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 Your Mexico 188.	
County of Santa te	
Answ amobel , beir	ng first duly sworn according to law, upon his
oath deposes and says:	
	. \ \ \ C \ \ \ \
1. That he is Owner	of Hagus L. Lampbell
(Title)	(Operator)
	prings Silver City, New Max. 88061.
	the operator of a well drilled on land be-
(Operator)	whose address is HC 68 Cyla Hotsprings
longing to Angus (amphel), (Landowner)	Auge address is TIC OA MIG HOLDANG
· · · · · · · · · · · · · · · · · · ·	Geothermol
Silver City, New 1'lex 8806, said well be	eing drilled to test for hydrocarbons/and/or
carbon dioxide gas and described as the Car	
feet from the North line and 1850 for 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 cas-
	a total depth of 100 leet, 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,	$oldsymbol{arphi}$
	id well back to a plugged-back total depth of
	er for his use as a water-well. Operator will
leave casing in the well as follows:	of the decas a water-well. Operator will
reave casing in the well as follows.	
5 That when operator has comp	olied with the provisions of Paragraph 4 above
,	plied with the provisions of Paragraph 4 above ission of the State of New Mexico on Com-
it will so notify the Oil Conservation Comm	ission of the State of New Mexico on Com-
it will so notify the Oil Conservation Comm mission Form C-103, together with a signe	ission of the State of New Mexico on Com- ed statement from the landowner that the
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Subscribed and sworn to before me this  OFFICIAL SEAL Loyce F. Bocock NOTARY PUBLIC-STATE OF NEW MEXICO My commission expires: 6-29-2004  STATE OF New Mexico	d statement from the landowner that the complied with to his satisfaction.  (Operator)  By  day of Nov , A. D. 19 2000.  Longer & Bococh
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Subscribed and sworn to before me this	Seeing first duly sworn according to law, upon
Subscribed and sworn to before me this	d statement from the landowner that the complied with to his satisfaction.  Operator)  By  day of Nov , A. D. 19 2000.  Langue + Bococh  Notary Public in and for the County of Santa Formation of Paragraphs 4 and 5 above have been
Subscribed and sworn to before me this	d statement from the landowner that the complied with to his satisfaction.  (Operator)  By day of Nov , A. D. 19 2000.  Longer & Bocock  Notary Public in and for the County of Santa for the County o
Subscribed and sworn to before me this  OFFICIAL SEAL Loyce F. Bocock NOTARY PUBLIC STATE OF NEW NEXICO  My commission expires: 6-29-2004  STATE OF Mexico  County of Angus Completion, In the oath deposes and says that when the procomplied with, he will accept the above-desthat he will assume all responsibility for the	d statement from the landowner that the complied with to his satisfaction.  Operator)  By  day of Nov , A. D. 19 2000.  Langue + Bococh  Notary Public in and for the County of Santa Formation of Paragraphs 4 and 5 above have been
Subscribed and sworn to before me this	destatement from the landowner that the complied with to his satisfaction.    Destate   Complete
Subscribed and sworn to before me this	destatement from the landowner that the complied with to his satisfaction.  (Operator)  By  day of Nov , A. D. 19 2000 .  Loyar & Bococh  Notary Public in and for the County of Santa for the County of Paragraphs 4 and 5 above have been cribed well for his use as a water-well, and well, the location, and the conversion of the (Landowner)
Subscribed and sworn to before me this  OFFICIAL SEAL Loyce F. Bocock NOTARY PUBLIC STATE OF NEW NEXICO  My commission expires: 6-29-2004  STATE OF Mexico  County of Angus Completion, In the oath deposes and says that when the procomplied with, he will accept the above-desthat he will assume all responsibility for the	destatement from the landowner that the complied with to his satisfaction.  (Operator)  By  day of Nov , A. D. 19 2000.  Loyar T Bococh  Notary Public in and for the County of Santa Tourishing to law, upon visions of Paragraphs 4 and 5 above have been cribed well for his use as a water-well, and well, the location, and the conversion of the (Landowner)
Subscribed and sworn to before me this  OFFICIAL SEAL Loyce F. Bocock NOTARY PUBLIC STATE OF NEW MEXICO My commission expires: 6-29-2004  STATE OF New Mexico County of Angle County his oath deposes and says that when the procomplied with, he will accept the above-desthat he will assume all responsibility for the well to a water-well.  Subscribed and sworn to before me this  3	destatement from the landowner that the complied with to his satisfaction.  (Operator)  By  day of Nov , A. D. 19 2000 .  Long T Bococh  Notary Public in and for the County of Santa To seing first duly sworn according to law, upon visions of Paragraphs 4 and 5 above have been cribed well for his use as a water-well, and e well, the location, and the conversion of the County of November 1 and 10 and
Subscribed and sworn to before me this  OFFICIAL SEAL Loyce F. Bocock NOTARY PUBLIC STATE OF NEW NEXICO My commission expires: 6-29-2004  STATE OF Menice County of Sanda Says that when the procomplied with, he will accept the above-desthat he will assume all responsibility for the well to a water-well.  Subscribed and sworn to before me this  OFFICIAL SEAL	destatement from the landowner that the complied with to his satisfaction.  (Operator)  By  day of Nov , A. D. 19 2000 .  Loyar & Bococh  Notary Public in and for the County of Santa for the County of Paragraphs 4 and 5 above have been cribed well for his use as a water-well, and well, the location, and the conversion of the (Landowner)
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215 West Broadway P.O. Box 349

Law Offices of

JOHN W. REYNOLDS Silver City, NM 88062

July 29, 1993

Telephone 505-538-3431

OIL CONSERVA TON DIVISION

RECEIVED

193 AUG 2 AM 8 57

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

Re: Charles Reeves

Gentlemen:

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

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. Revnolds

JWR:jj Enc.

pc: Charles Reeves



#### STATE OF NEW MEXICO

#### STATE ENGINEER OFFICE

DEMING

August 26, 1993

OIL CONSERVE ON DIVISION

RECEIVED

'93 AUR 31 AM 10 11

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

FILES: 01964-0

**ELUID L. MARTINEZ** 

State Engineer

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.

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: Land B. allison

David B. Allison

Water Resource Specialist

DBA:jp

cc: Energy, Minerals & Natural Resources

Roy Johnson, Sr. Geologist

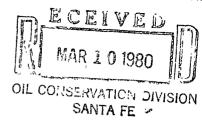
\_\_\_\_\_TITLE \_\_\_

APPROVED BY \_\_\_

CONDITIONS OF APPROVAL, IF ANY:

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

#### CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO PRODUCE GEOTHERMAL RESOURCES



OWNED OD ODED ATOD		47. 13. 1	/ L L
OWNER OR OPERATOR Name <u>DAWSON (DOC) a</u>	and IDA CAMPREII		
		co 88061	
Address Koute 11, 511	ver erey, wew mexi		
	·		
TYPE OF WELL			
Geothermal Producer [ ]	Low-Temperature	Thermal [X] Inje	ction/Disposal [ ]
DEACON FOR ELLING		· '	
REASON FOR FILING New Well [X] Recomple	tion []	,	•
Change in Ownership [ ] I		•	
comer (Freude Emplanie)			
DESCRIPTION OF WELL			
T	Well	Name of	
Name Campbell et al	No#1	Reservoir	
Kind of Lease	Lease	•	
(100, 100, 01 5,000)			
I con myon			
LOCATION			
Unit Latter C · East ]	850 feet from t	he West	line and
South 100 feet	leet from t	North	into und
	feet from t	the	line of
Section5T	ownship 13 South	Range 13 West	
County Grant	-		
County			
TYPE OF PRODUCT			
TYPE OF PRODUCT	Steam and	Low Temp	
Diy Steam	Water -	Thermal Water	X
Steam	· · · ·	Low TempThermal Water	
DESIGNATION OF PURCHASE Name of	R OF PRODUCT	•	
Purchaser	7		
	The Market		
Address of Purchaser / him			
(, , , , , , , , , , , , , , , , , , ,	-07		77.05
Product Will O.L. CC			
Be Used For	77.2		
CERTIFICATE OF COMPLIAN	VTA FE TIME		
		hanned married and to do control	of Non-March
		hermal resources wells in the State	
		exico, have been complied with, omplete to the best of my knowledge	
subject well, and that the inform	ration given above is true and co	ompiete to the best of my knowleds	ge and other.
o A			
Signed /dDen		Position Geologis & Ager	Date March 7
Signed		rosition oronages 7 roje	Date / Jan
Approved		Position	Date
Approved		I OSITION	Dato

# 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 <u>Campbell et al</u> Well No. #1	Unit LetterC
Location: East 1850 feet from the West	line and
South 100 feet from the North line Section	5
Township 13 South Range 13 West Cou	

#### FORMATIONS PENETRATED BY WELL

DEPTH TO			Drilled or		
Top of Formation	Bottom of Formation	Thickness	Cored	Recovery	DESCRIPTION
0	6	6	Drilled		Clay - brown
6	9	3	Drilled		Boulders and Gravel - brown
0 6 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		Rhyölite - 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
		•			·
					·
			-		
					•

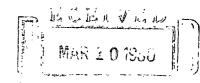
#### Attach Additional Sheets if Necessary

This form must be accompanied by copies of electric logs, di	rectional surveys, physical or chemical logs, water analyses, tests,
[ Man 2018an [ ]	

CERTIFICATIONCO.

SANTA FOR SIGNATURE STANDING SANTA FOR SIGNATURE SANTA FOR SIGNATURE SANTA FOR SIGNATURE SANTA FOR SIGNATURE SIGNATURE SANTA FOR SIGNATURE SANTA FOR SIGNATURE SANTA FOR SIGNATURE SIGNATURE SANTA FOR SIGNATURE SANTA SANTA

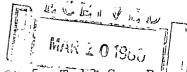
Signed Mondayer and Agent Date March 7, 1480



FIELD LOG: Campbell et al #1 (N4, NE4, NW4, Sec. 13. G., T.13. G.,

Depth From	(ft)	Rock type and description
1 1 0 111	110	
	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 feld-spar, 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 minerology 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'.

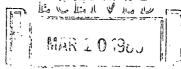




FIELD LOG: Campbell et al #1 (N3, NE3, NW3, Secu 50 T.13 S., R. 13 W.) Grant County, New Mexico (cont) SANTA FE

By: R.M. Colpitts, Jr., January 1980.

Depth From	(ft) To	Rock type and description
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 T.D.=	939.	ANDESITE(?) - red to red-brown, 30% hornblende 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'.



LITHOLOGIC DESCRIPTION: Campbell et al #1 (N1,0NEQ, SNWY, T.Sec.NISION 5, T.13 S., R.13 W.) Grant Coanty FE N. M.

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

Depth	(ft)	
From	To	Rock type and description
0	. 10	CLAY - brown, slightly silty, slightly sandy, composed of 75% clay, 15% silt and 10% very fine to medium-grained sand with a trace of calcium carbonare.
10	20	SAND AND GRAVEL - 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	GRAVEL - brown, composed of 95% fine to medium pebbles and 5% fine to very coarse-grained sand.
30	40	ANDESITE - red-brown, composed of 40% hematite, 35% plagioclase(?), 15% hornblende and pyroxene, 3% golden-brown biotite, and 2% magnetite.
40	50	ANDESITE - lavender-brown, composed of 55% plag- ioclase, 25% hematite, 10% hornblende, 5% pyro- xene, 3% brown biotite and 2% magnetite.
50	140	RHYOLITIC TUFF - 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	RHYOLITIC TUFF - 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	RHYOLITE - 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.



OIL CO. (32 W.T.C., DIVISION SANTA FE

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

Depth	(ft)	
From	To	Rock type and description
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% plagio- clase (with some potassium feldspar present), 20% augite, 10% hematite, 10% olivine(?), 5% horn- blende and 2% quartz (xenolitho?). Zeolite vein and cavity fillings 750 to 770.
780	800	ANDESITE - brown, composed of 71% plagioclase (with some potassijm feldspar) 20% augite, 5% hornblende, 2% quartz, and 2% hematite.
800	820	BASALTIC ANDESITE(?) - brown, composed of 59% plagioclase, 25% hematite, 7% augite, 5% horn-blende, 2% quartz and 2% olivine.
		2 ANDESITE - red-brown, composed of 60% plagio- 2clase, 25% hematite, 7% pyroxene, 5% hornblende, 2% quartz and 1% biotite. Zeolite vein fillings and pseudomorphs after feldspar(?) 850 to 930.



ECEIVED MAR 101960

TEMPERATURE LOG: Campbell et al #1, N, NE, NWY, Sec. 5, Tolon S., R.13 E., Grant County, New Mexicon.
By: D. Gambill and A. Kron (LASL) and R. M.
Colpitts, Jr., January 30, 1980.

				Dan leb		
	epth	9.0	°F	Depth	9.0	0.5
• ,	(ft)	<u>°C</u>	<u> </u>	<u>(ft)</u>	°C	°F
	0			305.3	21 /	00 (
1	51.7 ·	20.8	69.4	310.5	31.4	88.6
	72.4	21.1	70.0		31.7	89.1
				315.7	32.0	89.5
	93.2	21.4	70.4	320.8	32.2	90.0
	03.5	21.7	71.1	326.0	32.5	90.4
	08.7	22.8	73.1	331.2	32.7	90.9
	13.8	23.0	73.5	336.4	33.0	91.4
	19.0	23.2	73.8	341.5	33.2	91.8
	24.2 29.4	23.5 23.6	74.2 74.5	346.7	33.5	92.3
	34.5	23.9		351.9	33.0	91.4
	39.7	24.3	75.0 75.7	357.1	34.0	93.2
	44.9	24.5	76.2	362.2	34.2 34.4	93.6
	50.1	24.8	76.6	367.4 372.6	34.4	94.0 94.5
	55.2	25.0	77.0	377.8	34.9	94.9
	60.4	25.2	77.3	382.9	35.1	95.2
	65.6	25.4	77.7	388.1	35.3	95.6
	70.8	25.6	78.1	393.3	35.6	96.0
	75.9	25.8	78.4	398.5	35.8	96.5
	81.2	26.1	78.9	403.6	36.1	96.9
1	86.3	26.2	79.2	408.8	36.3	97.3
	91.5	26.5	79.6	408.8	36.3	97.3
	96.6	26.7	80.1	414.0	36.5	97.7
	01.8	26.9	80.5	419.2	36.7	98.1
	07.0	26.8	80.3	424.3	37.0	98.6
	12.2	27.3	81.1	429.5	37.2	99.0
	17.3	27.5	81.6	434.7	37.4	99.4
	22.5	27.8	82.0	439.9	37.6	99.8
	27.7	27.8	82.0	445.0	37.9	100.2
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W.K. Summers & Associates, Inc.

OIL CONGLAYMTICH DAVISION SANTA FE

TEMPERATURE LOG: Campbell et al #1, N\2,NE\4,NW\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 45.4	113.4	848.7	54.4	129.9
641.7	45.5	113.7 114.0	853.8	54.7	130.5
646.9	45.8	114.0	859.0	54.9	130.8
652.0	45.9	114.7	864.2 869.4	55.1	131.2
657.2	46.1	114.7	874.5	55.4 55.6	131.7
662.4	46.3	115.3	879.7	55.8	132.1 132.4
667.6	46.4	115.6	884.9	56.0	132.4
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 o	f hole.	
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# MAR 1 0 1980

Form G-106 Adopted 10/1/74

P. O. Box 2088, Santa Fe 87501

OIL COMSERVATION DIVISION

#### GEOTHERMAL RESOURCES WELL SUMMARY REPORT

SANTA FE

Оре	rator						MPBELL	Add	dressRout	e ll, Sil	ver City	, NM 88	8061
Leas	se Name	Campbe	11 €	et a	1			Wel	I No#1				<del></del>
								wp.13_5		Rge			·
Rese	ervoir							Cou	unty	Grant			
Com	menced dril	ling Ja	nuai	ry 7,	, 198	80			GEOLOG	SICAL MARKERS		DEPTH	
	pleted drilli	π_			4, 19				op of Rh	yolitic T	uff	51 fe	et
				Divagod	ldonth	n		 ጥረ	on of Si	licified	Flows	205 for	
									<u>por or or</u>	11011160_	1_10W5	205 166	<u> </u>
Junk													
	•								0	age at total depth	Tertiarv	·(Oligo	ocene)
Com	menced pro	ducing		Date)					Geologic	age at total depth	:		<u></u> ,
•	St	atic test						· P	roduction Te	st Data			
Date	Shut-i	n well hea	d			Total	Mass Flow	Data			Separato	r Data	
	Temp. °	F Pres. P	sig.	Lbs/	'Нг	Temp. °F	Pres. Psig.	Enthalpy	Orifice	Water cuft/Hr	Steam Lbs/Hr	Pres. Psig.	Temp. °F
								`					
						C	ASING RE	CORD (Pr	esent Hole)		,		
Size of Hole	Size of Casing	Weight of Csg/ft.	Gra o Casi	f	New or Used	Seam or Lapw	ļ	Depth of Shoe	Top of Casing	Number of Sacks Cement	Top of Cement .	D	ent Top mined By
7-7/8	6-5,	<u> </u>		1	New_	Lapw	eld	30.9'	Surface	4 sacks	Surface	inspe	ection
						•							
							PERFOR	RATED CA	L ASING				
				(Size,	top, bot	ttom, perfo				ration and method	i.)		
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	/ .	7.0	<i>1 d</i>										0.20 0 6
Was	analýsis of e		7	No.	Electrica	l log depths	sN	one	· · · · · · · · · · · · · · · · · · ·	_ Temperature log	depths 52 f	<u>eet to</u>	939.2 ft
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MAR 1 0 1980 FORM G-107

OIL COLLSERVATION DIVISION

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

#### **GEOTHERMAL RESOURCES WELL HISTORY**

Lease Name	Campbell et al Well No. #1
Unit Letter	C Sec. 5 Twp. 13 South Rge 13 West
Reservoir	CountyGrant
operati thereof	is of the greatest importance to have a complete history of the well. Use this form to report a full account of all important tions during the drilling and testing of the well or during re-drilling, altering of casing, plugging, or abandonment with the dates f. Be sure to include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation sidetracked junk, bailing tests, shooting, and initial production data and zone temperature. (Attach additional sheets if necessary.)
Date	
	Move rig onto location Drilling stick, caving mud. Mud hole with 5 bags. Run 30.9' of 6-5/8"
an. 0,1900	.188 wall casing. Cement with 2 sacks of Sacrete. Drilled 32 feet.
(an 9 1980	Blow out hole and circulate out mud. Drill 170 feet with 6" hammer bi
	Add 6-1/8" Tri-Cone Rock Bit and Ream hole out. Drill 15 feet.
	Change to 6-1/8" T.C. Button Bit and drill for morning. Change back t
	hammer bit and resume drilling. Drill 152 feet. Picked 1 to 2 gpm at 217 feet.
Ian 12 1980	Run brief temperature log. Bottom hole temp = 93.1°F. Depth to water
dii:12,1500	= 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. Char
	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 dis-
	charged 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
· - 22 1000	fix. Drilled 64 feet.  Poured 2 sacks cement (4:1 sand mix) and repaired rig.
	Resume drilling. Grout set. Penetration rate much better. Water is
an. 23, 1960	discharging at 96°F at surface blowpipe. Drilled 90 feet.
an 24 1980	Start Drilling. Penetration rate very poor. Quit drilling and trip
	out. Drilled 27.2 feet. Final depth = 939.2 feet. Water still dis-
	charging at 96°F. Depth to water = 103.55 feet (from surface)
an.30,1980	Run temperature log on well. Bottom hole temperature = 136.4°F.
-	



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.

	ΛΙ			•	
	William -		1 / A	4.1	7 10.00
Signed _	Mexam	_ Position bud ogust	as Agril	Date March	1,1980
					<del></del>

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

On huy \$ 527 ± 5mi 5E of Gila Cliff Dwellings Mon. (Grant - Catron Co. Line) Sec 5 - 135 - 13W

Summer - Socoro 835-2095 Robert Colpitts - Geol.

8-25-86

To File &

Doe Compbell

HCR 88072

Gila Hot Springs

Silver City, NM 88061

New Address

Date 1/9/80

										,	Adopted 10/1/74
NO. OF COPIES RECI	EIVED		NEW	MEXICO OIL CO	NSERV	ATION COMMIS	SION				
DISTRIBUTION				P. O. Box 20	)88, San	ta Fe 87501					
File	1	V									
N.M.B.M.	1								5. Indicate	Type of Le	ease
U.S.G.S.	1		APPL	ICATION FOR P	ERMIT	TO DRILL. DE	EPEN	_	STATE [	<u> </u>	FEE 🔀
Operator	1			G BACKGEOT		•			5.a State Le	ase No.	
Land Office									- <del></del>	~~~~	
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						`			7/////	7/////	
1a. Type of Work	Drill 🗔	ķ	נ	Deepen 🗆		Plug Back			7. Unit Agre	eement Name	e
b. Type of Well	Geothern	nal Producer			Ter	np Observation			8. Farm or	Lease Name	
0. 1, pr o		p Thermal	X		Inje	ction/Disposal				LL ET	AL
2. Name of Operator		<u> </u>							9. Well No.		
2. Name of Operator	D. A.	CAMPBE	LL							1	
3. Address of Operato	r					8	8061		10. Field an	d Pool, or W	/ildcat
	GILA I	HOT SPR	INGS,	RT.11,Bo	x 80	, Silver	<u>City</u>	, NM	Wildo	:at	
4. Location of Well	UNIT LETT	rer C	LOCAT	ED 107 FE	EET FR	OM THE NOR	TH	LINE			
AND 1837 FE	EET FROM T	THEWEST	LINE OF	SEC. 5 TWP.	$\frac{13}{3}$	S. RGE. 1	3 W	NMPM	777777	777777	
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hereby certify that the	e information	above is true	e and com	nlete to the best o	of my b	Towledge and balls	of.				

Title Geologist

SENIOR PETROLEUM GEOLOGIST

Carl Ulvag APPROVED BY Carl Ulvo, CONDITIONS OF APPROVAL, IF ANY:

(This space for State Use)

Signed W.K.

## NEW MEXICO OIL CONSERVATION COMMISSION P. O. BOX 2088 SANTA FE 87501

#### GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section

Operator		All distances in	Leas				Well No.
	oc" Campbell			Campbel]			•
Unit Letter	Section 5	Township 13	S.	Range 13 W.	County	rant	
Actual Footage Loca		_		·L			1980 1981 1981 1981 1981 1981 1981 1981
107	feet from the	north	line and	537	feet from the	west	line
Ground Level Elev. 5688	Producing Form	nation	Poo	1			Dedicated Acreage:  20+ Acres
1. Outline	the acreage dedicate	ed to the subject	t well by co	lored pencil or h	nachure marks o	on the plat	
2. If more and roya		ledicated to the	weil, outli	ne each and idet	ntify the owner	ship therec	of (both as to working interest
commun	itization, unitizatio	n, force-pooling	, etc?	ated to the well		rests of all	owners been consolidated by
Yes	□ No If an	swer is yes, ty	ype or cons	Marion		***************************************	
!		ners and tract d	escriptions	which have actu	ally been conso	olidated. (U	Jsc reverse side of this form if
necessary.)							· · · · · · · · · · · · · · · · · · ·
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	1					/ hereby	certify that the well location
	OIL CON		<u> </u>	!			n this plat was plotted from field
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	WIT IN	1 - 1/1/190	CION	†			ge and belief.
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	OIL	SMI		1		Date Survey	
	1						er 12, 1979 Professional Engineer
	1			1		and/or Land	1 Surveyor:
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Processor Berriages	n postary p			Mrs Person		Ethificate 1	6408 New Mexico
0 330 660	90 1320 1650 198	0 2310 2640	2000	1500 1000	500 0	Profess	ional Land Surveyor

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

JAN - 7 1980

JAN - 7 1980

OIL CONSERVATION DIVISION
SANTA FE

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 volcaniclastics, 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 5/8inch 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 openhole 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. Summ

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 exploration and drilling of two geothermal wells, in Sec. 5, T 13 S, R 13 W, N.M.P.M., in Grant County, New Mexico.

Ida J. Campbell

JAN - 7 1980 DIVISION OIL CONSERVATION DIVISION



#### STATE OF NEW MEXICO

#### ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING GOVERNOR LARRY KEHOE SECRETARY January 10, 1980

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

JAN - 71980

OIL CONSERVATION DIVISION
SANTA FE



Box 684 Socorro, N.M. 87801

505-835-2095

December 31, 1979

Ms. Maxine Goad, Program Manager Ground-Water Administration Unit NEW MEXICO ENVIRONEMNTAL 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 108\*40'30", in Wh 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 Creak, and at mile 539.2 (867.6 km).

DRAINAGE AREA. -- 2,829 m12 (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 nome 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 ft<sup>3</sup>/s (5.551 m<sup>3</sup>/s), 142,000 acre-ft/yr (175 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/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 ft<sup>3</sup>/s (0.062 m<sup>3</sup>/s) Aug. 5, 1947.

EXTREMES FOR CURRENT YEAR. -- Peak discharges above base of 3,000 ft 1/s (85 m1/s) and maximum (\*):

Date	Time	Discharge	Gage height
		(ft <sup>3</sup> /s), (m <sup>3</sup> /s)	(ft) (m)
Mar. 3	2130	#12.700 360	15.6 4.255

Minimum discharge, 3.1 ft 1/s (0.09 m1/s) July 20.

DISCHARGE+	IN	COBIC	FEET	PER	SECOND.	WATER	YEAR	OCTOBER	1977	TO	SEPTEMBER	1978
					MEAN	VALUES						

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	NUL	JUL	AUG	SEP
1	60	61	61	92	120	2390	533	180	88	33	13	51
2	53	61	62	90	578	10300	540	176	61	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	56
6	63	69	71	66	220	2010	341	147	50	26	55	25
7	72	78	61	69	180	1650	310	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	50
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	65	62	61	141	475	195	111	39	9.2	43	19
14	71	81	63	59	175	426	190	103	42	11	36	22
15	61	81	63	65	184	391	193	113	39	13	34	18
16	58	84	63	93	191	369	197	123	35	8.0	30	15
17	65	84	64	105	173	341	204	129	24	7.2	28	14
18	63	88	62	108	142	323	201	137	21	5.8	26	14
19	61	65	61	106	122	326	197	143	17	4.6	214	13 14
50	60	73	59	114	117	374	192	131	15	3,6	. 63	14
21	58	78	59	103	118	481	187	143	11	4.7	57	13
55	50	80	57	105	143	583	167	149	ii	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	550	637	153	114	11	53	137	13
26	40	81	97	97	272	586	137	120	11	19	90	17
2 7	45	95	74	94	311	560	145	109	11	17	72	14
85	\$2	72	81	79	399	523	163	102	23	12	64	16
29	53	65	86	76		508	167	88	30	9.2	56	13
30	57	62	69	86		485	172	83	34	8.5	90	20
31	57	0+4	87	160		506		90		7.1	60	
TOTAL	1935	2280	2045	2702	5879	44566	7473	4098	1089	483,3	2202	667
MEAN	62.4	76.3	66.0	87.2	510	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	5160	959	4370	1320

CAL YR 1977 TOTAL 31890.0 NEAN 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

GILA RIVER BASIN

09431500 GILA RIVER NEAR REDROCK, HM -- 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- INSTAM- TANEOUS (CFS) (00061)	SPE- C1F1C CON- DUCT- ANCE (M1CRO- MHOS) (00095)	PH (UNITS) (00400)	TEMPER- ATURE (DEG C) (00010)	HARD~ NESS (MG/L AS CACO3) (00900)	HARD- NESS: NONCAR- RONATE (MG/L CACO3) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
0CT									
05.,,	1115	53	435	8.2	20.0	130	Ď	40	8.1
18	1040	63	420	8.2	13.0				••
02	1500	62	420	8.2	14.0				
14	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
MAL 9	1150	85	394	8.1	4.0				
27 FEB	1050		373	0.1	5.0	130	0	38	7.7
09	1435	153	329	8.2	11.0	110	0	31	7.1
24 MAR	1050	510	267	7.9	7.0				
30		478	. 551	5.1	14.0	76	10	53	4,6
05 PAY	1325	197	297	8.3	17.0	110	9	32	6.8
03 16	1240 1405	193 130	305 340	8.5 8.5	17.0 21.0				
29	1415	91	350	8.4	23.0	120	0	35	7.5
JUN	1210	48	391	8.4	25 6		, 0	, .	
14 23	1455	11	406	8.5	25.0	130		40	8,3
11	0940	9.9	420	8.4	23.0	140	••	42	8.5
27	1025	16	504	7.4	23.0				
14	1110	32	428	8.1	24.0	140		42	8.3
31 SEP	1135	58	386	8.2	21.0				
13	1310	16	444	8.5	23.0	160		47	9.4
		SODIUM	POTAS-					CHLO-	FLUO-
	SODIUM.	AD-	SIUM	BICAR-		ALKA-	SULFATE	RIDE .	RIDE.
	015-	AD-	015-	BONATE	CAR-	LINITY	015-	RIDE +	RIDE+
		AD-			CAR- BONATE (MG/L			RIDE .	RIDE.
DATE	DIS- SOLVED (MG/L AS NA)	SORP- TION RATIO	DIS- SOLVED (MG/L AS K)	BONATE (MG/L AS HCO3)	BONATE (MG/L AS CO3)	LINITY (MG/L AS - CACO3)	OIS- SOLVED (MG/L AS SO4)	RIDE+ DIS+ SOLVED (MG/L AS CL)	RIDE+ DIS- SOLVED (MG/L AS F)
DATE	DIS- SOLVED IMG/L	AD- SORP- TION	DIS- SOLVED (MG/L	BONATE (MG/L AS	BONATE (MG/L	LINITY (MG/L AS -	OIS- SOLVED (MG/L	RIDE. DIS+ SOLVED (MG/L	RIDE. DIS- SOLVED (MG/L
oct 05	DIS- SOLVED (MG/L AS NA)	SORP- TION RATIO	DIS- SOLVED (MG/L AS K)	BONATE (MG/L AS HCO3) (00440)	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS - CACO3) (00410)	OIS- SOLVED (MG/L AS SO4)	RIDE+ DIS+ SOLVED (MG/L AS CL)	RIDE+ DIS- SOLVED (MG/L AS F) (00950)
0CT 05 18	DIS- SOLVED IMG/L AS NA) (00930)	SORP- TION TION RATIO (00931)	DIS- 50LVED (MG/L AS K) (00935)	BONATE (MG/L AS HCO3) (00440)	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410)	015- SOLVED (MG/L AS 504) (00945)	RIDE+ DIS+ SOLVED (MG/L AS CL) (00940)	RIDE+ DIS- SOLVED (MG/L AS F) (00950)
0CT 05 18 NOV 02	DIS- SOLVED IMG/L AS NA) (00930)	**************************************	DIS- 50LYED (MG/L A5 K) (90935)	BONATE (MG/L AS HCO3) (00440)	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS - CACO3) (00410)	015- 50LVED (MG/L AS 504) (00945)	RIDE+ DIS+ SOLVED (MG/L AS CL) (00940)	RIDE+ DIS- SOLVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14	DIS- SOLVED (MG/L AS NA) (00930)	SORP- TION TION RATIO (00931)	DIS- 50LVED (MG/L AS K) (00935)	BONATE (MG/L AS HCO3) (00440)	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410)	015- 50LVED (MG/L AS 504) (00945)	RIDE+ DIS+ SOLVED (MG/L AS CL) (00940)	RIDE+ DIS- SOLVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14 DEC 14	015- SOL VED (MG/L AS NA) (00930)	AD- SORP- TION RATIO (00931)	015- 50L VED (MG/L A5 K) (00935)	BONATE (MG/L A5 HCO3) (00440)	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410)	015- SOLVED (MG/L A5 504) (00945)	RIDE+ DIS+ SOLVED (MG/L AS CL) (00940)	RIDE. DIS- SOLVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14 DEC 14 JAN 09	DIS- SOLVED (MG/L AS NA) (00930)	AD- SORP- 770N RATIO (00931)	015- SOLVED (MG/L A5 K) (00935) 2.5  2.3	BONATE (MG/L AS HCO3) (00440) 200  180	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410)	015- SOLVED (MG/L A5 504) (00945)	R1DE. D15- 50LVED (MG/L A5 CL) (00940)	RIDE, 015- 50LVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB	DIS- SOLVED (MG/L AS NA) (00930)	AD- SORP- TION RATIO (00931)	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3 	BONATE (MG/L AS HC03) (00440)  200 180 170	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410) 160  150 140	015- SOLVED (MG/L AS 504) (00945) 35  33 36	RIDE. DIS- SOLVED (MG/L AS CL) (00940)	RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB	015- 50LVED (MG/L A5 NA) (00930) 34  35  23	AD- SORP- 770N RATIO (00931)	015- SOLVED (MG/L A5 K) (00935) 2.5  2.3	BONATE (MG/L AS HC03) (00440)  200 180	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410)	015- SOLVED (MG/L AS 504) (00945) 35- 33- 36	R1DE. D15- 50LVED (MG/L A5 CL) (00940)	RIDE, 015- 50LVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14 DEC 14 JAN 09 27 FEB 09 MAR	015- SOLVED (MG/L AS NA) (00930) 34  23  23 28	AD- SORP- TION RATIO (00931)	015- SOL VED (MG/L A5 K) (00935) 2.5  2.3 2.1	BONATE (MG/L AS HC03) (00440)  200 180 170 160	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410) 160 150 130 110	015- SOLVED (MG/L AS 504) (00945) 35- 33- 36- 33- 31-	RIDE. DIS- SOLVED (MG/L AS CL) (00940)	RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT 05 18 NOV 02 14 27 FEB 09 24 MAR 30 APR	015- SOLVED (MG/L AS NA) (00930) 34  23 23 28  16	1.3 1.3 1.3	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3 2.1 1.8 1.8	BONATE (MG/L AS HC03) (00440)  200 180 160 140 61	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410) 160	015- 50LYED (MG/L AS 504) (00945) 35- 33- 36- 33- 31- 24-	105- 105- 50LVED (MG/L A5 CL) (00940) 12  16  19 10  6.2	RIDE, DIS- DIS- SOLVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB 09 24 MAR 30 APR 20 MAY	015- 50LVED (MG/L A5 NA) (00930) 34  23 28  16 27	AD- SORP- 710N RATIO (00931) 1.3  1.3 1.2  .8	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3  1.8 1.8 1.5 2.2	BONATE (MG/L AS HC03) (00440)  200 180 160 140 81 120	BONATE (MG/L AS CO3) (00445) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINITY (MG/L AS CACO3) (00410)  160 150 140 130 110 66	015- SOLVED (MG/L AS 504) (00945) 35- 33- 36- 33- 31- 24- 33-	R1DE. D15- SOLVED (MG/L A5 CL) (00940) 12 	RIDE, 015- 50LVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB 09 MAR 30 APR 20 MAR 30	015- SOLVED (MG/L AS NA) (00930) 34  23 23 28  16	1.3 1.3 1.3 1.3	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3 2.1 1.8 1.8	BONATE (MG/L AS HC03) (00440)  200 180 160 140 81 120	BONATE (MG/L AS CO3) (00445)	160 160 160 160 160 160 160 160 170 180 180 180 180 180 180 180 180 180 18	015- 50LYED (MG/L AS 504) (00945) 35- 33- 36- 33- 31- 24-	105- 50LYED (MG/L A5 CL) (00940) 12  16  19 10  6.2 9.7	RIDE, DIS- DIS- SOLVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9 1.2
OCT 05 18 NOV 02 14 29 DEC 14 14 14 15 16 1	015- 50LVED (MG/L A5 NA) (00930) 34  23 28  16 27	AD- SORP- 710N RATIO (00931) 1.3  1.3 1.2  .8	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3  1.8 1.8 1.5 2.2	BONATE (MG/L AS HC03) (00440)  200 180 160 140 81 120	BONATE (MG/L AS CO3) (00445) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	LINITY (MG/L AS CACO3) (00410)  160 150 140 130 110 66	015- SOLVED (MG/L AS 504) (00945) 35- 33- 36- 33- 31- 24- 33-	R1DE. D15- SOLVED (MG/L A5 CL) (00940) 12 	RIDE, 015- 50LVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB 09 MAR 30 APR 20 MAPR 20 MAPR 20 MAPR 20 JUN	015- SOLVED (MG/L AS NA) (00930) 34  23 28 16 27	1.3 1.3 1.3 1.3 1.3	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3 2.1 1.8 1.8 1.5 2.2	BONATE (MG/L AS HC03) (00440)  200 180 160 140 160 140 160	BONATE (MG/L AS CO3) (00445)	160 160 160 160 160 160 160 160 160 160	35 36 33 31 24	105. 015- 50LVED (MG/L A5 CL) (00940) 12  16  19 10  6.2 9.7	RIDE, 015- 015- 50LVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9 1.2
OCT 05 18 NOV 02 14 29 DEC 14 14 14 15 PEB 09 24 MAR 30 APR 20 MAY 03 16 16 16 17 18	015- 50LVED (MG/L A5 NA) (00930) 34  35  23 28 16 27	AD- SORP- TION RATIO (00931) 1.3  1.3 1.2  1.3	01S- SOL VED (MG/L AS K) (00935) 2.5  2.3 2.1 1.8 1.8 1.5 2.2	BONATE (MG/L AS HC03) (00440)  200 180 160 140 1120	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410) 160 150 140 110 66 98	35 36 33 31 24	RIDE. DIS- SOLVED (MG/L AS CL) (00940) 12	RIDE, DIS- SOLVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB 09 APR 20 MAR 300 APR 20 MAR JUN 16 JUN 14 JUN 14 JUL	015- SOLVED (MG/L AS NA) (00930) 34  23 28 16 27	AD- SORP- TION RATIO (00931) 1.3  1.3 1.2  1.3 1.2  1.1	01S- SOL VED (MG/L AS K) (00935)  2.5 2.3 1.8 1.8 1.5 2.2 2.0 2.7	BONATE (MG/L AS HC03) (00440)  200 180 160 140 160 170	BONATE (MG/L AS CO3) (00445)	LINITY (MG/L AS CACO3) (00410) 160 150 140 66 98 140 140 140	35 36 33 31 24	105. 015- 50LVED (MG/L A5 CL) (00940) 12  16  19 10  6.2 9.7	RIDE, OIS- OIS- SOLVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9 1.2 .7
OCT 05 18 NOV 02 14 29 DEC 14 14 30 APR 24 MAR 30 APR 29 JUN 14 29 JUN 14 21 JUL 111 27	015- SOLVED (MG/L AS NA) (00930) 34  23 28  16 27 31	1.3 1.3 1.3 1.3 1.3 1.3	015- 50L VED (MG/L A5 K) (00935) 2.5  2.3 2.1 1.8 1.8 1.5 2.2	BONATE (MG/L AS HC03) (00440)  200 180 160 140 160 170 160	BONATE (MG/L AS CO3) (00445)	160 160 160 160 160 160 160 160 160 160	35 33 36 33 31 32 36 33 31	10E. 015- 50LYED (MG/L A5 CL) (00940)  12  16  19  10  6.2  9.7	RIDE, DIS- SOLVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9 1.2 .7
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB 09 APR 20 MAR 30 APR 20 MAY 03 16 29 JUN 14 21 JUN 27 AUG 11 27 AUG	015- SOLVED (MG/L AS NA) (00930) 34  23 28  16 27 31	AD- SORP- TION RATIO (00931) 1.3  1.3 1.2  1.3 1.2  1.3	01S- SOLVED (MG/L A5 K) (00935)  2.5 2.3 1.8 1.8 1.5 2.2 2.0 2.7 3.3	BONATE (MG/L AS HC03) (00440)  200 180 160 140 160 170 160 170 160	BONATE (MG/L AS CO3) (00445) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	160 98 140 140 140 150 160 160 160 160 160 160 160 160 160 16	35 33 36 33 31 32 36 33 31	10E. 015- 50LYED (MG/L A5 CL) (00940)  12  16  19  10  6.2  9.7	RIDE, 015- 50LVED (MG/L AS F) (00950) 2.1 2.2 2.2 2.2 1.9 1.2 .7  2.0 2.3
OCT 05 18 NOV 02 14 29 DEC 14 JAN 09 27 FEB 09 24 MAR 30 APR 20 MAY 03 16 29 JUN 14 JUN 11 27 AUG	015- SOLVED (MG/L AS NA) (00930)  34 35 23 31 31 31 31 31	1.3 1.3 1.3 1.3 1.3 1.3 1.2 1.3	015- 50L VED (MG/L A5 K) (00935)  2.5 2.3 1.8 1.8 1.5 2.2 2.0 2.7 3.3	BONATE (MG/L AS HC03) (00440)  200	BONATE (MG/L AS CO3) (00445) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	160   160	35 36 31 32 36 37 38 31 31	105. 015- 50LYED (MG/L A5 CL) (00940) 12 16 19 10 6.2 9.7 13 12	2.1 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2

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

		SOL TOS.	SOL 109.	SOL TOS.	NITRO-	PHOS-		
•	SILICA	RESIDUE	SUM OF	RESIDUE	GEN,	PHORUS.		
	DIS-	AT 180	CONSTI-	AT 105	KON+20N	ORTHO.	BORON.	IRON.
	SOLVED	DEG. C	TUENTS,	DEG. C.	015-	DIS-	015-	015-
	(40/L	DIS-	015-	SUS-	SOLVED	SOLVED	SOLVED	SOLVED
	AS	SOLVED	SOLVED	PENDED	(MG/L .		(UG/L	(UG/L
DATE	2105)	(MG/L)	(MG/L)	(MG/L)	AS N)	AS P)	AS BI	AS FE
	(00955)	(70300)	(70301)	(00530)	(00631)	(00671)	(01020)	(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	<b>+0</b>	0
24			**					
MAR 30	25		142			•	••	
APR	23		145		.09	.04	30	20
20	33		204		.14	.00		
MAY.	33		2014		• 1 •	• 00	4.0	40
03		••						
16		•••						
29	32	555	238		, 33	.05	50	20
JUN	36		230		• 33	• • • •	30	20
14	34	**	254		.05	.05	50	30
23	••	40.00						**
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

	SOLIDS.	GROSS	GROSS	GR055	GROSS	GPOSS	GROSS	RADIUM		
						BETA				URANIUM
	AT 105	015-	SUSP.	015-	SUSP.	015-	SUSP.	015-	NATURAL	015-
	DEG. C.	SOLVED	TOTAL	SOLVED	TOTAL	SOLVED	TOTAL	SOLVED.	ois-	SOL VED.
	SUS-	(UG/L	(UG/L	(PCI/L	(PCI/L	(PCI/L	(PCI/L	RADON	SOLVED	EXTRAC+
TIME	PENDED	AS	AS	A S	AS	AS SR/	AS SA/	METHOD	(UG/L	TION
	(MG/L)	U-NAT)	U-NAT)	CS-137)	CS-137)	YT-901	YT-901	(PCI/L)	AS U)	(UG/L)
	(00530)	(80030)	(80040)	(03515)	(03516)	(80050)	(80060)	(095)1)	(22703)	(80020)
				•						
1500	22	<4.1	. 9	3.2	1.1	2.8	1.2	.08	1.4	
			-					-		
1415	. •••	<2.4	<.4	3.0	4,4			.03	1.6	***
	1500	RESIDUE AT 105 DEG. C. SUS- TIME PENDED (MG/L) (00530)	RESIDUE ALPMA, AT 105 DIS- DEG. C+ SOLVED SUS- (UO/L TIME PENOED AS (MG/L) U-NAT) (00530) (80030)  1500 22 <4.1	RESIDUE ALPHA, ALPHA, ALPHA, AT 105 DIS- SUSP.  DEG. C. SOLVED TOTAL SUS- (UG/L))))))))))))))))))))))))))))))))	RESIDUE ALPHA, ALPHA, BETA, AT 105 DIS- SUSP. DIS- DEG. C+ SOLVED TOTAL SOLVED SUS- (UU/L (VG/L (PCI/L PENDED AS AS AS (MG/L) U-NAT) U-NAT) (CS-137) (00530) (80030) (80040) (03515)	RESIDUE ALPHA, ALPHA, BETA, BETA, AT 105 DIS- SUSP. DIS	RESIDUE ALPHA, ALPHA, BETA, BETA, AT 105 DIS- DEG. C. SOLVED TOTAL SOLVED TOTAL SOLVED TOTAL SOLVED TOTAL SOLVED TOTAL SOLVED TOTAL SOLVED TOTAL SOLVED TOTAL SOLVED SUS- (UG/L (PCI/L  (PCI/L (PCI/L (PCI/L (PCI/L (PCI/L (PCI/L (PCI/L (PCI/L (PCI/L)	RESIDUE ALPHA, ALPHA, BETA, BETA, BETA, BETA, BETA, AT 105 DIS- SUSP. DIS- SU	RESIDUE ALPHA, ALPHA, BETA, BETA, BETA, 226, AT 105 DIS- 5USP. DIS	RESIDUE   ALPHA,   ALPHA,   BETA,   BETA,   BETA,   BETA,   226,   URANIUM   AT 105   DIS-   SUSP.   DIS-   SUSP.   DIS-   SUSP.   DIS-   SUSP.   DIS-   SUSP.   DIS-   SUSP.   DIS-   NATURAL   DEG. C.   SOLVED   TOTAL   SOLVED   DIS-   SUSP.   METAOD   SOLVED   TIME   PENDED   AS   AS   AS   AS   AS   SR/   AS SR/   METAOD   (UG/L   (MG/L)   U-NAT)   U-NAT)   CS-137)   CS-137)   YT-90)   YT-90)   (PCI/L)   AS   U)   (00530)   (80030)   (80040)   (03515)   (03516)   (80050)   (80060)   (09511)   (22703)     (10050)



# CHEMICAL ANALYSIS OF WATER FROM UPPER GILA RIVER DRAINAGE

Location	-	Gila Hot Springs 13S. 13W. 5. 241	
Date	6-23-57	7-25-62 t	2-17-66
SiO <sub>2</sub>	33.	68.	74.
Ãl		0.31	0
Fe	0.04	0.00	0
Mn		0.00	0.42
Ав			0.011
Ca	11.	12.	11.
Mg	0.2	0.0	< 0. 1
Na	¬ ·	121.	127.
ĸ '	<i>§</i> 129.	3.6	3.6
Li		0.23	0.27
Se			0
HCO <sub>3</sub>	109.	106.	<b>7</b> 9.
CO <sub>3</sub>	0	0	0
SO <sub>4</sub>	40.	45.	v
- C1 .	104.	102.	104.
F	12.	9.	3. 4
Br		· · · · · · · · · · · · · · · · · · ·	0. 18
I .			0. 0096
NO <sub>3</sub>	0.5	0. 7	0.0070
NO <sub>2</sub>	0. 3	,	0. 0053
B	0.07		
	. 0.01	0.00	0. 19
PO <sub>4</sub> Dissolved Solids calculated	384.	414.	0. 17
Dissolved Solids Residue	369.	421.	404
	28.	30.	496.
Hardness (as CaCO <sub>3</sub> ) Noncarbonate Hardness	40.	50.	<b></b>
(as CaCO <sub>3</sub> )	. 0	0	
Specific Conductance	. 0	O .	***
(micromhos)	653.	638.	540
pH	8. 2	7.5	560.
Density (gm/ml)	0, 4	<i>i.</i> 5	8. 1
Acidity (meq/1 H <sup>+</sup> ) free			0. 997
			0
total		•	0.012
Remarks	USGS	USGS	NMBMMR
	36105	4897	ميحسن

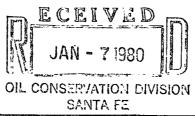
†Beta-gamma activity (pc/l) =  $12 \pm 2$ Radium (pc/l) = <0.1Uranium (g/l) =  $1.4 \pm 0.1$ 



# CHEMICAL ANALYSIS OF WATER FROM UPPER GILA RIVER DRAINAGE

Location	Test well area, Middle Fork Gila River						
	S. 13W. 30. 231	12S. 13W. 30. 124			liver *		
	<b>n</b> 01 /:	-	B 00 / =	4 2 4			
Date	7-31-64	8-8-64	7-22-62	4-24-64			
SiO2	20.	44	31	***	31		
Al	0.00		0.00	0.01	0.00		
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 <sub>3</sub>	15.	116.	90.	49.	64.		
CO <sub>3</sub>	3.	0	90.	49. 0	0		
$SO_4$	1604.	25.	20.	20.			
C1	52.	18.	51.	5.8	34. 6. 0		
) <b>F</b>	7.8	3. 0	0. 9	1. 3	1. 7		
Br	1. 0	J. 0	U. 7	1, 3	1. (		
I							
NO <sub>3</sub>	0.2	0. 1	6. 3	0.00	0.2		
NO <sub>2</sub>	V. L	, V. X	<b>∪.</b> J	0.00	J. L		
B	0.39	0.04			0.04		
PO <sub>4</sub>	U. J7	V, U <del>I</del>	<b></b>	<b></b> .	U. U#		
Dissolved Solids calculated	d 2420.	213.	149.		117.		
Dissolved Solids Residue	2540.	210.	156.	138.	126.		
Hardness (as CaCO <sub>3</sub> )	1260.	69.	86.	50.	39.		
Noncarbonate Hardness	• •			- •,	- /•		
(as CaCO <sub>3</sub> )	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)		- <del>-</del>	<del>.</del>				
Acidity (meq/1 H <sup>+</sup> )							
Remarks	USGS	USGS	USGS	NMPHL	USGS		
CHIGARD	54856	25845	50021	8-347	54287		
		250 X5	JUUL 1	0-3-1	J#601		

\*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%, NW%, Section 5, T.13S., R.13W)

Grant County, New Mexico.

By: R. M. Colpitts, Jr., August 20, 1979.

Cable tool samples.

Dept	.)	
From	OT	Rock type and description
0	205	No samples.
205	210	RHYOLITE - 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	RHYOLITE - 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	VITROPHYRE - 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	VITROPHYRE - dark brown, perthitic, composed of 38% feldspar intermixed with 45% glass, 7% horn-blende, 5% biotite, 5% other dark minerals, and a trace of olivine.
235	270	No samples.
270	275	QUARTZ LATITE(?) - 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 RHYOLITE - red brown to dark brown, slightly welded, composed of 53% potassium feldspar, 30% quartz, 5% hornblende, 5% biotite, 5% unknown dark minerals, 2% glass.

Λ.

LITHOLOGIC LOG: Trailer Park Well, Gila Hot Spring Trading Post (NE%, NW%, Section 5, T.13S., R.13W)
Grant County, New Mexico

Dept		
From		Rock type and description
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% pyrozene, 2% other minerals [zeo-lites(?)] 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. JAN - 71980
420	425	Same as 405-410.  OIL CONSERVATION DIVISION SANTA FE
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%, NW%, Section 5, T.13 S., R. 13 W.) Grant County, New Mexico.
By R.M. Colpitts, Jr., September 10, 1979.

Sept		Depth			
<u>1979</u>	Time	(ft.)	<u>°C</u>	°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		63.5	
	1425	30	17.3	63.1	
	1430	. 35	17.4	63.3	"Surface water zone" reported
	1435	40	17.6	63.7	by Doc Campbell
	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 1610	130 135	18.9 18.9	66.0 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		66.7	
	1645	170	19.5	67.1	
	1650	175	19.7	67.5	
	1655	180	19.6	67.3	C. E.
	1700	185	19.8	67.6	1080
	1705	190	19.8	67.6	JAN 7 1080  JAN 7 1080  JAN 7 1080  JAN 7 1080
	1710	195	20.0	68.0	JAN DIVIS
	1715	200	20.1	68.2	IN THE TERVATION FE
	1720	205	20.2	68.4	CONS SANTA
				68.4	JAN JAN 7 1080 OIL CONSERVATION SANTA F

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

Sept 1979	Time	Depth (ft.)	°C_	°F	Comments
7	1725 1730 1735 1740 1745 1750 1755	210 215 220 225 230 235 240	20.3 20.4 20.7 20.7 20.9 20.9 21.2	68.5 68.7 69.3 69.6 69.6 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 measuring 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 90.9	
	1015 1020	300 305	32.7 33.4	92.1	
	1025	310	34.0	93.2	
	1023	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	T V Ibour W
	1105	350	37.2	99.0	Con M
	1110	355	37.5		7 1400
	1115	360		100.0	JAN TIERO JAN ONE SANTA FE
	1120	365		100.4	WATIO EE
	1125	370		100.8	1 M. SERWIA P
	1130	375		101.1	OIL COIL SHIP
	1135	380		101.5	O.
	1140	385		101.7	
	1145	390		103.1	Jump in temperature @ 388'
	1150	395	39.9	103.8	

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

11/1/-

Sept 1979	Time	Depth (ft.)	°C_	_°F_	Comments
8	1155 1200 1205 1210 1215 1220 1225 1227	400 405 410 415 420 425 430 432.5	40.3 40.5 40.8 41.0 41.3 41.4	104.2 104.5 104.9 105.4 106.3 106.3	T.D. = 432.5'

STATE ENGINEER DEMING. 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  $150^{\circ}$  F or higher. Efficiency of the unit increases with higher temperature water. Therefore, water  $10^{\circ}$  to  $20^{\circ}$  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
OVERNOR

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

ROX 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

June 16, 1989

Silver City, New Mexico 88061 536 - 9340

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

JUN 1 9 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

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.
- 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.
- 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.
- 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 fronk

121450 D - \$35.00

### IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

STATE ENGINEER

## DESCRICE, MM APPLICATION FOR PERMIT

JUN 1 9 1989

To Appropriate the Underground Waters of the State of New Mexico

OIL CONSERVATION DIV. SANTA FE

Date Receiv	red	May 16,	1985		File No.	GSF-2	2419 tl	hru GS	SF-2425	Inclusive
1. Name of	applicant	Daw	son A.	and Ida	F. Campl	ell				
	address		11, Box	80, Sil	ver City	, New	Mexico	o ∂80	061	
	State									·
2. Source o	f water su	pply unde	rground	deep ac	uifefloca	ited in	Upper	Gila	River	
		(artes	ian or shal	low water a	quifer)			(name o	f undergrou	nd basin)
3. The well	Pis to be	located in 1	the W2	××>	4 NE 14,	Section_	5	_Towns	ship <u>13 S</u>	
Range	13W	N.M.P.M.	., or Tract	Noof	Map No	of the_				District,
on land	owned by	Dawson	A. and	<u>Ida F.</u>	Campbe 1	·				•
4. Descript	ion of wel	l: name of	driller n	on-contr	racted at	prese	nt			;
Outside	Diameter	of casing <u>1</u>	4,10,8,	6, inches	s; Approxim	ate depth	to be dri	illed <u> 30</u>	<u>0 to 60</u>	( feet;
5. Quantity	of water	to be appro	priated and	l beneficiall	y used <u>no</u> r	-consu	mptive	968	3 acre-f	eet/year
							<del>cumptive</del>			
										<u>íve</u> purposes.
6. Acreage	to be irri	gated or pla	ace of use_	private	<u>lands ir</u>	sec.5	T 135	R 1	3W, NMP	M_ecres.
	Subdivisi	on	Section	Township	Range	Acres			Owner	
							-			
	<del></del>									
		<u></u>								
		<u> </u>								
<del></del>										
	. :	ri di		A 1		-				
										ven (7) test
										,R13W,NMPM,
/ Well"					c. 5, T					
			of Lot		المستورك عنكا		-1W			
11 4,			of Lot							
11			of Lot		1	11				
11	·		of Lot		1	11	***************************************			
11			of SWE		ec. 5 '	1 11				
11			of SW		11 1	11				
Prima	rily, t	he purp	ose is	to locat	e and m	oduce	veothe	rms l	eneruv	for the
										further
extra	ct the	remaini	ng heat	as spac	e heatir	e in h	ones.	Comme	rcial b	uildings
										7 wells
liste	d, 5 ar	e prima	rily to	determi	ne the l	eat gr	adient	and	water b	earing
quali	ties of	the ge	ologica	1 format	ions. '	he two	liste	as #	4 and #	6 are
estim	ated to	be the	most p	romising	sites	for de	eper b	oles.		
<del></del>	(Quotir	ng from	Kelly S	ummers)'	The well	ls sho	uld he	ive 14	inch d	<u>iameter</u>
										diameter
hole	shou1d						he vol	canic	s will	probably
		(con	itinued	on attac	thed page	:)				
. //		0	in lot	/						f my knowledge
										t my knowledge
and belief a	ind that de	evelopment	ghall not c	ommence ur	itil approval	of the pe	rmit has	been ob	tained.	
٠,										•
./.		. /								
War	ence produce	-17.18	1-201 bl	self .	rmittee,					
Contract of the Contract of th	<u> </u>	(1)		, 1'c	rmittee,					,
Rv.			<del>-</del>							
Ву:					•					
Subscribed	and swore	to before	me this	1 ~~ ***	, da	, of	111-		, A.D.,	1985
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My commis	sion exnir	es 12-1	17/86			E.	100.5	T. N.	ρὸ	
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#### ACTION OF STATE ENGINEER

-	ursuant to statute and by authority veste nt of any others having existing rights;		-	-		•		
<del>conditions:</del>	g to the drilling of and is not detrimental to	the p	ublic	welfar	e or	contrar	y to th	ie
	conservation of water with							
	all rules and regulations							
	drilling of shallow wells	be co	mp1ie	d with:	and	further	subjec	t
	to the following condition	ıs:						
	See Attached Con	<u>iditio</u>	ns of	Approv	al			<del></del>
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Proof of comp	letion of well shall be filed on or before.						, 19	
Proof of appli	cation of water to beneficial use shall b	e filed o	on or be	fore			, 19	
m.:	and and seal this 5th	,	,	Anoust		, Λ.L	86	1
Witness my ha	and and seal this	day of		nagabe		, Л.Ц	)., 19 <u> </u>	·•
S F Reynold	s, State Engineer)							
. I. ((c) 110 (c)	s, July 2 minutely							
By:	ont ( sais	·						
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.

# LICATION FOR PERMIT TO CHANGE LOCATION OF WELL AND PLACE OR PURPOSE OF USE OF UNDERGROUND WATERS File No. GSF-1958 Into GSF-2476

		Care Care Tre Care Contra	leen Campbel			
Name of Water Right ( Mailing address	Owner HCR	88072 - 3	796 Hwy 15		Q/34 4	<del></del>
City and State	S11v	er City,	N. M. 88061		Live Pro-	<u></u>
* ,	1					1>
Source of water suppl	y shallow	1	, located in	Gila	e established	<
	(artesian or shallow	water aquifer	)	(name of u	nderground b	pasin)
21.	or irrigation	40 C		GSP.	-1958	
Right was acquired to	or and a second	purposes and	d recorded under 1	He No.	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u> </u>
Well and acreage from	n which rights are to be	e severed:				. •
(a) Well is in the	Ek , K	NW 1/4, Se	ction 5 To	waship 13 S	Range 13	W M.M.P.M.,
or Tract No.	r of Map	No. 1	i o	f the	25.63	Bistrict.
(b) Quantity of water	r to be transferred	<u> </u>	acre feet to be s	severed from		_acres of land
described as foll	ows:	ir į		·. ·	;	1
		j.			1 1	-
Subdivision	Section			Acres	. 6	Dwner
e et nuk	5 1 1	38	13 W	1.0		
			10,000			
	appropriated al					
	10) consacutive			eed 2.8 ac	re-fear	per_acre_
c any one (1)	year measured at	the well	• — — — — — — — — — — — — — — — — — — —	\ <del></del>	.,	· ·
	1 1					
The second secon		1	, is			ł .
(c) Is reall to be also	gged no	Hilf nor erara	for what use sets	ined. used	for other	righte
(d) If there are other	r sources of water for the	hese lands de	scribe by file No.	med.		I
in the state of the					. 1	
1,	in the state of th	1 1	1		1	•
Application is made	to change location of w	vell and place	or purpose of use	for following r	easons:	İ
Transfer rich	ts to our land	·	'i .		<del></del>	
*******	to to our late	' !	1	<del></del>		<u></u>
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wen to which transic	er is to be made:	NH 1/ c	i 5 ma		n 13	H Bunn
(a) Located in the	nt an nr 1/4	<b>NW</b> 1/4, S	ection 5 To	waship 13 8	Range 13	W BM.P.M.,
(a) Located in the	nt an nr 1/4	NW 1/4, S	ection 5 To	wnship 13 8	Range 13	W BM.P.M., District.
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(a) Located in the or Tract No. on land owned b	N½ XX NK ¼  of Map  y Angus & Kathle  give File No. GSF-1	No. Campbe	11 .	wnship 13 8	Range 13	District.
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#### ACTION OF STATE ENGINEER!

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised

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

Proof (	of Comp	letion	of	Well	shall	be	filed	on	or	before	Mav	31.	1987	
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	***************************************			<del> </del>										
	-													

Upon notice from the State Engineer said well shall be equipped with a

S. E. Reynolds, State Engineer

Frank Craig

Water Rights Division

in any one (1) year measured at the well.

#### 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.

:

#### IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

San and The Lock DECREO, BUT

## APPLICATION FOR PERMIT

To Appropriate the Underground Waters of the State of New Mexico

	Name of applicant Dawson A. and Ida F. Campbell Nailing 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 welf is to be located in the W2 MX NE 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 .	
	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 tron-consumptive, 968 acre-feet/year	
	(eonsumptive 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	
	LI LI	
	Active to the control of the control	
7	Additional statements or explanations Application is for a permit to drill seven (7) tes	
′• ė	and for two (2) production wells in the W. of the NEE of Sec. 5, T13S, R13W, NMPM,	•
	and within the Gila Hotsprings Known Geothermal Area:	
	Well #3 - E3 of NW2 of Lot 2 of Sec. 5, T13S, R13W	
	" 4 - Wh of SEh of Lot 2 " " "	
	" 5 - WJ of NEE of Lot 2 " " "	
	" 6 - E5 of SE2 of Lot 2 " " "	
	" 7 - Ws of SEE of Lot 2 " " "	
	" 3 - E's of NW's of SWENE's of Sec. 5 " "	
	" 9 - E's of NE's of SWENE's " " "	
	Primarily, the purpose is to locate and produce genthermal 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)	
	Naw ser le Amplell, affirm that the foregoing statements are true to the best of my knowledge	
1,7	belief and that development shall not commence until approval of the permit has been obtained.	
and	better and that development shall not commence until approval of the permit has been obtained.	
1	Lawson A. Campbell, Permittee,	
	, F CHINCE,	
By.		
ъу.		
Sal	oscribed and sworn to before me this	
My	commission expires 12/19/86 Filia F. NOL	
,	Notary Public	

Number of this	pemit GSE	2419 thru	GSF-2425	Inclusive

#### ACTION OF STATE ENGINEER

	pursuant to statute and by authority vested in me, this application is approved provide	
	ent of any others having existing rights; further provided that all rules and regulation	
<del>neer pertainin</del>	ng to the drilling of wells be complied with; and further sub	ject to the following
_ بهرونتاند	and is not detrimental to the public welfare or contrar	y to the
	conservation of water within the state; further provide	<u>d that</u>
	all rules and regulations of the State Engineer pertain	ing to the
	drilling of shallow wells be complied with; and further	subject
	to the following conditions:	
	See Attached Conditions of Approval	
		,
		*
		<del></del>
		<del></del>
Proof of comp	pletion of well shall be filed on or before	, 19
•		
Proof of apoli	lication of water to beneficial use shall be filed on or before	. 19
With a second by	nand and seal this 5 day of August , A.I.	, ,, 86
witness my na	and and seal this day of, A.1	, ty
	$\langle a \rangle_{n}$	
S. E. Reynold	ps, State lingineer	
F.		
By:	and say	
	nk Craig	
'Wate	er 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--11 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,

LYN S. HEBERT

Attorney

Oil Conservation Division

cc: Oil Conservation Division – Roy Johnson

Safeco Insurance Company of America

SAFECO Plaza

Seattle, Washington 98185-0001



#### 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 goothermal 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

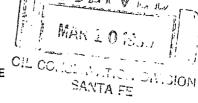
Dawson A. Campbell

Rt. 11

Gila Hot Springs, New Mexico 88061

· *,		Fig. 1. Bank	Form G-103 Adopted 10/1/74
NO. OF COPIES RECEIVED	NEW MEXICO OIL CONSE	RVATION COMMISSION	4 0 1300
DISTRIBUTION	P. O. Box 2088, S		
File		CIL CO. IJE V	MOIE. AC SAT.
N. M. B. M.	SUNDRY NOTICES	AND REPORTS	NTA FE
U. S. G. S		· · · · · - · · · -	5. Indicate Type of Lease
Operator	ON CECTUEDIAN DEC		State Fee F
	GEOTHERMAL RES	SOURCES WELLS	5.a State Lease No.
Land Office	I		
Do Not Use This Form for Proposals to For Permit —" (Form G-101) for Such		Oifferent Reservoir. Use "Application	
1. Type of well Geothermal Prod	ucer L Temp. Observation		7. Unit Agreement Name
Low-Temp Therm	nal 🔲 Injection/Disposal		·
2. Name of Operator			8. Farm or Lease Name
DAWSON (DOC) and ID	A CAMPBELL	·	
3. Address of Operator			9. Well No.
Route 11 Silver Ci	ty, New Mexico 88061	•	Campbell et al #2
4. Location of Well	ej / new member edeal		10. Field and Pool, or Wildcat
	Fac+	South 475	To Fred and Foot, of Whiteat
Unit Letter D-West 11/3	Feet From The East	Line andFeet From	· · · · · · · · · · · · · · · · · · ·
The North Line, Section	513 So	uth Range 13 West NMPM.	
16. Chec	15. Elevation (Show whether 8704 ft at land	surface(above sea	Grant vel)
To. Check	k Appropriate Box To Indicate Nat	ture of Notice, Report or Other Da	ta/
NOTICE OF INTE	NTION TO:	SUBSEQUE	NT REPORT OF:
PERFORM REMEDIAL WORK	PLUG AND ABANDON	REMEDIAL WORK	☐ ALTERING CASING [
TEMPORARILY ABANDON	·	COMMENCE DRILLING OPNS.	PLUG & ABANDONMENT
PULL OR ALTER CASING	CHANGE PLANS	CASING TEST AND CEMENT JOB	
		<sub>other</sub> Case History	to date
		OTHER Case IIIs COLY	to date
OTHER		·	
17. Describe Proposed or completed (	Operations (Clearly state all pertinent o	details, and give pertinenet dates, inch	uding estimated date of starting any
Jan 16 1980 Arri	ve new location and	set up. Drilled and	set conductor pipe
	poured grout.	bet up. brition and	bet communication page
Jan. 19, 1980-Janua Jan. 30, 1980, Run	ry 20, 1980, Drilled	hole with 5-1/8" ha	mmer bit.
This test hole will logs. It may be de		ing tests and for ad	ditional temperature
MARKER: DI	EPORTED DISTANCE ON STANCES FROM SECTION OGRAPHIC MAP.	FORM G-102 FROM QUAR LINE USED HERE ARE S	TER-SECTION CORNER CALED FROM 7-1/2

#### CERTIFICATE OF COMPLIANCE AND AUTHORIZATION TO PRODUCE GEOTHERMAL RESOURCES



OWNER OR OPERAT Name DAWSON	OR (DOC) and I	da CAMPBELL		
			ico 88061	
TYPE OF WELL Geothermal Producer	[]	Low-Temperature	Thermal [X]	Injection/Disposal [ ]
REASON FOR FILIN New Well [X] Change in Ownership Other (Please Explain)	Recompletion [ ] [ ] Designatio			
DESCRIPTION OF W	ELL	W/ 11		
Lease Name <u>Campbell</u>	et al	Well No#2	Name of Reservoir	
Kind of Lease (Fee, Fed. or State)_		Lease Number		
LOCATION				
Unit B Letter; -	West 1175	feet from	the	line and
South	475	feet from	the <u>North</u>	line of
Section 5 County Grant		13 South	Range 13 West	
TYPE OF PRODUCT Dry		team and	Low Temp.	
Steam	V	Vater	Thermal Wate	er X
DESIGNATION OF F	URCHASER OF PR	ODUCT		
PurchaserAddress of Purchaser	10.60			
Product Will Be Used For				
CERTIFICATE OF C	OMPLIANCE SAINT	A FE DA 3/011		
I hereby certify that promulgated by the	all rules and regula Oil Conservation C	tions concerning geot ommission of New M	hermal resources wells in the lexico, have been complied womplete to the best of my known	ith, with respect to the
Signed MSum			Position Galogical A.	Agent Date March 7 14
Approved			Position	Date

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

#### GEOTHERMAL RESOURCES WELL LOG

1 0/111 G-103
Adopted 10/1
Adopted 10/1
3
MAN 101800
A:
Oil colaise, t.c., Division
2 3.1.31014

Operator DAWSON (DOC) and IDA CAM	PBELL	SANTA FE	D.W.C
Address Route 11, Silver City, N	ew Mexico, 88	3061	
Reservoir Lease Name Campbell et al	Well No	#2 Unit Letter B(NE 1	/4)
Location: West - 1175 feet South - 475 feet from the	rom the East North line	Section 5	
		County <u>Grant</u>	

#### FORMATIONS PENETRATED BY WELL

DEPT	н то	Thickness	Drilled or	p	
Top of Formation	Bottom of Formation	Inickness	Cored	Recovery	DESCRIPTION
0 1 2 4 6	1 2 4 6 277	1 2 2 271			Sand and Gravel - brown Sand, Gravel, Clayey Sand- brown to dark brown Weathered Andesite and Caliche Andesite - brown to purple-brown Rhyolitic Tuff - gray to gray-brown
					·
		)	]	1	

#### 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 Community / / /
SANT

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.

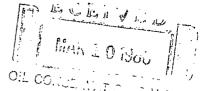
Position Goologist Date March 7, 1980

FIELD LOG: Campbell et al #2, (NE4, NW4, NE4, Sec. 5, T. 13.5.,)

R. 13 W.) Grant County, New Mexico. SANTA FE

By: R.M. Colpitts, Jr., January 1980

Depth	(ft)	
From	To	Rock type and description
0	1	SAND AND GRAVEL - brown, fill from cut bank.
1	2	SAND, GRAVEL AND CLAYEY SAND - brown to dark brown, dry and dusty.
2	4	WEATHERED ANDESITE AND CALICHE.
4	6	ANDESITE - brown to purple brown, medium hard, drills easily with rock bit.
6	118	RHYOLITIC TUFF - 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.
	277 : 277'	J 1, Table 1 and a country



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

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

Depth From	(ft) To	Rock type and description
0	10	RUBBLE - brown, composed of pebbles of latite and andesite in a matrix of clay and sand.
10	60	RHYOLITIC TUFF - brownish gray, composed of 50% sanadine, 33% glass, 15% quartz, and 2% golden-brown biotite.
60	120	RHYOLITIC TUFF - light brownish gray, welded, composed of 50% sanadine, 25% quartz, 20% glass, 5% golden-brown biotite and a trace of lithic fragments.
120	140	RHYOLITIC TUFF - 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	RHYOLITIC TUFF - brownish-gray, porphyritic, welded, composed of 55% sanadine, 27% glass, 15% quartz, 2% golden-brown biotite, and 1% augite.
	277 = 277'	J J J J J J J J J J J J J J J J J J J



0:1 CO ....

TEMPERATURE LOG: Campbell et al #2, NE', NW', NE', Sec. 5, R.13 W., Grant County, New Mexico By: D. Gambill and A. Kron (LASL) and R. M. Colpitts, Jr., January 30, 1980.

Depth			Depth		
(ft)	°C	°F	(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. = 2		

## NEW MEXICO OIL CONSERVATION COMMISSION

P. O. Box 2088, Santa Fe 87501

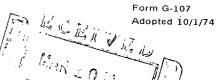
#### GEOTHERMAL RESOURCES WELL SUMMARY REPORT

	rator <u>DA</u> se Name <u> </u>					IPBELL			= 11, S11	_			
Uni	t Letter	B(NE	1/4)	Sec	5	T	wp. 13	South	Rgo	= 13_West	<u>:</u>		
Com	nmenced drillingleted drillingleted drillingleted drillingleted	Ja Ja 277 fe	nuary nuary et թուջ	16, 19 20, 19	080			Top of Rh	ICAL MARKERS	Tuff	DEPTH 6 fee	et	_
Com	imenced prod	ducing	(Date)			,		Geologic a	ge at total depth	Tertiar	_	cene? or	
	Sta	tic test					Р	roduction Tes					
Date	Shu t-ir	n well hea	q		Total	Mass Flow	Data			Separato	or Data		
	Temp. °F	Pres. P	sig. I	bs/Hr	Temp. °F	Pres. Psig.	Enthalpy	Orifice	Water cuft/Hr	Steam Lbs/Hr	Pres. Psig.	Temp. °F	_
													-
··,								·					-
					C	ASING REC	CORD (Pr	esent Hole)					
Size of Hole	Size of Casing	Weight of Csg/ft.	Grade of Casing	New or Used	Seam or Lapw	.	Depth of Shoe	Top of Casing	Number of Sacks Cement	Top of Cement .		ent Top mined By	=
7/8	6 5/	'8"	-	New & Used	Lapw	eld :	13.4	Surface	2	Surface	inspe	ection	
		·			:	•							-
	]	P	E CE ES	ize, top, bot	tom, perfo	PERFOR	ATED CA	ASING spacing of perfor	ation and method	1.)	1		
		C-F 55.	37 11	1800									_
Was	analysis of e			EE Electrica	Rog depth	s No	one	· 	Temperature log	depths 52	to 265	feet	_
	CERT	IFICATION	ON			•							

7

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 Ullem Position Goologist and Agent Date Mark 7, 1980



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

	GEOTHERMAL RESOURCES WELL HISTORY
0	DAWSON (DOC) and IDA CAMPBELL Address Route 11, Silver City, NM 88061
Uperator Lease Na	Comphall of al
Unit Let	P/NF 1/4) 5 13 South 13 West
Reservoir	CountyGrant
	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.)
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 = $110^{\circ}$ 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.
	TO ECETY TO
CERTIF	FICATION COLUMN TO THE PROPERTY OF THE PROPERT
	SANTON
I hereby and belie	certify that the information given above and the data and material attached hereto are true and complete to the best of my knowledge of.
Signed_	Moderning Position Goologist of Agal Date Mark 7, 1980

		ř				Adopted 10/1/74
NO. OF COPIES RECEIVED	NEW	MEXICO OIL CONSERV	ATION COMMISSION			
DISTRIBUTION		P. O. Box 2088, San	ita Fe 87501			
File						
N.M.B.M.					5. Indicate	Type of Lease
U.S.G.S. /	APPL	CATION FOR PERMIT	Γ TO DRILL, DEEPEN		STATE	FEE 🔀
Operator /			AL RESOURCES WE		5.a State Lea	ase No.
Land Office						
	_					
1a. Type of Work Drill	<u> </u>	Deepen` 🗆	Plug Back	_	7. Unit Agre	ement Name
	ermal Producer	Tar	mp Observation		0 D	
o. Type of Well	emp Thermal		ction/Disposal		8. Farm or L	LL ET AL
2. Name of Operator	DDELL			_	9. Well No.	2
D. A. CAM	LDETT.				10 Field and	2 Pool, or Wildcat
3. Address of Operator GILA HOT	SPRINGS, RT.1	l, Box 80, Si	lver City, NM	88061		dcat
4. Location of Well UNIT LE	TTER B LOCAT	ED 425 FEET FR	OM THE NORTH	LINE		
AND 3382 FEET FROM	M THE WESTLINE OF	SEC. 5 TWP. 1.	3 S.RGE. 13 W	NMPM		
					12. County	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
					GRANT	
		111111111111111111111111111111111111111	9. Proposed Depth 1	9A. Formatio	n	20. Rotary or C.T.
		1	000 feet T	ERTIARY	VOLCA	NICS AIR ROTA
21. Elevations (Show whether L			1B. Drilling Contractor		22. Approx	. Date Work will start
GROUND LEVEL 57	<u>04  \$2000</u>	LOW TEMP. L	ARJON DRILLIN	<u>G CO.,</u> I	NC JAN	JARY 10,1980
	P	ROPOSED 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"	WEIGHT FEIT FOOT	32'	2	CEIVIEIVI	ES1. 10P
			32		<del></del>	
			,			
SEE A	ATTACHED LETTI	ER				
			.0		T TE	
			DAYS	TG (C	EIV	
		-08	10	Marie		I/III on
		VALID FULL	8-BWAY		VV - 1/5	180
	_	ONAL VOIRES TO U	NDEIL	11/11 2		NOWISION
	APP	FOMIT EN PRILLING		A Milan	CERVATIO	N DIV
	P	INLESS DI		OIF CO.	ATMAS	080 DN DIVISION FE
		ROVAL VALID FOR 4 ROVAL VALID FOR 4 ERMIT EXPIRES 4 UNLESS DRILLING U		<b>J</b> .	٠. ١٠	
IN ABOVE SPACE DESCRIBE Parone. Give blowout preventer pro	ROPOSED PROGRAM: II	proposal is to deepen or	plug back, give data on p	resent produc	tive zone and	Proposed new productive
I hereby certify that the informat	ion above is true and com	plete to the best of my kr	nowledge and belief.			

SENIOR PETROLEUM GEOLOGIST

(This space for State Use)

APPROVED BY Carl Ulway
CONDITIONS OF APPROVAL, IF ANY:

#### NEW MEXICO OIL CONSERVATION COMMISSION P. O. BOX 2088 SANTA FE 87501

#### GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section. Well No. Lease 2 D.A. "Doc" and Ida Campbell Campbell et al Township Range County Section Unit Letter Grant B 13 S. 13 W. Actual Footage Location of Well: 742 west 425 north feet from the feet from the Pool Dedicated Acreage: Ground Level Elev. Producing Formation **40+** 5704 Acres 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc? □ No If answer is "ves," type of consolidation\_\_\_ ☐ Yes 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 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. December 12, 1979 Registered Professional Engineer and/or Land Surveyor 6408 New Mexico

1320 1850 1980 2319 2640

2000

1500

1000

Professional Land Surveyor

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

JAN - 7 1980

JAN - 7 1980

OIL CONSERVATION DIVISION
SANTA FE

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 volcaniclastics, 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 5/8inch 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 openhole 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. Summ

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 exploration and drilling of two geothermal wells, in Sec. 5, T 13 S, R 13 W, N.M.P.M., in Grant County, New Mexico.

Ida F. Campbell

JAN - 71980 JUNION ON CONSCIONATE SANTAFE



#### 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

O'L CONSTRUCTION FRESTO:
SANTA FE



Box 684 Socorro, N.M. 87801

505-835-2095

December 31, 1979

Ms. Maxine Goad, Program Manager Ground-Water Administration Unit NEW MEXICO ENVIRONEMNTAL 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.

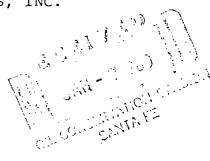
If you have any questions or need additional information, I will be pleased to provide it.

Yours truly,

W. K. SUMMERS AND ASSOCIATES, INC.

W. K. Summers, Geologist

WKS:mg Encls.





BRUCE KING

GOVERNOR

LARRY KEHOE

SECRETARY

#### STATE OF NEW MEXICO

#### ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

January 10, 1980

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

APPLICATION TO APPROPRIATE UNDERGROUND WATERS 77685 D - \$1.00

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

DISTRICT III DEMING, N. MEX.

1.	Name	and Address of Applicant:			File No <b>GSF-1922</b>	
	D.	A. Campbell				
	Rou	ite 11, Box 80			·	
	511	ver City, New Maxico	38061			
2.	Descr	ibe well location under one of the	following subheadi	ngs:		
	a	14 NW 14Co	NE ¼ of Sec	c. <u>5</u> Twp. <u>13 S</u>	Rge. <b>13 W</b> N	. M. P. M., in
		·				
		act No of Map No			•	
		t No of Block No odivision, recorded in				
	d. X =	feet, Y =		feet, N. M. Coordir	nate System	Zone Grant.
		we street address or route and bo				
		tance from known landmarks				
3.	Appro	oximate depth (if known)	3000	feet; outside diameter	of casing 6	inches.
	Name	e of driller (if known)				
		Household, non-commercial tree	es lawn and garden	not to exceed 1 acre		
		Livesteck watering	70, Id W II dild Bul dell		E C LA P 198	o W
		f water (check appropriate box or  Household, non-commercial tree  Livestock watering.  Drinking and sanitary purposes a commercial operation.  Prospecting, mining or drilling of Construction of public works, h  If any of the last three were man	and the irrigation	of non-commercial trees,	shrubs and lawns in odn	DIVISION Unction with
	<b>Z</b> X	Prospecting, mining or drilling o	operations to discov	er or develop natural resou	OIL CON SAN	
		Construction of public works, h	ighways and roads.	·		
		If any of the last three were man	rked give name and	I nature of business under	Remarks (Item 5)	
5	Dama	rks: Exploration - geot		natare or easiness ander	romarks. (rom 5)	
٥.		rks:				
	l,	D. A. Campbell pelief and that development shall		he foregoing statements a		ny knowledge
	and t	·		in approval or the permit	nas seen obtained.	
		Signature below , A	pplicant			
	Ву:			Date:	March 1, 1979	
			ACTION OF S	TATE ENGINEER		
Th		plication is approved for the use i				
ď₽		3, 9 & 10 on the	e reverse side here on <b>XXIIIXXX</b>	of. This permit will aut March 5, 1980	tomatically expire <b>XNBX</b>	NE VIEW XXXXXX
S.	E. Re	ynolds, State Engineer		$\bigcirc$ A	•	
	ی د :By	Si a. Campbell	1 2	Wul .	-	
	Date:	L. T. Putnam Supervisor, District March 5, 1979	III	١	GSF-1	.922 .

#### GENERAL CONDITIONS OF APPROVAL

3.3

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- 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-eights (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 strats 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 WILL ) ss.
County of Grant )".
Moaled Cheeke, being first duly sworn according to law, upon his
oath deposes and says:  Ysabel C. Luecke, Allen D. Campbell
1. That he is owners of Rebecca L Campbell Angus L Campbell
(Title) (Operator)
whose address is HC 68 Gila Hotsprings Silver City, New Mexico 88061.
2. That Ysabel C Luecke, etc., is the operator of a well drilled on land be-
(Operator)
longing to Rebecca Lampbell, Angus Campbell, whose address is HC 68 Cila Hotspyings (Landowner)  (Landowner)
Silver City, New Max. 85061, said well being drilled to test for hydrocarbons/and/or
earbon 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
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## NEW MEXICO OIL CONSERVATION COMMISSION SANTA FE, NEW MEXICO

## AFFIDAVIT OF RESPONSIBILITY CONVERSION TO WATER-WELL

County of Grant )ss.
oath deposes and says:  Thus are Ysabel C. Lueckie, Allen D. Campbell
1. That he is owners of Rebecca L Campbell, Angus L Campbell
(Title) (Operator) \(\bar{\psi}\)
whose address is HC 68 Cila Hotsprings Silver City, Vew Mexico 88061.
2. That Yoube C Lucke, etc is the operator of a well drilled on land be-
longing to Rebecce L Campbell Angus L Campbell whose address is HC (8 Cila Hotspings  (Landowner)
Silver City, New Mox 87061, said well being drilled to test for hydrocarbons/and/or
feet from the North line and 1/75 feet from the fast line of Section 5.
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County, New Mexico.
3. That said well was drilled to a total depth of $450$ feet, and that cas-
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4. That operator and landowner have made an agreement whereby operator
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OFFICIAL SEAL
OFFICIAL SEAL Rebecca A. Tollefson
Rebecca A. Tollefson (Operator)  NOTARY PUBLIC STATE OF NEW MEXICO
Rebecca A. Tollefson (Operator)  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires: 03/19/01  By
Rebecca A. Tollefson (Operator)
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires: 03/19/01  Subscribed and sworn to before me this / day of //Oven Der. A. D. 10 2000  By day of //Oven Der. A. D. 10 2000
Rebecca A. Tollefson (Operator)  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires: 03/19/01  By
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires:  Subscribed and sworn to before me this  My Commission Expires:  Aday of Moran Der, A. D. 19 2000  Notary Public in and for the County of March
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires: 03/19/01  Subscribed and sworn to before me this / day of //Oven Der. A. D. 10 2000  By day of //Oven Der. A. D. 10 2000
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires: 03/19/01  Subscribed and sworn to before me this / day of / Over Der, A. D. 19 2000  Notary Public in and for the County of Araut  STATE OF Manual State Of Grant  Section 19 2000  STATE OF Manual State Of M
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF FW MEXICO  My Commission Expires: 03/19/01  Subscribed and sworn to before me this / day of Notary Public in and for the County of Grant  STATE OF County of Grant  State Of Livelle  Notary Public in and for the County of Grant  his/oath deposes and says that when the provisions of Paragraphs 4 and 5 above have been
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NEW MEXICO  STATE OF MALLOCA  Notary Public in and for the County of Malloca  Notary Public in and for the County of Malloca  Notary Public in and 5 above have been complied with, he will accept the above-described well for his use as a water-well, and
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NEW MEXICO  My Commission Expires: 03/19/01  Subscribed and sworn to before me this day of Notary Public in and for the County of Notary Public in and for the County of Malel County of Grant  STATE OF M Ss.  County of Grant  Allel C. Lucke , 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
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF NOTARY PUBLIC STATE OF MAN Notary Public in and for the County of Man Notary Public in and for the County of Man Notary Public in 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.
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF My Commission Expires:  Notary Public in and for the County of Mal
Rebecca A. Tollefson (Operator)  NOTARY PUBLIC STATE OF WM MENCO Subscribed and sworn to before me this / day of //OVERDEY, A. D. 19 2000.  STATE OF WM Notary Public in and for the County of Grant  STATE OF Gounty of Grant  Ss.  Ss.  Ss.  Ss.  Ss.  Subscribed 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 day of Morning A. D. 192000.  (Landowner)  Subscribed and sworn to before me this day of Morning A. D. 192000.
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF My Commission Expires:  Notary Public in and for the County of Mal
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF HEW MENTO  SUBSCRIBED And Sworn to before me this  STATE OF LIM  STATE OF LIM  STATE OF LIM  Sounty of Local  Notary Public in and for the County of Local  Notary Public in 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  OFFICIAL SEAL  Notary Public in and for the County of Local  Notary Public in and for the
Rebecca A. Tollefson  NOTARY PUBLIC STATE OF STA



## NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSO
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.

D.a. Complett

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

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

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 propmtly 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

Encls.

#### STATE OF NEW MEXICO

### ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS

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,

ROY E/JOHNSON,

Sr. Perroleum Geologist

REJ/dr

enclosure

#### STATE OF NEW MEXICO ENERGY AND MINERALS DEPARTMENT

## OIL CONSERVATION DIVISION P. O. BOX 2088

Form G-103 Adopted 10-1-74

		SANTA F	E, NEW MEXICO	87501	R	evised 10-1-78
NO, OF COPIES RECEIVED	)		.,			
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U, S. G. S		GEOTHERM	AL RESOURCES WE	=116	State	Fee 🔀
Operator		GEOTHERM	AL HESOGREES WI	-LLJ	5.a State Lease No.	
Land Office						
Do Not Use This Form for For Permit —" (Form G-10)		Drill or to Deepen or Plug Ba Proposals.)	ck to a Different Reserv	oir. Use "Application		
1. Type of well Geoth	nermal Prod	ucer Temp. Observ	ation $\square$		7. Unit Agreement N	ame
Low-	Temp Thern	nal 🔀 Injection/Disp	osal 🔲			
2. Name of Operator				<u> </u>	8. Farm or Lease Nar	ne
DAWSON	A. (	C'AM PBELL		00111		
3. Address of Operator  A R 88072	Gil	A HOTSPR	•	ERCITY/VAA	9. Well No. CAMPBA	北特
4. Location of Well			ŕ	. /	10. Field and Pool, o	r Wildcat
Unit LetterB	4	66 Feet From The	DRTH Line and A	<b>39_3</b> Feet From		· · · · · · · · · · · · · · · · · · ·
The WEST L		Township				
	111111	15. Elevation (Short	whether DF, RT, GR	etc.)	12. County	HHHH.
		5643	Ground le	vel	GRANT	
16.	Chec	k Appropriate Box To Indi	_ <del>`</del>		ta	
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	——————————————————————————————————————	NTION TO:			NT REPORT OF:	_
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TEMPORARILY ABANDO	<del></del>			E DRILLING OPNS.	PLUG & ABA	ANDONMENT L
PULL OR ALTER CASING	L	CHANGE PLANS	CASING T	EST AND CEMENT JOB	´	
			- OTHER			
OTHER						
OTHER						
17. Describe Proposed or oproposed work) SEE R		Operations (Clearly state all p	ertinent details, and give	ve pertinenet dates, inclu	ding estimated date of	f starting any

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

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

ENERGY AND MIN	ERALS DEF	PARTMENT	SANTA FE, NEW				Revised 10-1-78
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DISTRIBUTION				•		5. Indicate	Type of Lease
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N.M.B.M.				RMAL RESOURCES WE		5.a State Le	
U.S.G.S.					· • • • •		
Operator	`						
Land Office							
1a. Type of Work	Drill 1	מ	Deepen 🔲	Plug Back 🔲		7. Unit Agre	cement Name
b. Type of Well		nal Producer 🔲 np Thermal 🔀		Temp Observation   njection/Disposal		8. Farm or I	Lease Name
2. Name of Operator	FON	11 CAMA	DREII			9. Well No.	
3. Address of Operator	1 019	H. CAMP	DELL	SILVERCIT FROM THE NORTH	88061		d Pool, or Wildcat
HCR 880 4. Location of Well	72,6	11A H075	PRINGS,	SILVERCIT	Y_1/\_	,,,,,,,,	
AND 393 FE	ET FROM	THE WEST LINE OF	SEC. 5 TWP. /	3 & RGE. /3 W	- NMPM		
						GRAN	T (
						7/////	
				1	19A. Formatic		20. Rotary or C.T.
21. Elevations (Show	whether DF,	RT, etc.) 21.A. Kin	d & Status Plug. Bond	21B. Drilling Contractor			
5643	Grown	devel 1879	3 740	LOUIS OLIV	ER	you.	X. Date Work will start 3,1986
			PROPOSED CASING A	ND CEMENT PROGRAM			
SIZE OF HOL	E	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF	CEMENT	EST. TOP
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			iplete to the best of my	knowledge and belief.		***************************************	
man David	201	0 2006		/	•	11).	. 2 11.06
anea Namo	NICO	anyoul	_Title_\/wy	us .	I	Aute We	0011480

CONDITIONS OF APPROVAL, IF ANY

(This space for State Use,

general de

DISTRICT SUPERVISOR

DATE 12-23-86

# OIL CONSERVATION DIVISION

Form G-102 Adopted 10-1-74 Revised 10-1-78

## GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

		All distances mu	ust be from I	he outer boundar	les of the Sect	lon.	
DAWSON	A. CAM	PBELL	Leas	OWN	ER.		Well No.  CAMPBELL # 3
Unit Letter B	Section 5	Township 13	S.	Range 13 L	ر. County	GRANT	
Actual Footage Locat		,				•	
466	feet from the Producing Form	NORTH	line and Pool	393	feet from t		line of Lot Z
Ground Level Elev. 5643	VOLCA		1,001	<b>\/</b>	4	Bedie	/O Acres
			well by co	lored pencil or	hachure mark	s on the plat below	
2. If more and royal		edicated to the	well, outlir	ne each and ide	ntify the ow	nership thereof (bot	h as to working interest
	than one lease of itization, unitization			ited to the well	l, have the ir	nterests of all owne	rs been consolidated by
☐ Yes	☐ No If ans	wer is "yes," typ	oe of conso	lidation	MA		•
If answer is necessary.) _		ers and tract de	scriptions v	which have actu	ially been co	nsolidated. (Use rev	erse side of this form if
	_					lidated (by comm s been approved by	unitization, unitization, the Division.
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	 	392	•	İ		contained herei	n is true and complete to
	1 ,	محسد المحدد				the best of my	knowledge and belief.
LOT 4	LOT	3	LOT Z	1 _	071		
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Paristan							
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# 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

Attornev

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. JOHNSO
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

December 4, 1986

DEC - 5 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 Underground Waters, File No. GSF-2419 through GSF-2425, inclusive, with attached condition of approval.

Copy of transfer of water right to well in  $W_2 E_2$  of the NW2 of Sec. 5, which is the location of Campbell Well #1.

Copy of permit to deepen and appropriate water from Campbell Well #2 6SF-/922(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 Constrution 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 impairement 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

DEC 1 2 1988

OIL Well HOWALL STORE

Campbell, #4

<u>Owner</u>

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)

Na <u>K Ca</u> 120.4 1.2 11.3

g <u>HCO</u>

 $\frac{\infty_3}{0.0}$ 

CL SO 01.5 41.0

\_<u>F</u> 9.55

<u>B</u> SiO<sub>4</sub> 0.20 1.2 74.8

<u>pH</u>: 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

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-	
Adopted	10-1-74
Revised	

110, 0. 00.110 11202.722			
DISTRIBUTION			
File .	SUNDRY NOTICES	S AND REPORTS	
N. M. B. M.	ON ON	5. Indicate Type of Lease	
U. S. G. S	GEOTHERMAL RE	•	State Fee 🔀
Operator	GEOTHERINAL NE	SOUTHOLS WEELS	5.a State Lease No.
Land Office			
Do Not Use This Form for Pro For Permit —" (Form G-101)	oposals to Drill or to Deepen or Plug Back to a l for Such Proposals.)	Different Reservoir. Use "Application	
1. Type of well Geother	mai Producer Temp. Observation		7. Unit Agreement Name
Low-Ter	mp Thermal 📈 Injection/Disposal		
2. Name of Operator  A W S //  3! Address of Operator	A, CAMPBEL	L 88061	8. Farm or Lease Name 9. Well No.
HCP88072,	GILA HOTSPAINGS	SILVER CITY, NM	CAM PB ELL 4
Unit Letter B	1003 Feet From The 110 R7	H <sub>Line and 649</sub> Feet From	
The VIFST yne	Section	S Range 18 W NMPM.	
	15. Elevation (Show whether 5625	Sround level	12. County GRANT
16.	Check Appropriate Box To Indicate Na	ture of Notice, Report or Other Da	ta
NOTICE	OF INTENTION TO:	SUBSEQUE	NT REPORT OF:
PERFORM REMEDIAL WORK	K PLUG AND ABANDON	REMEDIAL WORK	☐ ALTERING CASING ☐
TEMPORARILY ABANDON		COMMENCE DRILLING OPNS.	PLUG & ABANDONMENT
PULL OR ALTER CASING	CHANGE PLANS	CASING TEST AND CEMENT JOB	_ ,
		OTHER	
OTHER			
17. Describe Proposed or comproposed work) SEE RUL	npleted Operations (Clearly state all pertinent E 203.	details, and give pertinenet dates, inch	iding estimated date of starting any
Comple	eted drilling, co	using and c	ementing,
Inst	eted drilling, co talled coff, a	nage (pressure	) valuet, and
a flow	- and totalizing	7 —	
<i>V</i>		,	•

	true and complete to the best of my knowledge and belief.  Still TITLE Dwner	DATE Dec 3, 1986
APPROVED BY KA ESTATE CONDITIONS OF APPROVAL, IF ANY:	DISTRICT SUPERVIS	○R DATE 12-23-86

# STATE OF NEW MEXICO

# OIL CONSERVATION DIVISION P.O. BOX 2088

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

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File	APPLI	CATION FOR PERMI	N	STATE [] FEE		
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Land Office						
la. Type of Work Drill (	<b>X</b> ) D	Deepen	Plug Back		7. Unit Agreei	ment Name
Low-Ter	mal Producer 🔲 mp Thermal 🕱	Inj	mp Observation  cection/Disposal		8. Farm or Le	ase Name
2. Name of Operator DAW	SON A.C.	AMPBE	LLCI		o. Well No.	sbell #4
3. Address of Operator  HCR 8807			465 /1/M	EX88061	10. Field and	Pool, or Wildcat
4. Location of Well UNIT LET			ROM THE NOR			
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	<i>\</i> -{-{-{-}	444444	19. Proposed Depth	19A. Formation	7777777	20. Rotary or C.T.
			7. Troposed Depth	VOLCA	L.	C T
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21. Elevations (Show whether DI	ddovel 1793	7408	LOUIS OLIV	ER		15,1986
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IN ABOVE SPACE DESCRIBE PEzone, Give blowout preventer prog		proposal is to deepen c	r plug back, give data on	n present produc	tive zone and	proposed new prod
I hereby certify that the informati		plete to the best of my	knowledge and belief.			
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Signed Clawson (le)	complete	Title Come	<u> </u>	D	ne Nec	1/98
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CONDITIONS OF APPROVAL	ANY:	TITLE		D	ATE	
SOMETIONS OF APPROVAL	WINA!					

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

Form G-102 Adopted 10-1-74 Revised 10-1-78

#### GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section. Well No. Operator CAMPBELL 生 GRANT Actual Footage Location of Well: feet from the NORTH 649 1003 feet from the line OF LOT 2 line and Producing Formation Pool Dedicated Acreage: Ground Level Elev. VOLCAN 5625 10 1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below. 2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty). 3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc? 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 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. BRASS CAP CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. LOT 1 Company 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. Registered Professional Engineer and/or Land Surveyor 7250 3.10 nec 1320 1650 1980 2310 2640 2000 600

# STATE ENGINEER OFFICE WELL RECORD

## Section 1. GENERAL INFORMATION

A) Owner of Street or P City and S	wellLost Office AdditateLost	dress Clla er City, 1	1 Hot Sprin	go Rt. 1		Owner	's Well No. XX	₩x #4		
Well was drilled V										
	N'≥ SE\ZNW\Z ````	NE¼ X₩¥XX¥XX	EXEXX of Section	tion 5	Township	13 S Rang	. 13 V	I nmpm		
• ,		•								
d. X= the		feet, Y=	_1 1	feet, N.	M. Coordinate	System		Zone ir Grant		
B) Drilling Co	ontractor Lo	ouls Olive	. I.			License No	VD-1094			
Address Rt	. 15 Box 9	25 San Io	rengo, N.M	L 68057			٠,			
	•					cable .	-			
Elevation of land	d surface or			at wel	is	ft. Total depth of	of well	38 ft		
Completed well	is 🗆 sh		•			r upon completion o	of well	ft		
Depth in	Feet	Sector Se	tion 2. PRINC	IPAL WATER	R-BEARING S	TRATA	Estimated	Viold		
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		Secti	on 4. RECOR	D OF MUDDI	NG AND CEN	ENTING				
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Section 7. REMARKS AND ADDITIONAL INFORMATION

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 flowd 109 gpm with 3 ft drawdown. Final temp 166 degrees/
After syphon test well slowly rose to top of casing and in about 1 to 1 hour flowed 371 gpm steadily two feet above ground.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, examples a section 5, shall be answered as completely 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.

# 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.
1. Name of applican	t Dawson A	and Ida F	Campb	e 1 1	1 , 1		
Mailing address_	Rt. 11, Bo	ox 80 <b>, G</b> íla	Hotsp	rings			
City and State		y, New Mex					
2. Source of water s	upply underground			ted in <u>U</u>			
#21	(artesian or sha		1		1	underground	basin)
	located in the Wh					1	f\\ == \(\display = \display \)
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	ell: name of driller no				F. 1		
Outside Diameter	of casing 5	inches:	Approxima	ite debth to	be drilled	500	feet;
5. Quantity of water	to be appropriated an	d beneficially u	sed non	-consum	ptive, 968	acrè-fe	et/year
	,	1		(cons	umptive use, div	ersion)	'
for generati	ng electricity,				The state of the s	~ ~ <del>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~</del>	
6. Acreage to be in	igated or place of use	private (	ands 1	n 5ec.5	<u>, T 13S, R</u>	13W, NMI	M acres.
Subdivis	sion Section	Township I	Range	Acres		Owner	
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within the	<u> Gila Hot Sprins</u>	<u>gs Known Ge</u>	otherm	al crea	<u> </u>		
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	<u>onsumptive use</u>			7. (		,	
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#### ACTION OF STATE ENGINEER

After notice j	pursuant to statute and by authority	y vested in me, thi	s application is appro	ved provided it is not e	xercised
to the detrim	ent of any others having existing r	ights; <del>further prov</del>	<del>ided that all rules ar</del>	d regulations of the State	e Engl-
neer pertaini	and is not detrimenta	we!ls t	e complied with; and	I further subject to the fo	Howing
<del>conditions</del> : _					-
	conservation of water				
	all rules and regulat	ions of the	State Engineer	pertaining to	
	the drilling of shall	ow wells be	complied with;	and further	
	subject to the follow	ing condition	ns:		
		<del></del>			
	See Attached C	onditions of	Approval		·
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	***************************************				
Proof of comp	pletion of well shall be filed on or	before		, 19	
Proof of appl	lication of water to beneficial use	shall be filed on o	r before	, 19	
•	, /				
Witness my h	nand and seal this 5	day of	August	, A.D., 19 <u>86</u>	
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C E Danas	ds, State Engineer				
S. E. Reynor	rus, state Engineer				
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	c Craig				
Water	r 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 imas describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tic 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.

# 1214 INCREER IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

41 TO 10 ANN 17

# APPLICATION FOR PERMIT

To Appropriate the Underground Waters of the State of New Mexico

Da	te 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					
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 Why xx ME 1/4, Section 5 Township 1.3 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; Quantity of water to be appropriated and beneficially used non-consumptive, 968 acre-feet/year					
٥.	(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.					
٠,٠	Actenge to be migated of place of use					
	Subdivision Section Township Range Acres Owner					
,						
·						
7.	Additional statements or explanations Application is for a permit to deepen one well					
	(Welli-42), in the Wa of the NE's of Sec. 5, T 13 S, R 13 W, NMPM, and					
:	within the Gila Hot Springs Known Geothermal Area.					
4	Well #2 - W of NE of Lot 2 of Sec. 5. This well was drilled by Larjon					
40	D-1111 0 1 1000 0 1 1111					
•	By casing and other means the hole could be deepened. The non-consumptive					
	water will be returned underground into non-production wells and/or accord-					
	ing 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 Conerating 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.					
	1					
1/2	January College pless fastirm that the foregoing statements are true to the best of my knowledge					
an	d belief and that development shall not commence until approval of the permit has been obtained.					
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Δ	guyon le tampbell, Perminee,					
Ву						
	. No					
Su	bscribed and sworn to before me this 15 day of 100 , A.D., 19 85.					
	•					
Му	commission expires 12/19/80 Alice Thele					
	Notary Public					

# READ INSTRUCTIONS ON BACK Revised March 1972 PM 2 53 CATION 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. GSF-1923 File No.\_ 1. Name and Address of Applicant: D. A. Campbell Route 11, Box 80 Silver City, New Mexico 88061 2. Describe well location under one of the following subheadings: NE 1/4 NW 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 \_\_\_ of Block No. \_\_\_\_ of the \_\_\_\_ c. Lot No. \_ Subdivision, recorded in \_ d. X = \_\_\_ \_\_\_ feet, Y = \_ \_\_\_\_\_ feet, N. M. Coordinate System \_\_\_ in the \_ 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... 3000 feet; outside diameter of casing 6 inches. 3. Approximate depth (if known) 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 traes a commercial operation. X 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) Exploration - geothermal. 5. Remarks: 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 March 1, 1979 Date: By: **ACTION OF STATE ENGINEER** This application is approved for the use indicated, subject to all general conditions and to the specific conditions numbered On the reverse side bereaf This is a second to the specific conditions numbered. on the reverse side hereof. This permit will automatically expire units which is the second of the contract of demonstrative and the second s S. E. Reynolds, State Engineer

L. T. Putnem

Supervisor, District III

Date: : March 5, 1979

Mul

GSF-1923

File No.

#### **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-eights (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.
- 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 strate in which it was encountered. All plugging operations shall be approved by the State Engineer prior to actual plugging.