

GTLT - _____16_____

**Dawson A. Campbell
5-13S-13W
Grant County**

Well Nos. 1 - 4



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor

Jennifer A. Salisbury

Cabinet Secretary

November 15, 2000

Lori Wrotenbery

Director

Oil Conservation Division

Ms. Ysabel C. Luecke
HC 68 Box 80
Silver City, NM 88061

Re: \$2,000 One-Well Low-Temperature Thermal Well
or Geothermal Observation Well Bond
D. A. "Doc" Campbell, Principal
Safeco Insurance Company of America, Surety
Campbell et al No. 1 Unit C, Section 5,
Township 13 South, Range 13 West,
Bond No. 2877372

Dear Ms. Luecke:

The New Mexico Oil Conservation Division hereby approves the cancellation of the
above-referenced geothermal bond and releases Safeco Insurance Company of America
from any liability.

Sincerely,

LYN S. HEBERT

Attorney

Oil Conservation Division

cc: Oil Conservation Division – Roy Johnson

Safeco Insurance Company of America
SAFECO Plaza
Seattle, Washington 98185-0001

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

AFFIDAVIT OF RESPONSIBILITY
CONVERSION TO WATER-WELL

STATE OF New Mexico) ss.
County of Santa Fe)

Angus Campbell, being first duly sworn according to law, upon his oath deposes and says:

1. That he is Owner of Angus L. Campbell
(Title) (Operator)
whose address is Hc 68 Gila Hot Springs Silver City, New Mex. 88061.
2. That Angus Campbell is the operator of a well drilled on land be-
(Operator)
longing to Angus Campbell, whose address is Hc 68 Gila Hot Springs
(Landowner) Silver City, New Mex 88061. said well being drilled to test for hydrocarbons and/or geothermal
carbon dioxide gas and described as the Campbell well No. 1, being located 100
feet from the North line and 1850 feet from the West line of Section 5,
Township 13 South, Range 13 West, NMPM, Grant
County, New Mexico.

3. That said well was drilled to a total depth of 960 feet, and that casing has been set and cemented as follows:

4. That operator and landowner have made an agreement whereby operator (is) (is not) to back fill pits, level location, and clear it of all junk. The agreement further provides that operator is to plug said well back to a plugged-back total depth of _____ feet and transfer well to landowner for his use as a water-well. Operator will leave casing in the well as follows:

5. That when operator has complied with the provisions of Paragraph 4 above it will so notify the Oil Conservation Commission of the State of New Mexico on Commission Form C-103, together with a signed statement from the landowner that the provisions of Paragraph 4 above have been complied with to his satisfaction.

Angus Campbell
(Operator)

By _____
Subscribed and sworn to before me this 3 day of Nov, A. D. 19 2000.



OFFICIAL SEAL
Loyce F. Bocock
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires: 6-29-2004

Loyce F Bocock
Notary Public in and for the County of Santa Fe

STATE OF New Mexico) ss.
County of Santa Fe)

Angus Campbell, being first duly sworn according to law, upon his oath deposes and says that when the provisions of Paragraphs 4 and 5 above have been complied with, he will accept the above-described well for his use as a water-well, and that he will assume all responsibility for the well, the location, and the conversion of the well to a water-well.

Angus Campbell
(Landowner)

Subscribed and sworn to before me this 3 day of Nov, A. D. 19 2000.



OFFICIAL SEAL
Loyce F. Bocock
NOTARY PUBLIC-STATE OF NEW MEXICO

My commission expires: 6-29-2004

Loyce F Bocock
Notary Public in and for the County of Santa Fe

215 West Broadway
P.O. Box 349

Telephone 505-538-3431

OIL CONSERVATION DIVISION
RECEIVED

'93 AUG 2 AM 8 57

Law Offices of

JOHN W. REYNOLDS
Silver City, NM 88062

July 29, 1993

Mr. R. Q. Rogers
Supervisor, District 3
State Engineer Office
P.O. Box 844
Deming, NM 88031

Mr. Roy E. Johnson
Sr. Petroleum Geologist
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504


Re: Charles Reeves

Gentlemen:

I represent Mr. and Mrs. Charles Reeves. They, among others, were recently involved in a lawsuit with the Campbells involving the Gila Hotsprings Subdivision. I am enclosing a copy of the Judgment in this matter and the only part that is pertinent to this letter is Paragraph 5 of the Findings on Page 5, and Paragraph 4 on Page 7, which awards the Reeves water rights from the Gila Hotsprings. Mr. Reeves has been corresponding with both of you on this matter. I understand he did drill a well down to about 600 feet and has been ordered to plug it.

He hasn't been able to find any insurance company that will write a bond. What has been done has been done. What I would appreciate if you gentlemen would do is to advise me in your opinion how he can get his hot water that has been awarded to him by judgment of the Sixth Judicial District Court.

Yours sincerely,



John W. Reynolds

JWR:jj
Enc.

pc: Charles Reeves



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

DEMING

August 26, 1993

ELUID L. MARTINEZ
State Engineer

GIL CONSERVATION DIVISION
RECEIVED

'93 AUG 31 AM 10 11

216 S. Silver
Post Office Box 844
Deming, New Mexico 88031
(505) 546-2851
(505) 546-7452

FILES: 01964-0
Subfile 379 & 380, Cause 16290

John W. Reynolds
Attorney at Law
P. O. Box 349
Silver City, New Mexico 88062

Dear Mr. Reynolds:

Your letter dated July 29, 1993 asked for advise on how Mr. Charles Reeves can get to use his hot water that has been awarded to him by judgment of the Sixth Judicial District Court.

According to our files, a Change of Ownership, involving the geothermal water rights under file 01964-0, Subfile 379 & 380, Cause 16290, was filed June 1, 1989 and states as follows:

"Right and easement, forever and at all times, to the free and unobstructed use of Five (5), not less than Three (3) gallons of water per minute, from the Gila Hot Springs on Lot No. 58 of said Subdivision, with the right to take from, construct and maintain a pipeline from said springs across Lot no. 32 of said subdivision, to said Lot No. 30. For, Non-consumptive use for heating purposes from the Gila Hot Springs and circulated through a closed system of pipes from the point of diversion at the Gila Hot Springs to the point of discharge at the surface of the Gila River, provided that the entire quantity of water diverted shall be returned, undiminished, to the river at the point of discharge."

Also, the Judgment and Deed attached to said Change of Ownership states "that should the flow of water from said springs diminish below 150 gallons per minute, the amount of water herein granted for the use and benefit of said Lot No. 30 shall be proportionately decreased."

According to said judgement, deed, and change of ownership, the Reeves have the right to convey geothermal waters from the Gila Hot Springs to Lot No. 30.

2

John W. Reynolds

Files: 01964-0; Subfile 379 & 380, Cause 16290

According to records of this office the Reeves have a non-consumptive domestic right to well GSF-2512, which was completed May 29, 1987 to a depth of 612 feet, and a domestic right to well GSF-2416 completed July 8, 1985 to a depth of 42 feet. This office has not ordered that either of these wells be plugged.

Should you have any further questions regarding this matter, please advise.

Sincerely,

R. Q. Rogers

Supervisor, District 3

By: *David B. Allison*

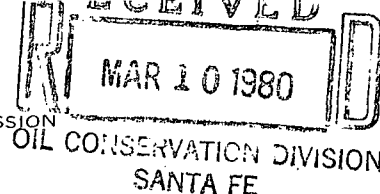
David B. Allison

Water Resource Specialist

DBA:jp

cc: Energy, Minerals & Natural Resources
Roy Johnson, Sr. Geologist

| | |
|------------------------|--|
| 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 87501SUNDRY NOTICES AND REPORTS
ON
GEOTHERMAL RESOURCES WELLS

| |
|---|
| 5. Indicate Type of Lease |
| State <input type="checkbox"/> Fee <input type="checkbox"/> |
| 5.a State Lease No. |

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit -" (Form G-101) for Such Proposals.)

| | | |
|--|---|----------------------------------|
| 1. Type of well Geothermal Producer <input type="checkbox"/> Low-Temp Thermal <input type="checkbox"/> | Temp. Observation <input type="checkbox"/> Injection/Disposal <input type="checkbox"/> | 7. Unit Agreement Name |
| 2. Name of Operator DAWSON (DOC) and IDA CAMPBELL | | 8. Farm or Lease Name |
| 3. Address of Operator Route 11, Silver City, New Mexico 88061 | | 9. Well No. Campbell et al #1 |
| 4. Location of Well Unit Letter <u>C</u> , EVst 1850 Feet From The <u>West</u> Line and <u>South</u> 100 Feet From The <u>North</u> Line, Section <u>5</u> Township <u>13 South</u> Range <u>13 West</u> NMPM. | | 10. Field and Pool, or Wildcat |
| 15. Elevation (Show whether DF, RT, GR, etc.) 5688 feet (above sea level) | | 12. County Grant |

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

| | |
|--|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> |
| PULL OR ALTER CASING <input type="checkbox"/> | |
| OTHER <input type="checkbox"/> | |

SUBSEQUENT REPORT OF:

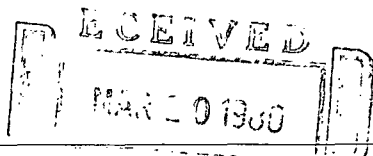
| | |
|--|---|
| REMEDIAL WORK <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| COMMENCE DRILLING OPNS. <input type="checkbox"/> | PLUG & ABANDONMENT <input type="checkbox"/> |
| CASING TEST AND CEMENT JOB <input type="checkbox"/> | |
| OTHER <input checked="" type="checkbox"/> Case history to date | |

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203.

Jan. 7, 1980 Move onto location.
Jan. 8, 1980 Drill and set surface conductor pipe and grout.
Jan. 9-15, 1980) Drill to 939.2 feet with 6" hammer bit and 5-1/8" hammer bit
Jan. 21-24, 1980) Run temperature log.
Jan. 30, 1980 Run temperature log.

This test hole will be used to run pumping tests and for additional temperature logs. It may be deepened later.

NOTICE: SURVEYOR REPORTED DISTANCES ON FORM G-102 FROM QUARTER SECTION CORNER MARKER: DISTANCES FROM SECTION LINE USED HERE WERE SCALED FROM 7-1/2 MINUTE TOPOGRAPHIC MAP.



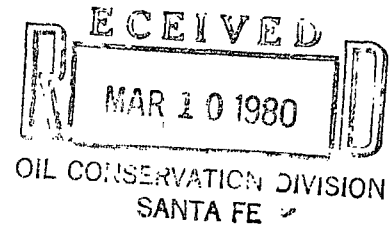
18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED [Signature] SANTA FE TITLE Geologist and Agent DATE March 7, 1980

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

CERTIFICATE OF COMPLIANCE
AND AUTHORIZATION TO PRODUCE
GEOTHERMAL RESOURCES



OWNER OR OPERATOR

Name DAWSON (DOC) and IDA CAMPBELL
Address Route 11, Silver City, New Mexico 88061

TYPE OF WELL

Geothermal Producer ☐ Low-Temperature Thermal ☒ Injection/Disposal ☐

REASON FOR FILING

New Well ☒ Recompletion ☐
Change in Ownership ☐ Designation of Purchaser ☐
Other (Please Explain) ☐

DESCRIPTION OF WELL

Lease Name Campbell et al Well No. #1 Name of Reservoir _____
Kind of Lease (Fee, Fed. or State) _____ Lease Number _____

LOCATION

Unit Letter C; East 1850 feet from the West line and South 100 feet feet from the North line of
Section 5 Township 13 South Range 13 West
County Grant

TYPE OF PRODUCT

Dry _____ Steam and Low Temp. _____
Steam _____ Water _____ Thermal Water X

DESIGNATION OF PURCHASER OF PRODUCT

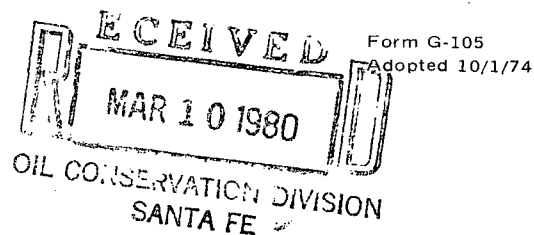
Name of Purchaser _____
Address of Purchaser _____
Product Will Be Used For _____

CERTIFICATE OF COMPLIANCE

I hereby certify that all rules and regulations concerning geothermal resources wells in the State of New Mexico, as promulgated by the Oil Conservation Commission of New Mexico, have been complied with, with respect to the subject well, and that the information given above is true and complete to the best of my knowledge and belief.

Signed [Signature] Position Geologist / Agent Date March 7, 1980
Approved _____ Position _____ Date _____

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501



GEOHERMAL RESOURCES WELL LOG

Operator DAWSON (DOC) and IDA CAMPBELL
Address Route 11, Silver City, New Mexico 88061
Reservoir _____
Lease Name Campbell et al Well No. #1 Unit Letter C
Location: East 1850 feet from the West line and _____
South 100 feet from the North line Section 5
Township 13 South Range 13 West County Grant

FORMATIONS PENETRATED BY WELL

| DEPTH TO | | Thickness | Drilled or Cored | Recovery | DESCRIPTION |
|------------------|---------------------|-----------|------------------|----------|--|
| Top of Formation | Bottom of Formation | | | | |
| 0 | 6 | 6 | Drilled | | Clay - brown |
| 6 | 9 | 3 | Drilled | | Boulders and Gravel - brown |
| 9 | 27 | 18 | Drilled | | Sand and Gravel - light brown to tan |
| 27 | 30 | 3 | Drilled | | Rubbly Latite(?) - brown |
| 30 | 38 | 8 | Drilled | | Latite(?) - red-brown |
| 38 | 39 | 1 | Drilled | | Tuffaceous Sand - purplish brown |
| 39 | 51 | 12 | Drilled | | Andesite(?) - purple-brown |
| 51 | 205 | 154 | Drilled | | Rhyolitic Tuff - light purple-brown to gray |
| 205 | 665 | 460 | Drilled | | Andesite(?) - purple brown to brown, very fine-grained |
| 665 | 667 | 2 | Drilled | | Rhyolite - light brown to tan |
| 667 | 755 | 88 | Drilled | | Quartz Latite(?) - red to red-brown |
| 755 | 939.2 | 184.5 | Drilled | | Andesite(?) - red to red-brown |

Attach Additional Sheets if Necessary

This form must be accompanied by copies of electric logs, directional surveys, physical or chemical logs, water analyses, tests, and temperature surveys (See Rule 205).

CERTIFICATION
OIL CONSERVATION DIVISION
SANTA FE

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed [Signature] Position Analyst and Agent Date March 7, 1980

14-0131-V-1142
MAR 10 1980

FIELD LOG: Campbell et al #1 (N $\frac{1}{2}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 5, T. 13 S., R. 13 E., REGION 13. W.) Grant County, New Mexico.
By: R.M. Colpitts, Jr., January 1980.
(Air Rotary Samples)

| Depth (ft) | | Rock type and description |
|------------|-----|--|
| From | To | |
| 0 | 6 | CLAY - brown, slightly gravelly with a trace of silt. |
| 6 | 9 | BOULDERS AND GRAVEL - brown, with clay and silt. |
| 9 | 27 | SAND AND GRAVEL - light brown to tan, coarse to very coarse-grained, soft to hard. Gravel is in 2' thick beds. |
| 27 | 30 | RUBBLY LATITE(?) - brown igneous rock with feldspar, a trace of biotite and little quartz. |
| 30 | 38 | LATITE(?) - red-brown with potassium feldspar(?), a trace of biotite and a trace of quartz. |
| 38 | 39 | TUFFACEOUS SAND - purplish-brown, medium to fine-grained, soft. |
| 39 | 51 | ANDESITE(?) - purple-brown, hard. |
| 51 | 139 | RHYOLITIC TUFF - light purple-brown to gray, coarse to fine-grained, medium hard. Damp zone 134' to 135'. |
| 139 | 205 | RHYOLITIC TUFF - gray, welded, hard. Fractured 168' to 169', 175' to 181' and 188' to 202'. |
| 205 | 585 | ANDESITE(?) - purple-brown, hard. Contact with overlying rhyolitic tuff marked by hard drilling and reddish-brown clay. Trace of water at 217' 1-2 gpm at 226' to 227' and at 386'. |
| 585 | 665 | ANDESITE(?) - brown to purplish-brown, porphyritic, very hard, slow drilling. Rock is very fine-grained and mineralogy is difficult to determine. Picked up 3-5 gpm at 620'; water temperature has increased 7°C from 585'. An additional 8 to 10 gpm at 600'. |

RECEIVED
MAR 10 1980
OIL CO. REG. DIV.
SANTA FE

RECEIVED
MAR 20 1980
C.L. COONSTANTINE DIVISION
SANTA FE

FIELD LOG: Campbell et al #1 (N¹, NE¹, NW¹, Sec 5, T.13 S. 7 R. 13 W.) Grant County, New Mexico (cont).
By: R.M. Colpitts, Jr., January 1980.

| Depth (ft) | | Rock type and description |
|------------|-------|--|
| From | To | |
| 665 | 667 | RHYOLITE - light brown to tan, 15 to 20% quartz, very welded and silicified. Few, if any, dark minerals. |
| 667 | 755 | QUARTZ LATITE(?) - red to red-brown. Porphyritic texture. Pehnocrysts of potassium feldspar, a little plagioclase and 20-25% hornblende. Zeolite vein material 710' to 755'. |
| 755 | 939.2 | ANDESITE(?) - red to red-brown, 30% hornblende |
| T.D.= | 939.2 | laths and pyroxene, some plagioclase(?) phenocrysts. Zeolite vein material and cavity fillings. Texture is aphanitic and little is recognizable. Trace of water (1 to 2 gpm) at 762', very fractured but no more water 863' to 867'. |

RECEIVED
MAR 20 1980
C.L. COONSTANTINE DIVISION
SANTA FE

MAR 10 1965

By: R.M. Colpitts, Jr., February 1980
(Air Rotary Samples)

| Depth (ft) | | Rock type and description |
|------------|-----|--|
| From | To | |
| 0 | 10 | <u>CLAY</u> - brown, slightly silty, slightly sandy, composed of 75% clay, 15% silt and 10% very fine to medium-grained sand with a trace of calcium carbonate. |
| 10 | 20 | <u>SAND AND GRAVEL</u> - light brown to brown, composed of 55% fine to very coarse-grained sand, 40% very fine to medium pebbles, 5% silt and a trace of clay. |
| 20 | 30 | <u>GRAVEL</u> - brown, composed of 95% fine to medium pebbles and 5% fine to very coarse-grained sand. |
| 30 | 40 | <u>ANDESITE</u> - red-brown, composed of 40% hematite, 35% plagioclase(?), 15% hornblende and pyroxene, 3% golden-brown biotite, and 2% magnetite. |
| 40 | 50 | <u>ANDESITE</u> - lavender-brown, composed of 55% plagioclase, 25% hematite, 10% hornblende, 5% pyroxene, 3% brown biotite and 2% magnetite. |
| 50 | 140 | <u>RHYOLITIC TUFF</u> - pinkish gray, slightly welded, abundant quartz, composed of 45% sanadine, 27% glass, 25% quartz, 2% brown biotite and 1% magnetite with a trace of augite. |
| 140 | 210 | <u>RHYOLITIC TUFF</u> - gray to light gray, welded to very welded, abundant quartz, composed of 40% sanadine, 33% glass, 25% quartz, 1% brown biotite, 1% magnetite and a trace of augite. |
| 210 | 380 | <u>RHYOLITE</u> - brownish gray, very welded, abundant quartz, very siliceous, composed of 45% sanadine, 33% glass, 20% quartz, 1% brown biotite, 1% magnetite and a trace of augite. |

RECEIVED
MAR 20 1960
C.I. CONST. DIVISION
SANTA FE

LITHOLOGIC DESCRIPTION: Campbell et al #1 (N ½ NE¼, NW¼, Sec. 5, T.13 S., R.13 W.) Grant County, N. M. (cont).

| Depth (ft) | | Rock type and description |
|------------|-------|---|
| From | To | |
| 380 | 680 | RHYOLITE - brownish gray, very welded, abundant quartz, abundant zeolite, very siliceous, composed of 35% sanadine, 30% glass, 20% quartz, 13% zeolite as pseudomorphs after sanadine and as vein and cavity fillings, 1% brown biotite, 1% magnetite, and a trace of augite. |
| 680 | 690 | LATITE - red-brown, porphyritic, composed of 40% potassium feldspar and plagioclase, 30% hematite, 15% hornblende, 10% pyroxene, 5% quartz(?) and a trace of biotite. |
| 690 | 750 | LATITE - red-brown, composed of 50% potassium, 20% hematite, 20% augite, 5% hornblende, 3% quartz and 2% biotite. Zeolite vein and cavity fillings 710 to 720. |
| 750 | 780 | BASALT(?) - red-brown, composed of 53% plagioclase (with some potassium feldspar present), 20% augite, 10% hematite, 10% olivine(?), 5% hornblende and 2% quartz (xenolitho?). Zeolite vein and cavity fillings 750 to 770. |
| 780 | 800 | ANDESITE - brown, composed of 71% plagioclase (with some potassium feldspar) 20% augite, 5% hornblende, 2% quartz, and 2% hematite. |
| 800 | 820 | BASALTIC ANDESITE(?) - brown, composed of 59% plagioclase, 25% hematite, 7% augite, 5% hornblende, 2% quartz and 2% olivine. |
| 820 | 939.2 | ANDESITE - red-brown, composed of 60% plagioclase, 25% hematite, 7% pyroxene, 5% hornblende, 2% quartz and 1% biotite. Zeolite vein fillings and pseudomorphs after feldspar(?) 850 to 930. |
| T.D.= | 939.2 | |

RECEIVED
 MAR 10 1966
 OIL CONSERVATION DIVISION
 SANTA FE

RECEIVED

MAR 10 1980

TEMPERATURE LOG: Campbell et al #1, N $\frac{1}{2}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 5, T10N
S., R.13 E., Grant County, New Mexico.
By: D. Gambill and A. Kron (LASL) and R. M.
Colpitts, Jr., January 30, 1980.

| Depth (ft) | °C | °F | Depth (ft) | °C | °F |
|---------------|------|------|---------------|------|-------|
| 0 | -- | -- | 305.3 | 31.4 | 88.6 |
| 51.7 | 20.8 | 69.4 | 310.5 | 31.7 | 89.1 |
| 72.4 | 21.1 | 70.0 | 315.7 | 32.0 | 89.5 |
| 93.2 | 21.4 | 70.4 | 320.8 | 32.2 | 90.0 |
| 103.5 | 21.7 | 71.1 | 326.0 | 32.5 | 90.4 |
| 108.7 | 22.8 | 73.1 | 331.2 | 32.7 | 90.9 |
| 113.8 | 23.0 | 73.5 | 336.4 | 33.0 | 91.4 |
| 119.0 | 23.2 | 73.8 | 341.5 | 33.2 | 91.8 |
| 124.2 | 23.5 | 74.2 | 346.7 | 33.5 | 92.3 |
| 129.4 | 23.6 | 74.5 | 351.9 | 33.0 | 91.4 |
| 134.5 | 23.9 | 75.0 | 357.1 | 34.0 | 93.2 |
| 139.7 | 24.3 | 75.7 | 362.2 | 34.2 | 93.6 |
| 144.9 | 24.6 | 76.2 | 367.4 | 34.4 | 94.0 |
| 150.1 | 24.8 | 76.6 | 372.6 | 34.7 | 94.5 |
| 155.2 | 25.0 | 77.0 | 377.8 | 34.9 | 94.9 |
| 160.4 | 25.2 | 77.3 | 382.9 | 35.1 | 95.2 |
| 165.6 | 25.4 | 77.7 | 388.1 | 35.3 | 95.6 |
| 170.8 | 25.6 | 78.1 | 393.3 | 35.6 | 96.0 |
| 175.9 | 25.8 | 78.4 | 398.5 | 35.8 | 96.5 |
| 181.2 | 26.1 | 78.9 | 403.6 | 36.1 | 96.9 |
| 186.3 | 26.2 | 79.2 | 408.8 | 36.3 | 97.3 |
| 191.5 | 26.5 | 79.6 | 408.8 | 36.3 | 97.3 |
| 196.6 | 26.7 | 80.1 | 414.0 | 36.5 | 97.7 |
| 201.8 | 26.9 | 80.5 | 419.2 | 36.7 | 98.1 |
| 207.0 | 26.8 | 80.3 | 424.3 | 37.0 | 98.6 |
| 212.2 | 27.3 | 81.1 | 429.5 | 37.2 | 99.0 |
| 217.3 | 27.5 | 81.6 | 434.7 | 37.4 | 99.4 |
| 222.5 | 27.8 | 82.0 | 439.9 | 37.6 | 99.8 |
| 227.7 | 27.8 | 82.0 | 445.0 | 37.9 | 100.2 |
| 232.9 | 28.0 | 82.3 | 450.2 | 38.1 | 100.6 |
| 238.0 | 28.2 | 82.8 | 455.4 | 38.4 | 101.1 |
| 243.2 | 28.5 | 83.2 | 460.6 | 38.6 | 101.5 |
| 248.4 | 28.7 | 83.6 | 465.7 | 38.8 | 101.9 |
| 253.6 | 28.9 | 84.1 | 470.9 | 39.0 | 102.2 |
| 258.7 | 29.2 | 84.5 | 476.1 | 39.3 | 102.7 |
| 264.0 | 29.4 | 84.9 | 481.3 | 39.5 | 103.1 |
| 269.1 | 29.6 | 85.2 | 486.4 | 39.8 | 103.6 |
| 274.3 | 29.8 | 85.7 | 491.6 | 39.9 | 103.9 |
| 279.4 | 30.1 | 86.2 | 496.8 | 40.1 | 104.2 |
| 285.3 | 30.4 | 86.8 | 502.0 | 40.3 | 104.6 |
| 295.0 | 30.9 | 87.7 | 507.1 | 40.5 | 105.0 |
| 300.1 | 31.2 | 88.2 | 512.3 | 40.8 | 105.4 |

OIL CONSTRUCTION DIVISION
SANTA FE

W.K. Summers & Associates, Inc.

MAR 10 1935

OIL CONSERVATION DIVISION
SANTA FE

TEMPERATURE LOG: Campbell et al #1, N $\frac{1}{2}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 5, T.13
S., R.13 E., Grant County, New Mexico (Cont).

| Depth (ft) | °C | °F | Depth (ft) | °C | °F |
|---------------|------|-------|-----------------|------|-------|
| 517.5 | 41.0 | 105.8 | 734.8 | 49.2 | 120.6 |
| 522.7 | 41.3 | 106.3 | 740.0 | 49.5 | 121.1 |
| 527.8 | 41.4 | 106.5 | 745.2 | 49.7 | 121.5 |
| 533.0 | 41.6 | 106.9 | 750.4 | 50.0 | 122.0 |
| 538.2 | 41.8 | 107.2 | 755.5 | 50.3 | 122.5 |
| 543.4 | 42.0 | 107.6 | 760.7 | 50.5 | 122.9 |
| 548.5 | 42.2 | 107.9 | 765.9 | 50.7 | 123.3 |
| 553.7 | 42.4 | 108.3 | 771.0 | 51.0 | 123.8 |
| 558.9 | 42.6 | 108.6 | 776.2 | 51.2 | 124.2 |
| 564.1 | 42.8 | 109.1 | 781.4 | 51.5 | 124.7 |
| 569.2 | 43.0 | 109.4 | 786.6 | 51.7 | 125.1 |
| 574.4 | 43.2 | 109.7 | 791.7 | 52.0 | 125.5 |
| 579.6 | 43.3 | 110.0 | 796.9 | 52.2 | 125.9 |
| 584.8 | 43.6 | 110.4 | 802.1 | 52.4 | 126.3 |
| 589.9 | 43.8 | 110.8 | 807.3 | 52.7 | 126.8 |
| 595.1 | 43.9 | 111.1 | 812.4 | 52.9 | 127.2 |
| 600.3 | 44.2 | 111.5 | 817.6 | 53.1 | 127.6 |
| 605.4 | 44.4 | 111.9 | 822.8 | 53.3 | 127.9 |
| 610.6 | 44.6 | 112.2 | 828.0 | 53.5 | 128.4 |
| 615.8 | 44.8 | 112.6 | 833.1 | 53.8 | 128.8 |
| 621.0 | 44.9 | 112.8 | 838.3 | 54.0 | 129.2 |
| 626.2 | 45.1 | 113.1 | 843.5 | 54.2 | 129.6 |
| 631.3 | 45.2 | 113.4 | 848.7 | 54.4 | 129.9 |
| 636.5 | 45.4 | 113.7 | 853.8 | 54.7 | 130.5 |
| 641.7 | 45.5 | 114.0 | 859.0 | 54.9 | 130.8 |
| 646.9 | 45.8 | 114.4 | 864.2 | 55.1 | 131.2 |
| 652.0 | 45.9 | 114.7 | 869.4 | 55.4 | 131.7 |
| 657.2 | 46.1 | 114.9 | 874.5 | 55.6 | 132.1 |
| 662.4 | 46.3 | 115.3 | 879.7 | 55.8 | 132.4 |
| 667.6 | 46.4 | 115.6 | 884.9 | 56.0 | 132.8 |
| 672.7 | 46.6 | 115.9 | 890.0 | 56.2 | 133.2 |
| 677.9 | 46.8 | 116.2 | 895.2 | 56.5 | 133.7 |
| 683.1 | 47.0 | 116.6 | 900.4 | 56.7 | 134.1 |
| 688.3 | 47.2 | 117.0 | 905.6 | 56.9 | 134.4 |
| 693.4 | 47.4 | 117.4 | 910.8 | 57.1 | 134.8 |
| 698.6 | 47.6 | 117.8 | 916.0 | 57.3 | 135.1 |
| 703.8 | 47.9 | 118.2 | 921.1 | 57.5 | 135.5 |
| 709.0 | 48.1 | 118.6 | 926.3 | 57.9 | 136.2 |
| 714.1 | 48.3 | 119.0 | 931.5 | 57.9 | 136.2 |
| 719.3 | 48.6 | 119.4 | 936.6 | 58.0 | 136.4 |
| 724.5 | 48.8 | 119.8 | 939.2 | 58.0 | 136.4 |
| 729.7 | 49.0 | 120.2 | Bottom of hole. | | |

GEOHERMAL RESOURCES WELL SUMMARY REPORT

Operator DAWSON (DOC) and Ida CAMPBELL Address Route 11, Silver City, NM 88061
Lease Name Campbell et al Well No. #1
Unit Letter C Sec. 5 Twp. 13 South Rge 13 West
Reservoir _____ County Grant

Commenced drilling January 7, 1980 GEOLOGICAL MARKERS DEPTH
Completed drilling January 24, 1980 Top of Rhyolitic Tuff 51 feet
Total depth 939.2' Plugged depth 0 Top of Silicified Flows 205 feet
Junk _____
Commenced producing _____ Geologic age at total depth: Tertiary (Oligocene)
(Date)

| Date | Static test | | Production Test Data | | | | | | | | |
|------|-------------------|-------------|----------------------|----------|-------------|----------|---------|----------------|--------------|-------------|----------|
| | Shut-in well head | | Total Mass Flow Data | | | | | Separator Data | | | |
| | Temp. °F | Pres. Psig. | Lbs/Hr | Temp. °F | Pres. Psig. | Enthalpy | Orifice | Water cuft/Hr | Steam Lbs/Hr | Pres. Psig. | Temp. °F |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

CASING RECORD (Present Hole)

| Size of Hole | Size of Casing | Weight of Csg/ft. | Grade of Casing | New or Used | Seamless or Lapweld | Depth of Shoe | Top of Casing | Number of Sacks Cement | Top of Cement | Cement Top Determined By |
|--------------|----------------|-------------------|-----------------|-------------|---------------------|---------------|---------------|------------------------|---------------|--------------------------|
| 7-7/8" | 6-5/8" | | | New | Lapweld | 30.9' | Surface | 4 sacks | Surface | inspection |
| | | | | | | | | | | |
| | | | | | | | | | | |

PERFORATED CASING

(Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

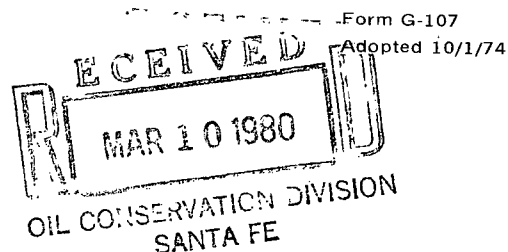
Was analysis of effluent made? NO Electrical log depths None Temperature log depths 52 feet to 939.2 ft

CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed [Signature] Position Geologist and Agent Date March 7, 1980

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501



GEOHERMAL RESOURCES WELL HISTORY

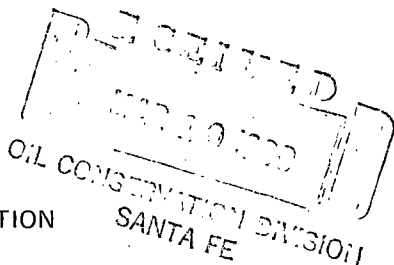
Operator DAWSON (DOC) and IDA CAMPBELL Address Route 11, Silver City, NM 88061
Lease Name Campbell et al Well No. #1
Unit Letter C Sec. 5 Twp. 13 South Rge. 13 West
Reservoir _____ County Grant

It is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important operations during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates thereof. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, shooting, and initial production data and zone temperature. (Attach additional sheets if necessary.)

Date

Jan. 7, 1980 Move rig onto location
Jan. 8, 1980 Drilling stick, caving mud. Mud hole with 5 bags. Run 30.9' of 6-5/8", .188 wall casing. Cement with 2 sacks of Sacrete. Drilled 32 feet.
Jan. 9, 1980 Blow out hole and circulate out mud. Drill 170 feet with 6" hammer bit.
Jan. 10, 1980 Add 6-1/8" Tri-Cone Rock Bit and Ream hole out. Drill 15 feet.
Jan. 11, 1980 Change to 6-1/8" T.C. Button Bit and drill for morning. Change back to hammer bit and resume drilling. Drill 152 feet. Picked 1 to 2 gpm at 217 feet.
Jan. 12, 1980 Run brief temperature log. Bottom hole temp = 93.1°F. Depth to water = 127.9'. Resume drilling with hammer. Hole making 6 to 8 gpm. Drilled 217 feet.
Jan. 13, 1980 Swelling zone in Tuff at 78 feet; feam out hole with button bit. Change to hammer and resume drilling. Penetration rate falling off due to excessive bit wear. Drilled 75 feet.
Jan. 15, 1980 Resume drilling; penetration rate still dropping off. Pull tools to move to next location (Campbell et al #2). 96°F water being discharged during drilling. Drilled 77.6 feet.
Jan. 21, 1980 Back on well. Resume drilling with 5-1/8" hammer bit. Penetration rate dropping. Air bubbling up around casing grout. Shut down to fix. Drilled 64 feet.
Jan. 22, 1980 Poured 2 sacks cement (4:1 sand mix) and repaired rig.
Jan. 23, 1980 Resume drilling. Grout set. Penetration rate much better. Water is discharging at 96°F at surface blowpipe. Drilled 90 feet.
Jan. 24, 1980 Start Drilling. Penetration rate very poor. Quit drilling and trip out. Drilled 27.2 feet. Final depth = 939.2 feet. Water still discharging at 96°F. Depth to water = 103.55 feet (from surface)
Jan. 30, 1980 Run temperature log on well. Bottom hole temperature = 136.4°F.

CERTIFICATION



I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed [Signature] Position Geologist and Agent Date March 7, 1980

Doc Campbell's Post
Gila Hot Springs Rt. 11
Silver City NM 88061
Bus. 534-9551 Res. 534-9340

On hwy # 527 \pm 5mi SE of
Gila Cliff Dwellings Mon.
(Grant - Catron Co. Line)

Sec 5 - 135 - 13W

Summers - Socorro

835-2095

Robert Colpitts - Geol.

8-25-86

To File :

• Doe Campbell

HCR 88072

Gila Hot Springs

Silver City, NM 88061

New Address

| | |
|------------------------|-----|
| NO. OF COPIES RECEIVED | |
| DISTRIBUTION | |
| File | 1 ✓ |
| N.M.B.M. | 1 |
| U.S.G.S. | 1 |
| Operator | 1 |
| 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 ☐ FEE ☒
5.a State Lease No.

| | | |
|---|---|---|
| 1a. Type of Work Drill <input checked="" type="checkbox"/> Deepen <input type="checkbox"/> Plug Back <input type="checkbox"/> | 2. Name of Operator D. A. CAMPBELL | 7. Unit Agreement Name |
| b. Type of Well Geothermal Producer <input type="checkbox"/> Temp Observation <input type="checkbox"/> Low-Temp Thermal <input checked="" type="checkbox"/> Injection/Disposal <input type="checkbox"/> | 3. Address of Operator GILA HOT SPRINGS, RT. 11, Box 80, Silver City, NM 88061 | 8. Farm or Lease Name CAMPBELL ET AL |
| 4. Location of Well UNIT LETTER C LOCATED 107 FEET FROM THE NORTH LINE AND 1837 FEET FROM THE WEST LINE OF SEC. 5 TWP. 13 S. RGE. 13 W NMPM | 9. Well No. 1 | 10. Field and Pool, or Wildcat Wildcat |
| 12. County GRANT | | |
| 19. Proposed Depth 1000 feet | | 19A. Formation Tertiary Volcanic |
| 20. Rotary or C.T. Air Rotary | | |
| 21. Elevations (Show whether DF, RT, etc.) GROUND LEVEL 5688 | 21A. Kind & Status Plug. Bond \$2000 low temp. | 21B. Drilling Contractor LARJON DRILLING CO. INC |
| 22. Approx. Date Work will start JANUARY 5, 1980 | | |

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|----------|
| 7 5/8" | 6 5/8" | | 20' | 2 | |
| | | | | | |
| | | | | | |

SEE ATTACHED LETTER

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 4-8-80
UNLESS DRILLING UNDERWAY

RECEIVED
JAN - 7 1980
OIL CONSERVATION DIVISION
SANTA FE

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 W. K. Sumner Title Geologist Date Dec. 31, 1979

(This space for State Use)

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 1/9/80
CONDITIONS OF APPROVAL, IF ANY:

GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

| | | | | | |
|--|---------------------|--------------------------|--------------------------------|--|----------------------|
| Operator D.A. "Doc" Campbell | | | Lease Campbell et al | | Well No. 1 |
| Unit Letter C | Section 5 | Township 13 S. | Range 13 W. | County Grant | |
| Actual Footage Location of Well: 107 feet from the north line and 537 feet from the west line | | | | | |
| Ground Level Elev. 5688 | Producing Formation | | Pool | Dedicated Acreage: 20+ 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.

D.A. Campbell

Name
D.A. Campbell

Position
Owner

Company

Date

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
December 12, 1979

Registered Professional Engineer and/or Land Surveyor

James P. ...
Certificate No. **6408** New Mexico
Professional Land Surveyor

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000

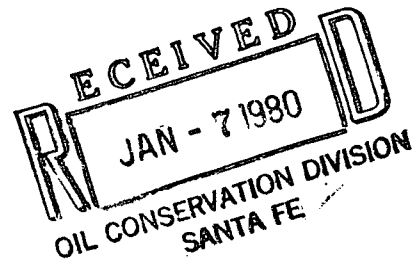
W.K. Summers
& Associates, Inc.

Box 684
Socorro, N.M. 87801

505-835-2095 —

December 31, 1979

NEW MEXICO OIL CONSERVATION COMMISSION
P.O. Box 2084
Santa Fe, NM 87501



Re: Applications to Drill Low-Temperature Geothermal
Test Wells.

Gentlemen:

The attached applications to drill low-temperature geothermal test wells are for two wells for which permits to drill exploration water wells have been obtained from the New Mexico State Engineer. The test wells will serve two purposes:

- (1) They will show to which extent thermal water can be obtained from wells to supplement the thermal water supplied by Gila Hot Springs.
- (2) They will provide information about the geothermal resources of the area.

The hydrogeologic setting is as follows:

The rocks of the area are primarily extrusive igneous rocks. They include andesitic and latitic lava flows, rhyolite tuffs, pyroclastics and volcanoclastics, and rhyolites. The rocks are fractured and several faults mark substantial stratigraphic displacement. Wells discharge water from fractures, so, to be successful water wells, the exploration wells must cut numerous fractures. The proposed locations were selected to optimize the probability of drilling through the most fractures.

The expected depth to water in Campbell et al No. 1 is about 100 feet; in Campbell et al No. 2, about 150 feet.

The drilling program for each hole is as follows:

- (1) Drill with air a 7 5/8-inch diameter hole a few feet into solid rock;
- (2) Set 6 5/8-inch diameter conductor pipe having a wall thickness of .188-inch;

- (3) Cement the conductor pipe in place with a thin cement and let the cement set overnight;
- (4) Drill with air a 6-inch diameter hole to a depth of 1000 feet; and
- (5) Develop well.

If drilling with air to a depth of 1000 feet is impossible, one or more of the following options will be exercised:

- (1) Drill with mud using lightest possible mud weight and minimum viscosity necessary to reach 1000 feet;
- (2) Pull the conductor pipe, ream hole to 7 5/8-inch diameter to the necessary depth, set and cement 6 5/8-inch diameter casing, and continue drilling 6-inch diameter hole;
- (3) Stop drilling and develop as uncased water well; and
- (4) Devise alternate program to fit unforeseen circumstances.

The wells will probably yield water with a chemical character that is similar to that of the water discharged at Gila Hot Springs. We propose to drill the wells using an air rotary (Larjon Drilling Co., Inc.) and to monitor the temperature and specific conductance of the water discharged.

We expect the finished well to discharge water in the range of 80-90°C. If monitored temperatures of discharging water are 80° or larger, we will stop drilling, obtain down-hole temperatures, and react appropriately.

Because we expect the end product of the drilling program to be a functioning water well, we would like to make an open-hole completion if we can. If not, we will use a casing and screen program that will optimize the yield of the wells.

For your information, we attach (1) a lithologic log and temperature log of a nearby water well, and (2) copies of the permits and correspondence from the State Engineer Office.

Yours truly,

W. K. SUMMERS AND ASSOCIATES, INC.



W. K. Summers, Geologist

WKS:mg
Encls.

Doc Campbell

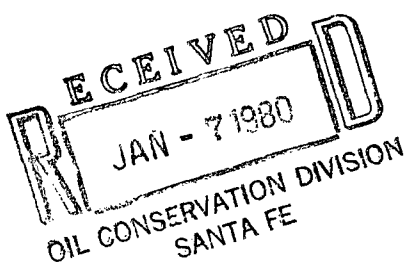
Gila Hot Springs
Rt. 11 - Box 80

Silver City, New Mexico 88061

December 28, 1979

We hereby designate W. K. Summers, of W. K. SUMMERS
& ASSOCIATES, Socorro, New Mexico, to be our legal agent and to
sign in our stead any and all documents dealing with the explora-
tion and drilling of two geothermal wells, in Sec. 5, T 13 S,
R 13 W, N.M.P.M., in Grant County, New Mexico.

Doc Campbell
Ida F. Campbell





STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

January 10, 1980

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

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

Safeco Insurance Company
of America
P. O. Box A
Albuquerque, New Mexico 87103

Re: \$2,000 One-Well Geothermal
Observation Well Bond
D. A. "Doc" Campbell, Principal
Safeco Insurance Company of
America, Surety
Campbell et al No. 1, Unit C,
Sec. 5, T-13-S, R-13-W
Bond No. 2877372

Gentlemen:

The Oil Conservation Division hereby approves the
above-captioned bond.

Sincerely,

JOE D. RAMEY,
Director

JDR/ELP/dr

cc: Oil Conservation Division
Carl Ulvog

D. A. "Doc" Campbell
Gila Hot Springs
Rt. 11, Box 80
Silver City, New Mexico 88061



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

DEMING

S. E. REYNOLDS
STATE ENGINEER

March 5, 1979

ADDRESS CORRESPONDENCE TO:
P. O. BOX 844
DEMING, N. M. 88030

FILES: GSF-1922; GSF-1923

Mr. D. A. Campbell
Route 11, Box 80
Silver City, New Mexico 88061

Dear Sir:

Enclosed are your copies of geothermal exploration permits Nos. GSF-1922 and GSF-1923, which have been approved.

Please see that the well driller files logs of wells in this office within 10 days after completion of drilling.

Your attention is called to the reverse side of these permits to the Specific Conditions of Approval Nos. 3, 9 and 10, which state as follows:

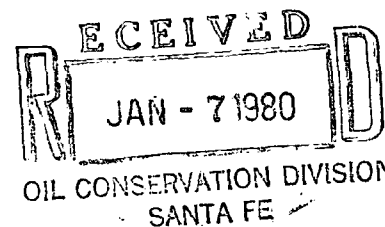
3. This permit shall not exceed a period of one year from the date of approval.
9. Use of water under this permit limited to exploration of geothermal water. No consumptive use of water is allowed.
10. Upon expiration of this permit, well shall be plugged in such a manner that all water encountered shall be confined to the strata in which it was encountered. All plugging operations shall be approved by the State Engineer prior to actual plugging.

These permits will expire on March 5, 1980.

Yours truly,

L. T. Putnam
Supervisor, District III

LTP:jp
Encls: 2 Approved Permits
cc: State Engineer



W.K. Summers
& Associates, Inc.

Box 684
Socorro, N.M. 87801

505-835-2095

December 31, 1979

Ms. Maxine Goad, Program Manager
Ground-Water Administration Unit
NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION
Box 968
Santa Fe, NM 87503

Dear Ms. Goad:

This letter notifies you that two test wells to be drilled under both New Mexico State Engineer and New Mexico Oil Conservation Commission permits may discharge ground water and foaming agents into drainageways that discharge into the Gila River. In addition, discharge during development and pumping tests of the wells may also be discharged into these drainageways.

For your information, I have included:

- (1) Copies of the permits and correspondence for the State Engineer;
- (2) Copies of our correspondence and applications to the Oil Conservation Commission; and
- (3) Chemical analyses of water from the Gila Hot Springs and the Gila River near the hot springs.

These documents will provide the information about owner, probable chemical characteristics of water from the wells, the receiving water, and point of discharge, which we are required to provide under the Water Quality Control Commission Regulations.

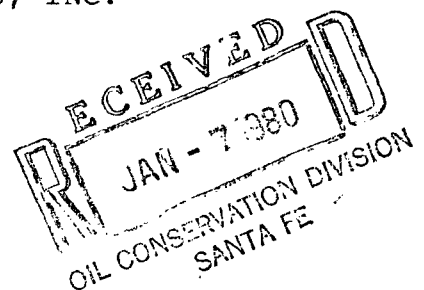
If you have any questions or need additional information, I will be pleased to provide it.

Yours truly,

W. K. SUMMERS AND ASSOCIATES, INC.

W. K. Summers, Geologist

WKS:mg
Encls.



09431500 GILA RIVER NEAR REDROCK, NM
(Radiochemical network station)

LOCATION.—Lat 32°43'37", long 106°40'30", in W₄ sec.23, T.18 S., R.18 W., Grant County, Hydrologic Unit 15040002, on left bank 0.2 mi (0.3 km) downstream from Copper Canyon, 0.2 mi (0.3 km) upstream from lower end of box canyon, 4.7 mi (7.6 km) northeast of Redrock, 14 mi (23 km) downstream from Mangas Creek, and at mile 539.2 (867.6 km).

DRAINAGE AREA.—2,829 mi² (7,327 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.—September 1904 to February 1905 (gage heights only). May 1905 to December 1906, January to December 1907 and July to October 1908 (gage heights only). November 1908 to December 1910, January 1911 to January 1912 and May to June 1912 (gage heights only). August 1912 to September 1955, October 1962 to current year. Monthly or annual discharge only for some periods, published in WSP 1313. Published as "near Cliff" 1904-7.

REVISED RECORDS.—WSP 1213: 1906, 1911-15, 1931, 1936-37, 1939, 1941, 1944, 1945(P), 1946(M), 1947. WSP 1283: Drainage area. WSP 1926: 1955.

GAGE.—Water-stage recorder. Altitude of gage is 4,090 ft (1,247 m), from plane table survey. Prior to Dec. 31, 1907, nonrecording gage at site 13.5 mi (21.7 km) upstream at different datum. May 14, 1908, to July 16, 1909, nonrecording gage at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.—Water-discharge records fair. Diversions for irrigation of about 5,000 acres (20 km²) above station. National Weather Service gage height telemeter at station.

AVERAGE DISCHARGE.—62 years (water years 1906, 1909-10, 1913-55, 1963-78), 196 ft³/s (5.551 m³/s), 142,000 acre-ft/yr (175 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 40,000 ft³/s (1,130 m³/s) Sept. 29, 1941, gage height, 31 ft (9.4 m), from floodmarks, computed on basis of known peak flow for station below Blue Creek; minimum, 2.2 ft³/s (0.062 m³/s) Aug. 5, 1947.

EXTREMES FOR CURRENT YEAR.—Peak discharges above base of 3,000 ft³/s (85 m³/s) and maximum (*):

| Date | Time | Discharge (ft ³ /s), (m ³ /s) | Gage height (ft) (m) |
|--------|------|--|-------------------------|
| Mar. 3 | 2330 | *12,700 360 | 15.6 4.755 |

Minimum discharge, 3.1 ft³/s (0.09 m³/s) July 20.

DISCHARGE IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|-------|-------|-------|------|------|-------|------|------|
| 1 | 60 | 61 | 61 | 82 | 120 | 2390 | 533 | 180 | 88 | 33 | 13 | 51 |
| 2 | 53 | 61 | 62 | 80 | 578 | 10300 | 540 | 176 | 81 | 32 | 47 | 84 |
| 3 | 51 | 60 | 59 | 87 | 414 | 9080 | 504 | 186 | 77 | 30 | 134 | 44 |
| 4 | 53 | 56 | 63 | 77 | 325 | 3950 | 443 | 186 | 72 | 29 | 52 | 34 |
| 5 | 51 | 57 | 70 | 70 | 253 | 2060 | 381 | 160 | 66 | 29 | 74 | 26 |
| 6 | 63 | 69 | 71 | 66 | 220 | 2010 | 341 | 147 | 50 | 28 | 55 | 25 |
| 7 | 72 | 78 | 61 | 69 | 180 | 1650 | 318 | 147 | 48 | 28 | 48 | 24 |
| 8 | 64 | 93 | 66 | 81 | 160 | 1200 | 289 | 159 | 45 | 26 | 78 | 22 |
| 9 | 64 | 89 | 64 | 83 | 145 | 898 | 257 | 157 | 42 | 17 | 106 | 21 |
| 10 | 109 | 95 | 66 | 66 | 135 | 711 | 260 | 129 | 40 | 13 | 71 | 20 |
| 11 | 100 | 87 | 72 | 60 | 122 | 582 | 224 | 111 | 40 | 9.1 | 62 | 19 |
| 12 | 91 | 85 | 65 | 61 | 127 | 490 | 210 | 111 | 39 | 8.4 | 52 | 19 |
| 13 | 79 | 85 | 62 | 61 | 141 | 475 | 195 | 111 | 39 | 9.2 | 43 | 19 |
| 14 | 71 | 81 | 63 | 59 | 175 | 426 | 190 | 103 | 42 | 11 | 38 | 22 |
| 15 | 61 | 81 | 63 | 62 | 184 | 391 | 193 | 113 | 39 | 13 | 34 | 18 |
| 16 | 58 | 84 | 63 | 93 | 191 | 369 | 197 | 123 | 35 | 8.0 | 30 | 18 |
| 17 | 65 | 84 | 64 | 105 | 173 | 341 | 204 | 129 | 24 | 7.2 | 28 | 14 |
| 18 | 63 | 82 | 62 | 108 | 142 | 323 | 201 | 137 | 21 | 5.8 | 26 | 14 |
| 19 | 61 | 85 | 61 | 106 | 122 | 326 | 197 | 143 | 17 | 4.6 | 214 | 13 |
| 20 | 60 | 73 | 59 | 114 | 117 | 374 | 192 | 131 | 12 | 3.6 | 63 | 14 |
| 21 | 58 | 78 | 59 | 103 | 118 | 481 | 187 | 143 | 11 | 4.7 | 57 | 13 |
| 22 | 50 | 80 | 57 | 105 | 143 | 583 | 167 | 149 | 11 | 7.9 | 57 | 15 |
| 23 | 57 | 75 | 58 | 101 | 182 | 647 | 159 | 137 | 11 | 11 | 64 | 14 |
| 24 | 70 | 67 | 62 | 105 | 210 | 695 | 154 | 124 | 11 | 19 | 187 | 14 |
| 25 | 47 | 70 | 58 | 104 | 220 | 637 | 153 | 114 | 11 | 23 | 137 | 13 |
| 26 | 40 | 81 | 57 | 97 | 272 | 586 | 137 | 120 | 11 | 19 | 90 | 17 |
| 27 | 45 | 92 | 74 | 94 | 311 | 560 | 145 | 109 | 11 | 17 | 72 | 14 |
| 28 | 52 | 72 | 81 | 79 | 399 | 523 | 163 | 102 | 23 | 12 | 64 | 16 |
| 29 | 53 | 65 | 86 | 78 | --- | 508 | 167 | 88 | 30 | 9.2 | 56 | 13 |
| 30 | 57 | 62 | 89 | 86 | --- | 492 | 172 | 83 | 34 | 8.5 | 90 | 20 |
| 31 | 57 | --- | 87 | 160 | --- | 508 | --- | 90 | --- | 7.1 | 60 | --- |
| TOTAL | 1935 | 2288 | 2045 | 2702 | 5879 | 44566 | 7473 | 4098 | 1089 | 483.3 | 2202 | 667 |
| MEAN | 62.4 | 76.3 | 66.0 | 87.2 | 210 | 1438 | 249 | 132 | 36.3 | 15.6 | 71.0 | 22.2 |
| MAX | 109 | 95 | 89 | 160 | 578 | 10300 | 540 | 186 | 88 | 33 | 214 | 84 |
| MIN | 40 | 56 | 57 | 59 | 117 | 323 | 137 | 83 | 11 | 3.6 | 13 | 13 |
| AC-FT | 3840 | 4540 | 4060 | 5360 | 11660 | 88400 | 14820 | 8130 | 2160 | 959 | 4370 | 1320 |

CAL YR 1977 TOTAL 31890.0 MEAN 87.4 MAX 783 MIN 13 AC-FT 63250
WTR YR 1978 TOTAL 75427.3 MEAN 207 MAX 10300 MIN 3.6 AC-FT 149600

Source: Water Resources data for New Mexico Water Year 1978, U.S.
G.S. Open File Report NM-78-1

09431500 GILA RIVER NEAR REDROCK, NM -- Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061) | SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095) | PH (UNITS) (00400) | TEMPER- ATURE (DEG C) (00010) | HARD- NESS (MG/L AS CACO3) (00900) | HARD- NESS, NONCAR- BONATE (MG/L CACO3) (00902) | CALCIUM DIS- SOLVED (MG/L AS CA) (00915) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925) |
|-------|------|--|---|---|---|---|---|--|---|
| OCT | | | | | | | | | |
| 05... | 1115 | 53 | 435 | 8.2 | 20.0 | 130 | 0 | 40 | 8.1 |
| 18... | 1040 | 63 | 420 | 8.2 | 13.0 | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 02... | 1500 | 62 | 420 | 8.2 | 14.0 | -- | -- | -- | -- |
| 16... | 1100 | 81 | 395 | 8.1 | 8.5 | 140 | 0 | 41 | 8.5 |
| 29... | 1100 | 62 | 393 | 8.2 | 6.0 | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 14... | 1100 | 62 | 403 | 8.1 | 4.0 | 180 | 36 | 49 | 13 |
| JAN | | | | | | | | | |
| 09... | 1150 | 85 | 394 | 8.1 | 4.0 | -- | -- | -- | -- |
| 27... | 1050 | 94 | 373 | 8.1 | 9.0 | 130 | 0 | 38 | 7.7 |
| FEB | | | | | | | | | |
| 09... | 1435 | 153 | 329 | 8.2 | 11.0 | 110 | 0 | 31 | 7.1 |
| 24... | 1020 | 210 | 267 | 7.9 | 7.0 | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 30... | 1245 | 478 | 221 | 8.1 | 14.0 | 76 | 10 | 23 | 4.6 |
| APR | | | | | | | | | |
| 20... | 1325 | 197 | 297 | 8.3 | 17.0 | 110 | 9 | 32 | 6.8 |
| MAY | | | | | | | | | |
| 03... | 1240 | 193 | 305 | 8.5 | 17.0 | -- | -- | -- | -- |
| 16... | 1405 | 130 | 340 | 8.5 | 21.0 | -- | -- | -- | -- |
| 29... | 1415 | 91 | 350 | 8.4 | 23.0 | 120 | 0 | 35 | 7.5 |
| JUN | | | | | | | | | |
| 14... | 1210 | 48 | 391 | 8.4 | 25.0 | 130 | 0 | 40 | 8.3 |
| 23... | 1455 | 11 | 406 | 8.5 | 29.0 | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 11... | 0940 | 9.0 | 420 | 8.4 | 23.0 | 140 | -- | 42 | 8.5 |
| 27... | 1025 | 16 | 504 | 7.4 | 23.0 | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 14... | 1110 | 32 | 428 | 8.1 | 24.0 | 140 | -- | 42 | 8.3 |
| 31... | 1135 | 58 | 386 | 8.2 | 21.0 | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 13... | 1310 | 16 | 444 | 8.5 | 23.0 | 160 | -- | 47 | 9.4 |
| DATE | | SODIUM AD- SORP- TION (MG/L AS NA) (00930) | POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935) | BICAR- BONATE (MG/L AS HCO3) (00440) | CAR- BONATE (MG/L AS CO3) (00445) | ALKA- LINITY (MG/L AS CACO3) (00410) | SULFATE DIS- SOLVED (MG/L AS SO4) (00945) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950) |
| OCT | | | | | | | | | |
| 05... | 34 | 1.3 | 2.5 | 200 | 0 | 160 | 35 | 12 | 2.1 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 14... | 35 | 1.3 | 2.3 | 180 | 0 | 150 | 33 | 16 | 2.2 |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | | |
| 14... | 23 | .8 | 2.1 | 170 | 0 | 140 | 36 | 14 | 2.2 |
| JAN | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 33 | 1.3 | 1.8 | 160 | 0 | 130 | 33 | 19 | 2.2 |
| FEB | | | | | | | | | |
| 09... | 28 | 1.2 | 1.8 | 140 | 0 | 110 | 31 | 10 | 1.9 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | | |
| 30... | 16 | .8 | 1.5 | 81 | 0 | 66 | 24 | 6.2 | 1.2 |
| APR | | | | | | | | | |
| 20... | 27 | 1.1 | 2.2 | 120 | 0 | 98 | 33 | 9.7 | .7 |
| MAY | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 29... | 31 | 1.2 | 2.0 | 160 | 3 | 140 | 32 | 13 | 2.0 |
| JUN | | | | | | | | | |
| 14... | 34 | 1.3 | 2.7 | 170 | 1 | 140 | 36 | 12 | 2.2 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 11... | 37 | 1.4 | 3.3 | -- | -- | 150 | 42 | 13 | 2.3 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | |
| 14... | 38 | 1.4 | 2.7 | -- | -- | 160 | 35 | 14 | 2.1 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | |
| 13... | 37 | 1.3 | 3.3 | -- | -- | 170 | 37 | 13 | 2.1 |

Comment: Analyses of water from Gila River 20 to 30 miles downstream from Gila Hot Springs.

09431500 GILA RIVER NEAR REDROCK, NM--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | SILICA, DIS- SOLVED (MG/L AS S102) (00955) | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300) | SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301) | SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L) (00530) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631) | PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671) | BORON, DIS- SOLVED (UG/L AS B) (01020) | IRON, DIS- SOLVED (UG/L AS FE) (01046) |
|-------|--|---|---|--|--|---|---|---|
| OCT | | | | | | | | |
| 05... | 34 | 250 | 266 | -- | -- | -- | 50 | 10 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- |
| NOV | | | | | | | | |
| 02... | -- | -- | -- | 22 | -- | -- | -- | -- |
| 14... | 36 | -- | 263 | -- | .13 | .03 | 50 | 20 |
| 29... | -- | -- | -- | -- | -- | -- | -- | -- |
| DEC | | | | | | | | |
| 14... | 34 | -- | 257 | -- | -- | -- | 50 | 0 |
| JAN | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- |
| 27... | 33 | -- | 248 | -- | .25 | .05 | 50 | 0 |
| FEB | | | | | | | | |
| 09... | 33 | -- | 231 | -- | 4.1 | .05 | 40 | 0 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR | | | | | | | | |
| 30... | 25 | -- | 142 | -- | .09 | .04 | 30 | 20 |
| APR | | | | | | | | |
| 20... | 33 | -- | 204 | -- | .14 | .00 | 40 | 40 |
| MAY | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- |
| 29... | 32 | 222 | 238 | -- | .33 | .05 | 50 | 20 |
| JUN | | | | | | | | |
| 14... | 34 | -- | 254 | -- | .05 | .05 | 50 | 30 |
| 23... | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | |
| 11... | 34 | -- | 272 | -- | .06 | .07 | 60 | 20 |
| 27... | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | |
| 14... | 37 | -- | 276 | -- | .01 | .04 | 60 | 10 |
| 31... | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | |
| 13... | 33 | -- | 284 | -- | .02 | .04 | 90 | 10 |

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

| DATE | TIME | SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L) (00530) | GROSS ALPHA, DIS- SOLVED (UG/L U-NAT) (80030) | GROSS ALPHA, SUSP. TOTAL (UG/L U-NAT) (80040) | GROSS BETA, DIS- SOLVED (CS-137) (03515) | GROSS BETA, SUSP. TOTAL (PC1/L CS-137) (03516) | GROSS BETA, DIS- SOLVED (AS SR/ YT-90) (80050) | GROSS BETA, SUSP. TOTAL (PC1/L AS SR/ YT-90) (80060) | RADIUM 226, DIS- SOLVED, RADON METHOD (PC1/L) (09511) | URANIUM NATURAL SOLVED (UG/L AS U) (22703) | URANIUM DIS- SOLVED, EXTRAC- TION (UG/L) (80020) |
|-------|------|--|---|---|---|--|--|---|--|---|--|
| NOV | | | | | | | | | | | |
| 02... | 1500 | 22 | <4.1 | .9 | 3.2 | 1.1 | 2.8 | 1.2 | .08 | 1.4 | -- |
| MAY | | | | | | | | | | | |
| 29... | 1415 | -- | <2.4 | <.4 | 3.0 | 4.4 | -- | -- | .03 | 1.6 | -- |
| SEP | | | | | | | | | | | |

RECEIVED
JAN - 7 1980
OIL CONSERVATION DIVISION
SANTA FE

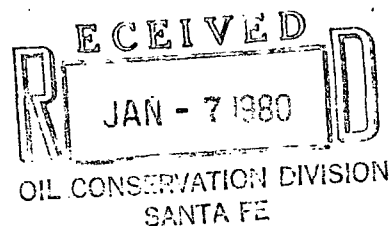
CHEMICAL ANALYSIS OF WATER FROM
UPPER GILA RIVER DRAINAGE

Location

Gila Hot Springs
13S. 13W. 5. 241

| Date | 6-23-57 | 7-25-62† | 2-17-66 |
|--|---------------|--------------|---------|
| SiO ₂ | 33. | 68. | 74. |
| Al | | 0.31 | 0 |
| Fe | 0.04 | 0.00 | 0 |
| Mn | | 0.00 | 0.42 |
| As | | | 0.011 |
| Ca | 11. | 12. | 11. |
| Mg | 0.2 | 0.0 | <0.1 |
| Na | } 129. | 121. | 127. |
| K | | 3.6 | 3.6 |
| Li | | 0.23 | 0.27 |
| Se | | | 0 |
| HCO ₃ | 109. | 106. | 79. |
| CO ₃ | 0 | 0 | 0 |
| SO ₄ | 40. | 45. | -- |
| Cl | 104. | 102. | 104. |
| F | 12. | 9. | 3.4 |
| Br | | | 0.18 |
| I | | | 0.0096 |
| NO ₃ | 0.5 | 0.7 | -- |
| NO ₂ | | | 0.0053 |
| B | 0.07 | | 0.19 |
| PO ₄ | | 0.00 | 0.17 |
| Dissolved Solids calculated | 384. | 414. | -- |
| Dissolved Solids Residue | 369. | 421. | 496. |
| Hardness (as CaCO ₃) | 28. | 30. | -- |
| Noncarbonate Hardness (as CaCO ₃) | 0 | 0 | -- |
| Specific Conductance (micromhos) | 653. | 638. | 560. |
| pH | 8.2 | 7.5 | 8.1 |
| Density (gm/ml) | | | 0.997 |
| Acidity (meq/l H ⁺) free | | | 0 |
| total | | | 0.012 |
| Remarks | USGS 36105 | USGS 4897 | NMBMMR |

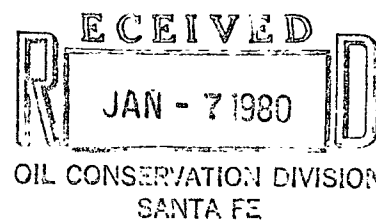
† Beta-gamma activity (pc/l) = 12 ± 2
Radium (pc/l) = < 0.1
Uranium (g/l) = 1.4 ± 0.1



CHEMICAL ANALYSIS OF WATER FROM
UPPER GILA RIVER DRAINAGE

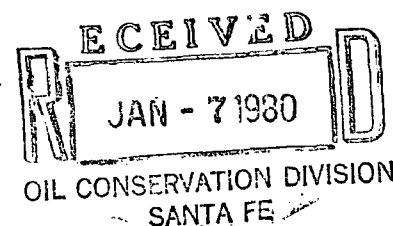
| Location | Test well area, Middle Fork Gila River | | | | |
|--|--|-------------------|-------------------|----------------|---------------|
| | 12S. 13W. 30. 231 | 12S. 13W. 30. 124 | 12S. 14W. 25. 341 | Gila River * | |
| Date | 7-31-64 | 8-8-64 | 7-22-62 | 4-24-64 | 1-13-65 |
| SiO ₂ | 20. | 44 | 31 | -- | 31 |
| Al | | | | | |
| Fe | 0.03 | 0.07 | 0.00 | 0.06 | 0.08 |
| Mn | | | | 0.00 | |
| As | | | | | |
| Ca | 505. | 22. | 26. | 14. | 13. |
| Mg | 0.0 | 3.4 | 5.1 | 3.6 | 1.6 |
| Na | 224. | 38. | 11. | 14. | 17. |
| K | 1.6 | 2.3 | | 1.1 | 1.6 |
| Li | | | | | |
| Se | | | | | |
| HCO ₃ | 15. | 116. | 90. | 49. | 64. |
| CO ₃ | 3. | 0 | 0 | 0 | 0 |
| SO ₄ | 1604. | 25. | 20. | 20. | 14. |
| Cl | 52. | 18. | 51. | 5.8 | 6.0 |
| F | 7.8 | 3.0 | 0.9 | 1.3 | 1.7 |
| Br | | | | | |
| I | | | | | |
| NO ₃ | 0.2 | 0.1 | 6.3 | 0.00 | 0.2 |
| NO ₂ | | | | | |
| B | 0.39 | 0.04 | -- | -- | 0.04 |
| PO ₄ | | | | | |
| Dissolved Solids calculated | 2420. | 213. | 149. | -- | 117. |
| Dissolved Solids Residue | 2540. | 210. | 156. | 138. | 126. |
| Hardness (as CaCO ₃) | 1260. | 69. | 86. | 50. | 39. |
| Noncarbonate Hardness (as CaCO ₃) | 1240. | 0 | 12. | -- | 0 |
| Specific Conductance (micromhos) | 2710. | 304. | 219. | 165. | 165. |
| pH | 8.7 | 7.6 | 7.0 | 7.7 | 7.8 |
| Density (gm/ml) | | | | | |
| Acidity (meq/l H ⁺) | | | | | |
| Remarks | USGS 54856 | USGS 25845 | USGS 50021 | NMPHL 8-347 | USGS 54287 |

* Chemical analyses of water from the Gila River about 6 miles upstream from Gila Hot Springs.



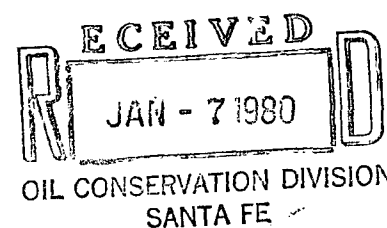
LITHOLOGIC LOG: Trailer Park Well, Gila Hot Spring Trading Post (NE $\frac{1}{4}$, NW $\frac{1}{4}$, Section 5, T.13S., R.13W) Grant County, New Mexico.
By: R. M. Colpitts, Jr., August 20, 1979.
Cable tool samples.

| Depth (ft.) | | |
|----------------|-----|---|
| From | To | Rock type and description |
| 0 | 205 | No samples. |
| 205 | 210 | <u>RHYOLITE</u> - tan to light brown, slightly welded, consists of 70% potassium feldspar, 15% quartz, 10% plagioclase, 3% glass shards, and 2% dark minerals. |
| 210 | 215 | No samples. |
| 215 | 220 | <u>RHYOLITE</u> - light brown to brown, slightly welded, consists of 73% potassium feldspar, 12% quartz, 5% glass, 5% plagioclase, and 5% hornblende, biotite and other dark minerals. |
| 220 | 225 | <u>VITROPHYRE</u> - very dark brown, perthitic, composed of 43% feldspar intermixed with 35% glass, 7% hornblende, 5% quartz, 5% biotite, and 5% other dark minerals. |
| 225 | 230 | No samples. |
| 230 | 235 | <u>VITROPHYRE</u> - dark brown, perthitic, composed of 38% feldspar intermixed with 45% glass, 7% hornblende, 5% biotite, 5% other dark minerals, and a trace of olivine. |
| 235 | 270 | No samples. |
| 270 | 275 | <u>QUARTZ LATITE(?)</u> - dark brown, vitric, composed of 45% feldspar, 25% hornblende, 12% quartz, 10% glass, 3% tuffaceous rock fragments, 2% biotite, 2% other dark minerals, and 1% unknown minerals. |
| 275 | 290 | No samples. |
| 290 | 295 | <u>RHYOLITE</u> - red brown to dark brown, slightly welded, composed of 53% potassium feldspar, 30% quartz, 5% hornblende, 5% biotite, 5% unknown dark minerals, 2% glass. |



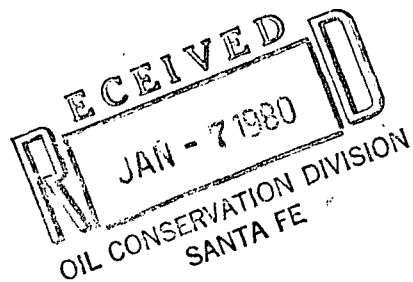
LITHOLOGIC LOG: Trailer Park Well, Gila Hot Spring Trading
Post (NE $\frac{1}{4}$, NW $\frac{1}{4}$, Section 5, T.13S., R.13W)
Grant County, New Mexico

| Depth (ft.) | | Rock type and description |
|----------------|-----|---|
| From | To | |
| 295 | 300 | No samples. |
| 300 | 305 | RHYOLITE - brown to gray-brown, composed of 60% potassium feldspar, 35% quartz, 3% other unknown minerals (zeolites?), and 2% hornblende. |
| 305 | 350 | No samples. |
| 350 | 355 | Same as 300-305, though soft and probably altered. |
| 355 | 365 | No samples. |
| 365 | 370 | Same as 300-305, though very soft. |
| 370 | 375 | RHYOLITE - brown to dark brown, very fine-grained, composed of 75%(?) feldspars, 15% dark minerals, 10% quartz, and 10% other minerals [including zeolites(?)]. |
| 375 | 395 | No samples. |
| 395 | 400 | RHYOLITE - brown to very dark brown, composed of 68%(?) feldspars, 20% quartz, 5% hornblende, 3% magnetite(?), 2% pyroxene, 2% other minerals [zeolites(?)] and a trace of biotite. |
| 400 | 405 | RHYOLITE - brown to dark brown, composed of 55%(?) feldspar, 30% quartz, 10% pyroxene, 2% hornblende, 2% other minerals [zeolites(?)] and 1% biotite. |
| 405 | 410 | RHYOLITE(?) - light brown to gray-brown, composed of 48% feldspar(?), 30% quartz, 7% dark minerals, and 5% other minerals. |
| 410 | 415 | Same as 405-410. |
| 415 | 420 | Same as 402-410. |
| 420 | 425 | Same as 405-410. |
| 425 | 430 | UNKNOWN - heavy clayey silt with grains of pyroxene (?) suspended in it. May be cuttings or may be drill mud, cannot determine. |



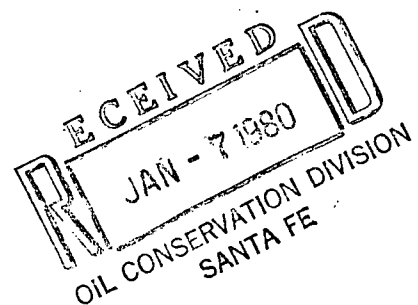
TEMPERATURE LOG: Gila Hot Springs Trading Post, Trailer Park
Well (NE $\frac{1}{4}$, NW $\frac{1}{4}$, Section 5, T.13 S., R. 13 W.)
Grant County, New Mexico.
By R.M. Colpitts, Jr., September 10, 1979.

| Sept 1979 | Time | Depth (ft.) | °C | °F | Comments |
|--------------|------|----------------|------|------|--|
| 7 | 1350 | 0 | 32.5 | 90.5 | Ambient air temperature |
| | 1400 | 5 | 24.6 | 76.3 | |
| | 1405 | 10 | 22.0 | 71.6 | Top of casing = 1.00' above |
| | 1410 | 15 | 19.6 | 67.3 | land surface |
| | 1415 | 20 | 18.1 | 64.6 | |
| | 1420 | 25 | 17.5 | 63.5 | |
| | 1425 | 30 | 17.3 | 63.1 | "Surface water zone" reported by Doc Campbell |
| | 1430 | 35 | 17.4 | 63.3 | |
| | 1435 | 40 | 17.6 | 63.7 | |
| | 1440 | 45 | 17.7 | 63.9 | |
| | 1445 | 50 | 17.9 | 64.2 | |
| | 1450 | 55 | 18.0 | 64.4 | |
| | 1455 | 60 | 18.2 | 64.8 | Depth to water = 63.25' |
| | 1500 | 65 | 18.2 | 64.8 | |
| | 1505 | 70 | 18.2 | 64.8 | |
| | 1510 | 75 | 18.2 | 64.8 | |
| | 1515 | 80 | 18.2 | 64.8 | |
| | 1520 | 85 | 18.1 | 64.6 | |
| | 1525 | 90 | 18.2 | 64.8 | |
| | 1530 | 95 | 18.2 | 64.8 | |
| | 1535 | 100 | 18.3 | 64.9 | |
| | 1540 | 105 | 19.0 | 66.2 | Temperature fluctuating wildly |
| | 1545 | 110 | 18.6 | 65.5 | |
| | 1550 | 115 | 18.6 | 65.5 | |
| | 1555 | 120 | 18.7 | 65.7 | |
| | 1600 | 125 | 18.8 | 65.8 | |
| | 1605 | 130 | 18.9 | 66.0 | |
| | 1610 | 135 | 18.9 | 66.0 | |
| | 1615 | 140 | 18.9 | 66.0 | |
| | 1620 | 145 | 19.1 | 66.4 | |
| | 1625 | 150 | 19.2 | 66.6 | |
| | 1630 | 155 | 19.3 | 66.7 | |
| | 1635 | 160 | 19.3 | 66.7 | |
| | 1640 | 165 | 19.3 | 66.7 | |
| | 1645 | 170 | 19.5 | 67.1 | |
| | 1650 | 175 | 19.7 | 67.5 | |
| | 1655 | 180 | 19.6 | 67.3 | |
| | 1700 | 185 | 19.8 | 67.6 | |
| | 1705 | 190 | 19.8 | 67.6 | |
| | 1710 | 195 | 20.0 | 68.0 | |
| | 1715 | 200 | 20.1 | 68.2 | |
| | 1720 | 205 | 20.2 | 68.4 | |



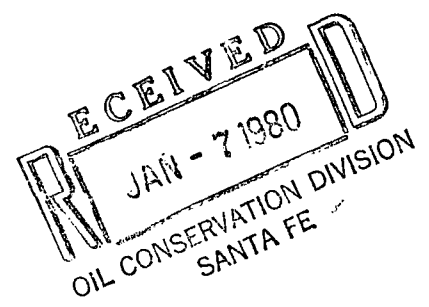
TEMPERATURE LOG: Gila Hot Springs Trading Post, Trailer Park
Well (cont).

| Sept 1979 | Time | Depth (ft.) | °C | °F | Comments |
|--------------|------|----------------|------|-------|---|
| 7 | 1725 | 210 | 20.3 | 68.5 | |
| | 1730 | 215 | 20.4 | 68.7 | |
| | 1735 | 220 | 20.7 | 69.3 | |
| | 1740 | 225 | 20.7 | 69.3 | |
| | 1745 | 230 | 20.9 | 69.6 | |
| | 1750 | 235 | 20.9 | 69.6 | |
| | 1755 | 240 | 21.2 | 70.2 | |
| | 1800 | 245 | 21.2 | 70.2 | Probe hung @ 245'. Cannot get past. Resume in morning. |
| 8 | 0925 | 250 | 21.3 | 70.3 | Checked temperature @ 245', 240', and 235' @0915 and temperature remained same as previous day at each mea- suring point. |
| | 0930 | 255 | 21.6 | 70.9 | |
| | 0935 | 260 | 21.9 | 71.4 | |
| | 0940 | 265 | 23.7 | 74.7 | Temperature fluctuating wildly |
| | 0945 | 270 | 25.5 | 77.9 | |
| | 0950 | 275 | 27.4 | 81.3 | |
| | 0955 | 280 | 28.8 | 83.8 | |
| | 1000 | 285 | 30.2 | 86.4 | |
| | 1005 | 290 | 31.1 | 88.0 | |
| | 1010 | 295 | 32.0 | 89.6 | |
| | 1015 | 300 | 32.7 | 90.9 | |
| | 1020 | 305 | 33.4 | 92.1 | |
| | 1025 | 310 | 34.0 | 93.2 | |
| | 1030 | 315 | 34.5 | 94.1 | |
| | 1035 | 320 | 35.0 | 95.0 | |
| | 1040 | 325 | 35.4 | 95.7 | |
| | 1045 | 330 | 35.8 | 96.4 | |
| | 1050 | 335 | 36.2 | 97.2 | |
| | 1055 | 340 | 36.6 | 97.9 | |
| | 1100 | 345 | 36.8 | 98.2 | |
| | 1105 | 350 | 37.2 | 99.0 | |
| | 1110 | 355 | 37.5 | 99.5 | |
| | 1115 | 360 | 37.8 | 100.0 | |
| | 1120 | 365 | 38.0 | 100.4 | |
| | 1125 | 370 | 38.2 | 100.8 | |
| | 1130 | 375 | 38.4 | 101.1 | |
| | 1135 | 380 | 38.6 | 101.5 | |
| | 1140 | 385 | 38.7 | 101.7 | |
| | 1145 | 390 | 39.5 | 103.1 | Jump in temperature @ 388' |
| | 1150 | 395 | 39.9 | 103.8 | |



TEMPERATURE LOG: Gila Hot Springs Trading Post, Trailer Park
Well (cont).

| Sept 1979 | Time | Depth (ft.) | °C | °F | Comments |
|--------------|------|----------------|------|-------|---------------|
| 8 | 1155 | 400 | 40.1 | 104.2 | |
| | 1200 | 405 | 40.3 | 104.5 | |
| | 1205 | 410 | 40.5 | 104.9 | |
| | 1210 | 415 | 40.8 | 105.4 | |
| | 1215 | 420 | 41.0 | 105.8 | |
| | 1220 | 425 | 41.3 | 106.3 | |
| | 1225 | 430 | 41.4 | 106.5 | |
| | 1227 | 432.5 | 41.5 | 106.7 | T.D. = 432.5' |



'85 MAY 16 AM 11 47

- 2 -

STATE ENGINEER
DENING, NM

APPLICATION FOR PERMIT

7. have to be cased off. If casing becomes necessary, the hole should be cased with nominal 10 inch diameter casing, which should be cemented in place with temperature-resistant cement that is forced through the casing and back to the surface through the annulus between the hole wall and the casing. A 9 and 5/8 inch diameter hole should be drilled through the full thickness of the underlying sedimentary rocks. If casing is needed, the hole can be cased with mill-slotted, nominal 8-inch diameter casing."

Unused wells will be plugged as directed and to the satisfaction of both the State Engineer and the New Mexico Oil Conservation Commission.

The non-consumptive water will be returned underground into non-production wells and/or according to the recommendations of the State Engineer and other concerned agencies.

Consumptive use of water is not expected. However, if short falls or losses occur, those losses will be compensated for by transfer of consumptive water rights held by permittees.

The Rankine Cycle Electric Generating System requires water temperatures 150° F or higher. Efficiency of the unit increases with higher temperature water. Therefore, water 10° to 20° F above the flows of the hot springs is sought by further exploration and development.

Attached: map - Section of Gila Hotsprings Area.



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

June 22, 1989

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

Mr. Charlie Reeves
24761 La Vida Drive
Laguna Niguel, California 92677

Re: Low-Temperature Geothermal Well
Gila Hot Springs, New Mexico

Dear Mr. Reeves:

I am writing to you in regards to a recent correspondence that this office has received from Mr. D. A. Campbell (enclosed).

Please be advised that the New Mexico Oil Conservation Division has regulatory authority on well spacing and density for low-temperature geothermal wells.

Should the purpose of your proposed well be for consumptive water use, the New Mexico State Engineer's office in Deming will assign you a permit and water appropriation for this well. If it is your desire to use this proposed well for the purpose of extracting heat for whatever purpose, then you must comply with this office's regulations and the New Mexico State Engineer's regulation.

Should you desire to obtain a copy of our Geothermal Rules and Regulations, please contact me at this office. The cost is \$5.00 per copy.

Sincerely,

A handwritten signature in dark ink, appearing to read "Roy E. Johnson".

ROY E. JOHNSON,
Sr. Petroleum Geologist

REJ/dr

cc: D. A. Campbell
New Mexico State Engineer's Office
Deming, New Mexico

Doc Campbell

Gila Hotsprings
Rt. 11-Box 80

Silver City, New Mexico 88061

536-9340

June 16, 1989

Mr. Dave Boyer
New Mexico Oil Conservation Division
Geothermal Section
P.O. Box 2088
Santa Fe, New Mexico 87503

RECEIVED

JUN 19 1989

OIL CONSERVATION DIV.
SANTA FE

Dear Mr. Boyer:

A Charlie Reeves, 24761 La Vida Drive - Laguna Niquel, California 92677, has contacted Oliver Drilling, San Lorenzo, New Mexico, to drill a geothermal well on his Lot 30 of the Gila Hotsprings Subdivision. This lot is opposite Lot 58, the hot springs area.

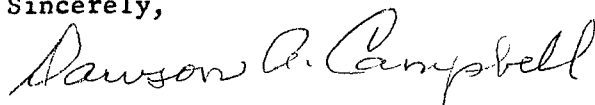
Reeves' proposed geothermal well is within the 10-acre division of Section 5, within which our Campbell Well #4 is located. This is one of the production wells permitted by the State Engineer in GSF-2419 thru GSF-2425 inclusive, August 5, 1986.

This permit also gives us the right to drill a test or production well on the adjoining 10-acre block.

It is our understanding that the New Mexico Oil Conservation Division permits no more than one low-temperature geothermal well to be drilled within each 10-acre lot. We are concerned that irresponsible drilling will have an adverse effect on the geothermal resources; and specifically on the hot springs area and production well #4.

We would certainly appreciate your early attention to this matter.

Sincerely,



Dawson A. Campbell

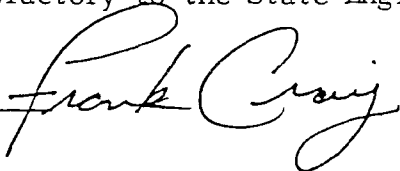
Encls. GSF-2419 thru GSF-2425 incl.
with attachments.

cc: R.Q. Rogers

CONDITIONS OF APPROVAL

File No. GSF-2419 thru GSF-2425 Inclusive
Applicant: Dawson A. & Ida F. Campbell

1. The well shall be constructed to specifications of Artesian Wells - Construction Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Groundwater in New Mexico 4-15 through 4-19.1.
2. All water diverted under this permit shall be returned to the underground water source or directly to the Gila River in a manner and at locations acceptable to the State Engineer, which will not cause a depletion of the water so diverted.
3. No consumptive use of water is authorized under this permit.
4. This permit shall not be exercised to the impairment of any other persons having prior existing rights to the use of underground waters.
5. Upon notice from the State Engineer this system shall be equipped with totalizing meters of a type and installed in a manner and at locations acceptable to the State Engineer.
6. The total diversion of water shall not exceed 968 acre-feet per year in the combined use of two (2) wells. Prior to appropriation the permittee shall advise the State Engineer of which two wells he will use for the appropriation of water under this permit. The remaining wells shall be plugged or capped in a manner satisfactory to the State Engineer.

Date of Approval: 8-5-86 

121450 D. = \$35.00

RECEIVED

APPLICATION FOR PERMIT

JUN 19 1989

OIL CONSERVATION DIV.
SANTA FE

OIL CONSERVATION DIV.
SANTA FE

Date Received May 16, 1985 File No. GSF-2419 thru GSF-2425 Inclusive

1. Name of applicant Dawson A. and Ida F. Campbell
Mailing address Rt. 11, Box 80, Silver City, New Mexico 88061
City and State _____
2. Source of water supply underground deep aquifer located in Upper Gila River
(artesian or shallow water aquifer) (name of underground basin)
3. The well is to be located in the W $\frac{1}{2}$ ~~XX~~ $\frac{1}{4}$ NE $\frac{1}{4}$, Section 5 Township 13 S
Range 13W N.M.P.M., or Tract No. _____ of Map No. _____ of the _____ District,
on land owned by Dawson A. and Ida F. Campbell.
4. Description of well: name of driller non-contracted at present;
Outside Diameter of casing 14, 10, 8, 6, inches; Approximate depth to be drilled 300 to 600 feet;
5. Quantity of water to be appropriated and beneficially used non-consumptive, 968 acre-feet/year
(consumptive use, diversion)
for generating electricity, space heating and domestic non-consumptive purposes.
6. Acreage to be irrigated or place of use private lands in Sec. 5, T 13S, R 13W, NMPM acres.

| Subdivision | Section | Township | Range | Acres | Owner |
|-------------|---------|----------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| C.D. | | | | | |
| | | | | | |
| E.D. | | | | | |
| F.D. | | | | | |
| G.D. | | | | | |

7. Additional statements or explanations. Application is for a permit to drill seven (7) test and/or two (2) production wells in the NE 1/4 of the NE 1/4 of Sec. 5, T13S, R13W, NMPM, and within the Gila Hot Springs Known Geothermal Area:

- | | | | |
|---------|--|---|---|
| Well #3 | - E $\frac{1}{2}$ of NW $\frac{1}{4}$ of Lot 2 of Sec. 5, T13S, R13W | | |
| " 4 | - W $\frac{1}{2}$ of SE $\frac{1}{4}$ of Lot 2 | " | " |
| " 5 | - W $\frac{1}{2}$ of NE $\frac{1}{4}$ of Lot 2 | " | " |
| " 6 | - E $\frac{1}{2}$ of SE $\frac{1}{4}$ of Lot 2 | " | " |
| " 7 | - W $\frac{1}{2}$ of SE $\frac{1}{4}$ of Lot 2 | " | " |
| " 8 | - E $\frac{1}{2}$ of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Sec. 5 | " | " |
| " 9 | - E $\frac{1}{2}$ of NE $\frac{1}{4}$ of SW $\frac{1}{4}$ NE $\frac{1}{4}$ | " | " |

Primarily, the purpose is to locate and produce geothermal energy for the generation of electricity, using the higher temperatures. Then to further extract the remaining heat as space heating in homes, commercial buildings and other space heating applications in Section 5, above. Of the 7 wells listed, 5 are primarily to determine the heat gradient and water bearing qualities of the geological formations. The two listed as #4 and #6 are estimated to be the most promising sites for deeper holes.

(Quoting from Kelly Summers)" The wells should have 14 inch diameter surface casing cemented in place to a depth of 50 feet. A 12 inch diameter hole should be drilled through the volcanics. The volcanics will probably
(continued on attached page)

- I, Norman W. Campbell, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Harriet B. Campbell, Permittee,

By: _____

Subscribed and sworn to before me this 15th day of May, A.D., 1985.

My commission expires 12/17/86 Alfred F. Hill
Notary Public

Number of this permit GSF-2419 thru GSF-2425 Inclusive

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; ~~further provided that all rules and regulations of the State Engineer pertaining to the drilling of~~ wells be complied with; and further subject to the following conditions: and is not detrimental to the public welfare or contrary to the conservation of water within the state; further provided that: all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and further subject to the following conditions:

See Attached Conditions of Approval

Proof of completion of well shall be filed on or before _____, 19____

Proof of application of water to beneficial use shall be filed on or before _____, 19____

Witness my hand and seal this 5th day of August, A.D., 19 86.

S. E. Reynolds, State Engineer

By: Frank Craig

Frank Craig
Water Rights Division

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$5.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

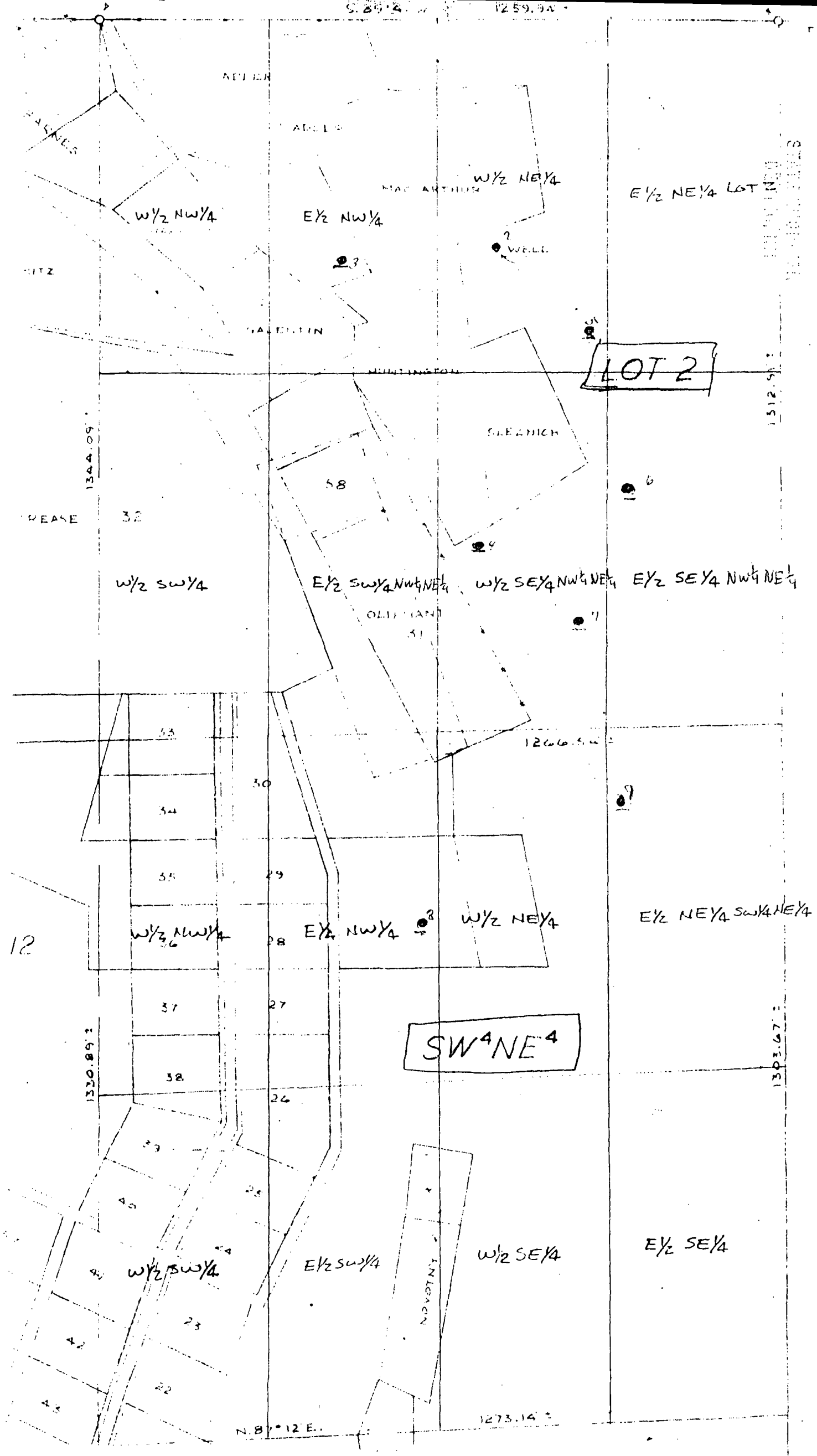
Secs. 1-4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

95 NW 10 2111 47



36 MAR 21 1986 IMPORTANT - (SEE INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM)

138065D - \$5.00

STATE ENGINEER
APPLICATION FOR PERMIT TO CHANGE LOCATION OF WELL AND PLACE OR PURPOSE OF USE OF UNDERGROUND WATERS

File No. GSF-1958 into GSF-2474

1. Name of Water Right Owner Angus & Kathleen Campbell
Mailing address HCR 88072 - 3796 Hwy 15
City and State Silver City, N. M. 88061

2. Source of water supply shallow, located in Gila
(artesian or shallow water aquifer) (name of underground basin)

3. Right was acquired for irrigation purposes and recorded under File No. GSF-1958

4. Well and acreage from which rights are to be severed:
(a) Well is in the W $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ Section 5 Township 13 S Range 13 W M.P.M.,
or Tract No. _____ of Map No. _____ of the _____ District.
(b) Quantity of water to be transferred 2 acre feet to be severed from _____ acres of land
described as follows:

| Subdivision | Section | Township | Range | Acres | Owner |
|---|----------|-------------|-------------|------------|-------|
| <u>W$\frac{1}{2}$ E$\frac{1}{2}$ NW$\frac{1}{4}$</u> | <u>5</u> | <u>13 S</u> | <u>13 W</u> | <u>1.0</u> | |

* Amount of water appropriated shall not exceed 24.0 acre-feet per acre in any period of ten (10) consecutive years and not to exceed 2.8 acre-feet per acre in any one (1) year measured at the well.

(c) Is well to be plugged no. If not, state for what use retained: used for other rights
(d) If there are other sources of water for these lands, describe by file No. _____

5. Application is made to change location of well and place or purpose of use for following reasons:

Transfer rights to our land

6. Well to which transfer is to be made:
(a) Located in the N $\frac{1}{2}$ XX NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 5 Township 13 S Range 13 W M.P.M.,
or Tract No. _____ of Map No. _____ of the _____ District.
on land owned by Angus & Kathleen Campbell
(b) If existing well, give File No. GSF-1923 Test Well
(c) If a new well, give name of driller _____
(d) Outside diameter of casing 6-5/8 inches; Approximate depth to be drilled 763 feet;

7. Acreage to which transfer is to be made (a) 1.0 acres described as follows:

| Subdivision | Section | Township | Range | Acres | Owner |
|--|----------|-------------|-------------|------------|-------|
| <u>NE$\frac{1}{4}$ NW$\frac{1}{4}$</u> | <u>5</u> | <u>13 S</u> | <u>13 W</u> | <u>1.0</u> | |

* Amount of water appropriated shall not exceed 24.0 acre-feet per acre in any period of ten (10) consecutive years and not to exceed 2.8 acre-feet per acre in any one (1) year measured at the well.

(b) Water to be used thereon for Domestic, stock, irrigation purposes:
(c) If there are other sources of water for these lands, describe by File No. _____

8. Additional statements or explanations _____

We, Angus & Kathleen Campbell, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the sole owner and holder of said water right.
(sole, partial, agent for, etc.,)

By: Kathleen M. Campbell, Permittee,
Angus L. Campbell

Rebecca Campbell Beck

Subscribed and sworn to before me this 17th day of March A.D., 1986

My commission expires 12/19/86 Alice F. Hill
Notary Public

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; is not contrary to conservation of water within the state and is not detrimental to the public welfare of the state and subject to the following conditions; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied within; and further subject to the following conditions:

1. All water rights appurtenant to the 1.0 acre of land at the move-from location are transferred therefrom and said land shall not be irrigated from any source.
2. The amount of water appropriated shall not exceed 24.0 acre-feet per acre in any period of ten (10) consecutive years and not to exceed 2.8 acre feet per acre in any one (1) year measured at the well.
3. Upon notice from the State Engineer said well shall be equipped with a totalizing meter of a type approved by and installed in a manner and at a location acceptable to the State Engineer.
4. Proof of Completion of Well shall be filed on or before May 31, 1987.

Proof of application of water to beneficial use shall be filed on or before May 31, 19 87

Witness my hand and seal this 28th day of July, A.D., 19 86

S. E. Reynolds, State Engineer

By: Frank Craig

Frank Craig
Water Rights Division

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and must be accompanied by a \$5.00 filing fee. Each triplicate copy must be properly signed and attested. If applicant is not recorded owner of water right, Change of Ownership affidavit must accompany this application. If additional space is required use a separate sheet or sheets and attach securely hereto.

Note: It is unlawful, after a transfer has been completed, to apply water on the lands or uses from which right has been severed, or to use more water than the owner had a valid right to use before transfer was made. Supplementary water rights, by their very nature, cease to exist for those lands from which rights are transferred; also they cannot be transferred to other lands as new or primary water rights.

All blanks in Section 1 - 8 shall be filled out fully and accurately. Sec. 2 - 4, describe all essential features of the water right or rights involved in the proposed change. Sec. 5, explain fully why change is desired or necessary. Sec. 6, describe well (or wells) to which transfer is to be made and if it is an existing well. Sec. 7, describe lands or uses to which transfer is to be made and set forth any other rights appurtenant thereto. Sec. 8, explain any features or conditions not made clear in previous sections.

APPLICATION FOR PERMIT

Date Received May 16, 1985 File No. GSF-2419 thru GSF-2425 Inclusive

1. Name of applicant Dawson A. and Ida F. Campbell
Mailing address Rt. 11, Box 80, Silver City, New Mexico 88061
City and State _____

2. Source of water supply underground deep aquifer located in Upper Gila River
(artesian or shallow water aquifer) (name of underground basin)

3. The well is to be located in the W $\frac{1}{2}$ ~~XX~~ $\frac{1}{4}$ NE $\frac{1}{4}$, Section 5 Township 13 S
Range 13W N.M.P.M., or Tract No. _____ of Map No. _____ of the _____ District,
on land owned by Dawson A. and Ida F. Campbell.

4. Description of well: name of driller non-contracted at present;
Outside Diameter of casing 14, 10, 8, 6, inches; Approximate depth to be drilled 300 to 600 feet;

5. Quantity of water to be appropriated and beneficially used non-consumptive, 968 acre-feet/year
(consumptive use, diversion)
for generating electricity, space heating and domestic non-consumptive purposes.

6. Acreage to be irrigated or place of use private lands in Sec. 5, T 13S, R 13W, NMPM acres.

[illegible]

7. Additional statements or explanations: Application is for a permit to drill seven (7) test and/or two (2) production wells in the W $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Sec. 5, T13S, R13W, NMPM, and within the Gila Hotsprings Known Geothermal Area:
- | | | | |
|--|----------|----------|----------|
| <u>Well #3 - E$\frac{1}{2}$ of NW$\frac{1}{4}$ of Lot 2 of Sec. 5, T13S, R13W</u> | | | |
| <u>" 4 - W$\frac{1}{2}$ of SE$\frac{1}{4}$ of Lot 2</u> | <u>"</u> | <u>"</u> | <u>"</u> |
| <u>" 5 - W$\frac{1}{2}$ of NE$\frac{1}{4}$ of Lot 2</u> | <u>"</u> | <u>"</u> | <u>"</u> |
| <u>" 6 - E$\frac{1}{2}$ of SE$\frac{1}{4}$ of Lot 2</u> | <u>"</u> | <u>"</u> | <u>"</u> |
| <u>" 7 - W$\frac{1}{2}$ of SE$\frac{1}{4}$ of Lot 2</u> | <u>"</u> | <u>"</u> | <u>"</u> |
| <u>" 8 - E$\frac{1}{2}$ of NW$\frac{1}{4}$ of SW$\frac{1}{4}$NE$\frac{1}{4}$ of Sec. 5</u> | <u>"</u> | <u>"</u> | <u>"</u> |
| <u>" 9 - E$\frac{1}{2}$ of NE$\frac{1}{4}$ of SW$\frac{1}{4}$NE$\frac{1}{4}$</u> | <u>"</u> | <u>"</u> | <u>"</u> |

Primarily, the purpose is to locate and produce geothermal energy for the generation of electricity, using the higher temperatures. Then to further extract the remaining heat as space heating in homes, commercial buildings and other space heating applications in Section 5, above. Of the 7 wells listed, 5 are primarily to determine the heat gradient and water bearing qualities of the geological formations. The two listed as #4 and #6 are estimated to be the most promising sites for deeper holes.

(Quoting from Kelly Summers)" The wells should have 14 inch diameter surface casing cemented in place to a depth of 50 feet. A 12 inch diameter hole should be drilled through the volcanics. The volcanics will probably
(continued on attached page)

I, Nansen W. Campbell, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Nathan B. Campbell, Permittee,

By: _____

Subscribed and sworn to before me this 15th day of May, A.D., 1985

My commission expires 12/19/86 Philip F. Noll
Notary Public

Number of this permit GSE-2419 thru GSE-2425 Inclusive

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; ~~further provided that all rules and regulations of the State Engineer pertaining to the drilling of~~ and is not detrimental to the public welfare or contrary to the ~~wells be complied with; and further subject to the following~~ conservation of water within the state; further provided that ~~all rules and regulations of the State Engineer pertaining to the~~ drilling of shallow wells be complied with; and further subject ~~to the following conditions:~~

See Attached Conditions of Approval

Proof of completion of well shall be filed on or before _____, 19____

Proof of application of water to beneficial use shall be filed on or before _____, 19____

Witness my hand and seal this 5th day of August, A.D., 19 86

S. E. Reynolds, State Engineer

By: Frank Craig

Frank Craig
Water Rights Division

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$5.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1-4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

November 15, 2000

Lori Wrotenbery
Director
Oil Conservation Division

Ms. Ysabel C. Luecke
HC 68 Box 80
Silver City, NM 88061

Re: \$2,000 One-Well Low-Temperature Thermal Well
or Geothermal Observation Well Bond
D. A. "Doc" Campbell and Ida Campbell, Principal
Safeco Insurance Company of America, Surety
Campbell et al Well #2 - Unit B, Section 5,
Township 13 South, Range 13 West,
Bond No. 2877373

Dear Ms. Luecke:

The New Mexico Oil Conservation Division hereby approves the cancellation of the
above-referenced geothermal bond and releases Safeco Insurance Company of America
from any liability.

Sincerely,

A handwritten signature in dark ink, appearing to read "Lyn S. Hebert".

LYN S. HEBERT
Attorney
Oil Conservation Division

cc: Oil Conservation Division – Roy Johnson

Safeco Insurance Company of America
SAFECO Plaza
Seattle, Washington 98185-0001



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

November 2, 1987

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

The Millers Mutual Fire
Insurance Co.
P. O. Box 2269
Fort Worth, Texas 76113

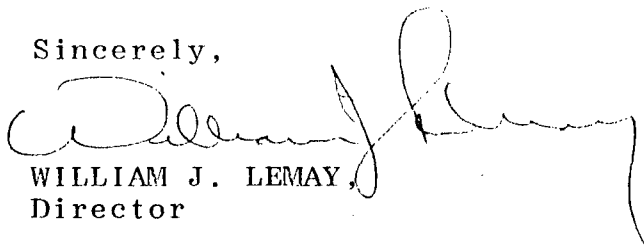
Attention: Paula Young

Re: \$2,000 One-Well Low-Temperature
Geothermal Well Bond; Dawson A.
Campbell, Principal
The Millers Mutual Fire Insurance, Surety
Well Location: Unit B, Sec. 5, T-13-S,
R-13-W, Well No. 4

Dear Ms. Young:

The Oil Conservation Division is in receipt of your
Reinstatement Notice on the above-captioned geothermal
bond. We will consider this bond to be in full force and
effect with no lapse in coverage.

Sincerely,


WILLIAM J. LEMAY,
Director

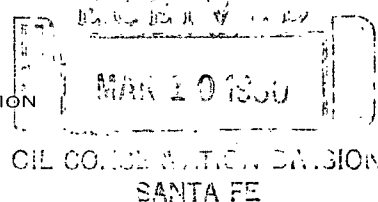
dr/

cc: Oil Conservation Division
Santa Fe - Roy Johnson

Dawson A. Campbell
Rt. 11
Gila Hot Springs, New Mexico 88061

| | | |
|------------------------|--|--|
| 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



Form G-103
Adopted 10/1/74

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

| |
|--|
| 5. Indicate Type of Lease State <input type="checkbox"/> Fee <input type="checkbox"/> |
| 5.a State Lease No. |

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit -" (Form G-101) for Such Proposals.)

| | |
|--|----------------------------------|
| 1. Type of well Geothermal Producer <input type="checkbox"/> Temp. Observation <input type="checkbox"/> Low-Temp Thermal <input type="checkbox"/> Injection/Disposal <input type="checkbox"/> | 7. Unit Agreement Name |
| 2. Name of Operator DAWSON (DOC) and IDA CAMPBELL | 8. Farm or Lease Name |
| 3. Address of Operator Route 11, Silver City, New Mexico 88061 | 9. Well No. Campbell et al #2 |
| 4. Location of Well Unit Letter <u>B-West 1175</u> Feet From The <u>East</u> Line and <u>South 475</u> Feet From The <u>North</u> Line, Section <u>5</u> Township <u>13 South</u> Range <u>13 West</u> NMPM. | 10. Field and Pool, or Wildcat |
| 15. Elevation (Show whether DF, RT, GR, etc.) 8704 ft at land surface (above sea level) | 12. County Grant |

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

| | |
|--|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/> | |
| PULL OR ALTER CASING <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> |
| OTHER <input type="checkbox"/> | |

SUBSEQUENT REPORT OF:

| | |
|--|---|
| REMEDIAL WORK <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| COMMENCE DRILLING OPNS. <input type="checkbox"/> | PLUG & ABANDONMENT <input type="checkbox"/> |
| CASING TEST AND CEMENT JOB <input type="checkbox"/> | |
| OTHER <input checked="" type="checkbox"/> Case History to date | |

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203.

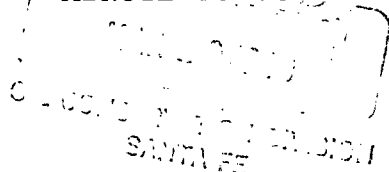
Jan. 16, 1980, Arrive new location and set up. Drilled and set conductor pipe and poured grout.

Jan. 19, 1980-January 20, 1980, Drilled hole with 5-1/8" hammer bit.

Jan. 30, 1980, Run temperature log.

This test hole will be used to run pumping tests and for additional temperature logs. It may be deepened later.

NOTICE: SURVEYOR REPORTED DISTANCE ON FORM G-102 FROM QUARTER-SECTION CORNER MARKER: DISTANCES FROM SECTION LINE USED HERE ARE SCALED FROM 7-1/2 MINUTE TOPOGRAPHIC MAP.



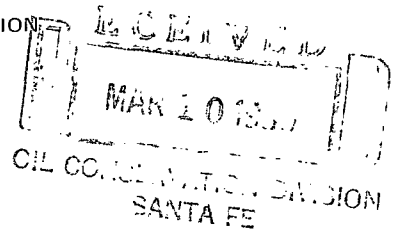
18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED W. S. Sumner TITLE Geologist and Agent DATE March 7, 1980

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

CERTIFICATE OF COMPLIANCE
AND AUTHORIZATION TO PRODUCE
GEOTHERMAL RESOURCES



OWNER OR OPERATOR

Name DAWSON (DOC) and Ida CAMPBELL

Address Route 11, Silver City, New Mexico 88061

TYPE OF WELL

Geothermal Producer ☐

Low-Temperature Thermal ☒

Injection/Disposal ☐

REASON FOR FILING

New Well ☒ Recompletion ☐

Change in Ownership ☐ Designation of Purchaser ☐

Other (Please Explain) ☐

DESCRIPTION OF WELL

Lease
Name Campbell et al

Well
No. #2

Name of
Reservoir --

Kind of Lease
(Fee, Fed. or State) --

Lease
Number --

LOCATION

Unit B ; West 1175 feet from the East line and
Letter South 475 feet from the North line of

Section 5 Township 13 South Range 13 West

County Grant

TYPE OF PRODUCT

Dry
Steam

Steam and
Water

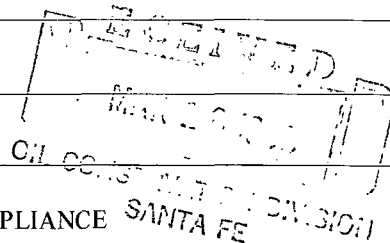
Low Temp.
Thermal Water X

DESIGNATION OF PURCHASER OF PRODUCT

Name of
Purchaser

Address of
Purchaser

Product Will
Be Used For



CERTIFICATE OF COMPLIANCE

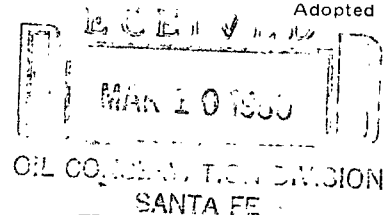
I hereby certify that all rules and regulations concerning geothermal resources wells in the State of New Mexico, as promulgated by the Oil Conservation Commission of New Mexico, have been complied with, with respect to the subject well, and that the information given above is true and complete to the best of my knowledge and belief.

Signed W. Sumner Position Geologist & Agent Date March 7 1980

Approved _____ Position _____ Date _____

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

GEOTHERMAL RESOURCES WELL LOG



Operator DAWSON (DOC) and IDA CAMPBELL
Address Route 11, Silver City, New Mexico, 88061
Reservoir _____
Lease Name Campbell et al Well No. #2 Unit Letter B (NE 1/4)
Location: West - 1175 feet from the East line and _____
South - 475 feet from the North line Section 5
Township 13 South Range 13 West County Grant

FORMATIONS PENETRATED BY WELL

| DEPTH TO | | Thickness | Drilled or Cored | Recovery | DESCRIPTION |
|------------------|---------------------|-----------|------------------|----------|--|
| Top of Formation | Bottom of Formation | | | | |
| 0 | 1 | 1 | | | Sand and Gravel - brown |
| 1 | 2 | 1 | | | Sand, Gravel, Clayey Sand- brown to dark brown |
| 2 | 4 | 2 | | | Weathered Andesite and Caliche |
| 4 | 6 | 2 | | | Andesite - brown to purple-brown |
| 6 | 277 | 271 | | | Rhyolitic Tuff - gray to gray-brown |

Attach Additional Sheets if Necessary

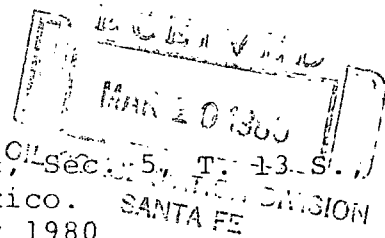
This form must be accompanied by copies of electric logs, directional surveys, physical or chemical logs, water analyses, tests, and temperature surveys (See Rule 205).

CERTIFICATION

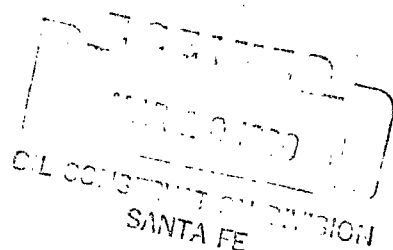
I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed W. S. Sumner Position Geologist / Agent Date March 7, 1980

FIELD LOG : Campbell et al #2, (NE $\frac{1}{4}$, NW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 5, T. 13-S., R. 13 W.) Grant County, New Mexico.
By: R.M. Colpitts, Jr., January 1980



| Depth (ft) | | Rock type and description |
|------------|------|---|
| From | To | |
| 0 | 1 | <u>SAND AND GRAVEL</u> - brown, fill from cut bank. |
| 1 | 2 | <u>SAND, GRAVEL AND CLAYEY SAND</u> - brown to dark brown, dry and dusty. |
| 2 | 4 | <u>WEATHERED ANDESITE AND CALICHE.</u> |
| 4 | 6 | <u>ANDESITE</u> - brown to purple brown, medium hard, drills easily with rock bit. |
| 6 | 118 | <u>RHYOLITIC TUFF</u> - gray to gray-brown, hard drilling but not fractured. Cuttings damp at 81 feet and are moist at 98 feet. 1 - 2 gpm at 118 feet. |
| 118 | 277 | <u>RHYOLITIC TUFF</u> - gray, welded, hard but steady drilling. Additional 10 gpm at 167 feet; temperature of water = 110°F. Fractured @ 204 feet with an additional 5 gpm; water temperature = 120°F. Very fractured, 219 to 247 feet. Red clay layer - 247-248.5 feet; 1.5' Additional 3 - 5 gpm here. Very soft and loose 248.5 to 267 feet with an additional 60 - 100 gpm flow of water; water temperature = 135°F. Very soft 275 - 277 feet with an additional 50 gpm here. Severe caving zone 247 - 277 feet. |
| T.D.= | 277' | |
| | | |
| | | |



RECEIVED
MAR 10 1980
OIL CONSERVATION DIVISION

LITHOLOGIC DESCRIPTION: Campbell et al #2, (NE 1/4 Sec. 5, T.13 S., R.13 W.) Grant County, N. M.

By: R.M. Colpitts, Jr., January 1980
(Air Rotary Samples)

| Depth (ft) | | Rock type and description |
|------------|------|---|
| From | To | |
| 0 | 10 | <u>RUBBLE</u> - brown, composed of pebbles of latite and andesite in a matrix of clay and sand. |
| 10 | 60 | <u>RHYOLITIC TUFF</u> - brownish gray, composed of 50% sanadine, 33% glass, 15% quartz, and 2% golden-brown biotite. |
| 60 | 120 | <u>RHYOLITIC TUFF</u> - light brownish gray, welded, composed of 50% sanadine, 25% quartz, 20% glass, 5% golden-brown biotite and a trace of lithic fragments. |
| 120 | 140 | <u>RHYOLITIC TUFF</u> - gray, welded, porphyritic, composed of 55% sanadine, 30% glass, 12% quartz, 2% yellow sphene, 1% golden-brown biotite and a trace of augite. Hydrothermal alteration of rocks increases with depth. |
| 140 | 250 | <u>RHYOLITIC TUFF</u> - brownish-gray, porphyritic, welded, composed of 55% sanadine, 27% glass, 15% quartz, 2% golden-brown biotite, and 1% augite. |
| 250 | 277 | <u>RHYOLITIC TUFF</u> - brownish-gray, very welded, porphyritic with abundant hydrothermal alteration of feldspar and tuff present. Composed of 55% sanadine, 15% quartz, 25% glass and alteration minerals (sericite[?]), 2% golden-brown biotite, 2% unknown dark minerals and 1% augite. |
| T.D.= | 277' | |

RECEIVED
MAR 10 1980
OIL CONSERVATION DIVISION
SANTA FE

RECEIVED
MAR 10 1980
OIL CONSTITUTION DIVISION
SANTA FE

TEMPERATURE LOG: Campbell et al #2, NE $\frac{1}{4}$, NW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 5, T.35, R.13N
S., R.13 W., Grant County, New Mexico.
By: D. Gambill and A. Kron (LASL) and R. M.
Colpitts, Jr., January 30, 1980.

| Depth (ft) | °C | °F | Depth (ft) | °C | °F |
|---------------|------|-------|---------------|------|-------|
| 0 | -- | -- | 165.6 | 55.1 | 131.2 |
| 52.0 | 30.8 | 87.4 | 170.8 | 56.0 | 132.8 |
| 72.4 | 35.2 | 95.4 | 175.9 | 56.8 | 134.2 |
| 81.8 | 39.6 | 103.3 | 181.1 | 57.4 | 135.3 |
| 82.8 | 39.8 | 103.6 | 186.3 | 57.7 | 135.9 |
| 88.0 | 40.4 | 104.7 | 191.5 | 58.2 | 136.8 |
| 93.2 | 41.3 | 106.3 | 196.6 | 58.5 | 137.3 |
| 98.3 | 42.3 | 108.1 | 201.8 | 58.8 | 137.8 |
| 103.5 | 43.1 | 109.6 | 207.0 | 59.1 | 138.4 |
| 108.7 | 44.2 | 111.6 | 212.2 | 59.3 | 138.7 |
| 113.8 | 44.8 | 112.6 | 217.3 | 59.5 | 139.1 |
| 119.0 | 45.9 | 114.6 | 222.5 | 59.7 | 139.5 |
| 124.2 | 46.7 | 116.1 | 227.7 | 59.9 | 139.8 |
| 129.4 | 47.8 | 118.0 | 232.9 | 60.2 | 140.4 |
| 134.5 | 48.9 | 120.0 | 238.0 | 60.4 | 140.7 |
| 139.7 | 50.0 | 122.0 | 243.2 | 60.6 | 141.1 |
| 144.9 | 51.1 | 124.0 | 248.4 | 60.7 | 141.3 |
| 150.1 | 52.2 | 126.0 | 253.6 | 60.8 | 141.4 |
| 155.2 | 53.2 | 127.8 | 258.7 | 60.9 | 141.6 |
| 160.4 | 54.3 | 129.7 | 263.9 | 60.9 | 141.6 |
| | | | 265.0 | 61.0 | 141.8 |
| | | | T.D. = 265' | | |

RECEIVED
MAR 10 1980
OIL CONSTITUTION DIVISION
SANTA FE

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

GEOHERMAL RESOURCES WELL SUMMARY REPORT

Operator DAWSON (DOC) and IDA CAMPBELL Address Route 11, Silver City, N.M. 88061
Lease Name Campbell et al Well No. #2
Unit Letter B (NE 1/4) Sec. 5 Twp. 13 South Rge 13 West
Reservoir _____ County Grant

Commenced drilling January 16, 1980 GEOLOGICAL MARKERS _____ DEPTH _____
Completed drilling January 20, 1980 Top of Rhyolitic Tuff 6 feet
Total depth 277 feet Plugged depth 0 _____
Junk _____
Commenced producing _____ (Date) _____ Geologic age at total depth: Tertiary (Miocene? or Oligocene?)

| Date | Static test | | Production Test Data | | | | | | | | |
|------|-------------------|-------------|----------------------|----------|-------------|----------|---------|----------------|--------------|-------------|----------|
| | Shut-in well head | | Total Mass Flow Data | | | | | Separator Data | | | |
| | Temp. °F | Pres. Psig. | Lbs/Hr | Temp. °F | Pres. Psig. | Enthalpy | Orifice | Water cuft/Hr | Steam Lbs/Hr | Pres. Psig. | Temp. °F |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

CASING RECORD (Present Hole)

| Size of Hole | Size of Casing | Weight of Csg/ft. | Grade of Casing | New or Used | Seamless or Lapweld | Depth of Shoe | Top of Casing | Number of Sacks Cement | Top of Cement | Cement Top Determined By |
|--------------|----------------|-------------------|-----------------|-------------|---------------------|---------------|---------------|------------------------|---------------|--------------------------|
| 7 7/8" | 6 5/8" | | | New & Used | Lapweld | 13.4 | Surface | 2 | Surface | inspection |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

PERFORATED CASING

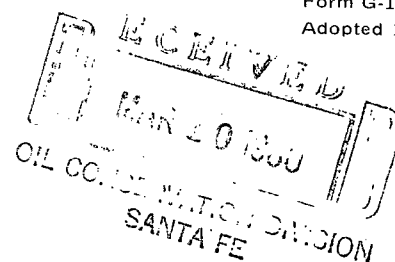
(Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

Was analysis of effluent made? None Temperature log depths 52 to 265 feet

CERTIFICATION

I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed W. L. ... Position Geologist and Agent Date March 7, 1980

NEW MEXICO OIL CONSERVATION COMMISSION
P. O. Box 2088, Santa Fe 87501

GEOTHERMAL RESOURCES WELL HISTORY

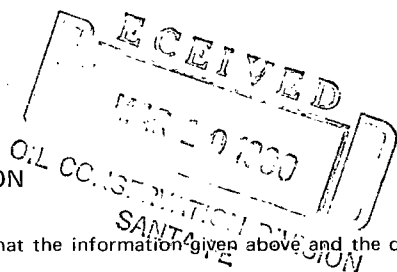
Operator DAWSON (DOC) and IDA CAMPBELL Address Route 11, Silver City, NM 88061
Lease Name Campbell et al Well No. #2
Unit Letter B (NE 1/4) Sec. 5 Twp. 13 South Rge 13 West
Reservoir _____ County Grant

It is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important operations during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates thereof. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests, shooting, and initial production data and zone temperature. (Attach additional sheets if necessary.)

Date

- 1-16-80 Arrived new location from Campbell et al #1 and set up. Drilled to 13 feet and set 13.4' of 6-5/8", .188" wall casing and grouted with 2 sacks of Sackrete.
- 1-19-80 Start drilling with 5-1/8" hammer bit. Hole swelled shut above, reamout hole with 5-5/8" rock bit, then resume drilling with 5-1/8" hammer bit. Drill 205 feet. Temperature of water in blowpipe = 110°F.
- 1-20-80 Resume drilling with hammer bit. Depth to water = 78.32'. Picked up 60+ gpm water. Temperature of water at blowpipe = 135°F.
- 1-30-80 Run temperature log on hole. Bottom hole temperature = 141.8°F.

CERTIFICATION



I hereby certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge and belief.

Signed W. J. Summers Position Geologist & Agent Date March 7, 1980

| | | |
|------------------------|---|---|
| NO. OF COPIES RECEIVED | | |
| DISTRIBUTION | | |
| File | 1 | ✓ |
| N.M.B.M. | 1 | |
| U.S.G.S. | 1 | |
| Operator | 1 | |
| 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 ☐ FEE ☒
5.a State Lease No.

1a. Type of Work Drill ☒ Deepen ☐ Plug Back ☐
b. Type of Well Geothermal Producer ☐ Temp Observation ☐
Low-Temp Thermal ☒ Injection/Disposal ☐
2. Name of Operator
D. A. CAMPBELL
3. Address of Operator
GILA HOT SPRINGS, RT.11, Box 80, Silver City, NM 88061
4. Location of Well UNIT LETTER B LOCATED 425 FEET FROM THE NORTH LINE
AND 3382 FEET FROM THE WEST LINE OF SEC. 5 TWP. 13 S. RGE. 13 W NMPM

7. Unit Agreement Name
8. Farm or Lease Name
CAMPBELL ET AL

9. Well No.
2
10. Field and Pool, or Wildcat
Wildcat

12. County
GRANT

19. Proposed Depth 1000 feet 19A. Formation TERTIARY VOLCANICS 20. Rotary or C.T. AIR ROTARY
21. Elevations (Show whether DF, RT, etc.) GROUND LEVEL 5704 21A. Kind & Status Plug. Bond \$2000 LOW TEMP. 21B. Drilling Contractor LARJON DRILLING CO., INC 22. Approx. Date Work will start JANUARY 10, 1980

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|----------|
| 7 5/8" | 6 5/8" | | 32' | 2 | |
| | | | | | |
| | | | | | |

SEE ATTACHED LETTER

APPROVAL VALID FOR 90 DAYS
PERMIT EXPIRES 4-8-80
UNLESS DRILLING UNDERWAY

RECEIVED
JAN - 7 1980
OIL CONSERVATION DIVISION
SANTA FE

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 W. K. Sumner Title Geologist Date Dec. 31, 1979
(This space for State Use)

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 1/9/80
CONDITIONS OF APPROVAL, IF ANY:

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

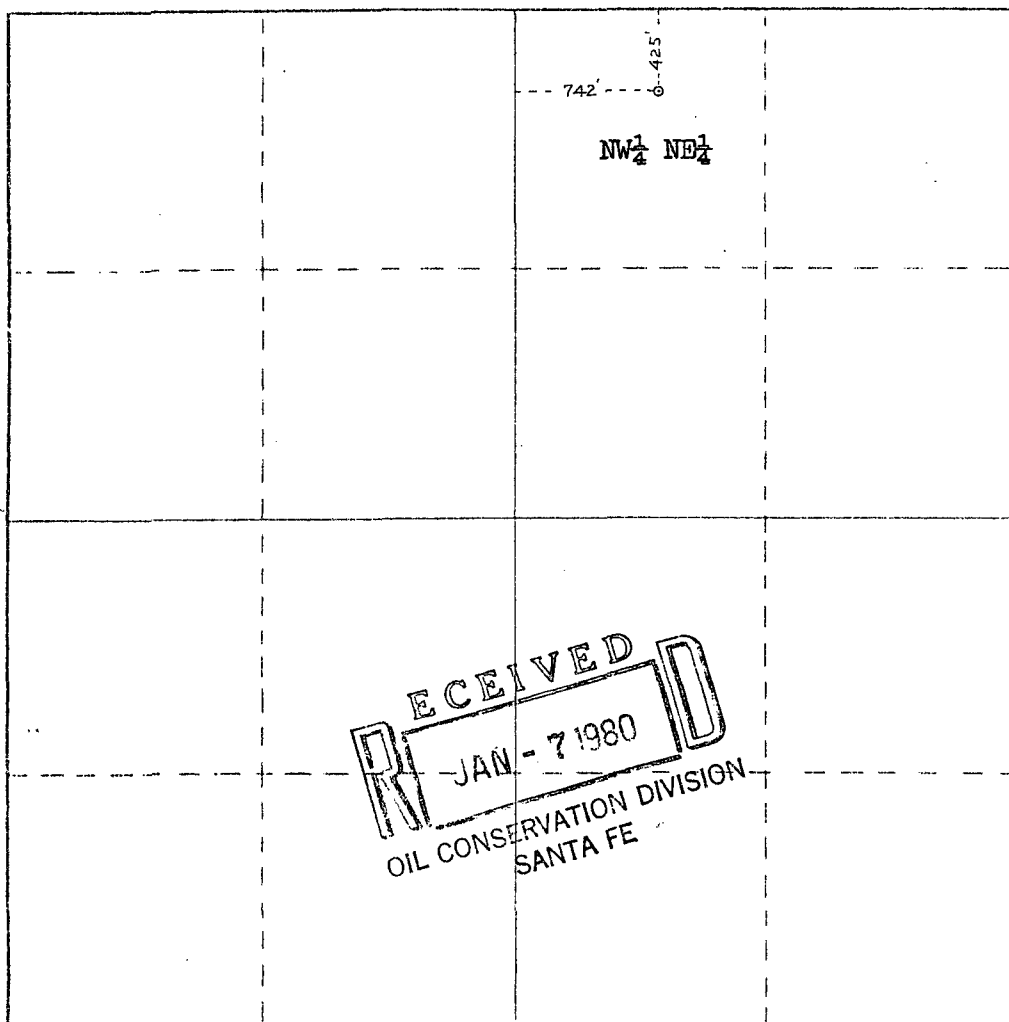
| | | | | | |
|--|---------------------|--------------------------------|-----------------------|------------------------|--|
| Operator D.A. "Doc" and Ida Campbell | | Lease Campbell et al | | Well No. 2 | |
| Unit Letter B | Section 5 | Township 13 S. | Range 13 W. | County Grant | |
| Actual Footage Location of Well: 425 feet from the north line and 742 feet from the west line | | | | | |
| Ground Level Elev. 5704 | Producing Formation | | Pool | | Dedicated Acreage: 40+ 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.

D.A. Campbell
Name

D.A. Campbell

Position

Owner

Company

Date

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

December 12, 1979

Registered Professional Engineer and/or Land Surveyor

James A. Lusk
Certificate No. **6408 New Mexico**
Professional Land Surveyor

310 600 90 1320 1830 1900 2310 2640 2000 1500 1000 500 0

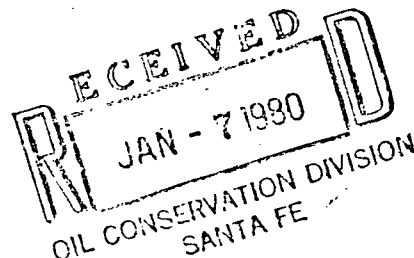
W.K. Summers
& Associates, Inc.

Box 684
Socorro, N.M. 87801

505-835-2095 —

December 31, 1979

NEW MEXICO OIL CONSERVATION COMMISSION
P.O. Box 2084
Santa Fe, NM 87501



Re: Applications to Drill Low-Temperature Geothermal
Test Wells.

Gentlemen:

The attached applications to drill low-temperature geothermal test wells are for two wells for which permits to drill exploration water wells have been obtained from the New Mexico State Engineer. The test wells will serve two purposes:

- (1) They will show to which extent thermal water can be obtained from wells to supplement the thermal water supplied by Gila Hot Springs.
- (2) They will provide information about the geothermal resources of the area.

The hydrogeologic setting is as follows:

The rocks of the area are primarily extrusive igneous rocks. They include andesitic and latitic lava flows, rhyolite tuffs, pyroclastics and volcanoclastics, and rhyolites. The rocks are fractured and several faults mark substantial stratigraphic displacement. Wells discharge water from fractures, so, to be successful water wells, the exploration wells must cut numerous fractures. The proposed locations were selected to optimize the probability of drilling through the most fractures.

The expected depth to water in Campbell et al No. 1 is about 100 feet; in Campbell et al No. 2, about 150 feet.

The drilling program for each hole is as follows:

- (1) Drill with air a 7 5/8-inch diameter hole a few feet into solid rock;
- (2) Set 6 5/8-inch diameter conductor pipe having a wall thickness of .188-inch;

- (3) Cement the conductor pipe in place with a thin cement and let the cement set overnight;
- (4) Drill with air a 6-inch diameter hole to a depth of 1000 feet; and
- (5) Develop well.

If drilling with air to a depth of 1000 feet is impossible, one or more of the following options will be exercised:

- (1) Drill with mud using lightest possible mud weight and minimum viscosity necessary to reach 1000 feet;
- (2) Pull the conductor pipe, ream hole to 7 5/8-inch diameter to the necessary depth, set and cement 6 5/8-inch diameter casing, and continue drilling 6-inch diameter hole;
- (3) Stop drilling and develop as uncased water well; and
- (4) Devise alternate program to fit unforeseen circumstances.

The wells will probably yield water with a chemical character that is similar to that of the water discharged at Gila Hot Springs. We propose to drill the wells using an air rotary (Larjon Drilling Co., Inc.) and to monitor the temperature and specific conductance of the water discharged.

We expect the finished well to discharge water in the range of 80-90°C. If monitored temperatures of discharging water are 80° or larger, we will stop drilling, obtain down-hole temperatures, and react appropriately.

Because we expect the end product of the drilling program to be a functioning water well, we would like to make an open-hole completion if we can. If not, we will use a casing and screen program that will optimize the yield of the wells.

For your information, we attach (1) a lithologic log and temperature log of a nearby water well, and (2) copies of the permits and correspondence from the State Engineer Office.

Yours truly,

W. K. SUMMERS AND ASSOCIATES, INC.



W. K. Summers, Geologist

WKS:mg
Encls.

Doc Campbell

Gila Hot Springs

Silver City, New Mexico 88061

Rt. 11 - Box 80

December 28, 1979

We hereby designate W. K. Summers, of W. K. SUMMERS
& ASSOCIATES, Socorro, New Mexico, to be our legal agent and to
sign in our stead any and all documents dealing with the explora-
tion and drilling of two geothermal wells, in Sec. 5, T 13 S,
R 13 W, N.M.P.M., in Grant County, New Mexico.

Doc Campbell
Ida F. Campbell

RECEIVED
JAN - 7 1980
OIL CONSERVATION DIVISION
SANTA FE



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

DEMING

S. E. REYNOLDS
STATE ENGINEER

March 5, 1979

ADDRESS CORRESPONDENCE TO:
P. O. BOX 844
DEMING, N. M. 88030

FILES: GSF-1922; GSF-1923

Mr. D. A. Campbell
Route 11, Box 80
Silver City, New Mexico 88061

Dear Sir:

Enclosed are your copies of geothermal exploration permits Nos. GSF-1922 and GSF-1923, which have been approved.

Please see that the well driller files logs of wells in this office within 10 days after completion of drilling.

Your attention is called to the reverse side of these permits to the Specific Conditions of Approval Nos. 3, 9 and 10, which state as follows:

3. This permit shall not exceed a period of one year from the date of approval.
9. Use of water under this permit limited to exploration of geothermal water. No consumptive use of water is allowed.
10. Upon expiration of this permit, well shall be plugged in such a manner that all water encountered shall be confined to the strata in which it was encountered. All plugging operations shall be approved by the State Engineer prior to actual plugging.

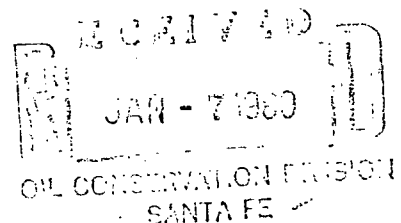
These permits will expire on March 5, 1980.

Yours truly,

A handwritten signature in dark ink, appearing to read "L. T. Putnam".

L. T. Putnam
Supervisor, District III

LTP:jp
Encls: 2 Approved Permits
cc: State Engineer



W.K. Summers
& Associates, Inc.

Box 684
Socorro, N.M. 87801

505-835-2095

December 31, 1979

Ms. Maxine Goad, Program Manager
Ground-Water Administration Unit
NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION
Box 968
Santa Fe, NM 87503

Dear Ms. Goad:

This letter notifies you that two test wells to be drilled under both New Mexico State Engineer and New Mexico Oil Conservation Commission permits may discharge ground water and foaming agents into drainageways that discharge into the Gila River. In addition, discharge during development and pumping tests of the wells may also be discharged into these drainageways.

For your information, I have included:

- (1) Copies of the permits and correspondence for the State Engineer;
- (2) Copies of our correspondence and applications to the Oil Conservation Commission; and
- (3) Chemical analyses of water from the Gila Hot Springs and the Gila River near the hot springs.

These documents will provide the information about owner, probable chemical characteristics of water from the wells, the receiving water, and point of discharge, which we are required to provide under the Water Quality Control Commission Regulations.

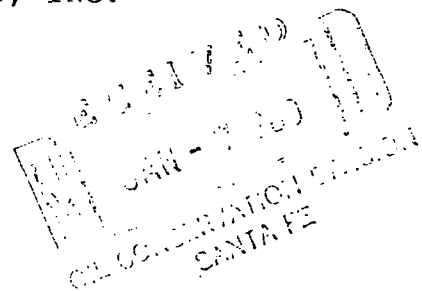
If you have any questions or need additional information, I will be pleased to provide it.

Yours truly,

W. K. SUMMERS AND ASSOCIATES, INC.

W. K. Summers, Geologist

WKS:mg
Encls.





STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

January 10, 1980

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

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

Safeco Insurance Company
of America
P. O. Box A
Albuquerque, New Mexico 87103

Re: \$2,000 One-Well Geothermal
Observation Well Bond
D. A. "Doc" Campbell and Ida
Campbell, Principal
Safeco Insurance Company
of America, Surety
Campbell et al Well No. 2,
Unit B, Sec. 5, T-13-S,
R-13-W, Bond No. 2877373

Gentlemen:

The Oil Conservation Division hereby approves the
above-captioned one-well geothermal bond.

Sincerely,

JOE D. RAMEY,
Director

JDR/ELP/dr

cc: Oil Conservation Division
Carl Ulvog - Santa Fe

D. A. "Doc" Campbell and Ida
Campbell

79 MAR 4 PM 2 53

READ INSTRUCTIONS ON BACK

Revised March 1972

APPLICATION TO APPROPRIATE UNDERGROUND WATERS 77685 D - \$1.00
STATE ENGINEER IN ACCORDANCE WITH SECTION 75-11-1 NEW MEXICO STATUTES
DISTRICT III
DEMING, N. MEX.

1. Name and Address of Applicant:

File No. GSF-1922

D. A. Campbell

Route 11, Box 80

Silver City, New Mexico 88061

2. Describe well location under one of the following subheadings:

a. 1/4 NW 1/4 NE 1/4 of Sec. 5 Twp. 13 S Rge. 13 W N. M. P. M., in
Grant County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X = _____ feet, Y = _____ feet, N. M. Coordinate System _____ Zone
in the _____ Grant.

e. Give street address or route and box No. of property upon which well is to be located, or location by direction and
distance from known landmarks _____

3. Approximate depth (if known) 3000 feet; outside diameter of casing 6 inches.

Name of driller (if known) _____

4. Use of water (check appropriate box or boxes):

☐ Household, non-commercial trees, lawn and garden not to exceed 1 acre.

☐ Livestock watering.

☐ Drinking and sanitary purposes and the irrigation of non-commercial trees, shrubs and lawns in conjunction with
a commercial operation.

☒ Prospecting, mining or drilling operations to discover or develop natural resources.

☐ Construction of public works, highways and roads.

If any of the last three were marked, give name and nature of business under Remarks. (Item 5)

5. Remarks: Exploration - geothermal.

I, D. A. Campbell, affirm that the foregoing statements are true to the best of my knowledge
and belief and that development shall not commence until approval of the permit has been obtained.

Signature below _____, Applicant

By: _____

Date: March 1, 1979

ACTION OF STATE ENGINEER

This application is approved for the use indicated, subject to all general conditions and to the specific conditions numbered
3, 9 & 10 on the reverse side hereof. This permit will automatically expire ~~March 5, 1980~~
~~March 5, 1980~~ March 5, 1980

S. E. Reynolds, State Engineer

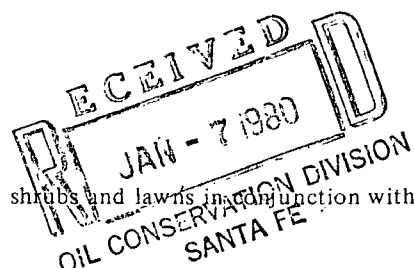
By: L. T. Putnam

L. T. Putnam

Supervisor, District III

Date: March 5, 1979

File No. GSF-1922



GENERAL CONDITIONS OF APPROVAL

- A. The maximum amount of water that may be appropriated under this permit is 3 acre feet in any calendar year.
- B. The well shall be drilled only by a driller licensed in the State of New Mexico in accordance with Section 75-11-13 New Mexico Statutes Annotated. A licensed driller shall not be required for the construction of a driven well; provided, that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter (Section 75-11-13).
- C. Driller's log must be filed in the office of the State Engineer within 10 days after the well is drilled or driven. Failure to file the log within that time shall result in automatic cancellation of the permit. Log forms will be provided by the State Engineer upon request.
- D. The casing shall not exceed 7 inches outside diameter except under specific conditions in which reasons satisfactory to the State Engineer are shown.
- E. If the well under this permit is used at any time to serve more than one household, livestock in a commercial feed lot operation, or any other commercial purpose, the permittee shall comply with Specific Condition of Approval number 5(b).
- F. In the event this well is combined with other wells permitted under Section 75-11-1 New Mexico Statutes Annotated, the total outdoor use shall not exceed the irrigation of one acre of non-commercial trees, lawn, and garden, or the equivalent outside consumptive use, and the total appropriation for household and outdoor use from the entire water distribution system shall not exceed 3 acre feet per annum.

SPECIFIC CONDITIONS OF APPROVAL

(Applicable only when so indicated on the other side of this form.)

- 1. Depth of the well shall not exceed the thickness of the (a) the valley fill or (b) Ogallala formation.
- 2. The well shall be constructed to artesian well specifications and the State Engineer Office shall be notified before casing is landed or cemented.
- 3. Appropriation and use of water under this permit shall not exceed a period of one year from the date of approval.
- 4. Use shall be limited to household, non-commercial trees, lawn and garden not to exceed one acre and/or stock use.
- 5. A totalizing meter shall be installed before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the State Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water and pumping records shall be submitted to the District Supervisor (a) for each calendar month, on or before the 30th day of the following month (b) on or before the 10th of January, April, July and October of each year for the three preceding calendar months (c) for each calendar year on or before the 30th day of January of the following year.
- 6. The well shall be plugged upon completion of the permitted use and a plugging report shall be filed in the office of the State Engineer within 10 days.
- 7. Final approval for the use of the well shall be dependent upon a leakage test made by the State Engineer Office.
- 8. Use shall be limited strictly to household and/or drinking and sanitary purposes; water shall be conveyed from the well to the place of use in closed conduit and the effluent returned to the underground so that it will not appear on the surface. No irrigation of lawns, garden, trees or use in any type of pool or pond is authorized under this permit.

INSTRUCTIONS

The application shall be made in the name of the actual user of the well for the purpose specified in the application.

The application shall be executed in triplicate and forwarded with a \$1.00 filing fee to the appropriate office of the State Engineer.

A separate application must be filed for each well to be drilled or used.

If well to be used is an existing well, an explanation (and file number, if possible) should be given under Remarks. (Item 5.)

Applications for appropriation, well logs and request for information in the following basins should be addressed to the State Engineer at the office indicated;

Bluewater, Estancia, Rio Grande, and Sandia Basins

District No. 1, 505 Marquette NW, Room 1023, Albuquerque, New Mexico 87101

Capitan, Carlsbad, Fort Sumner, Hondo, Jal, Lea, Penasco, Portales, Roswell, and Upper Pecos Basins

District No. 2, Box 1717, Roswell, New Mexico 88201

Animas, Gila-San Francisco, Hot Springs, Las Animas Creek, Lordsburg, Mimbres, Nutt-Hockett, Playas, San Simon, and Virden Valley Basins

District No. 3, Box 844, Deming, New Mexico 88030

Canadian River Basin

State Engineer Office, State Capitol, Bataan Memorial Bldg., Santa Fe, New Mexico 87501

- 9. Use of water under this permit limited to exploration of geothermal water. No consumptive use of water is allowed.
- 10. Upon expiration of this permit, well shall be plugged in such a manner that all water encountered shall be confined to the strata in which it was encountered. All plugging operations shall be approved by the State Engineer prior to actual plugging.

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

AFFIDAVIT OF RESPONSIBILITY
CONVERSION TO WATER-WELL

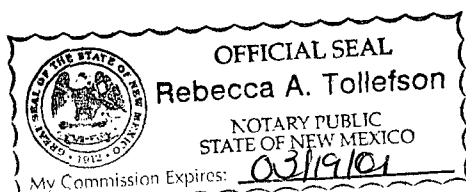
STATE OF NM)
County of Grant) ss.

Ysabel C. Luecke, being first duly sworn according to law, upon his oath deposes and says:

1. That ^{They Are} Ysabel C. Luecke, Allen D. Campbell ^{Owners} of Rebecca L. Campbell, Angus L. Campbell ^(Title) ^(Operator)
whose address is Hc 68 Gila Hot Springs Silver City, New Mexico 88061.
2. That Ysabel C. Luecke, etc. ^(Operator) is the operator of a well drilled on land be-
longing to Ysabel C. Luecke, Allen D. Campbell ^(Landowner) Rebecca L. Campbell, Angus L. Campbell, whose address is Hc 68 Gila Hot Springs
Silver City, New Mex. 88061, said well being drilled to test for hydrocarbons and/or geothermal
carbon dioxide gas and described as the Campbell well No. 2, being located 475
feet from the North line and 1175 feet from the East line of Section 5,
Township 13 South, Range 13 West, NMPM, Grant
County, New Mexico.
3. That said well was drilled to a total depth of 450 feet, and that cas-
ing has been set and cemented as follows:

4. That operator and landowner have made an agreement whereby operator
(is) (is not) to back fill pits, level location, and clear it of all junk. The agreement
further provides that operator is to plug said well back to a plugged-back total depth of
feet and transfer well to landowner for his use as a water-well. Operator will
leave casing in the well as follows:

5. That when operator has complied with the provisions of Paragraph 4 above
it will so notify the Oil Conservation Commission of the State of New Mexico on Com-
mission Form C-103, together with a signed statement from the landowner that the
provisions of Paragraph 4 above have been complied with to his satisfaction.



Subscribed and sworn to before me this 1 day of November, A. D. 192000.

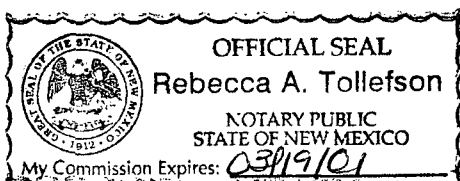
Ysabel C. Luecke
(Operator)

Rebecca A. Tollefson
Notary Public in and for the County of Grant

STATE OF NM)
County of Grant) ss.

Ysabel C. Luecke, being first duly sworn according to law, upon
his oath deposes and says that when the provisions of Paragraphs 4 and 5 above have been
complied with, he will accept the above-described well for his use as a water-well, and
that he will assume all responsibility for the well, the location, and the conversion of the
well to a water-well.

Subscribed and sworn to before me this 1 day of November, A. D. 192000.



Ysabel C. Luecke
(Landowner)
Rebecca A. Tollefson
Notary Public in and for the County of Grant

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

AFFIDAVIT OF RESPONSIBILITY
CONVERSION TO WATER-WELL

STATE OF N.M.)
County of Grant) ss.

Ysabel C. Luecke, being first duly sworn according to law, upon his oath deposes and says:

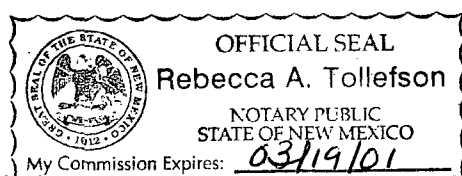
1. That ^{They are} he is owners of Ysabel C. Luecke, Allen D. Campbell
(Title) (Operator)
whose address is HC 68 Gila Hot Springs Silver City, New Mexico 88061.

2. That Ysabel C. Luecke, etc is the operator of a well drilled on land be-
longing to Ysabel C. Luecke (Operator)
Rebecca L Campbell, Angus L Campbell (Landowner) whose address is HC 68 Gila Hot Springs
Silver City, New Mex 88061, said well being drilled to test for hydrocarbons and/or geothermal
carbon dioxide gas and described as the Campbell well No. 2, being located 475
feet from the North line and 1175 feet from the East line of Section 5,
Township 13 South, Range 13 West, NMPM, Grant
County, New Mexico.

3. That said well was drilled to a total depth of 450 feet, and that cas-
ing has been set and cemented as follows:

4. That operator and landowner have made an agreement whereby operator
(is) (is not) to back fill pits, level location, and clear it of all junk. The agreement
further provides that operator is to plug said well back to a plugged-back total depth of
feet and transfer well to landowner for his use as a water-well. Operator will
leave casing in the well as follows:

5. That when operator has complied with the provisions of Paragraph 4 above
it will so notify the Oil Conservation Commission of the State of New Mexico on Com-
mission Form C-103, together with a signed statement from the landowner that the
provisions of Paragraph 4 above have been complied with to his satisfaction.



Subscribed and sworn to before me this 1 day of November, A. D. 2000.

Ysabel C. Luecke
(Operator)

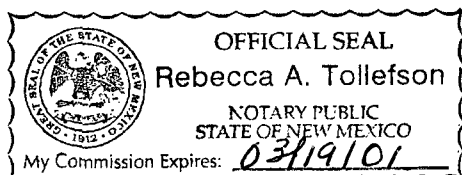
By

Rebecca A. Tollefson
Notary Public in and for the County of Grant

STATE OF NM)
County of Grant) ss.

Ysabel C. Luecke, being first duly sworn according to law, upon
his oath deposes and says that when the provisions of Paragraphs 4 and 5 above have been
complied with, he will accept the above-described well for his use as a water-well, and
that he will assume all responsibility for the well, the location, and the conversion of the
well to a water-well.

Subscribed and sworn to before me this 1 day of November, A. D. 2000.



Ysabel C. Luecke
(Landowner)
Rebecca A. Tollefson
Notary Public in and for the County of Grant



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor

Jennifer A. Salisbury
Cabinet Secretary

November 15, 2000

Lori Wrotenbery

Director

Oil Conservation Division

Ms. Ysabel C. Luecke
HC 68 Box 80
Silver City, NM 88061

Re: \$2,000 One-Well Low-Temperature Thermal Well
or Geothermal Observation Well Bond
Dawson A. Campbell, Principal
The Millers Mutual Fire Insurance Company of
Texas, Surety
Dawson A. Campbell Well #3 - Unit B, Section 5,
Township 13 South, Range 13 West,
Bond No. 7937409

Dear Ms. Luecke:

The New Mexico Oil Conservation Division hereby approves the cancellation of the
above-referenced geothermal bond and releases The Millers Mutual Fire Insurance
Company of Texas from any liability.

Sincerely,

LYN S. HEBERT
Attorney
Oil Conservation Division

cc: Oil Conservation Division – Roy Johnson

The Millers Mutual Fire Insurance Company of Texas
P.O. Box 2269
Fort Worth, Texas 76113

Doc Campbell

Gila Hotsprings
Rt. 11- Box 80

January 27, 1990

OIL CONSERVATION DIVISION
RECEIVED
Silver City, New Mexico 88061
'90 JAN 31 AM 9 01

Mr. Roy E. Johnson
Sr. Petroleum Geologist
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Dear Roy:

Our Campbell Well #3 under State Engineer File No. GSF2419 through GSF2425, and under Well Bond No. C7937409, Millers Mutual Fire Insurance Company, Ft. Worth, Texas, has been sold to Charles MacArthur who now owns the land on which the well is located.

Will you please advise us as to the proper procedure in transferring this well; and also in transferring the well bond.

Thank you for your assistance in this matter, and for your past guidance in our problems with geothermal resources.

Sincerely,



D. A. Campbell

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION



GARREY CARRUTHERS
GOVERNOR

January 2, 1987

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

The Millers Mutual Fire Co. Insurance
P. O. Box 2269
Fort Worth, Texas 76113

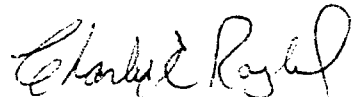
Attention: S. D. Westwood

Re: \$2,000 One-Well Low-Temperature Geothermal
Well Bond; Dawson A. Campbell, Principal
The Millers Mutual Fire Insurance Co.,
Surety; Bond No. 7937409
Well Location: Unit B, Sec. 5, T-13-S, R13W

Dear Mr. Westwood:

The Oil Conservation Division hereby approves the above-
referenced geothermal bond effective December 17, 1986.

Sincerely,


CHARLES E. ROYBAL,
Acting Director

dr/

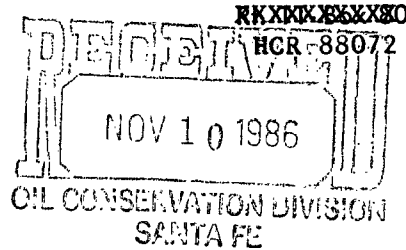
cc: Oil Conservation Division
Santa Fe (Roy Johnson)

Mr. Dawson A. Campbell
Rt. 11, Gila Hot Springs
Silver City, N.M. 88061

Doc Campbell

Gila Hotsprings

Silver City, New Mexico 88061



New Mexico Oil Conservation Division
Geothermal Section
P. O. Box 2088
Santa Fe, New Mexico 87601

Dear Sirs:

Enclosed please find: four copies each of G-101, G-102, G-104, and two copies of G-103. Also two copies of Well Bond #7937408 for Campbell Well No. 4; and one copy of permit covering Campbell Well No. 4 from the Water Rights Division of the State Engineer's Office.

Please notify me promptly if further information is needed by your office.

Also, please send me more forms, G-101, G-102, G-103 and G-104, as Campbell Well #3 is being drilled. A bond for this well No. 3 has been issued and will be sent with completed forms as soon as we receive the necessary forms.

Thank you.

Doc Campbell
Doc Campbell

Encls.



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

February 2, 1990

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

Mr. Doc Campbell
Gila Hotsprings
Rt. 11, Box 80
Silver City, New Mexico 88061

Re: Transfer of Ownership
Campbell Well No. 3
B-Sec. 5, T-13-S, R-13-W

Dear Doc:

As per your letter of January 27, 1990, enclosed are the necessary forms (G-103 and bond) that Mr. MacArthur will have to fill out to transfer this well. For everyone's convenience, I have enclosed an example of how the sundry notice should be completed. Upon receipt of form G-103 and Mr. MacArthur's bond, your bond will be released if it is so desired.

Sincerely,

A handwritten signature in black ink, appearing to read "Roy E. Johnson", with a long horizontal flourish extending to the right.

ROY E. JOHNSON,
Sr. Petroleum Geologist

REJ/dr

enclosure

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

Form G-103
Adopted 10-1-74
Revised 10-1-78

| | |
|------------------------|--|
| NO. OF COPIES RECEIVED | |
| DISTRIBUTION | |
| File | |
| N. M. B. M. | |
| U. S. G. S. | |
| Operator | |
| Land Office | |

SUNDRY NOTICES AND REPORTS
ON
GEOTHERMAL RESOURCES WELLS

| |
|--|
| 5. Indicate Type of Lease |
| State <input type="checkbox"/> Fee <input checked="" type="checkbox"/> |
| 5.a State Lease No. |

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit -" (Form G-101) for Such Proposals.)

| | |
|--|--------------------------------|
| 1. Type of well Geothermal Producer <input type="checkbox"/> Temp. Observation <input type="checkbox"/> Low-Temp Thermal <input checked="" type="checkbox"/> Injection/Disposal <input type="checkbox"/> | 7. Unit Agreement Name |
| 2. Name of Operator DAWSON A. CAMPBELL | 8. Farm or Lease Name |
| 3. Address of Operator HCR 88072, GILA HOTSPRINGS, SILVER CITY, NM 88061 | 9. Well No. CAMPBELL #3 |
| 4. Location of Well Unit Letter B 464 Feet From The NORTH Line and 393 Feet From The WEST Line, Section 5 Township 13 S Range 13 W NMPM. | 10. Field and Pool, or Wildcat |
| 15. Elevation (Show whether DF, RT, GR, etc.) 5643 Ground level | 12. County GRANT |

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

| | |
|--|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/> | |
| PULL OR ALTER CASING <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> |
| OTHER <input type="checkbox"/> | |

SUBSEQUENT REPORT OF:

| | |
|---|---|
| REMEDIAL WORK <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| COMMENCE DRILLING OPNS. <input checked="" type="checkbox"/> | PLUG & ABANDONMENT <input type="checkbox"/> |
| CASING TEST AND CEMENT JOB <input type="checkbox"/> | |
| OTHER <input type="checkbox"/> | |

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Dawson A. Campbell TITLE Owner DATE Nov 5, 1986

APPROVED BY R. E. Johnson TITLE DISTRICT SUPERVISOR DATE 12-23-86

CONDITIONS OF APPROVAL, IF ANY:

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

Form G-101
Adopted 10-1-74
Revised 10-1-78

| | |
|------------------------|--|
| NO. OF COPIES RECEIVED | |
| DISTRIBUTION | |
| File | |
| N.M.B.M. | |
| U.S.G.S. | |
| Operator | |
| Land Office | |

APPLICATION FOR PERMIT TO DRILL, DEEPEN,
OR PLUG BACK--GEOTHERMAL RESOURCES WELL

5. Indicate Type of Lease
STATE ☐ FEE
5.a State Lease No.

7. Unit Agreement Name

8. Farm or Lease Name

9. Well No.
CAMPBELL #3

10. Field and Pool, or Wildcat

12. County
GRANT

1a. Type of Work Drill ☒ Deepen ☐ Plug Back ☐
b. Type of Well Geothermal Producer ☐ Temp Observation ☐
Low-Temp Thermal ☒ Injection/Disposal ☐

2. Name of Operator
DAWSON A. CAMPBELL

3. Address of Operator
HCR 88072, GILA HOTSPRINGS, SILVERCITY N.M. 88061

4. Location of Well UNIT LETTER B LOCATED 466 FEET FROM THE NORTH LINE
AND 393 FEET FROM THE WEST LINE OF SEC. 5 TWP. 13 S RGE. 13 W NMPM

19. Proposed Depth 19A. Formation VOLCANIC 20. Rotary or C.T. CT

21. Elevations (Show whether DF, RT, etc.) 5643 Ground Level 21A. Kind & Status Plug. Bond #793740 21B. Drilling Contractor LOUIS OLIVER 22. Approx. Date Work will start Nov 3, 1986

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|----------------|-----------------|---------------|
| 11 1/2" | 8" I.D. | approx 40 | 79 | 61 | 1" above g.c. |
| 8" | None | | still drilling | | |

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new production 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 Dawson A. Campbell Title Owner Date Dec 3, 1986

(This space for State Use)

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 12-23-86

CONDITIONS OF APPROVAL, IF ANY:

GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

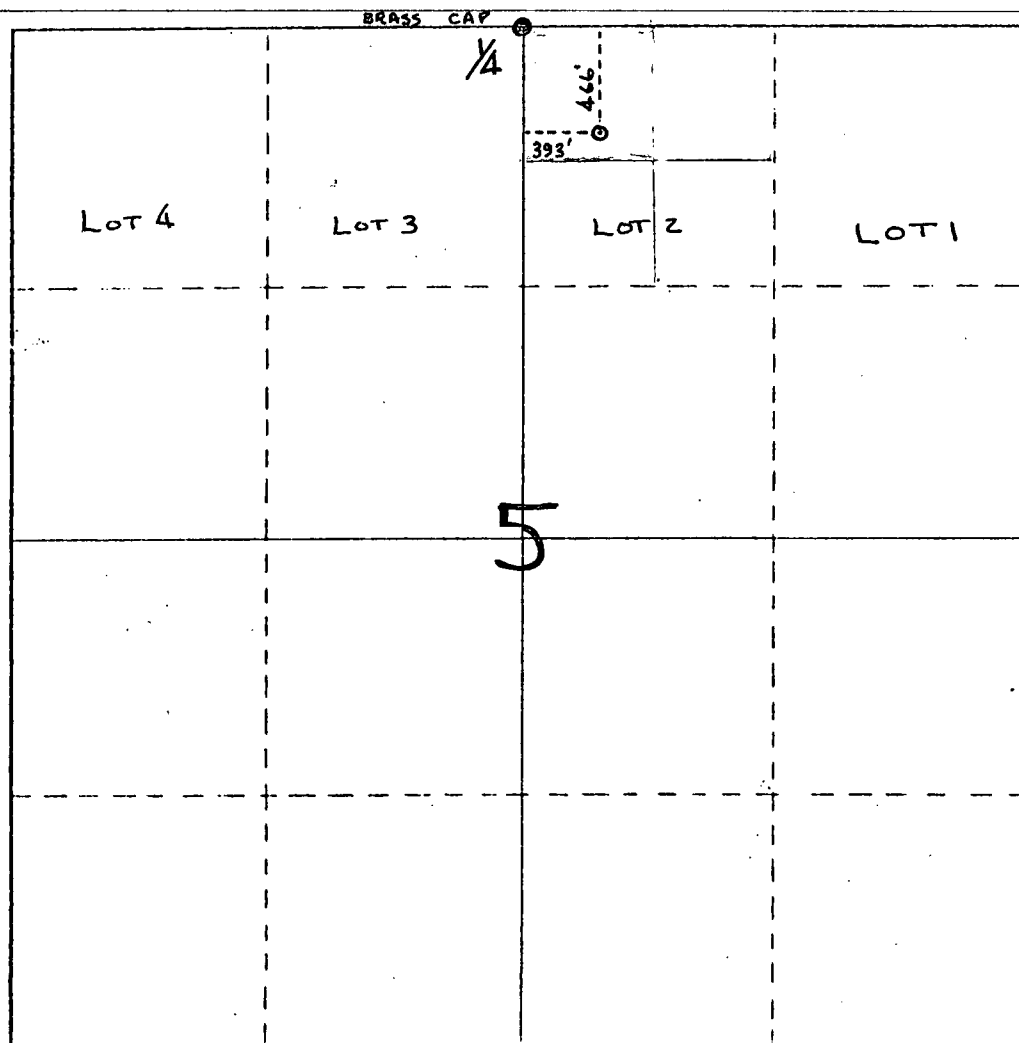
| | | | | | | | | |
|--|--|--------------------------|-----------------------|------------------------|--|---------------------------------------|--|--|
| Operator DAWSON A. CAMPBELL | | | Lease OWNER | | | Well No. CAMPBELL #3 | | |
| Unit Letter B | Section 5 | Township 13 S. | Range 13 W. | County GRANT | | | | |
| Actual Footage Location of Well: 466 feet from the NORTH line and 393 feet from the WEST line of LOT 2 | | | | | | | | |
| Ground Level Elev. 5643 | Producing Formation VOLCANIC | | Pool NA | | | Dedicated Acreage: 10 Acres | | |

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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 **NA**

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) **NA**

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 Division.



CERTIFICATION

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

Name
Dawson A. Campbell
Position
Owner
Company

Date
Dec 13, 1986

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
DEC. 3RD, 1986
Registered Professional Engineer and/or Land Surveyor

Karl D. King
Certificate No.
7250



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

November 15, 2000

Lori Wrotenbery
Director
Oil Conservation Division


Ms. Ysabel C. Luecke
HC 68 Box 80
Silver City, NM 88061

Re: \$2,000 One-Well Low-Temperature Thermal Well
Geothermal Observation Well Bond
Dawson A. Campbell, Principal
The Millers Mutual Fire Insurance Company of Texas, Surety
Dawson A Campbell Well #4 – Unit B, Section 5, Township 13 South,
Range 13 West
Bond No. 7937408

Dear Ms. Luecke:

The New Mexico Oil Conservation Division hereby approves the cancellation of the above-captioned geothermal bond and releases The Millers Fire Insurance Company of Texas from any liability.

Sincerely,


LYN S. HEBERT
Attorney
Oil Conservation Division

cc: Oil Conservation Division – Roy Johnson

The Millers Mutual Fire Insurance Company of Texas
P.O. Box 2269
Fort Worth, TX 76113



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON

Governor

Jennifer A. Salisbury

Cabinet Secretary

November 15, 2000

Lori Wrotenbery

Director

Oil Conservation Division

Ms. Ysabel C. Luecke
HC 68 Box 80
Silver City, NM 88061

Re: \$2,000 One-Well Low-Temperature Thermal Well
or Geothermal Observation Well Bond – Single-Well Cash Bond
Ysabel C. Leucke, Allen D. Campbell, Angus L. Campbell,
Rebecca L. Campbell, Principal
First New Mexico Bank – Silver City, NM – Depository – Acct. No. 3034982430
Campbell Well #4 - 103' FNL and 6049' FWL,
Section 5, Township 13 South, Range 13 West,
Bond No. OCD-688

Dear Ms. Luecke:

The New Mexico Oil Conservation Division hereby approves the above-captioned single-well cash bond.

Sincerely,

LYN S. HEBERT

Attorney

Oil Conservation Division

cc: Oil Conservation Division – Roy Johnson

First New Mexico Bank
P.O. Box 2798
Silver City, NM 88062

Doc Campbell

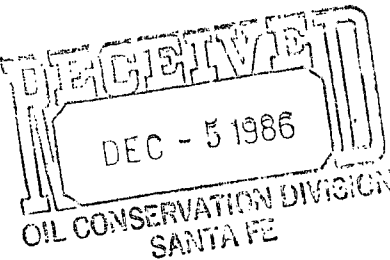
Gila Hotsprings

Silver City, New Mexico 88061

~~XXXXXXXXXX~~

HCR 88072

December 4, 1986



Mr. Roy Johnson, Supervisor, District IV
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Dear Roy:

Enclosed are all the applications, forms, etc., for Campbell Wells #3 and #4, as listed below:

Completed forms of G-101, G-102 and G-103.

copy of approved permit from the State Engineer to drill and appropriate Under-ground Waters, File No. GSF-2419 through GSF-2425, inclusive, with attached condition of approval.

Copy of transfer of water right to well in $W\frac{1}{2}E\frac{1}{2}$ of the $NW\frac{1}{4}$ of Sec. 5, which is the location of Campbell Well #1.

Copy of permit to deepen and appropriate water from Campbell Well #2 GSF-1922(4)

Well Bonds for Campbell Wells #3 and #4.

It is unclear to me if either Item (2) or Item (5) under B Acreage on Well Location Requirments applies under the conditions of Permit GSF-2419 through 2425 until a selection is made as to which of the two wells will be used for the extraction of geothermal energy and for domestic use, etc.

Your letter of November 19th, which aided me in filling out the forms, is appreciated.

Sincerely,

Doc Campbell

Encls.



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

DEMING

S. E. REYNOLDS
STATE ENGINEER

August 12, 1986

216 S. SILVER
P.O. BOX 844
DEMING, NEW MEXICO 88031
(505) 546-2851
(505) 546-7452

FILES: GSF-1922(4)
GSF-2419 thru GSF-2425 Inclusive

Dawson A. and Ida F. Campbell
Route 11, Box 80, Gila Hotsprings
Silver City, New Mexico 88061

Dear Mr. and Mrs. Campbell:

Enclosed are your copies of Permits to Appropriate Nos. GSF-1922(4) and GSF-2419 thru GSF-2425 Inclusive, which have been approved.

Please see that the well driller files log of well No. GSF-1922 in this office within ten (10) days after completion of deepening.

Your attention is called to the Conditions of Approval under said permits, which state as follows:

Permit No. GSF-1922(4)

1. The well shall be constructed to specifications in Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Groundwater in New Mexico Artesian Wells - Construction 4-15 through 4-19.1.
2. The non-consumptive water will be returned underground through non-production well(s) or directly to the Gila River in a manner and at locations acceptable to the State Engineer.
3. No consumptive use of water is authorized under this permit.
4. The total diversion of water is not to exceed 968 acre-feet per year in the use of well GSF-1922(4)
5. This permit shall not be exercised to the impairment of any other persons having prior existing rights to the use of underground waters.

Files: GSF-1922(4)
GSF-2419 thru GSF-2425 Inclusive
Dawson A. & Ida F. Campbell

6. Upon notice from the State Engineer this system is to be equipped with totalizing meters of a type and installed in a manner and at locations acceptable to the State Engineer.

Permit No. GSF-2419 thru GSF-2425 Inclusive

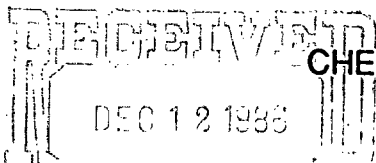
1. The well shall be constructed to specifications of Artesian Wells - Construction Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Groundwater in New Mexico 4-15 through 4-19.1.
2. All water diverted under this permit shall be returned to the underground water source or directly to the Gila River in a manner and at locations acceptable to the State Engineer, which will not cause a depletion of the water so diverted.
3. No consumptive use of water is authorized under this permit.
4. This permit shall not be exercised to the impairment of any other persons having prior existing rights to the use of underground waters.
5. Upon notice from the State Engineer this system shall be equipped with totalizing meters of a type and installed in a manner and at locations acceptable to the State Engineer.
6. The total diversion of water shall not exceed 968 acre-feet per year in the combined use of two (2) wells. Prior to appropriation the permittee shall advise the State Engineer of which two wells he will use for the appropriation of water under this permit. The remaining wells shall be plugged or capped in a manner satisfactory to the State Engineer.

Yours truly,



L. T. Putnam
Supervisor, District 3

LTP:jp
Encls: 2 Approved Permits
cc: State Engineer



CHEMICAL ANALYSES OF CAMPBELL #4

Well
Campbell, #4

Owner
Doc Campbell

Address
HCR 88072
Gila Hot Springs
Silver City, NM 88061

Depth: 238 feet

Well Location:

T13S., R13W, Sec5 2141

LAB Number: 6968

Constituents Reported as milligrams per liter (mg/l)

| | | | | | | | | | | | |
|-----------|----------|-----------|-----------|------------------------|-----------------------|-----------|-----------------------|----------|-----------|----------|------------------------|
| <u>Na</u> | <u>K</u> | <u>Ca</u> | <u>Mg</u> | <u>HCO₃</u> | <u>CO₃</u> | <u>Cl</u> | <u>SO₄</u> | <u>F</u> | <u>Li</u> | <u>B</u> | <u>SiO₂</u> |
| 120.4 | 1.2 | 11.3 | <0.1 | 117.2 | 0.0 | 101.5 | 41.0 | 9.55 | 0.20 | 1.2 | 74.8 |

pH: 8.29

Temperature: 72°C

Sample Analysed at:

New Mexico State University Soil and Water Testing Laboratory

Samples Collected by: James C. Witcher - NMSU Energy Institute
October, 1986

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION



January 2, 1987

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

The Millers Mutual Fire Insurance Co.
P. O. Box 2269
Fort Worth, Texas 76113

Attention: S. D. Westwood

Re: \$2,000 One-Well Low-Temperature Geothermal
Well Bond; Dawson A. Campbell, Principal
The Millers Mutual Fire Insurance Co.,
Surety; Bond No. 7937408
Well Location: Unit B, Sec. 5, T-13S, R-13W
Well No. 4

Dear Mr. Westwood:

The Oil Conservation Division hereby approves the above-
referenced geothermal bond effective December 17, 1986.

Sincerely,


CHARLES E. ROYBAL,
Acting Director

dr/

cc: Oil Conservation Division
Santa Fe (Roy Johnson)

Mr. Dawson A. Campbell

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

Form G-103
Adopted 10-1-74
Revised 10-1-78

| | |
|------------------------|--|
| NO. OF COPIES RECEIVED | |
| DISTRIBUTION | |
| File | |
| N. M. B. M. | |
| U. S. G. S. | |
| Operator | |
| Land Office | |

SUNDRY NOTICES AND REPORTS
ON
GEOTHERMAL RESOURCES WELLS

| |
|--|
| 5. Indicate Type of Lease |
| State <input type="checkbox"/> Fee <input checked="" type="checkbox"/> |
| 5.a State Lease No. |

Do Not Use This Form for Proposals to Drill or to Deepen or Plug Back to a Different Reservoir. Use "Application For Permit -" (Form G-101) for Such Proposals.)

| | | |
|------------------------|--|---|
| 1. Type of well | Geothermal Producer <input type="checkbox"/> | Temp. Observation <input type="checkbox"/> |
| | Low-Temp Thermal <input checked="" type="checkbox"/> | Injection/Disposal <input type="checkbox"/> |
| 2. Name of Operator | DAWSON A. CAMPBELL | |
| 3. Address of Operator | HCR 88072, GILA HOTSPRINGS, SILVERCITY, NM 88061 | |
| 4. Location of Well | Unit Letter <u>B</u> <u>1003</u> Feet From The <u>NORTH</u> Line and <u>649</u> Feet From The <u>WEST 1/4</u> Line, Section <u>35</u> Township <u>13S</u> Range <u>13W</u> NMPM. | |

| |
|--------------------------------|
| 7. Unit Agreement Name |
| 8. Farm or Lease Name |
| 9. Well No. |
| 10. Field and Pool, or Wildcat |

| |
|------------|
| 12. County |
| GRANT |

15. Elevation (Show whether DF, RT, GR, etc.)

5625 Ground level

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

| | |
|--|---|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/> | CHANGE PLANS <input type="checkbox"/> |
| PULL OR ALTER CASING <input type="checkbox"/> | OTHER <input type="checkbox"/> |

SUBSEQUENT REPORT OF:

| | |
|---|---|
| REMEDIAL WORK <input type="checkbox"/> | ALTERING CASING <input type="checkbox"/> |
| COMMENCE DRILLING OPNS. <input type="checkbox"/> | PLUG & ABANDONMENT <input type="checkbox"/> |
| CASING TEST AND CEMENT JOB <input type="checkbox"/> | OTHER <input type="checkbox"/> |

17. Describe Proposed or completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 203.

Completed drilling, casing and cementing.
Installed caps, guage (pressure) valves, and
a flow and totalizing meter.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Dawson A. Campbell TITLE Owner DATE Dec 3, 1986

APPROVED BY Roy Johnson TITLE DISTRICT SUPERVISOR DATE 12-23-86

CONDITIONS OF APPROVAL, IF ANY:

APPLICATION FOR PERMIT TO DRILL, DEEPEN,
OR PLUG BACK--GEOTHERMAL RESOURCES WELL

| | | | |
|------------------------|--|--|--|
| NO. OF COPIES RECEIVED | | | |
| DISTRIBUTION | | | |
| File | | | |
| N.M.B.M. | | | |
| U.S.G.S. | | | |
| Operator | | | |
| Land Office | | | |

| | | | |
|------------------|--|---|------------------------------------|
| 1a. Type of Work | Drill <input checked="" type="checkbox"/> | Deepen <input type="checkbox"/> | Plug Back <input type="checkbox"/> |
| b. Type of Well | Geothermal Producer <input type="checkbox"/> | Temp Observation <input type="checkbox"/> | |
| | Low-Temp Thermal <input checked="" type="checkbox"/> | Injection/Disposal <input type="checkbox"/> | |

| | | | |
|------------------------|---|--------------------------------|-------------|
| 2. Name of Operator | DAWSON A. CAMPBELL | 9. Well No. | Campbell #4 |
| 3. Address of Operator | HCR 88072 GILA HOTSPRINGS N. MEX 88061 | 10. Field and Pool, or Wildcat | |
| 4. Location of Well | UNIT LETTER B LOCATED 1003 FEET FROM THE NORTH LINE AND 649 FEET FROM THE WEST LINE OF SEC. 5 TWP. 13S RGE. 13W 8 LOT 2 NMPM | | |
| | 12. County | GRANT | |

| | | |
|--------------------|----------------|--------------------|
| 19. Proposed Depth | 19A. Formation | 20. Rotary or C.T. |
| | VOLCANIC | CT |

| | | | |
|--|-------------------------------|--------------------------|----------------------------------|
| 21. Elevations (Show whether DF, RT, etc.) | 21A. Kind & Status Plug. Bond | 21B. Drilling Contractor | 22. Approx. Date Work will start |
| 562.5 Ground level | #7937408 | LOUIS OLIVER | Sept 15, 1986 |

PROPOSED CASING AND CEMENT PROGRAM

| SIZE OF HOLE | SIZE OF CASING | WEIGHT PER FOOT | SETTING DEPTH | SACKS OF CEMENT | EST. TOP |
|--------------|----------------|-----------------|---------------|-----------------|-----------------|
| 11 1/2" | 9" OD | 49 | 158 | 43 | 2' above ground |
| 8" | None | | 238 T.D. | | |

See attached permit GSF 2419 through 2425
Well Record GSF 2419

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new producti 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 Dawson A. Campbell Title Owner Date Dec 3, 1986

(This space for State Use)

APPROVED BY R. E. Johnson TITLE DISTRICT SUPERVISOR DATE 12-23-86

CONDITIONS OF APPROVAL IF ANY:

GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

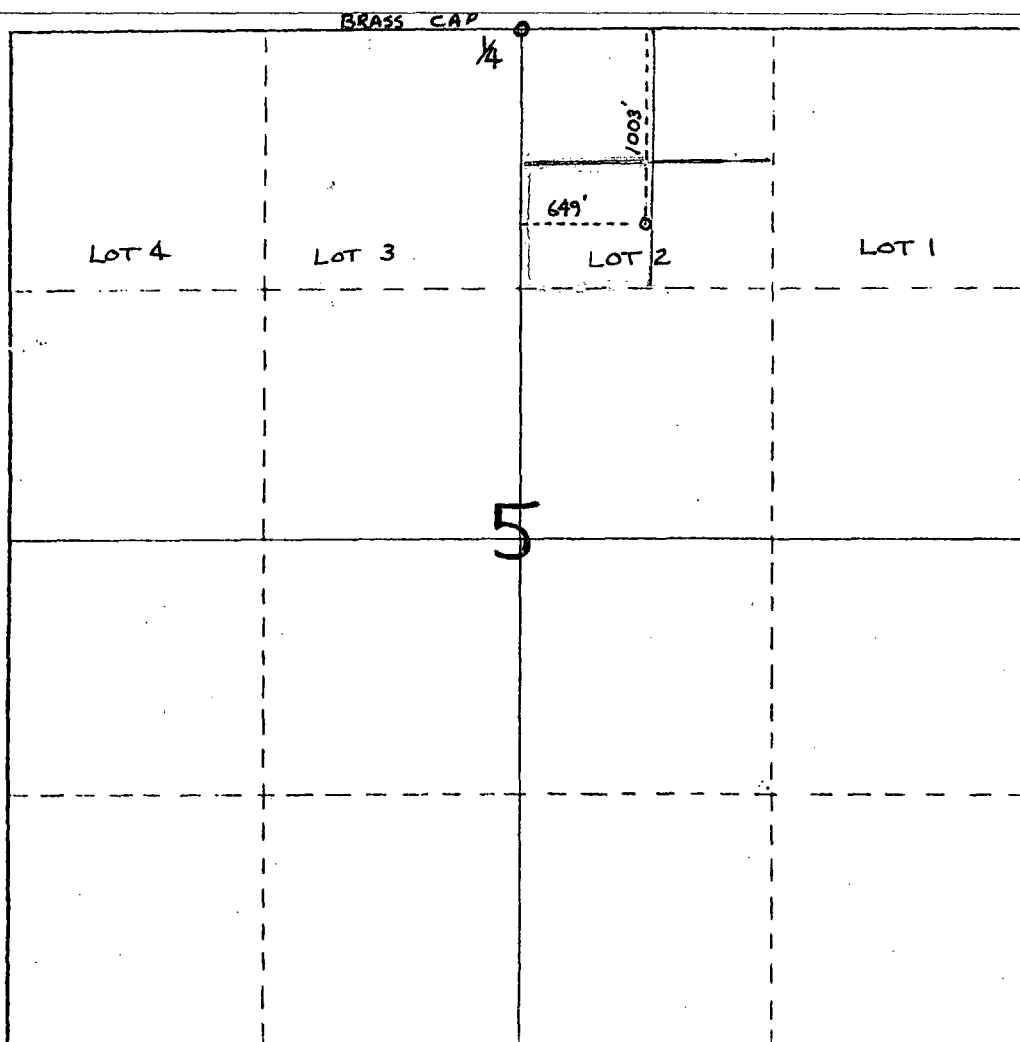
| | | | | | |
|---|--|--------------------------|-----------------------|---------------------------------------|--|
| Operator DAWSON A CAMPBELL | | Lease OWNER | | Well No. CAMPBELL #4 | |
| Unit Letter B | Section 5 | Township 13 S. | Range 13 W. | County GRANT | |
| Actual Footage Location of Well: 1003 feet from the NORTH line and 649 feet from the WEST line of LOT 2 | | | | | |
| Ground Level Elev. 5625 | Producing Formation VOLCANIC | Pool | | Dedicated Acreage: 10 Acres | |

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure 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 **NA**

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) **NA**

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 Division.



CERTIFICATION

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

Name **Dawson A Campbell**
Position **Owner**
Company

Date **Dec 3, 1986**

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.

DEC. 3RD, 1986
Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Karl D. King

Certificate No. **7250**

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Doc Campbell Owner's Well No. xx#xx #4
Street or Post Office Address Cila Hot Springs Rt.
City and State Silver City, N.M. 88061

Well was drilled under Permit No. GSF-2419 and is located in the:

a. W $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 5 Township 13 S Range 13 W N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in
the _____ Grant.

(B) Drilling Contractor Louis Oliver License No. WD-1C94

Address Rt. 15 Box 925 San Lorenzo, N.M. 88057

Drilling Began Sept. 15 '86 Completed Oct. 7 '86 Type tools cable Size of hole 8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 238 ft.

Completed well is ☐ shallow ☒ artesian. Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

| Depth in Feet | | Thickness in Feet | Description of Water-Bearing Formation | Estimated Yield (gallons per minute) |
|---------------|-----|----------------------|--|---|
| From | To | | | |
| 200 | 238 | 38 | White not led rock (Rhyolite) | |
| | | | Seep at 200 ft. | |
| | | | 210 ft. strange water rose to 3 ft. | |
| | | | 235 ft. stronger water rose to 2 ft. | |
| | | | 238 ft. rose to ground level | |

Section 3. RECORD OF CASING

| Diameter (inches) | Pounds per foot | Threads per in. | Depth in Feet | | Length (feet) | Type of Shoe | Perforations | |
|----------------------|--------------------|--------------------|---------------|--------|------------------|--------------------------|--------------|----|
| | | | Top | Bottom | | | From | To |
| 1 3/4 | dr. wt. | | 0 | 10 | 10 | none | none | |
| 9 | dr. wt. | 10 | - 2' sh | 158 | 160 | cementing centralizer | none | |
| | | | ground | | | | | |

Section 4. RECORD OF MUDDING AND CEMENTING

| Depth in Feet | | Hole Diameter | Sacks of Mud | Cubic Feet of Cement | Method of Placement |
|--------------------|-----|------------------|-----------------|-------------------------|--|
| From | To | | | | |
| 1' above ground | 158 | 11 1/2 | | 43 | 22 sacks pushed down with plug inside |
| | | | | | 21 sacks poured 3 days later top |

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____

State Engineer Representative

| No. | Depth in Feet | | Cubic Feet of Cement |
|-----|---------------|--------|-------------------------|
| | Top | Bottom | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received October 15, 1986

Quad _____ FWL _____ FSL _____

File No. GSF-2419 ~~XXXXXXXXXXXX~~ Geothermal Well ~~XXXXXX~~ Location No. 13.13.5.214

[illegible]

Started 2" syphon with water at ground level with discharge end at approximately 30' below well level. Flowed 85 gpm with 1 ft 9" drawdown. With discharge at approximately 40 or 50 ft. below well flowed 109 gpm with 3 ft drawdown. Final temp 166 degrees/ After syphon test well slowly rose to top of casing and in about 1/2 to 1 hour flowed 271 gpm steadily two feet above ground.

Louis Oliver
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

APPLICATION FOR PERMIT

To Appropriate the Underground Waters of the State of New Mexico

- Date Received May 16, 1985 File No. GSF-1922(4)
- Name of applicant Dawson A. and Ida F. Campbell
Mailing address Rt. 11, Box 80, Gila Hotsprings
City and State Silver City, New Mexico 88061
 - Source of water supply underground deep aquifer, located in Upper Gila River
(artesian or shallow water aquifer) (name of underground basin)
 - The well is to be located in the W $\frac{1}{2}$ NE $\frac{1}{4}$ Section 5 Township 13 S
Range 13 W N.M.P.M., or Tract No. _____ of Map No. _____ of the _____ District,
on land owned by Dawson A. and Ida F. Campbell
 - Description of well: name of driller non-contracted at present
Outside Diameter of casing 5 inches; Approximate depth to be drilled 600 feet;
 - Quantity of water to be appropriated and beneficially used non-consumptive, 968 acre-feet/year
(consumptive use, diversion)
for generating electricity, space heating and domestic non-consumptive purposes.
 - Acreage to be irrigated or place of use private lands in Sec. 5, T 13S, R 13W, NMPM acres.

| Subdivision | Section | Township | Range | Acres | Owner |
|-------------|---------|----------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

- Additional statements or explanations Application is for a permit to deepen one well (Well #2), in the W $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Sec. 5, T13S, R 13W, NMPM, and within the Gila Hot Springs Known Geothermal Area.
Well #2 - W $\frac{1}{2}$ of NE $\frac{1}{4}$ of Lot 2 of Sec. 5. This well was drilled by Larion Drilling Company in 1980. Severe caving at 277 feet stopped further drilling. By casing and other means the hole could be deepened. The non-consumptive water will be returned underground into non-production wells and/or according to the recommendations of the State Engineer and other concerned agencies. Consumptive use of water is not expected. However, if short falls or losses occur, those losses will be compensated by transfer of consumptive rights hold by permittees.
The Rankine Cycle Electric Generating System requires water temperatures 150° F. or higher. The efficiency of the unit increases with higher temperatures of water. Therefore, water 10° to 20° F above the flows of the hot springs is sought by further exploration and development.

I, Dawson A. Campbell, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Dawson A. Campbell, Permittee,

By: _____

Subscribed and sworn to before me this 15th day of May, A.D., 19 85

My commission expires 12/17/86 Alice F. Hill
Notary Public

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; ~~further provided that all rules and regulations of the State Engineer pertaining to the drilling of~~ wells be complied with; ~~and further subject to the following conditions:~~ and is not detrimental to the public welfare or contrary to the conservation of water within the state; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and further subject to the following conditions:

See Attached Conditions of Approval

Proof of completion of well shall be filed on or before _____, 19____

Proof of application of water to beneficial use shall be filed on or before _____, 19____

Witness my hand and seal this 5th day of August, A.D., 19 86.

S. E. Reynolds, State Engineer

By: _____

Frank Craig
Frank Craig
Water Rights Division

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$5.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1-4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

APPLICATION FOR PERMIT

To Appropriate the Underground Waters of the State of New Mexico

Date Received May 16, 1985 File No. GSF-1922(4)

1. Name of applicant Dawson A. and Ida F. Campbell
Mailing address Rt. 11, Box 80, Gila Hotsprings
City and State Silver City, New Mexico 88061

2. Source of water supply underground deep aquifer, located in Upper Gila River
#2 (artesian or shallow water aquifer) (name of underground basin)

3. The well is to be located in the W 1/2 NE 1/4, Section 5 Township 13 S
Range 13 W N.M.P.M., or Tract No. _____ of Map No. _____ of the _____ District,
on land owned by Dawson A. and Ida F. Campbell

4. Description of well: name of driller non-contracted at present;
Outside Diameter of casing 5 inches; Approximate depth to be drilled 600 feet;

5. Quantity of water to be appropriated and beneficially used non-consumptive, 968 acre-feet/year
(consumptive use, diversion)
for generating electricity, space heating and domestic non-consumptive purposes.

6. Acreage to be irrigated or place of use private lands in Sec.5, T 13S, R 13W, NMPM acres.

| Subdivision | Section | Township | Range | Acres | Owner |
|-------------|---------|----------|-------|-------|-------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

7. Additional statements or explanations Application is for a permit to deepen one well (Well #2), in the W 1/2 of the NE 1/4 of Sec. 5, T 13 S, R 13 W, NMPM, and within the Gila Hot Springs Known Geothermal Area.

Well #2 - W 1/2 of NE 1/4 of Lot 2 of Sec. 5. This well was drilled by Larjon Drilling Company in 1980.. Severe caving at 277 feet stopped further drilling. By casing and other means the hole could be deepened. The non-consumptive water will be returned underground into non-production wells and/or according to the recommendations of the State Engineer and other concerned agencies. Consumptive use of water is not expected. However, if short falls or losses occur, those losses will be compensated by transfer of consumptive rights hold by permittees.

The Rankine Cycle Electric Generating System requires water temperatures 150° g. or higher. The efficiency of the unit increases with higher temperatures of water. Therefore, water 10° to 20° F above the flows of the hot springs is sought by further exploration and development.

I, Dawson A. Campbell, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Dawson A. Campbell, Permittee,

By: _____

Subscribed and sworn to before me this 15th day of May, A.D., 19 85.

My commission expires 12/19/86 Alisa F. Hill
Notary Public

79 MAR 1 PM 2:53

APPLICATION TO APPROPRIATE UNDERGROUND WATERS

77685 D - \$1.00

IN ACCORDANCE WITH SECTION 75-11-1 NEW MEXICO STATUTES

STATE ENGINEER OFFICE

DISTRICT III

DEMING, N. MEX.

1. Name and Address of Applicant:

File No. **GSF-1923**

D. A. Campbell

Route 11, Box 80

Silver City, New Mexico 88061

2. Describe well location under one of the following subheadings:

a. NE NW 5 of Sec. 5 Twp. 13 S Rge. 13 W N. M. P. M., in
Grant County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X = _____ feet, Y = _____ feet, N. M. Coordinate System _____ Zone
in the _____ Grant.

e. Give street address or route and box No. of property upon which well is to be located, or location by direction and
distance from known landmarks _____

3. Approximate depth (if known) 3000 feet; outside diameter of casing 6 inches.

Name of driller (if known) _____

4. Use of water (check appropriate box or boxes):

- ☐ Household, non-commercial trees, lawn and garden not to exceed 1 acre.
- ☐ Livestock watering.
- ☐ Drinking and sanitary purposes and the irrigation of non-commercial trees, shrubs and lawns in conjunction with a commercial operation.
- ☒ Prospecting, mining or drilling operations to discover or develop natural resources.
- ☐ Construction of public works, highways and roads.

If any of the last three were marked, give name and nature of business under Remarks. (Item 5)

5. Remarks: Exploration - geothermal.

I, D. A. Campbell, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Signature below _____, Applicant

By: _____

Date: March 1, 1979

ACTION OF STATE ENGINEER

This application is approved for the use indicated, subject to all general conditions and to the specific conditions numbered 3, 9 & 10 on the reverse side hereof. This permit will automatically expire March 5, 1980 unless this permit is renewed or extended by the State Engineer on or before _____

S. E. Reynolds, State Engineer

By: L. T. Putnam
Supervisor, District III

Date: March 5, 1979

File No. **GSF-1923**

GENERAL CONDITIONS OF APPROVAL

- A. The maximum amount of water that may be appropriated under this permit is 3 acre feet in any calendar year.
- B. The well shall be drilled only by a driller licensed in the State of New Mexico in accordance with Section 75-11-13 New Mexico Statutes Annotated. A licensed driller shall not be required for the construction of a driven well; provided, that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter (Section 75-11-13).
- C. Driller's log must be filed in the office of the State Engineer within 10 days after the well is drilled or driven. Failure to file the log within that time shall result in automatic cancellation of the permit. Log forms will be provided by the State Engineer upon request.
- D. The casing shall not exceed 7 inches outside diameter except under specific conditions in which reasons satisfactory to the State Engineer are shown.
- E. If the well under this permit is used at any time to serve more than one household, livestock in a commercial feed lot operation, or any other commercial purpose, the permittee shall comply with Specific Condition of Approval number 5(b).
- F. In the event this well is combined with other wells permitted under Section 75-11-1 New Mexico Statutes Annotated, the total outdoor use shall not exceed the irrigation of one acre of non-commercial trees, lawn, and garden, or the equivalent outside consumptive use, and the total appropriation for household and outdoor use from the entire water distribution system shall not exceed 3 acre feet per annum.

SPECIFIC CONDITIONS OF APPROVAL

(Applicable only when so indicated on the other side of this form.)

- 1. Depth of the well shall not exceed the thickness of the (a) the valley fill or (b) Ogallala formation.
- 2. The well shall be constructed to artesian well specifications and the State Engineer Office shall be notified before casing is landed or cemented.
- 3. ~~Appropriation of water under this permit shall not exceed a period of one year from the date of approval.~~
- 4. Use shall be limited to household, non-commercial trees, lawn and garden not to exceed one acre and/or stock use.
- 5. A totalizing meter shall be installed before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the State Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water and pumping records shall be submitted to the District Supervisor (a) for each calendar month, on or before the 30th day of the following month (b) on or before the 10th of January, April, July and October of each year for the three preceding calendar months (c) for each calendar year on or before the 30th day of January of the following year.
- 6. The well shall be plugged upon completion of the permitted use and a plugging report shall be filed in the office of the State Engineer within 10 days.
- 7. Final approval for the use of the well shall be dependent upon a leakage test made by the State Engineer Office.
- 8. Use shall be limited strictly to household and/or drinking and sanitary purposes; water shall be conveyed from the well to the place of use in closed conduit and the effluent returned to the underground so that it will not appear on the surface. No irrigation of lawns, garden, trees or use in any type of pool or pond is authorized under this permit.

INSTRUCTIONS

The application shall be made in the name of the actual user of the well for the purpose specified in the application.

The application shall be executed in triplicate and forwarded with a \$1.00 filing fee to the appropriate office of the State Engineer.

A separate application must be filed for each well to be drilled or used.

If well to be used is an existing well, an explanation (and file number, if possible) should be given under Remarks. (Item 5.)

Applications for appropriation, well logs and request for information in the following basins should be addressed to the State Engineer at the office indicated;

Bluewater, Estancia, Rio Grande, and Sandia Basins

District No. 1, 505 Marquette NW, Room 1023, Albuquerque, New Mexico 87101

Capitan, Carlsbad, Fort Sumner, Hondo, Jal, Lea, Penasco, Portales, Roswell, and Upper Pecos Basins

District No. 2, Box 1717, Roswell, New Mexico 88201

Animas, Gila-San Francisco, Hot Springs, Las Animas Creek, Lordsburg, Mimbres, Nutt-Hockett, Playas, San Simon, and Virden Valley Basins

District No. 3, Box 844, Deming, New Mexico 88030

Canadian River Basin

State Engineer Office, State Capitol, Bataan Memorial Bldg., Santa Fe, New Mexico 87501

- 9. Use of water under this permit limited to exploration of geothermal water. No consumptive use of water is allowed.
- 10. Upon expiration of this permit, well shall be plugged in such a manner that all water encountered shall be confined to the strata in which it was encountered. All plugging operations shall be approved by the State Engineer prior to actual plugging.