR

TYPE OF JOB AND SIZE	HOLE DATA

PLUG BACK OR SQUEEZE				CEMENT DATA
DEPTH FROM:	TO APPROX:	SIZE CASING	SIZE HOLE	
				MAKE OF FLOATING EQUIP':
				CEMENT LEFT IN CASING FT.

DEPTH OF JOB	ON LOCATION	JOB BEGAN	JOB COMPLETED	CREW ON JOB

PRICE REF:	EXPLANATION:		

JOB COMMENTS:

SUB-TOTAL		
TAX	4%	
TOTAL		

COLORADO PRINTING CO. GRAND JUNCTION, COLO.

SIGNED:

OWNER, OPERATOR OR HIS AGENT

...orado

NATIONAL CEMENTERS CORPORATION

No 490

...exico
...9491
..., New Mexico
...287-4596

SALES DELIVERY TICKET

Date	Customer Order No.	Section	Township	Range	County	State

Well Number & Farm	Location	Contractor	Owner

Charge To:

NATIONAL CEMENTERS CORP. is hereby requested to furnish material

To

DESCRIPTION	QUANTITY ISSUED	UNIT PRICE	AMOUNT

Job Comments:

SUB-TOTAL .....

TAX .....

TOTAL .....

The undersigned, as authorized agent of the customer, agrees and acknowledges that the services, materials, products and supplies provided for in this order shall be subject to the terms and conditions appearing on the front and reverse sides of the customer copy hereof and no additional terms and conditions shall apply to this order without the consent of an authorized representative of National Cementers Corporation.

COLORADO PRINTING CO., GRAND JUNCTION, COLO.

Signed: X _____

OWNER, OPERATOR OR HIS AGENT

OWNER, OPERATOR OR HIS AGENT

Form G-101
Adopted 10/1/74

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U.S.G.S.	/	
Operator	/	
Land Office		

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK—GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease STATE [ ] Village Property FEE [ ]
5.a State Lease No. N.A.

7. Unit Agreement Name N.A.

8. ~~Farm or~~ Lease Name Jemez Lease

9. Well No. 1

10. Field and Pool, or Wildcat UNDES.

12. County Sandoval

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Low-Temp Thermal [ ] Temp Observation [X] Injection/Disposal [ ]

2. Name of Operator: Mayor Eddie Armenta

3. Address of Operator: Village of Jemez Springs, New Mexico

4. Location of Well: UNIT LETTER A LOCATED 90 FEET ~~FROM THE~~ West of Town Hall ~~LINE~~
AND FEET FROM THE LINE OF SEC. TWP. RGE. NMPM

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
750 ft.	Madera Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
6275 G.L.	Exempt	Stuart Bros./Grants, NM	2 January 1979

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8 3/4 in.	7 in. O.D.	14 lbs./ft.	100 ft.	30	circ.
5 in.					

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 1
Submitted by: OCC
Hearing Date 2-23-79

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 3/28/79
UNLESS DRILLING UNDERWAY

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [signature] Title Mayor, Village of Jemez Springs Date 22 December 1978

(This space for State Use)

APPROVED BY [signature] TITLE DANIEL S. NUTTER CHIEF ENGINEER DATE 12/28/78

CONDITIONS OF APPROVAL, IF ANY:

1

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

Form C-102
Revised 10-1-74

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the section.

Operator	Lease	Well No.
Mayor Eddie Armenta	Village	1

Unit Letter	Section	Township	Range	County
A	26	18 North	2 East	Sandoval

Actual Footage Location of Well:
90 feet ~~from the~~ west of town hall ~~line and~~ feet from the ~~line~~

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6275	Madera Limestone	UNDEST.	None Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

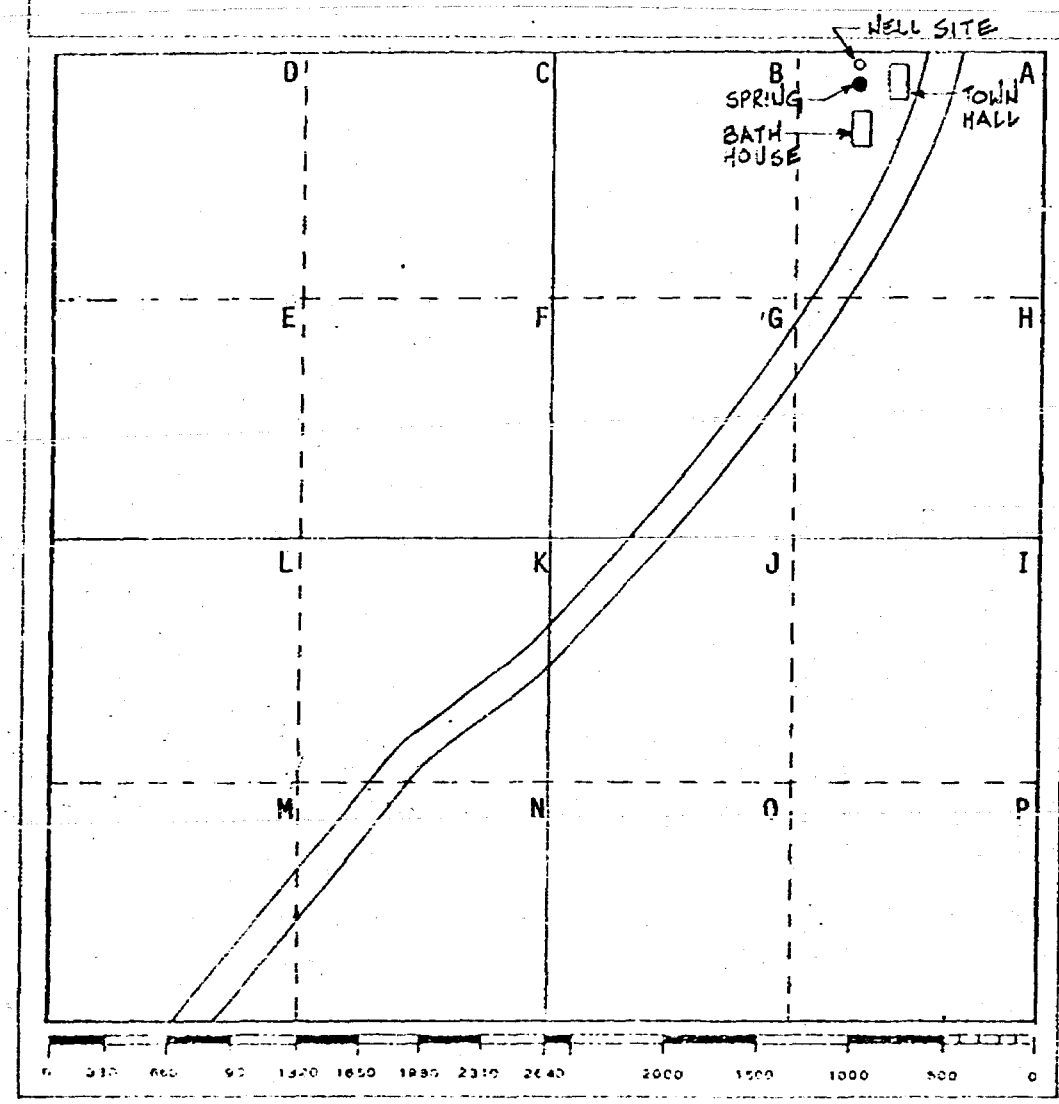
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: Tom Kleeman

Position: Consultant

Company: Coupland, Moran & Assoc.

Date: 21 December 1978

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

Date Surveyed

Registered Professional Engineer ~~and/or Land Surveyor~~

Certificate No.

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 2
Submitted by OCC
Hearing Date 2-23-79

JEMEZ No. 1
A-26-18N-2E, Sandoval County

1

BEFORE THE
OIL CONSERVATION COMMISSION
[illegible], New Mexico
Case No. 6461 Exhibit No. 3
Submitted by OCC
Hearing Date 2-23-79

III. PROPOSED WORK EFFORT

The Village of Jemez Springs, New Mexico proposes using State funds for drilling geothermal test wells and assessing the results. These wells will make it possible to ascertain the deliverable quantities of geothermal fluids (flow rates, their temperatures and chemical makeup). This data will lend more precision to determining the engineering and economic feasibility of utilizing the resource.

The work plan, shown on the following chart, calls for execution of assignments in the following order:

1. Prior to drilling, geologic mapping of the area, part of the ongoing San Diego Canyon mapping program, will be completed by geologists from Los Alamos Scientific Laboratories. These maps will be necessary in locating the drilling site.

2. Upon the completion of the mapping, expected in early August, personnel from L.A.S.L. will lend expertise in locating an optimal drilling site along a controlling fault. Given the extant information on geothermal and hydrological phenomena in the area, the locations of hot springs and wells and the data yielded from mapping, it should be possible to locate a favorable test site:

3. Upon locating a test site that meets with the satisfaction of the project geologist and the principal investigator, the project director will secure the services of a drilling subcontractor.

4. Drilling will be carried out under the supervision and with the advise of the project geologist. Two test wells, of a diameter of 4" - 6", to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 Ft. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

5. After the well is completed the project geologist will inform the project director and project engineer of the relevent engineering data, e.g. temperatures, flow rates (determined by draw down tests) etc. The project geologist will analyze the well data for its geologic significance regarding the geothermal resource. Upon the completion of this effort, he will present the project director with a short report on his findings which will be included in the final project report.

6. The project engineer will use the findings of the geologists to determine engineering and, with the participation of the project director, economic feasibility of resource utilization. At the end of this assessment the project engineer will present his findings to the project director.

7. The project director will then write a final report based on the findings of the participants. This final report is expected to include a clear, precise and acceptable determination of the efficacy of the utilization of geothermal resources ~~utilization~~ in the Village of Jemez Springs, New Mexico. After the report is issued pipes will be laid to deliver hot water from the well to the Town Hall to be used for space heating.

Project Heating Up Energy Prospects At Jemez Springs

By TOMAS O. MARTINEZ
Assistant State Editor

JEMEZ SPRINGS — The Village of Jemez Springs may become energy self-sufficient if a test project, currently under way, shows that geothermal energy can provide the village with heat and electricity.

The Village of Jemez Springs, located about 50 miles northwest of Albuquerque, is drilling a test well on village property to locate underground volcanic-heated water to use as a power source.

The drilling, project management, and feasibility studies are being funded through a $32,000 grant from the New Mexico Department of Energy.

Jemez Springs Mayor Eddie Armenta, 39, said he hopes the well will produce water heated at 250 degrees Fahrenheit. Hot water or steam from that well would be used to heat homes within the village and generate electricity.

"It's a tremendous project. If it works, we could become energy self-sufficient. Residents would be able to cut their utility costs by about 50 percent. I hope it works. We all do," Armenta, a retired Treasury Department agent and former Albuquerque police officer, said.

The well is being dug on village property behind the Jemez Springs City Hall. The project is the brain child of Project Engineer Tom Kleeman.

Armenta said Kleeman visited Jemez Springs in late 1977 to bathe in the hot springs near the village.

"He (Kleeman) came up with the idea," Armenta said. "The village hired him to study the possiblity of such a project, and to write a proposal to the federal government for funding.

"The federal government (Department of Energy) turned down our $4 million proposal. They said they could not fund exploratory projects. In July 1978 we submitted a proposal to the state. It was approved in late November. If the well produces water at 250 degrees, we will resubmit our proposal to the federal government for construction of a generating plant," Armenta said.

Kleeman said, "If the test is a success, it will be a tremendous event for New Mexico."

Kleeman, who represents Copeland-Moran Associates of Albuquerque, said drilling began Wednesday.

The drilling is being done by Stuart Brothers Drilling Co. of Grants. The firm has drilled similar wells for Los Alamos Scientific Labs in the Valle Grande area between Los Alamos and Jemez Springs.

Two Los Alamos scientists, Bill Laughlin and Francis West of LASL's Georthermal Groups, were at the drilling site Thursday to provide technical advice. West said the hot water the village is trying to locate escapes through faults from the Valle Grande, the site of a gigantic extinct volcano.

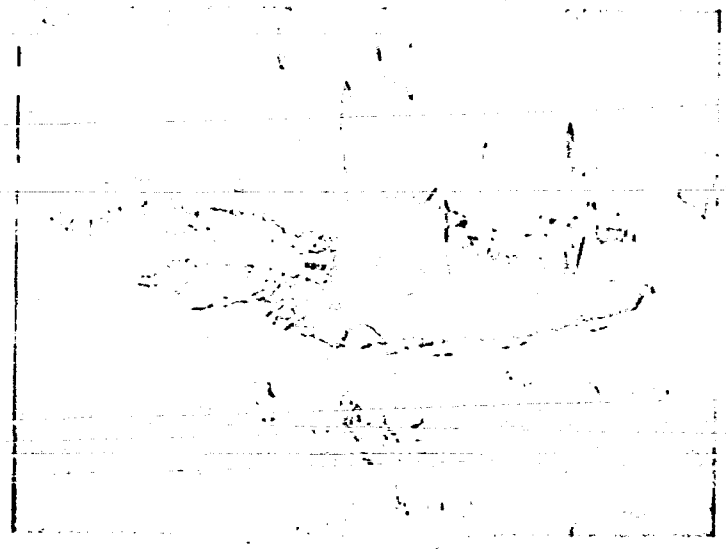
Laughlin said the volcano last erupted about 40,000 years ago and hot rocks heat the water in the calderon. That water escapes through faults, and one of those faults runs through the area where the well is being dug.

If the drilling project is a success, Armeta said that included in the second proposal to the U.S. Department of Energy will be a request to fund construction of village greenhouses.

Armenta said village greenhouses would represent a cooperative village effort to provide residents with vegetables and other food stuffs.

"It's a tremendous opportunity for the Village of Jemez Springs. If the well is a success, we hope the federal government will fund this as a pilot project," Armenta said.

Kleeman anticipates the possibility of geothermal energy for Jemez Springs could become a reality by late 1980. That is, if the well comes through, and the federal government funds the project.



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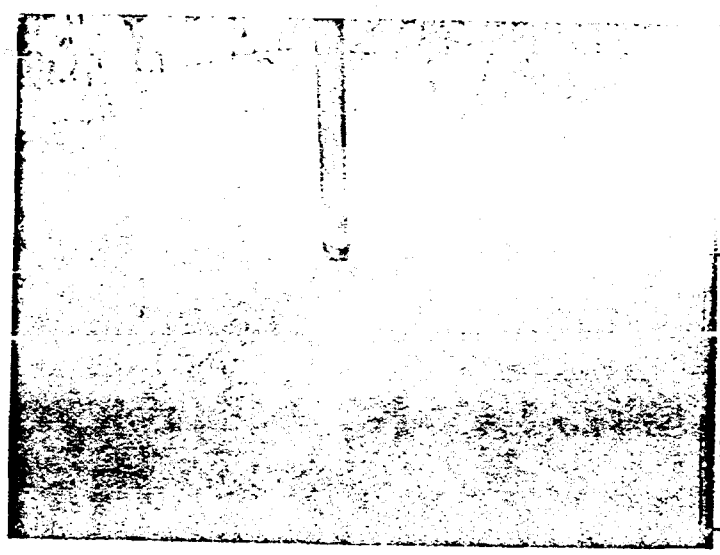
Taken 1/29/79
C.U.

A-26-18N-2E
Taken 1/29/79
C.U.



A-26-18N-2E
Taken 1/29/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 5
Submitted by OCC
Hearing Date 2-23-79

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

February 1, 1979

Mr. Eddie Armenta
Mayor of Jemez Springs Village
P. O. Box 87
Jemez Springs, New Mexico 87025

Dear Sir:

You are the recorded operator of a geothermal temperature observation well located in Unit A of Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico. According to the permit granted by this office the total depth would not exceed seven hundred fifty feet (750'), would have seven inch (7") casing set at one hundred feet (100') and cemented into the full length of the hole (cemented circulated). Furthermore, your letter to this agency requesting a waiver of bonding requirements states that your well will be plugged and the location cleaned in accord with State regulations.

An inspection of the site on January 30th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is the immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

January 30, 1979

Mayor Eddie Armenta
Village of Jemez Springs
Jemez, New Mexico

Subject: Jemez Lease Well No. 1
Unit A, Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico

Dear Sir:

The subject well appears to have been drilled. It was permitted as a "Temperature Observation" well by this agency on December 28, 1978. To date, no reports or other information concerning that operation have been received in this office.

Kindly refer to the New Mexico State Regulations and supply all of the now-delinquent data. Also, because this agency was not notified prior to the setting and/or cementing of any casing in the subject well, please submit affidavits from the companies or individuals employed for such operations.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og
cc: Lynn Teschendorf
Oil Conservation Division
General Counsel

BEFORE THE
OIL CONSERVATION COMMISSION
Case No. 6461 Exhibit No. 6
Submitted by OCD
Hearing Date 2-23-79

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

(1) Commencement of drilling operations

(2) Casing and cement test

(3) Altering a well's casing installation

(4) Temporary abandonment

(5) Plugging and Abandonment

(6) Plugging back or deepening

(7) Remedial work

(8) Change in ownership of a drilling well

(9) Such other operations which affect the original status of the well but which are not specifically covered herein.

C. Filing Form G-103 as a Subsequent Report

Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form G-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

D-2

(2) Report of Results of Test of Casing and Cement Job; Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 108 B(5). The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

(3) Report of Temporary Abandonment

A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in DUPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and other pertinent information relative to the overall status of the well.

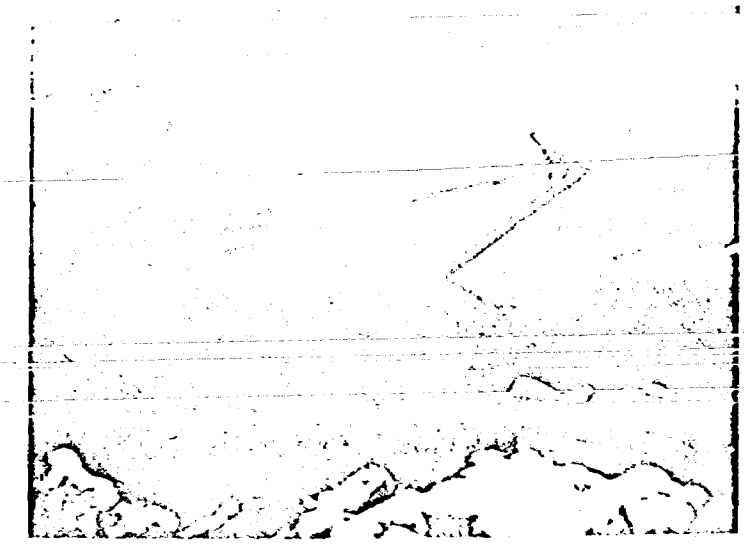
(4) Report on Plugging of Well

A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, [illegible] pertinent information. (See Rules 301-303 regarding plugging operations.)

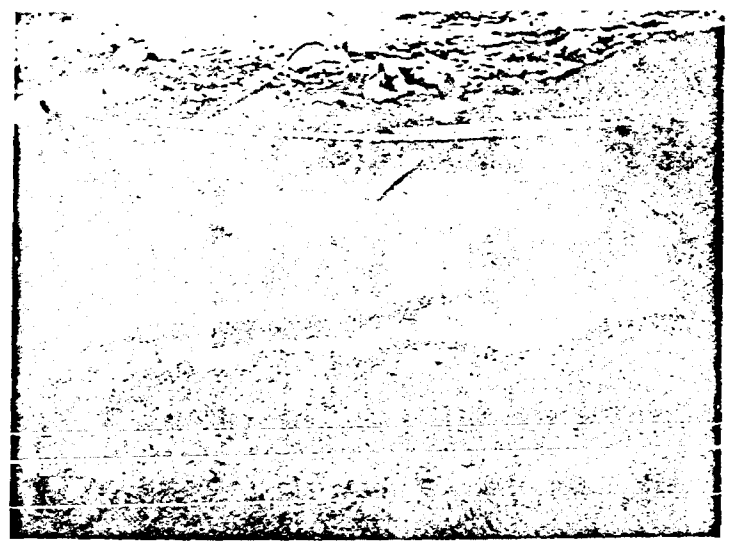
D-3

BEFORE THE
OIL CONSERVATION COMMISSION
[illegible] Mexico
Case No. 6461 Exhibit No. 7
Submitted by OCC
Hearing Date 2-23-79

1



A-26-18N-2E
Taken 2/21/79
C.U.



A-26-18N-2E
Taken 2/21/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
[illegible] Mexico
Case No. 6461 Exhibit No. 8
Submitted by OCC
Hearing Date 2-23-72

1

Form G-101
Adopted 10/1/74

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U.S.G.S.	/	
Operator	/	
Land Office		

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK---GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [ ] Village Property FEE [ ]
5.a State Lease No.: N.A.

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Temp Observation [X] Low-Temp Thermal [ ] Injection/Disposal [ ]

7. Unit Agreement Name: N.A.

8. ~~Farm or~~ Lease Name: Jemez Lease

9. Well No.: 1

2. Name of Operator: Mayor Eddie Armenta

3. Address of Operator: Village of Jemez Springs, New Mexico

10. Field and Pool, or Wildcat: UNDES.

4. Location of Well: UNIT LETTER A LOCATED 90 FEET ~~FROM THE~~ West of Town Hall ~~LINE~~
AND FEET FROM THE LINE OF SEC. TWP. RGE. NMPM

12. County: Sandoval

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
750 ft.	Madera Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
6275 G.L.	Exempt	Stuart Bros./Grants, NM	2 January 1979

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8 3/4 in.	7 in. O.D.	14 lbs./ft.	100 ft.	30	circ.
5 in.					

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 3/28/79
UNLESS DRILLING UNDERWAY

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 1
Submitted by: OCC
Hearing Date 2-23-79

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [signature] Title Mayor, Village of Jemez Springs Date 22 December 1978

(This space for State Use)

APPROVED BY [signature] TITLE DANIEL S. NUTTER CHIEF ENGINEER DATE 12/28/78

CONDITIONS OF APPROVAL, IF ANY:

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

Form G-102
Revised 10-1-74

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Mayor Eddie Armenta	Village	1

Unit Letter	Section	Township	Range	County
A	26	18 North	2 East	Sandoval

Actual Footage Location of Well:
90 feet ~~from the~~ west of town hall ~~and~~ ~~feet from the~~ ~~line~~

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6275	Madera Limestone	UNDEST.	None Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

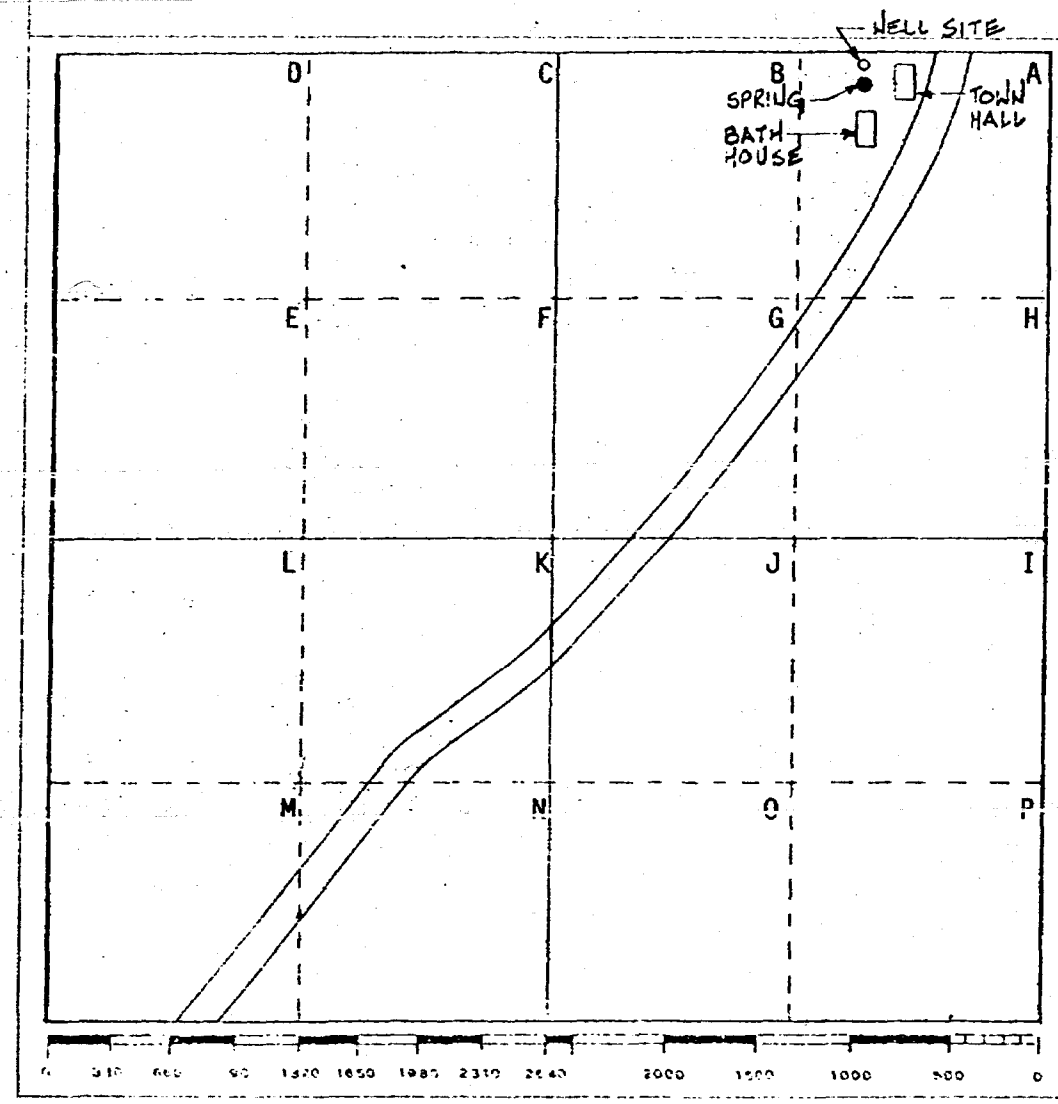
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: Tom Kleeman

Position: Consultant

Company: Coupland, Moran & Assoc.

Date: 21 December 1978

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

Date Surveyed

Registered Professional Engineer
~~and/or Land Surveyor~~

Certificate No.

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 2
Submitted by OCC
Hearing Date 8-23-79

JEMEZ No. 1
A-26-18N-8E, Sandoval County

1

III. PROPOSED WORK EFFORT

The Village of Jemez Springs, New Mexico proposes using State funds for drilling geothermal test wells and assessing the results. These wells will make it possible to ascertain the deliverable quantities of geothermal fluids (flow rates, their temperatures and chemical makeup). This data will lend more precision to determining the engineering and economic feasibility of utilizing the resource.

The work plan, shown on the following chart, calls for execution of assignments in the following order:

1. Prior to drilling, geologic mapping of the area, part of the ongoing San Diego Canyon mapping program, will be completed by geologists from Los Alamos Scientific Laboratories. These maps will be necessary in locating the drilling site.

2. Upon the completion of the mapping, expected in early August, personnel from L.A.S.L. will lend expertise in locating an optimal drilling site along a controlling fault. Given the extant information on geothermal and hydrological phenomena in the area, the locations of hot springs and wells and the data yielded from mapping, it should be possible to locate a favorable test site.

3. Upon locating a test site that meets with the satisfaction of the project geologist and the principal investigator, the project director will secure the services of a drilling subcontractor.

4. Drilling will be carried out under the supervision and with the advise of the project geologist. Two test wells, of a diameter of 4" - 6", to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 Ft. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

5. After the well is completed the project geologist will inform the project director and project engineer of the relevent engineering data, e.g. temperatures, flow rates (determined by draw down tests) etc. The project geologist will analyze the well data for its geologic significance regarding the geothermal resource. Upon the completion of this effort, he will present the project director with a short report on his findings which will be included in the final project report.

6. The project engineer will use the findings of the geologists to determine engineering and, with the participation of the project director, economic feasibility of resource utilization. At the end of this assessment the project engineer will present his findings to the project director.

7. The project director will then write a final report based on the findings of the participants. This final report is expected to include a clear, precise and acceptable determination of the efficacy of the utilization of geothermal resources ~~utilization~~ in the Village of Jemez Springs, New Mexico. After the right is issued pipes will be laid to deliver hot water from the well to the Town Hall to be used for space heating.

Project Heating Up Energy Prospects At Jemez Springs

By TOMAS O. MARTINEZ
Assistant State Editor

JEMEZ SPRINGS — The Village of Jemez Springs may become energy self-sufficient if a test project, currently under way, shows that geothermal energy can provide the village with heat and electricity.

The Village of Jemez Springs, located about 50 miles northwest of Albuquerque, is drilling a test well on village property to locate underground volcanic-heated water to use as a power source.

The drilling, project management, and feasibility studies are being funded through a $32,000 grant from the New Mexico Department of Energy.

Jemez Springs Mayor Eddie Armenta, 39, said he hopes the well will produce water heated at 250 degrees Fahrenheit. Hot water or steam from that well would be used to heat homes within the village and generate electricity.

"It's a tremendous project. If it works, we could become energy self-sufficient. Residents would be able to cut their utility costs by about 50 percent. I hope it works. We all do," Armenta, a retired Treasury Department agent and former Albuquerque police officer, said.

The well is being dug on village property behind the Jemez Springs City Hall. The project is the brain child of Project Engineer Tom Kleeman.

Armenta said Kleeman visited Jemez Springs in late 1977 to bathe in the hot springs near the village.

"He (Kleeman) came up with the idea," Armenta said. "The village hired him to study the possiblity of such a project, and to write a proposal to the federal government for funding.

"The federal government (Department of Energy) turned down our $4 million proposal. They said they could not fund exploratory projects. In July 1978 we submitted a proposal to the state. It was approved in late November. If the well produces water at 250 degrees, we will resubmit our proposal to the federal government for construction of a generating plant," Armenta said.

Kleeman said, "If the test is a success, it will be a tremendous event for New Mexico."

Kleeman, who represents Copeland-Moran Associates of Albuquerque, said drilling began Wednesday.

The drilling is being done by Stuart Brothers Drilling Co. of Grants. The firm has drilled similar wells for Los Alamos Scientific Labs in the Valle Grande area between Los Alamos and Jemez Springs.

Two Los Alamos scientists, Bill Laughlin and Francis West of LASL's Georthermal Groups, were at the drilling site Thursday to provide technical advice. West said the hot water the village is trying to locate escapes through faults from the Valle Grande, the site of a gigantic extinct volcano.

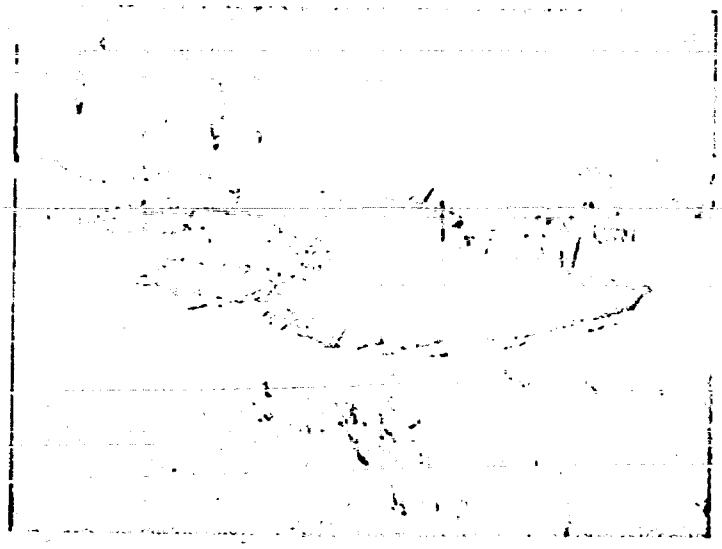
Laughlin said the volcano last erupted about 40,000 years ago and hot rocks heat the water in the calderon. That water escapes through faults, and one of those faults runs through the area where the well is being dug.

If the drilling project is a success, Armeta said that included in the second proposal to the U.S. Department of Energy will be a request to fund construction of village greenhouses.

Armenta said village greenhouses would represent a cooperative village effort to provide residents with vegetables and other food stuffs.

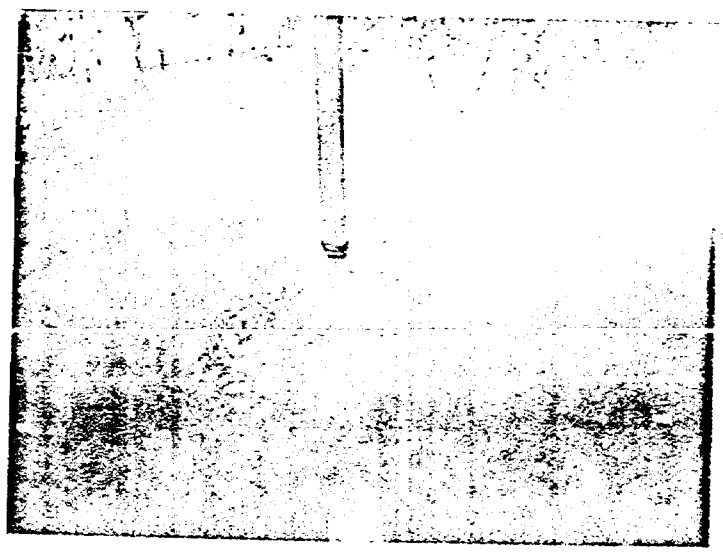
"It's a tremendous opportunity for the Village of Jemez Springs. If the well is a success, we hope the federal government will fund this as a pilot project," Armenta said.

Kleeman anticipates the possibility of geothermal energy for Jemez Springs could become a reality by late 1980. That is, if the well comes through, and the federal government funds the project.



A-26-18N-2E
Taken 1/29/79
C.U.

A-26-18N-2E
Taken 1/29/79
C.U.



A-26-18N-2E
Taken 1/29/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
[illegible] Mexico
Case No. 6461 Exhibit No. 5
Submitted by OCC
Hearing Date 2-23-79

1

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR
NICK FRANKLIN
SECRETARY

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

February 1, 1979

Mr. Eddie Armonta
Mayor of Jemez Springs Village
P. O. Box 87
Jemez Springs, New Mexico 87025

Dear Sir:

You are the recorded operator of a geothermal temperature observation well located in Unit A of Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico. According to the permit granted by this office the total depth would not exceed seven hundred fifty feet (750'), would have seven inch (7") casing set at one hundred feet (100') and cemented into the full length of the hole (cemented circulated). Furthermore, your letter to this agency requesting a waiver of bonding requirements states that your well will be plugged and the location cleaned in accord with State regulations.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is the immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR
NICK FRANKLIN
SECRETARY

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

January 30, 1979

Mayor Eddie Armenta
Village of Jemez Springs
Jemez, New Mexico

Subject: Jemez Lease Well No. 1
Unit A, Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico

Dear Sir:

The subject well appears to have been drilled. It was permitted as a "Temperature Observation" well by this agency on December 28, 1976. To date, no reports or other information concerning that operation have been received in this office.

Kindly refer to the New Mexico State Regulations and supply all of the now-delinquent data. Also, because this agency was not notified prior to the setting and/or cementing of any casing in the subject well, please submit affidavits from the companies or individuals employed for such operations.

Yours truly,

Carl Ulvog
CARL ULVOG
Senior Geologist

CU/og
cc: Lynn Teschendorf
Oil Conservation Division
General Counsel

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 6
Submitted by OCC
Hearing Date 2-23-79

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

(1) Commencement of drilling operations

(2- Casing and cement test

(3) Altering a well's casing installation

(4) Temporary abandonment

(5) Plugging and Abandonment

(6) Plugging back or deepening

(7) Remedial work

(8) Change in ownership of a drilling well

(9) Such other operations which affect the original status of the well but which are not specifically covered herein.

C. Filing Form G-103 as a Subsequent Report

Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form G-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

D-2

(2) Report of Results of Test of Casing and Cement Job; Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 108 B(5). The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

(3) Report of Temporary Abandonment

A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in DUPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and other pertinent information relative to the overall status of the well.

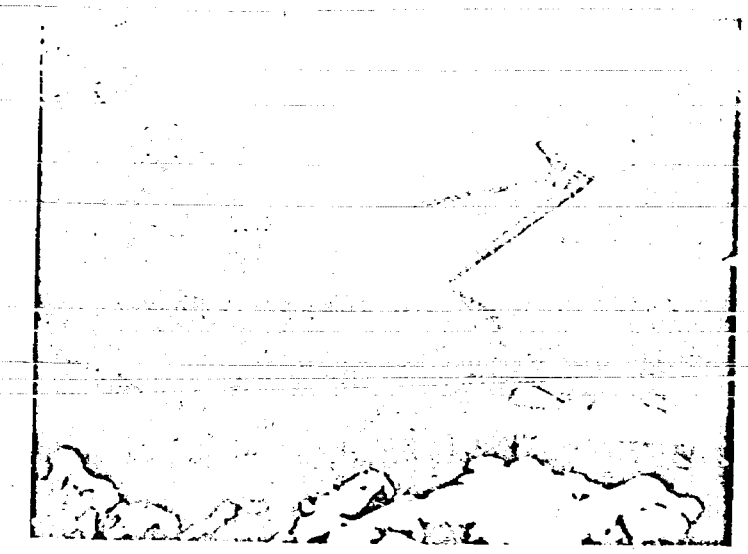
(4) Report on Plugging of Well

A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, ~~and any other pertinent information.~~ (See Rules 301-303 regarding plugging operations.)

D-3

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 7
Submitted by OCC
Hearing Date 2-23-79

1



A-26-18N-2E
Taken 2/21/79
C.U.

A-26-18N-2E
Taken 2/21/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 8
Submitted by, OCC
Hearing Date 2-23-79

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 2
Submitted by _____
Hearing Date _____

JEMEZ No. 1
A-26-18N-2E, Sandoval County

1

Dockets Nos. 9-79 and 10-79 are tentatively set for hearing on March 14 and 28, 1979. Applications for hearing must be filed at least 22 days in advance of hearing date.

Docket No. 7-79

DOCKET: COMMISSION HEARING - FRIDAY - FEBRUARY 23, 1979

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

CASE 6461: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs, and all other interested parties to appear and show cause why the Jemez Well No. 1 located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

****

Docket No. 8-79

DOCKET: EXAMINER HEARING - WEDNESDAY - FEBRUARY 28, 1979

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:

CASE 6422: (Continued from January 31, 1979, Examiner Hearing)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Helton Engineering & Geological Services, Inc., Travelers Indemnity Company, and all other interested parties to appear and show cause why the Brent Well No. 1 located in Unit M of Section 29 and the Brent Well No. 3 located in Unit G of Section 19, both in Township 13 North, Range 6 East, Sandoval County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6434: (Continued from January 31, 1979, Examiner Hearing)

Application of Amerada Hess Corporation for approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a finding that the drilling of its State "O" Well No. 5 to be located in Unit H of Section 30, Township 19 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico, is necessary to effectively and efficiently drain that portion of the proration unit which cannot be so drained by the existing well, and further seeks approval of a waiver of existing well-spacing requirements.

CASE 6435: (Continued from February 14, 1979, Examiner Hearing)

Application of Amerada Hess Corporation for approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a finding that the drilling of its W. A. Weir "B" Well No. 3 located in Unit B of Section 26, Township 19 South, Range 36 East, Eumont Gas Pool, Lea County, New Mexico, is necessary to effectively and efficiently drain that portion of the proration unit which cannot be so drained by the existing well, and further seeks approval of a waiver of existing well-spacing requirements.

CASE 6436: (Continued from January 31, 1979, Examiner Hearing)

Application of Amerada Hess Corporation for approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a finding that the drilling of its State "U" Gas Com Well No. 2 to be located in Unit C of Section 32, Township 19 South, Range 37 East, Eumont Gas Pool, Lea County, New Mexico, is necessary to effectively and efficiently drain that portion of the proration unit which cannot be so drained by the existing well, and further seeks approval of a waiver of existing well-spacing requirements.

CASE 6462: Application of McClellan Oil Corporation for an unorthodox well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Maridue State Well No. 3 to be located 1155 feet from the North line and 1485 feet from the West line of Section 24, Township 14 South, Range 29 East, Double "L" Queen Associated Pool, Chaves County, New Mexico, the NE/4 NW/4 of said Section 24 to be dedicated to the well.

CASE 6463: Application of Orville Slaughter for pool and lease commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Oswell-Farmington Pool production from his Sangre de Cristo Well No. 1 with undesignated Fruitland production from his Sangre de Cristo Well No. 2, both located in Unit D of Section 34, Township 30 North, Range 11 West, San Juan County, New Mexico.

STATE OF NEW MEXICO

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

February 5, 1979

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

Sheriff of Valencia County
320 E. High
Grants, New Mexico 87020

Dear Sir:

Enclosed please find Subpoenas Duces Tecum for service on the following individuals:

Don Kelly
310 Airport Road
Milan, New Mexico

Gerry McAllister
1319 Berryhill
Milan, New Mexico

I would appreciate having these people served as soon as possible, as the hearing date is February 23. Please complete the Return of Service on each original, and return them with your bill to my office.

Very truly yours,

(Ms.) LYNN TESCHENDORF
General Counsel

LT/dr

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To Don Kelly Greeting:

We command you to be and appear at 9:00 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of application of the Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged, on behalf of Stewart Brothers Drilling Co. and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 5th day of February, 1979.

SEAL

RETURN OF SERVICE

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: OIL CONSERVATION COMMISSION
TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1
SHOULD NOT BE PLUGGED.

SUBPOENA

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

February 5, 1979

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

Sheriff of Sandoval County
Court House
Bernalillo, New Mexico 87004

Dear Sir:

Enclosed please find a Subpoena Duces Tecum for service on the following individual:

Eddie Armenta, Mayor
Village of Jemez Springs

I would appreciate having this person served as soon as possible, as the hearing date is February 23. Please complete the Return of Service on the original, and return it with your bill to my office.

Very truly yours,

(Ms.) LYNN TESCHENDORF
General Counsel

LT/dr
enc.

Docket No. 7-79

DOCKET: COMMISSION HEARING - FRIDAY - FEBRUARY 23, 1979

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

CASE 6461: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs, and all other interested parties to appear and show cause why the Jemez Well No. 1 located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

Need Subpoenas Duces Tecum for the following persons in Case No. 6761, Dec. 23, 1979, Case of Application of OCC to show cause why the Jemez Well No. 1 should not be plugged.

Each person should bring "any and all records pertaining to the Jemez Well No. 1 located in Unit A, Sec 26, T18N, R2E, Sandoval County, NM."

(1) Don Kelly on behalf of Stewart Brothers Drilling Co.
310 Airport Road, Milan

(2) Gerry McAllister on behalf of National Cementing Corp
1319 Berryhill, Milan

(3) Eddie Armenta on behalf of Village of Jemez Springs
P.O. Box 89
87025

PL 95-624

~~GPO~~

~~30~~

Joe Pierce

EID

Gene Gray
State Engineer

Eddie Armenta
Mayor of Jem Sp
PO Box 87
JS 87025

Feb 23

Case 6461

In the matter of the hearing called by the OCD on its own motion to permit Mayor Eddie Armenta, the Village of Jemez Springs and all other interested parties to appear and show cause why the Jemez well No. 1 located in Unit A of Section 26, T18N, R3E, Sandoval County, NM, should not be plugged and abandoned in accordance with a Division-approved plugging program.

Send copy of docket to:

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To TOM KLEEMAN Greeting:

We command you to be and appear at 9 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of show cause hearing to plug the Jemez Well No. 1

on behalf of Coupland, Moran & Associates

and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 2nd day of February, 1979.

SEAL

RETURN OF SERVICE

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged.

SUBPOENA

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To TOM KLEEMAN Greeting:

We command you to be and appear at 9 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of show cause hearing to plug the Jemez Well No. 1 ,

on behalf of Coupland, Moran & Associates

and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

SEAL

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 2nd day of February, 1979.

Joe D. Ramey

1

RETURN OF SERVICE

Carl Ulvog, being duly sworn, upon his oath says, I am over the age of eighteen years, I served the within summons on the 2nd day of February, 1979, by delivering a copy thereof in person to Tom Kleeman.

Carl Ulvog

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged.

SUBPOENA

CASE NO. 6661

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To Eddie Armenta Greeting:

We command you to be and appear at 9:00 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of application of the Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged, on behalf of Village of Jemez Springs and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law.

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 5th day of February, 19 79.

SEAL

RETURN OF SERVICE

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: OIL CONSERVATION COMMISSION TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1 SHOULD NOT BE PLUGGED

SUBPOENA

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To Gerry McAllister Greeting:

We command you to be and appear at 9:00 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of application of the Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged, on behalf of National Cementing Corporation and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 5th day of February, 19 79.

SEAL

RETURN OF SERVICE

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: OIL CONSERVATION COMMISSION TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1 SHOULD NOT BE PLUGGED

SUBPOENA

TESTIMONY FOR SHOW CAUSE HEARING

1. Would you state your name, position and place of residence for the record, please?

2. How long have you held this position?

3. Have you previously testified before the Commission, and are your credentials a matter of record?

4. Does District _____ include that part of _____ County involved in this case?

5. Do your duties as District Supervisor include making recommendations to the Commission as to when wells should be plugged and abandoned?

6. Are you familiar with the subject matter of Case _____?

7. What is the purpose of this case?

8. Have you reviewed all reports filed with the Commission concerning these wells?

9. Do you have these records with you?

10. Please refer to the records which pertain to this well and summarize its history.

11. On what date was the last official form filed with the Commission?

12. Do you have any other communications relative to this case which should be called to the Commission's attention?

13. In your opinion, could the failure to plug this well cause waste?

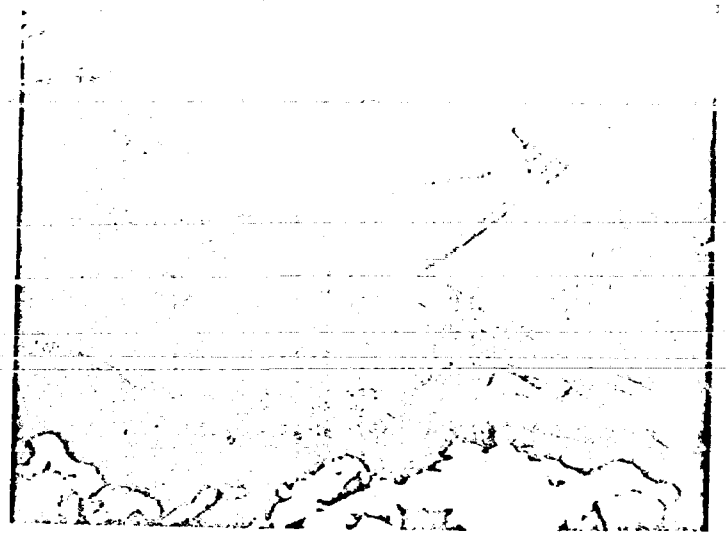
14. Would you elaborate on how waste could be caused?

15. Are you prepared to recommend a plugging program at this time, or would you prefer to describe the program at the actual time of plugging?

*16. Would you now refer to the records on the _____ well and summarize its history (Q11-15)

*17. Are the exhibits true and correct copies of Commission records? Offer exhibits.

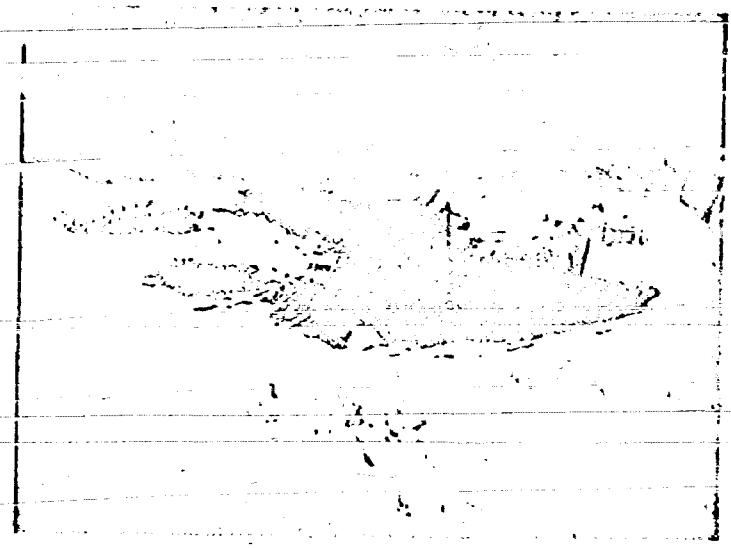
18. I have nothing further.



A-26-18N-2E
Taken 2/21/79
C.U.

A-26-18N-2E
Taken 2/21/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 8
Submitted by: OCC
Hearing Date 2-23-79



A-26-18N-2E
Taken 1/29/79
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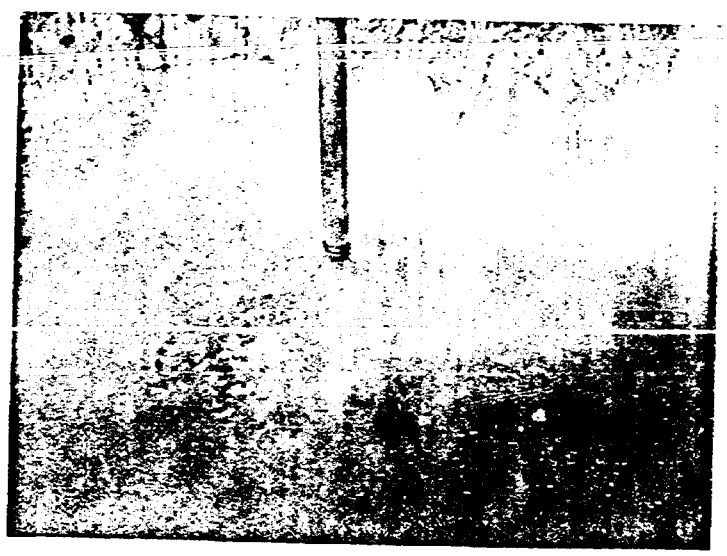
C.U.



A-26-18N-2E
Taken 1/29/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 5
Submitted by OCC
Hearing Date 2-23-79

Form G-101
Adopted 10/1/74

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NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [ ] Village Property FEE [ ]
5.a State Lease No.: N.A.

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Low-Temp Thermal [ ] Temp Observation [X] Injection/Disposal [ ]

7. Unit Agreement Name: N.A.

8. ~~Farm or~~ Lease Name: Jemez Lease

2. Name of Operator: Mayor Eddie Armenta

9. Well No.: 1

3. Address of Operator: Village of Jemez Springs, New Mexico

10. Field and Pool, or Wildcat: UNDES.

4. Location of Well: UNIT LETTER A LOCATED 90 FEET ~~FROM THE~~ West of Town Hall ~~LINE~~

AND FEET FROM THE LINE OF SEC. TWP. RGE. NMPM

12. County: Sandoval

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
750 ft.	Madera Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
6275 G.L.	Exempt	Stuart Bros./Grants, NM	2 January 1979

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8 3/4 in.	7 in. O.D.	14 lbs./ft.	100 ft.	30	circ.
5 in.					

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 1
Submitted by OCC
Hearing Date 2-23-79

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 3/28/79
UNLESS DRILLING UNDERWAY

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevenhter program, if any.

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

Signed [signature] Title Mayor, Village of Jemez Springs Date 22 December 1978

(This space for State Use)

APPROVED BY [signature] TITLE DANIEL S. NUTTER CHIEF ENGINEER DATE 12/28/78

CONDITIONS OF APPROVAL, IF ANY:

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

Form G-102
Revised 10/1/78

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Mayor Eddie Armenta	Village	1

Unit Letter	Section	Township	Range	County
A	26	18 North	2 East	Sandoval

Actual Footage Location of Well:
90 feet ~~from the~~ west of town hall ~~line and feet from the line~~

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6275	Madera Limestone	UNDEST.	None Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

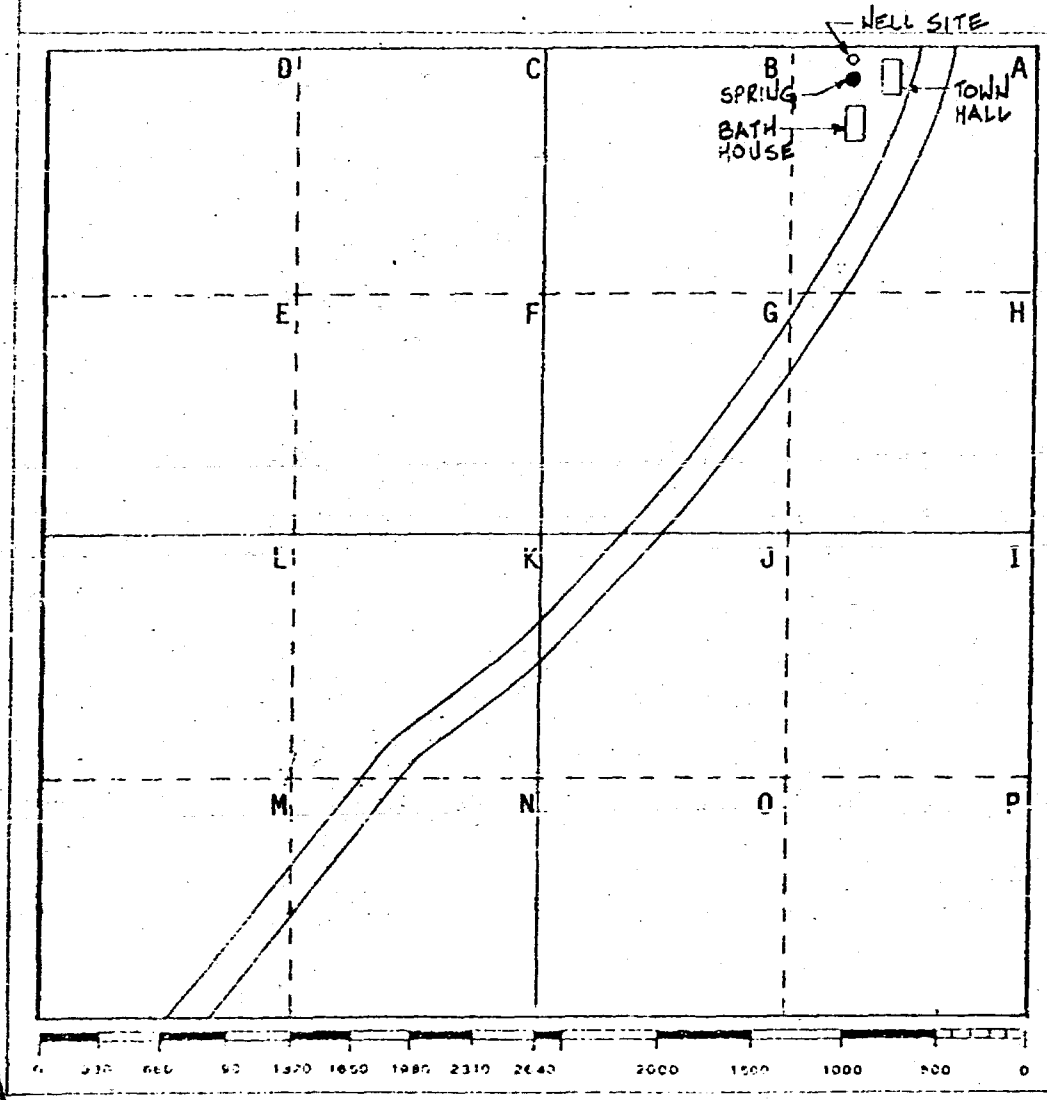
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: Tom Kleeman

Position: Consultant

Company: Coupland, Moran & Assoc.

Date: 21 December 1978

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

Date Surveyed

Registered Professional Engineer
~~and/or Land Surveyor~~

Certificate No.

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6401 Exhibit No. 2
Submitted by OCC
Hearing Date 2-23-79

JEMEZ No. 1
A-20-18N-2E, Sandoval County

III. PROPOSED WORK EFFORT

The Village of Jemez Springs, New Mexico proposes using ~~State funds~~ for drilling geothermal test wells and assessing the results. These wells will make it possible to ascertain the deliverable quantities of geothermal fluids (flow rates, their temperatures and chemical makeup). This data will lend more precision to determining the engineering and economic feasibility of utilizing the resource.

The work plan, shown on the following chart, calls for execution of assignments in the following order:

1. Prior to drilling, geologic mapping of the area, part of the ongoing San Diego Canyon mapping program, will be completed by geologists from Los Alamos Scientific Laboratories. These maps will be necessary in locating the drilling site.

2. Upon the completion of the mapping, expected in early August, personnel from L.A.S.L. will lend expertise in locating an optimal drilling site along a controlling fault. Given the extant information on geothermal and hydrological phenomena in the area, the locations of hot springs and wells and the data yielded from mapping, it should be possible to locate a favorable test site.

3. Upon locating a test site that meets with the satisfaction of the project geologist and the principal investigator, the project director will secure the services of a drilling subcontractor.

4. Drilling will be carried out under the supervision and with the advise of the project geologist. Two test wells, of a diameter of 4" - 6", to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 Ft. Fluids brought to the surface will be held during the test and subsequently reiniected into the formation.

5. After the well is completed the project geologist will inform the project director and project engineer of the relevent engineering data, e.g. temperatures, flow rates (determined by draw down tests) etc. The project geologist will analyze the well data for its geologic significance regarding the geothermal resource. Upon the completion of this effort, he will present the project director with a short report on his findings which will be included in the final project report.

6. The project engineer will use the findings of the geologists to determine engineering and, with the participation of the project director, economic feasibility of resource utilization. At the end of this assessment the project engineer will present his findings to the project director.

7. The project director will then write a final report based on the findings of the participants. This final report is expected to include a clear, precise and acceptable determination of the efficacy of the utilization of geothermal resources ~~utilization~~ in the Village of Jemez Springs, New Mexico. After the right is issued pipes will be laid to deliver hot water from the well to the Town Hall to be used for space heating.

Project Heating Up Energy Prospects At Jemez Springs

By TOMAS O. MARTINEZ
Assistant State Editor

JEMEZ SPRINGS — The Village of Jemez Springs may become energy self-sufficient if a test project, currently under way, shows that geothermal energy can provide the village with heat and electricity.

The Village of Jemez Springs, located about 50 miles northwest of Albuquerque, is drilling a test well on village property to locate underground volcanic-heated water to use as a power source.

The drilling, project management, and feasibility studies are being funded through a $32,000 grant from the New Mexico Department of Energy.

Jemez Springs Mayor Eddie Armenta, 39, said he hopes the well will produce water heated at 250 degrees Fahrenheit. Hot water or steam from that well would be used to heat homes within the village and generate electricity.

"It's a tremendous project. If it works, we could become energy self-sufficient. Residents would be able to cut their utility costs by about 50 percent. I hope it works. We all do," Armenta, a retired Treasury Department agent and former Albuquerque police officer, said.

The well is being dug on village property behind the Jemez Springs City Hall. The project is the brain child of Project Engineer Tom Kleeman.

Armenta said Kleeman visited Jemez Springs in late 1977 to bathe in the hot springs near the village.

"He (Kleeman) came up with the idea," Armenta said. "The village hired him to study the possiblity of such a project, and to write a proposal to the federal government for funding.

"The federal government (Department of Energy) turned down our $4 million proposal. They said they could not fund exploratory projects. In July 1978 we submitted a proposal to the state. It was approved in late November. If the well produces water at 250 degrees, we will resubmit our proposal to the federal government for construction of a generating plant," Armenta said.

Kleeman said, "If the test is a success, it will be a tremendous event for New Mexico."

Kleeman, who represents Copeland-Moran Associates of Albuquerque, said drilling began Wednesday.

The drilling is being done by Stuart Brothers Drilling Co. of Grants. The firm has drilled similar wells for Los Alamos Scientific Labs in the Valle Grande area between Los Alamos and Jemez Springs.

Two Los Alamos scientists, Bill Laughlin and Francis West of LASL's Georthermal Groups, were at the drilling site Thursday to provide technical advice. West said the hot water the village is trying to locate escapes through faults from the Valle Grande, the site of a gigantic extinct volcano.

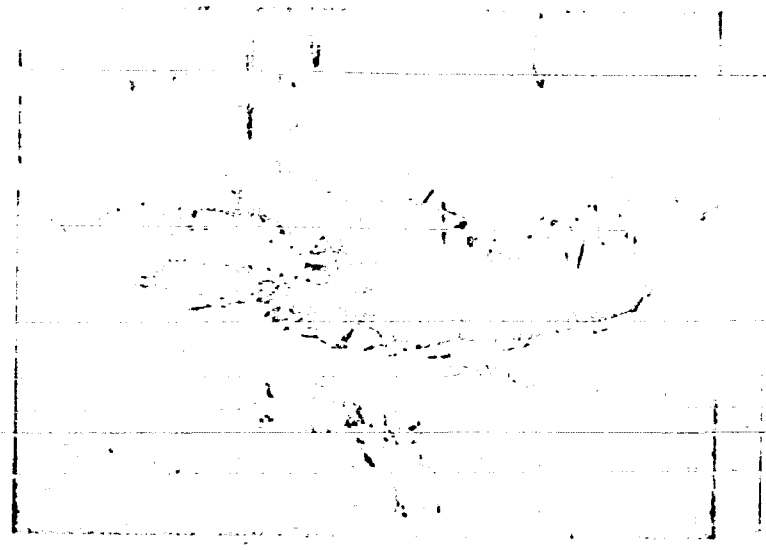
Laughlin said the volcano last erupted about 40,000 years ago and hot rocks heat the water in the calderon. That water escapes through faults, and one of those faults runs through the area where the well is being dug.

If the drilling project is a success, Armeta said that included in the second proposal to the U.S. Department of Energy will be a request to fund construction of village greenhouses.

Armenta said village greenhouses would represent a cooperative village effort to provide residents with vegetables and other food stuffs.

"It's a tremendous opportunity for the Village of Jemez Springs. If the well is a success, we hope the federal government will fund this as a pilot project," Armenta said.

Kleeman anticipates the possibility of geothermal energy for Jemez Springs could become a reality by late 1980. That is, if the well comes through, and the federal government funds the project.



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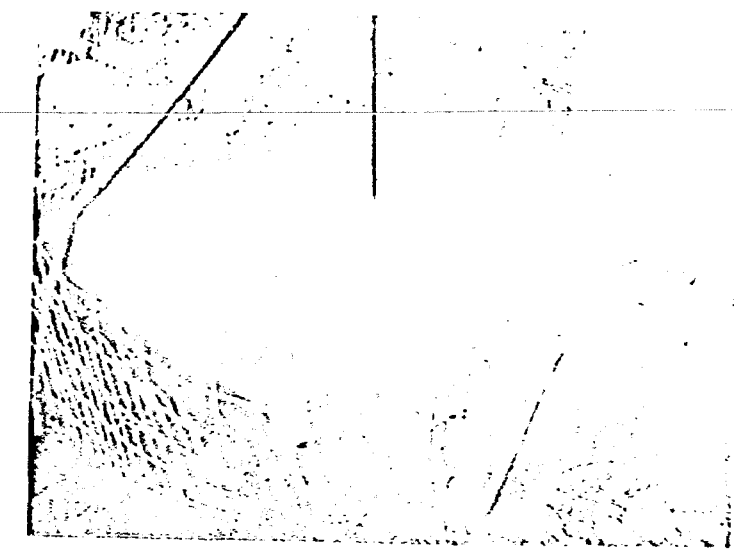

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Taken 1/29/79
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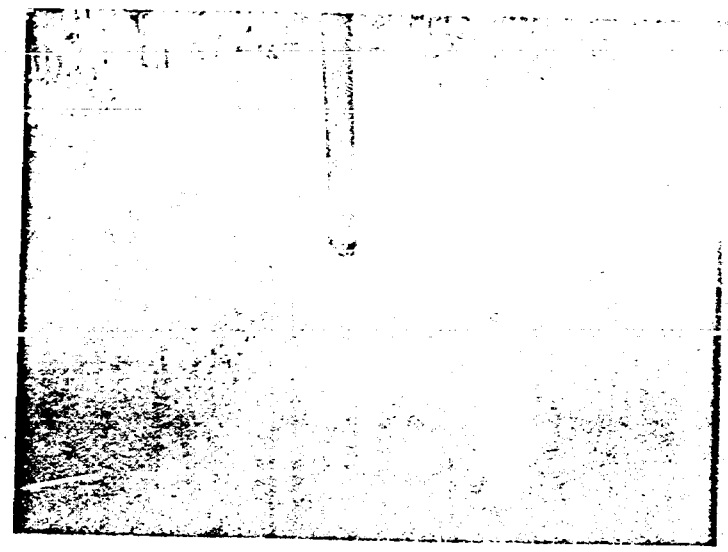

A-26-18N-2E
Taken 1/29/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 5
Submitted by OCC
Hearing Date 2-23-79

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

February 1, 1979

Mr. Eddie Armenta
Mayor of Jemez Springs Village
P. O. Box 87
Jemez Springs, New Mexico 87025

Dear Sir:

You are the recorded operator of a geothermal temperature observation well located in Unit A of Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico. According to the permit granted by this office the total depth would not exceed seven hundred fifty feet (750'), would have seven inch (7") casing set at one hundred feet (100') and cemented into the full length of the hole (cemented circulated). Furthermore, your letter to this agency requesting a waiver of bonding requirements states that your well will be plugged and the location cleaned in accord with State regulations.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is the immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

January 30, 1979

Mayor Eddie Armenta
Village of Jemez Springs
Jemez, New Mexico

Subject: Jemez Lease Well No. 1
Unit A, Section 26, Township
18 North, Range 2 East,
NMPM, Sandoval County,
New Mexico

Dear Sir:

The subject well appears to have been drilled. It was permitted as a "Temperature Observation" well by this agency on December 28, 1978. To date, no reports or other information concerning that operation have been received in this office.

Kindly refer to the New Mexico State Regulations and supply all of the now-delinquent data. Also, because this agency was not notified prior to the setting and/or cementing of any casing in the subject well, please submit affidavits from the companies or individuals employed for such operations.

Yours truly,

Carl Ulvog

CARL ULVOG
Senior Geologist

CU/og
cc: Lynn Teschendorf
Oil Conservation Division
General Counsel

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe
Case No. 6461 Exhibit No. 6
Submitted by OCC
Hearing Date 2-23-79

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

(1) Commencement of drilling operations

(2- Casing and cement test

(3) Altering a well's casing installation

(4) Temporary abandonment

(5) Plugging and Abandonment

(6) Plugging back or deepening

(7) Remedial work

(8) Change in ownership of a drilling well

(9) Such other operations which affect the original status of the well but which are not specifically covered herein.

C. Filing Form G-103 as a Subsequent Report

Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form G-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

(2) Report of Results of Test of Casing and Cement Job; Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 108 B(5). The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

(3) Report of Temporary Abandonment

A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in DUPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and other pertinent information relative to the overall status of the well.

(4) Report on Plugging of Well

A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, and any other pertinent information. (See Rules 301-303 regarding plugging operations.)

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 7
Submitted by: OCC
Hearing Date 2-23-79

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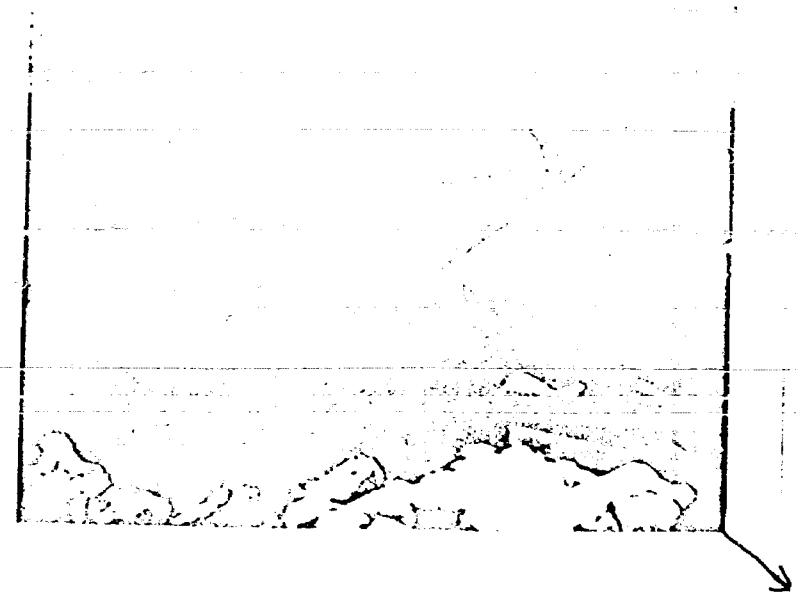

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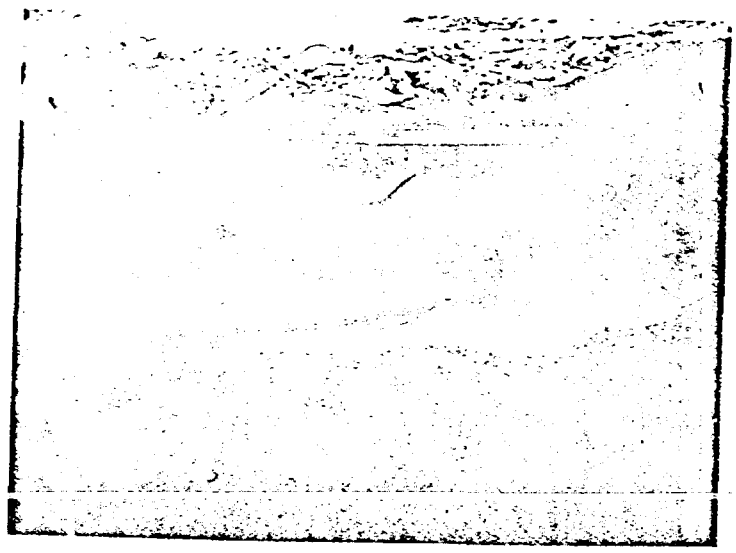

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 8
Submitted by OCC
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Form G-101
Adopted 10/1/74

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Operator	/	
Land Office		

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease: STATE [ ] Village Property FEE [ ]
5.a State Lease No.: N.A.

1a. Type of Work: Drill [X] Deepen [ ] Plug Back [ ]

b. Type of Well: Geothermal Producer [ ] Low-Temp Thermal [ ] Temp Observation [X] Injection/Disposal [ ]

7. Unit Agreement Name: N.A.

8. ~~Farm or~~ Lease Name: Jemez Lease

2. Name of Operator: Mayor Eddie Armenta

9. Well No.: 1

3. Address of Operator: Village of Jemez Springs, New Mexico

10. Field and Pool, or Wildcat: UNDES.

4. Location of Well: UNIT LETTER A LOCATED 90 FEET ~~FROM THE~~ West of Town Hall ✓ LINE AND FEET FROM THE LINE OF SEC. TWP. RGE. NMPM

12. County: Sandoval

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
750 ft.	Madera Limestone	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
6275 G.L.	Exempt	Stuart Bros./Grants, NM	2 January 1979

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8 3/4 in.	7 in. O.D.	14 lbs./ft.	100 ft.	30	circ.
5 in.					

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 1
Submitted by OCC
Hearing Date 2-23-79

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 3/28/79
UNLESS DRILLING UNDERWAY

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [signature] Title Mayor, Village of Jemez Springs Date 22 December 1978

(This space for State Use)

APPROVED BY [signature] TITLE DANIEL S. NUTTER CHIEF ENGINEER DATE 12/28/78

CONDITIONS OF APPROVAL, IF ANY:

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

Form C-102
Revised 10-1-74

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Mayor Eddie Armenta	Village	1

Unit Letter	Section	Township	Range	County
A	26	18 North	2 East	Sandoval

Actual Footage Location of Well:
90 feet ~~from the~~ west of town hall ~~line and~~ ~~feet from the~~ ~~line~~

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6275	Madera Limestone	UNDEST.	None Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

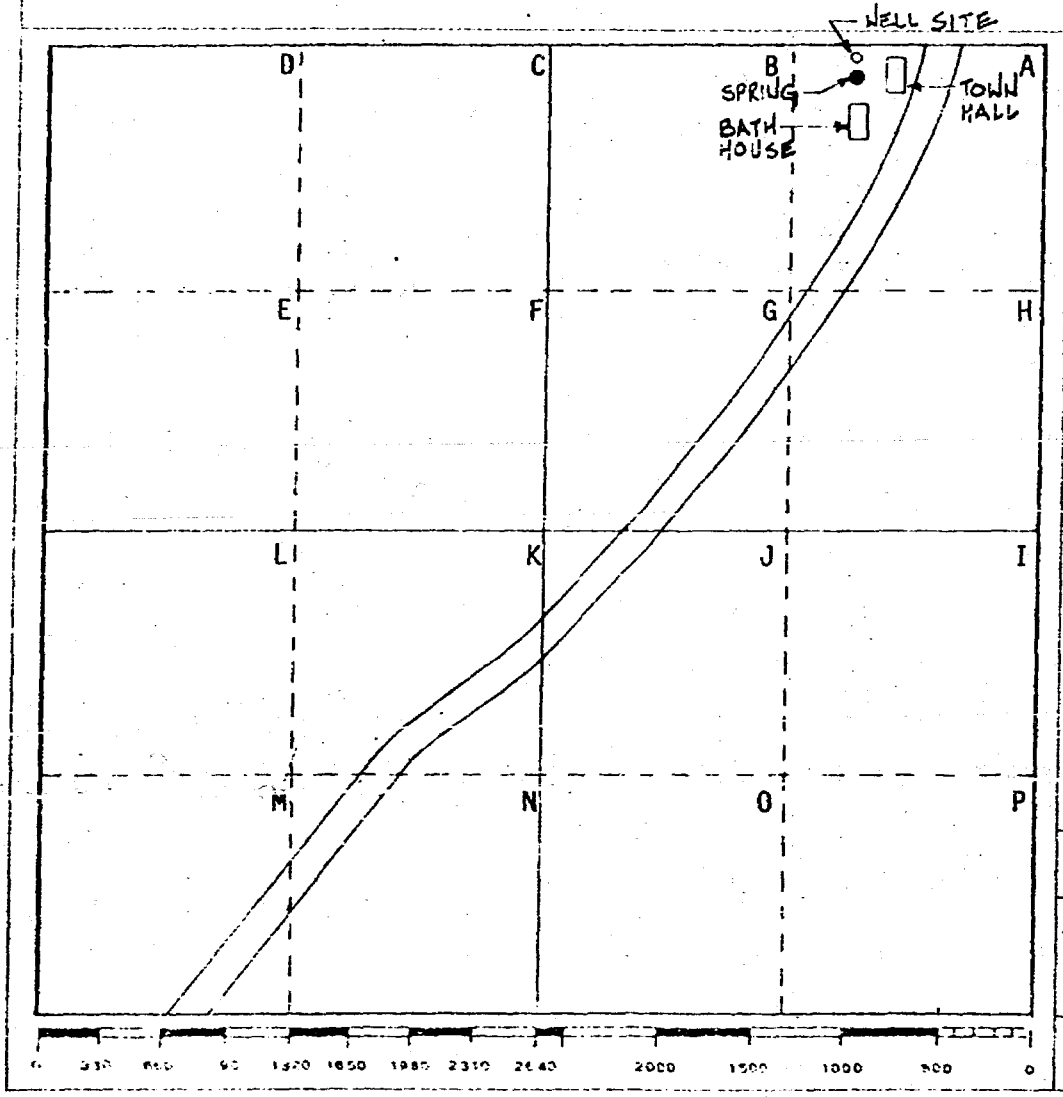
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name: Tom Kleeman

Position: Consultant

Company: Coupland, Moran & Assoc.

Date: 21 December 1978

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

Date Surveyed

Registered Professional Engineer
~~and/or Land Surveyor~~

Certificate No.

THE VILLAGE OF JEMEZ SPRINGS, NEW MEXICO
JEMEZ SPRINGS, NEW MEXICO

Mr. Joe D. Ramey, Director
Oil Conservation Division
Energy and Minerals Department
State Land Office Building
Old Santa Fe Trail
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In lieu of posting a bond for a permit to drill a geothermal observation well, I am writing to assure you that The Village of Jemez Springs guarantees that the above mentioned well will be plugged and the area cleaned in accordance with the rules of the Oil Conservation Division as stipulated in The Rules and Regulations. We look forward to working with the Division in this endeavor.

Sincerely,

Eddie Armenta, Mayor
The Village of Jemez Springs, N.M.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 2
Submitted by OCC
Hearing Date 2-23-79

JEMEZ No. 1
A-26-18N-2E, Sandoval County

III. PROPOSED WORK EFFORT

The Village of Jemez Springs, New Mexico proposes using State funds for drilling geothermal test wells and assessing the results. These wells will make it possible to ascertain the deliverable quantities of geothermal fluids (flow rates, their temperatures and chemical makeup). This data will lend more precision to determining the engineering and economic feasibility of utilizing the resource.

The work plan, shown on the following chart, calls for execution of assignments in the following order:

1. Prior to drilling, geologic mapping of the area, part of the ongoing San Diego Canyon mapping program, will be completed by geologists from Los Alamos Scientific Laboratories. These maps will be necessary in locating the drilling site.

2. Upon the completion of the mapping, expected in early August, personnel from L.A.S.L. will lend expertise in locating an optimal drilling site along a controlling fault. Given the extant information on geothermal and hydrological phenomena in the area, the locations of hot springs and wells and the data yielded from mapping, it should be possible to locate a favorable test site.

3. Upon locating a test site that meets with the satisfaction of the project geologist and the principal investigator, the project director will secure the services of a drilling subcontractor.

4. Drilling will be carried out under the supervision and with the advise of the project geologist. Two test wells, of a diameter of 4" - 6", to be determined upon completion of mapping, will be drilled into the limestone formation. Well depths are not expected to go below 750 Ft. Fluids brought to the surface will be held during the test and subsequently reinjected into the formation.

5. After the well is completed the project geologist will inform the project director and project engineer of the relevent engineering data, e.g. temperatures, flow rates (determined by draw down tests) etc. The project geologist will analyze the well data for its geologic significance regarding the geothermal resource. Upon the completion of this effort, he will present the project director with a short report on his findings which will be included in the final project report.

6. The project engineer will use the findings of the geologists to determine engineering and, with the participation of the project director, economic feasibility of resource utilization. At the end of this assessment the project engineer will present his findings to the project director.

7. The project director will then write a final report based on the findings of the participants. This final report is expected to include a clear, precise and acceptable determination of the efficacy of the utilization of geothermal resources ~~utilization~~ in the Village of Jemez Springs, New Mexico. After the report is issued pipes will be laid to deliver hot water from the well to the Town Hall to be used for space heating.

Project Heating Up Energy Prospects At Jemez Springs

By TOMAS O. MARTINEZ
Assistant State Editor

JEMEZ SPRINGS — The Village of Jemez Springs may become energy self-sufficient if a test project, currently under way, shows that geothermal energy can provide the village with heat and electricity.

The Village of Jemez Springs, located about 50 miles northwest of Albuquerque, is drilling a test well on village property to locate underground volcanic-heated water to use as a power source.

The drilling, project management, and feasibility studies are being funded through a $32,000 grant from the New Mexico Department of Energy.

Jemez Springs Mayor Eddie Armenta, 39, said he hopes the well will produce water heated at 250 degrees Fahrenheit. Hot water or steam from that well would be used to heat homes within the village and generate electricity.

"It's a tremendous project. If it works, we could become energy self-sufficient. Residents would be able to cut their utility costs by about 50 percent. I hope it works. We all do," Armenta, a retired Treasury Department agent and former Albuquerque police officer, said.

The well is being dug on village property behind the Jemez Springs City Hall. The project is the brain child of Project Engineer Tom Kleeman.

Armenta said Kleeman visited Jemez Springs in late 1977 to bathe in the hot springs near the village.

"He (Kleeman) came up with the idea," Armenta said. "The village hired him to study the possiblity of such a project, and to write a proposal to the federal government for funding.

"The federal government (Department of Energy) turned down our $4 million proposal. They said they could not fund exploratory projects. In July 1978 we submitted a proposal to the state. It was approved in late November. If the well produces water at 250 degrees, we will resubmit our proposal to the federal government for construction of a generating plant," Armenta said.

Kleeman said, "If the test is a success, it will be a tremendous event for New Mexico."

Kleeman, who represents Copeland-Moran Associates of Albuquerque, said drilling began Wednesday.

The drilling is being done by Stuart Brothers Drilling Co. of Grants. The firm has drilled similar wells for Los Alamos Scientific Labs in the Valle Grande area between Los Alamos and Jemez Springs.

Two Los Alamos scientists, Bill Laughlin and Francis West of LASL's Georthermal Groups, were at the drilling site Thursday to provide technical advice. West said the hot water the village is trying to locate escapes through faults from the Valle Grande, the site of a gigantic extinct volcano.

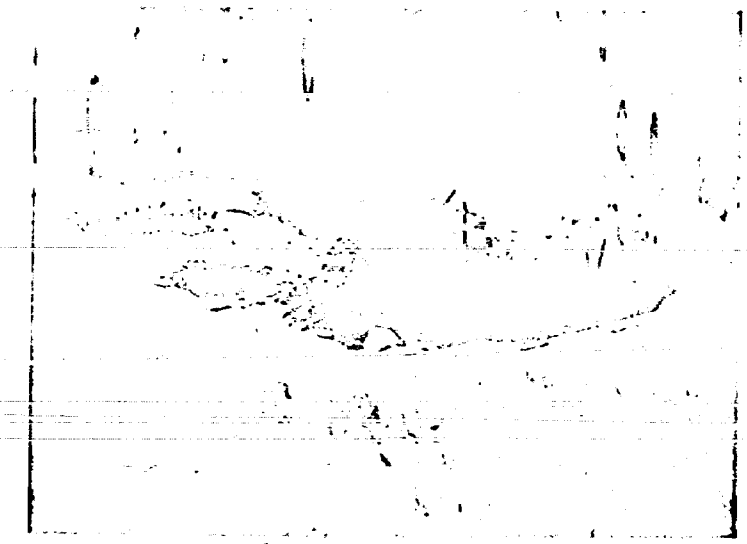
Laughlin said the volcano last erupted about 40,000 years ago and hot rocks heat the water in the calderon. That water escapes through faults, and one of those faults runs through the area where the well is being dug.

If the drilling project is a success, Armeta said that included in the second proposal to the U.S. Department of Energy will be a request to fund construction of village greenhouses.

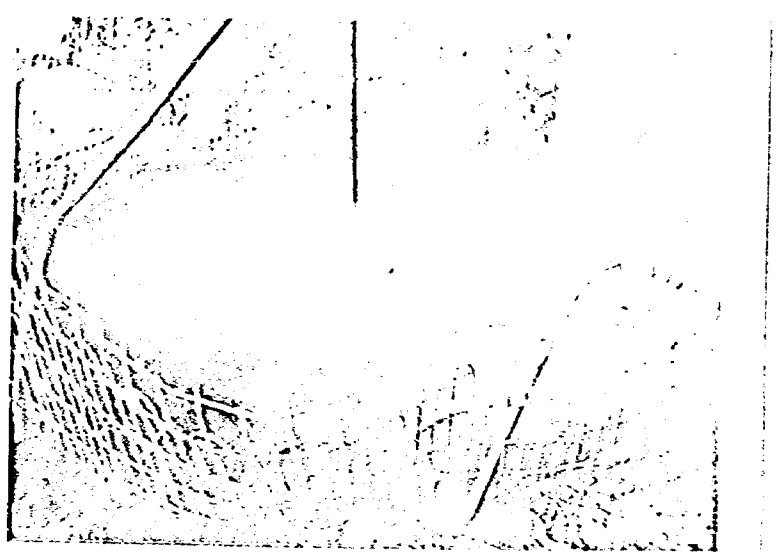
Armenta said village greenhouses would represent a cooperative village effort to provide residents with vegetables and other food stuffs.

"It's a tremendous opportunity for the Village of Jemez Springs. If the well is a success, we hope the federal government will fund this as a pilot project," Armenta said.

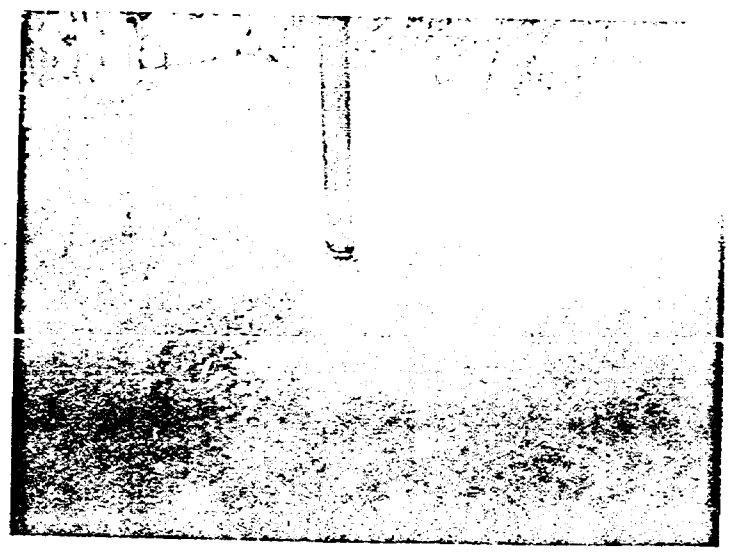
Kleeman anticipates the possibility of geothermal energy for Jemez Springs could become a reality by late 1980. That is, if the well comes through, and the federal government funds the project.



A-26-18N-2E
Taken 1/29/79
C.U.



A-26-18N-2E
Taken 1/29/79
C.U.



A-26-18N-2E
Taken 1/29/79
C.U.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 5
Submitted by OCC
Hearing Date 2-23-79

B. Form G-103 as a Subsequent Report

Form G-103 as a subsequent report of operations shall be filed in accordance with the section of this rule applicable to the particular operation being reported.

Form G-103 is to be used in reporting such completed operations as:

(1) Commencement of drilling operations

(2- Casing and cement test

(3) Altering a well's casing installation

(4) Temporary abandonment

(5) Plugging and Abandonment

(6) Plugging back or deepening

(7) Remedial work

(8) Change in ownership of a drilling well

(9) Such other operations which affect the original status of the well but which are not specifically covered herein.

C. Filing Form G-103 as a Subsequent Report

Information to be entered on Form G-103, Subsequent Report, for a particular operation is as follows:

(1) Report of Commencement of Drilling Operations

Within ten days following the commencement of drilling operations, the operator of the well shall file a report thereof on Form G-103 in DUPLICATE. Such report shall indicate the hour and the date the well was spudded.

D-2

(2) Report of Results of Test of Casing and Cement Job; Report of Casing Alteration

A report of casing and cement test shall be filed by the operator of the well within ten days following the setting of each string of casing or liner. Said report shall be filed in DUPLICATE on Form G-103 and shall present a detailed description of the test method employed and the results obtained by such test, and any other pertinent information required by Rule 108 B(5). The report shall also indicate the top of the cement and the means by which such top was determined. It shall also indicate any changes from the casing program previously authorized for the well.

(3) Report of Temporary Abandonment

A report of temporary abandonment of a well shall be filed by the operator of the well within ten days following completion of the work. The report shall be filed in DUPLICATE and shall present a detailed account of the work done on the well, including location and type of plugs used, if any, type and status of surface and downhole equipment, and other pertinent information relative to the overall status of the well.

(4) Report on Plugging of Well

A report of plugging operations shall be filed by the operator of the well within 30 days following completion of plugging operations on any well. Said report shall be filed in TRIPLICATE on Form G-103 and shall include the date the plugging operations were begun and the date the work was completed, a detailed account of the manner in which the work was performed including the depths and lengths of the various plugs set, the nature and quantities of materials employed in the plugging operations including the weight of the mud used, the size and depth of all casing left in the hole, and any other pertinent information. (See Rules 301-303 regarding plugging operations.)

D-3

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 7
Submitted by: OCC
Hearing Date 9-23-79

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

February 1, 1979

Mr. Eddie Armenta
Mayor of Jemez Springs Village
P. O. Box 97
Jemez Springs, New Mexico 87025

Dear Sir:

You are the recorded operator of a geothermal temperature observation well located in Unit A of Section 26, Township 18 North, Range 2 East, NMPM, Sandoval County, New Mexico. According to the permit granted by this office the total depth would not exceed seven hundred fifty feet (750'), would have seven inch (7") casing set at one hundred feet (100') and cemented into the full length of the hole (cemented circulated). Furthermore, your letter to this agency requesting a waiver of bonding requirements states that your well will be plugged and the location cleaned in accord with State regulations.

An inspection of the site on January 29th last, indicates that your project is in violation of State Regulations in several respects. Please refer to the rules and make such changes as are necessary to be in compliance. Of primary importance is the immediate shutting off of the water that is escaping to the surface.

Kindly submit your plan for remedial action and/or plugging for abandonment in time for same to be witnessed by a representative of this agency.

Yours truly,

CARL ULVOG
Senior Geologist

CU/og

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

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

January 30, 1979

Mayor Eddie Armenta
Village of Jemez Springs
Jemez, New Mexico

Subject: Jemez Lease Well No. 1
Unit A, Section 26, Township
18 North, Range 2 East,
NMPM, Sandoval County,
New Mexico

Dear Sir:

The subject well appears to have been drilled. It was permitted as a "Temperature Observation" well by this agency on December 28, 1978. To date, no reports or other information concerning that operation have been received in this office.

Kindly refer to the New Mexico State Regulations and supply all of the now-delinquent data. Also, because this agency was not notified prior to the setting and/or cementing of any casing in the subject well, please submit affidavits from the companies or individuals employed for such operations.

Yours truly,

Carl Ulvog

CARL ULVOG
Senior Geologist

CU/og
cc: Lynn Teschendorf
Oil Conservation Division
General Counsel

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6461 Exhibit No. 6
Submitted By: OCC
Hearing Date 2-23-79

Carl Ulvog

1000 gals/hr. 150°

Recommendation
Plug hole through entire length

Eddie Armenta

Tom Kleeman

James Copeland - project engineer
Stew

TD 824' 80
Wtr. 80' + 500' 80
20

7" @ 120'

How much have you spent on project

McAllister - National Cementers

7" @ 74' cemted w 350 sxs no returns
1/4/79

1/6/79 @ 120'
hose on outside

RETURN

STATE OF NEW MEXICO)
) ss.
COUNTY OF VALENCIA)

RETURN FOR COMPLETION BY SHERIFF OR DEPUTY:

I certify that I served the within Summons in said County on the 19 day of Feb, 19 79, by delivering a copy thereof, with copy of Complaint attached, and a form for Answer, in the following manner: 19.55 hrs. hand delivered

RETURN FOR COMPLETION BY OTHER PERSON MAKING SERVICE:

I, being duly sworn, on oath, say that I am over the age of 18 years and not a party to this lawsuit, and that I served the within Summons in said County on the .....day of ....., 19....., by delivering a copy thereof, with copy of Complaint attached, and a form for Answer, in the following manner:

(check one box and fill in appropriate blanks)

[ ] To Defendant GERRY MCALLISTER *(used when Defendant receives copy of Summons, is read Summons or Complaint or refuses to receive Summons or hear reading.)*

[ ] To....., a person over 15 years of age and residing at the usual place of abode of Defendant....., who at the time of such service was absent therefrom.

[ ] By posting a copy of the Summons and Complaint in the most public part of the premises of Defendant..... *(used if no person found at dwelling house or usual place of abode.)*

[ ] To....., an agent authorized to receive service of process for Defendant.....

[ ] To....., (parent) (guardian) of Defendant ..... *(used when Defendant is a minor or an incompetent person.)*

[ ] To....., ... *(used when Defendant is a corporation or association subject to a suit under a common name, a land grant board of trustees, the State of New Mexico or any political subdivision.)*

name of person *title of person authorized to receive service*

Fees:

.....
SIGNATURE OF PRIVATE CITIZEN MAKING SERVICE

SHERIFF OF V. VALENCIA COUNTY
State of New Mexico

By K. D. Holmes
DEPUTY

Subscribed and sworn to before me this day of ....., 19.....

.....
JUDGE, NOTARY OR OTHER OFFICER
AUTHORIZED TO ADMINISTER OATHS

.....
TITLE

APPROVED: COURT ADMINISTRATOR & SUPREME COURT, OCTOBER 1, 1977.
FORM 1.02

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To Gerry McAllister Greeting:

We command you to be and appear at 9:00 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of application of the Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged, on behalf of National Cementing Corporation and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

SEAL

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 5th day of February, 19 79.

Joe D. Ramey

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: OIL CONSERVATION COMMISSION TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1 SHOULD NOT BE PLUGGED

SUBPOENA

RETURN OF SERVICE

Served to Mr. McAllister in person 021979
1755 hr. at his Residence.

K.D. [illegible] 11-26

x Larry McAllister
021979 1755 hr.

BILL HOLIDAY-SHERIFF
VALENCIA COUNTY SHERIFF'S DEPARTMENT

(505)287-9476
(505)287-9477

STATE OF NEW MEXICO

plaintiff

VS

defendant

TYPE OF ACTION Subpoena NUMBER 6461

ATTORNEY

TO:

DEAR SIR;

The above action is being returned to your office for the reasons stated below. If you will take the appropiate action and return, you may be assured that our office will complete service at the earliest possible date and return to your office with the Return of Service completed.
Should you require any further information or assistance, please feel free to contact me at the address below.

_____ Subject(s) moved, left no fowarding address.

_____ Service attached is out of date, please reissue for service.

_____ Service is out of our jurisdiction, it is being fowarded to_____ County for service, their office will complete the Return of Service.

X Other: Subject Works for Stewart Bros. in Milan, and is out on a job in Texas, and won't probably make it back in time for trial

Deputy K.D. Holmes V-26 date 022079
Valencia County Sheriff's Department - Civil Division

VALENCIA COUNTY SHERIFF'S DEPARTMENT - GRANTS SUB-STATION - 320 EAST HIGH STREET
GRANTS, NEW MEXICO 87020

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To Don Kelly Greeting:

We command you to be and appear at 9:00 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of application of the Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged, on behalf of Stewart Brothers Drilling Co. and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

SEAL

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 5th day of February, 1979.

Joe D. Ramey

RETURN OF SERVICE

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: OIL CONSERVATION COMMISSION TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1 SHOULD NOT BE PLUGGED.

SUBPOENA

CASE NO. 6461

SUBPOENA DUCES TECUM

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

To Don Kelly Greeting:

We command you to be and appear at 9:00 a.m. on February 23, 1979 before the Oil Conservation Commission of the State of New Mexico, at The Oil Conservation Commission Conference Room in the State Land Office Building, in the City of Santa Fe, then and there to testify in the Case of application of the Oil Conservation Commission to show cause why the Jemez Well No. 1 should not be plugged, on behalf of Stewart Brothers Drilling Co. and also that you bring with you and produce at the time and place aforesaid any and all records pertaining to the Jemez Well No. 1 located in Unit A, Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico

And this do you under penalty of the law

SEAL

WITNESS JOE D. RAMEY, Member of the Oil Conservation Commission of the State of New Mexico, and the seal of said Commission, this 5th day of February, 1979.

Joe D. Ramey

RETURN OF SERVICE

CASE NO. 6461

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

COUNTY OF SANTA FE

APPLICATION OF: OIL CONSERVATION COMMISSION TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1 SHOULD NOT BE PLUGGED.

SUBPOENA

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

CASE NO. 6461/5941
ORDER NO. R-~~5500~~

APPLICATION OF THE OIL CONSERVATION DIVISION TO PERMIT MAYOR EDDIE ARMENTA, THE VILLAGE OF JEMEZ SPRINGS, AND ALL OTHER INTERESTED PARTIES TO SHOW CAUSE WHY THE JEMEZ WELL NO. 1 SHOULD NOT BE PLUGGED AND ABANDONED SANDOVAL COUNTY, NEW MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause come on for hearing at 9 a.m. on February 23, 1979, at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 2nd day of March, 1979, the Commission, a quorum being present, having considered the testimony presented & the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

(1) That the public notice having been given as required by law, the Commission has jurisdiction of this cause & the subject matter thereof.

(2) That the Jemez Well No. 1 located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico was spudded on January 3, 1979, & ~~was drilled to~~ a total depth of 824 feet.

(3) That the operator of record of said well is Eddie Armenta, Mayor of the Village of Jemez Springs.

(4) That said well encountered waters ~~at a depth of approximately 80-90 feet~~ in excess of 150° F at a depth of approximately 80-90 feet and another naturally heated water at a depth of approximately 500 feet.

(5) That ~~7-~~ inch casing was set in said well at approx. 120 feet. ~~and that sufficient cement was used to cement said~~

(6) That the ~~cementing of said 7-inch casing~~ ~~attempted~~ was inadequate to prevent waters from escaping from the strata in which they are found into other strata and to the surface.

Several C231.

water ~~from it at~~ 80-90 feet.

(7) That water from the 80-90 foot zone is flowing from the well to the surface of the ground outside the ~~seven~~ 7-inch casing at a rate of approximately 1000 gallons per hour

(8) That the rate of flow from the well to the surface of the ground outside the seven inch casing is ~~approximately~~ ~~1000~~ gallons per hour.

(8) That said waters flowing to the surface of the ground are of sufficient temperature to be ~~utilized for geothermal purposes~~ considered a geothermal resource.

9 (9) That allowing said water to flow unrestricted from the well without being utilized constitutes waste of a geothermal resource.

10 (10) That allowing said well to flow unrestricted could result in ~~cause the migration of geothermal fluids from other~~ ~~in the immediate area, thereby causing~~ injury to ~~the~~ neighboring properties.

(11) That ~~[redacted]~~ has occurred both within the wellbore and caving around the ~~seven~~ 7-inch casing, ~~has occurred~~ creating a hole at the wellhead & resultant pond of sufficient size to be a hazard to human life & health.

(12) That said pond should ~~be adequately~~ be fenced ~~to prevent access~~ in a manner sufficient to prevent access by ~~small~~ children and livestock and other animals.

(13) That said well should be repaired in such a manner that ~~wherein~~ ~~the~~ geothermal resources ~~waters~~ will be contained within the ~~seven~~ 7-inch casing.

(14) That if said well cannot be repaired, then said well shall ~~shall~~ be plugged & abandoned in a manner that will confine ~~the~~ all waters to the strata in which they are found ~~their respective zones~~.

IT IS THEREFORE ORDERED:

(1) That the Mayor Eddie Armenta Jemez Springs Well No. 1, located in Unit A of Section 26, Township 18 North, Range 2 East, Sandoval County, New Mexico, shall be ~~the~~ re-entered & repaired in such a manner that ~~a manner wherein~~ geothermal resources ~~waters~~ are contained within the ~~seven~~ 7-inch casing.

(2) That the water flow encountered at approximately 500 feet shall be isolated by setting a cement plug across the ~~shoe of the~~ 7-inch casing ~~shoe~~.

(3) That in the event re-work operations are unsuccessful in containing the geothermal ~~waters~~ resources inside the ~~seven~~ 7" inch casing, the well shall be plugged & abandoned in a manner prescribed by the Santa Fe district office of the Oil Conservation Division.

(4) That, ~~the~~ so long as the hazardous conditions described in Finding No. 12 above persist, the area ~~immediately~~ surrounding said well shall be fenced in a manner sufficient to prevent access by ~~small~~ children and livestock and other animals.

(5) That re-work or plugging & abandonment operations shall be commenced immediately & shall be concluded within 14 days following the date of this Order.

(6) That the Santa Fe District Office shall be notified at least 48 hours prior to commencing re-work or plugging and abandonment operations.

(7) Jurisdiction