### GTLT - \_\_\_\_15\_\_\_\_

### Alex R. Masson, Inc. 10-21S-1W Dona Ana County

### **General Correspondence**

### Chavez, Carl J, EMNRD

From: Sent: To: Cc: Subject: James Witcher [jimwitcher@zianet.com] Saturday, February 04, 2012 2:24 PM Chavez, Carl J, EMNRD Alexander Masson Re: Masson Farms Geothermal (GTLT-015)

Carl,

I have received a hardcopy of Alexander Masson's designation letter. Thank you for the confirmation and web link to the Masson Farms file and correspondence.

Regards, Jim Witcher

James C. Witcher Witcher and Associates PO Box 3142 Las Cruces, NM 88003

At 06:57 AM 2/3/2012, you wrote:

Jim:

Good morning. The OCD received confirmation yesterday that you are the "Designated Agent" for the above subject facility until further notice.

Please click <u>here</u> (General Correspondence thumbnail) to go to the most recent correspondence from the OCD that the operator must address soon.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 Office: (505) 476-3490 Fax: (505) 476-3462 E-mail: <u>Carl J. Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at: <u>http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental</u>)



### Masson Farms of New Mexico, Inc. Address: 2100 CR-D061 • RADIUM SPRINGS, NM 88054 • PH: (575) 524-1791 • FAX: (575) 526-9699 REMIT TO Address: P.O. Box 160 REMITWOOD, KS 66052

2012 FEB -2 A 11: 32

January 30, 2012

Mr. Carl J. Chavez **Oil Conservation Division** 1220 South St. Francis Drive Santa Fe, NM 87505

Dear Mr. Chavez,

This letter is to serve as official notification that Mr. Jim Witcher, of Witcher and Associates, Box 3412 Las Cruces, New Mexico 88003, will serve as our agent and representative in all matters regarding the Oil Conservation Division until further notice.

Sincerely,

R. Alexander Masson President, Masson Farms of New Mexico, Inc.

Cc: Jim Witcher

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New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez Governor

John H. Bemis Cabinet Secretary-Designate Jami Bailey Division Director Oil Conservation Division



**Brett F. Woods, Ph.D.** Deputy Cabinet Secretary

### **JANUARY 18, 2012**

Mr. Alexander Masson Masson Farms of New Mexico, Inc. P.O. Box 170 Linwood, Kansas 66052

### Re: WQCC Discharge Permit Renewal (GTLT-015) Masson Inc. Radium Springs Farm (Masson) Sections 3 & 10, Township 21 South, Range 1 West, NMPM, Dona Aña County, New Mexico

Dear Mr. Masson:

The New Mexico Oil Conservation Division (OCD) sent Masson a letter dated October 12, 2011 requesting more information about your facility geothermal operations. Mr. James Witcher responded on December 28, 2011 with some information via e-mail and U.S. Mail.

The OCD observes that Masson has been in operation for many years with a file at the OCD; however, in the past, OCD geothermal regulators had not permitted Masson's injection wells under the Water Quality Control Commission (WQCC) and geothermal related wells because OCD did not believe that it had geothermal jurisdiction over low-temperature geothermal reservoirs at that time. Recently, in February of 2010, OCD Attorneys after reviewing the OCD Geothermal Regulations: Chapter 71, Article 5 NMSA 1978 (Geothermal Resources Conservation Act), and Title 19, Chapter 14 NMAC (Geothermal Power), have determined the geothermal regulations apply to low-temperature geothermal wells with the exception of any geothermal injection and/or disposal wells. The OCD issues Water Quality Control Commission (WQCC) 20.6.2. 5000 – 5299, et seq. NMAC UIC Class V Geothermal Well permits for geothermal injection and/or disposal wells to ensure compliance with the Environmental Protection Agency (EPA) Underground Injection Control (UIC) Program in New Mexico.

Based on your injection wells, the OCD has determined that a WQCC Discharge Permit renewal application is required to update the permit for your geothermal facility. In addition, in separate correspondence, the OCD has also sent OCD Geothermal Regulations letter to address any non-WQCC geothermal related aspects of your operations. The OCD addresses well financial assurance or bonding separately, i.e., injection wells (WQCC Regulations) and production/development wells (Geothermal Regulations).

Mr. Alexander Masson Masson Inc. Radium Springs Farm (GTLT-015) January 18, 2012

Consequently, the OCD requires the following in order to bring Masson into compliance with the WQCC Regulations:

- Geothermal Application for "Renewal" (see attachment) is required with a \$100 filing fee for processing the application and associated information. If the existing discharge permit is not terminated, and the Director issues an "approval" for the renewal, Masson will be required to remit a \$1,700 fee payable to the "Water Quality Fund" upon receipt of the OCD's final discharge permit for operator signature.
- 2) The public notice requirement forms associated with the discharge permit renewal process are attached to assist Masson with the path forward upon receipt of an OCD "Administratively Complete" determination based on its review of the geothermal application. A geothermal application form must be completed and submitted for the facility. An updated facility diagram with all wells depicted.
- 3) C-108 forms must be completed for all injection wells.
- 4) Financial Assurance and/ or well bonds must be obtained for all WQCC Class V Geothermal Injection Wells (20.6.2.5000 5299 <u>et seq</u>. NMAC).

Please submit the geothermal application, WQCC well bonds, etc. within 90 days of receipt of this letter. Please contact me at (505) 476-3490 or <u>CarlJ.Chavez@state.nm.us</u> if you have questions. Thank you in advance for your cooperation in this WQCC discharge permit review process.

Sincerely,

lang. chines

Carl J. Chavez Environmental Engineer

CJC/cjc

Attachments: WQCC Public Notice Permit Renewal Geothermal Application Form for Renewal

XC: OCD District 2 Office, Artesia

New Mexico Energy, Minerals and Natural Resources Department

Susana Martiñez Governor

John H. Bemis Cabinet Secretary-Designate Jami Bailey Division Director Oil Conservation Division



**Brett F. Woods, Ph.D.** Deputy Cabinet Secretary

### **JANUARY 18, 2012**

Mr. Alexander Masson Masson Farms of New Mexico, Inc. P.O. Box 170 Linwood, Kansas 66052

### Re: Geothermal Regulations (GTLT-015) Masson Inc. Radium Springs Farm (Masson) Sections 3 & 10, Township 21 South, Range 1 West, NMPM, Dona Aña County, New Mexico

Dear Mr. Masson:

The New Mexico Oil Conservation Division (OCD) sent Masson a letter dated October 12, 2011 requesting more information about your facility geothermal operations. Mr. James Witcher responded on December 28, 2011 with some information via e-mail and U.S. Mail, which has been reviewed by the OCD.

The OCD observes that Masson has been in operation for many years with a file at the OCD; however, in the past, OCD geothermal regulators had not permitted Masson's injection wells under the Water Quality Control Commission (WQCC) and geothermal related wells because OCD did not believe that it had geothermal jurisdiction over low-temperature geothermal reservoirs at that time. Recently, in February of 2010, OCD Attorneys after reviewing the OCD Geothermal Regulations: Chapter 71, Article 5 NMSA 1978 (Geothermal Resources Conservation Act), and Title 19, Chapter 14 NMAC (Geothermal Power), determined that OCD Geothermal Regulations also apply to low-temperature geothermal wells with the exception of any geothermal injection and/or disposal wells. The OCD issues Water Quality Control Commission (WQCC) 20.6.2. 5000 – 5299, et seq. NMAC UIC Class V Geothermal Well permits for geothermal injection and/or disposal wells to ensure compliance with the Environmental Protection Agency (EPA) Underground Injection Control (UIC) Program in New Mexico.

The following wells appear to be on site: 3 active injection wells (i.e., Masson 19, 27 & 35); 2 active production/development wells (i.e., Masson 34 & 36); and 6 in-active production/ development wells (i.e., Masson 26, 28, 30 - 33) and 11 plugged wells (i.e., Masson 15 - 18, 20 - 25, and 29). Based on the wells at this facility, the OCD has determined that this letter should help to address future geothermal regulatory related issues. In addition, in separate correspondence, the OCD has also sent a WQCC discharge permit letter to address any WQCC

Mr. Alexander Masson Masson Inc. Radium Springs Farm (GTLT-015) January 18, 2012

geothermal discharge permit related aspects of your operations. The OCD addresses well financial assurance or bonding separately, i.e., injection wells (WQCC Regulations) and production/development wells (Geothermal Regulations).

Consequently, the OCD requires the following submittals in order to bring Masson into compliance with OCD Geothermal Regulations:

- 1) A designated agent living in New Mexico shall be specified with contact information stated and/or provided to address the requirements herein.
- 2) G-103 Forms shall be submitted for all PA'd wells.
- 3) G-101 and 102 Forms shall be submitted for all existing wells that are currently not in the OCD Online file system. A map (i.e., USGS 7.5 Minute Quadrangle) to scale displaying all wells at the facility including their status is required.
- 4) An update on well status table, i.e., currently there appears to be: 3 active injection wells (Masson 19, 27 and 3); 2 active production wells (Masson 34 and 36); 6 inactive production wells (Masson 26, 28 and 30-33); 3 PA injection wells (LRG: 1, 2 & 4); 5 PA'd Temperature Gradient Wells; and 3 PA'd production wells.
- 5) Address 19.14.55.8 NMAC requirements for G-104 submittals associated with the latest Masson 36 (i.e., G-101, 102, 105,106 and 107) Well.
- 6) Well Bonds must be brought up to date for all existing wells, i.e., production/development and exploratory or temperature gradient, etc. (19.14.20 NMAC).
- 7) All well drilling must be completed by New Mexico Certified Water Well Drillers.
- 8) OCD will work to generate API#s for each well for plug and abandonment tracking purposes.
- 9) The operator shall continue to submit all applicable geothermal forms on a regular basis to the OCD, i.e., production, etc. Please submit any remaining information from your December 28, 2011 e-mail correspondence from Mr. Jim Witcher.
- 10) The operator must address all state (i.e., Taxation and Revenue Department, State Land Office, Office of State Engineer, Bureau of Land Management, etc., federal and local regulations.

Please submit the geothermal well bonds, forms, etc. within 90 days of receipt of this letter. Please contact me at (505) 476-3490 or <u>CarlJ.Chavez@state.nm.us</u> if you have questions. Thank you in advance for your cooperation in this Geothermal Regulations review process.

Sincerely,

lang. Ching

Carl J. Chavez Environmental Engineer

CJC/cjc

### Chavez, Carl J, EMNRD

From: Sent: To: Cc: Subject: Chavez, Carl J, EMNRD Tuesday, January 03, 2012 9:42 AM 'James Witcher' Brooks, David K., EMNRD FW: Masson Farms Geothermal Project (GTLT-015) DESIGNATED AGENT

Mr. Witcher:

Good morning. Per § 19.14.1.7(D) NMAC below, please have Mr. Masson send the Oil Conservation Division (OCD) an e-mail, letter or fax proclaiming who his "Designated Agent" (agent) will be for the above subject facility by COB Friday, January 6, 2012. If the OCD does not receive it, we must assume that Mr. Masson will be the agent.

The OCD needs this information before it can proceed.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 Office: (505) 476-3490 Fax: (505) 476-3462 E-mail: CarlJ.Chavez@state.nm.us Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at: http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

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### **19.14.1.7 DEFINITIONS:**

A. "Commission" shall mean the oil conservation commission.

B. "Condensate" shall mean the liquid recovered from the condensation of gases or steam produced from a geothermal reservoir.

C. "Correlative rights" shall mean the opportunity afforded, insofar as is practicable to do so, the owner of each property in a geothermal reservoir to produce his just and equitable share of the geothermal resources within such reservoir, being an amount, so far as can be practicably determined, and so far as can be practicably obtained without waste, substantially in the proportion that the quantity of recoverable geothermal resources under such property bears to the total recoverable geothermal resources in the reservoir, and for such purpose to use his just and equitable share of the natural heat or energy in the reservoir.

D. "Designated agent" shall mean that person designated by the owner or operator of any geothermal resources well to be his agent in all matters concerning the keeping of records within the state.

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505

Office: (505) 476-3490

Fax: (505) 476-3462

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From: Chavez, Carl J, EMNRD
Sent: Tuesday, January 03, 2012 8:23 AM
To: 'James Witcher'
Cc: Brooks, David K., EMNRD; VonGonten, Glenn, EMNRD
Subject: RE: Masson Farms Geothermal Project (GTLT-015)

Mr. Witcher:

Good morning and Happy New Year ....

The New Mexico Oil Conservation Division is in receipt of your submittal and will respond soon with a "path forward" on any additional OCD requirements as we had preliminarily discussed during our last telephone call before Christmas.

Please submit the items in your e-mail below by COB January 20, 2012.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 Office: (505) 476-3490 Fax: (505) 476-3462 E-mail: CarlJ.Chavez@state.nm.us Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at: <u>http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental</u>)

From: James Witcher [mailto:jimwitcher@zianet.com]
Sent: Wednesday, December 28, 2011 10:27 AM
To: Chavez, Carl J, EMNRD
Cc: Brooks, David K., EMNRD; VonGonten, Glenn, EMNRD
Subject: Re: Masson Farms Geothermal Project (GTLT-015)

To: "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us> From: James Witcher <jimwitcher@zianet.com> Subject: Re: Masson Farms Geothermal Project (GTLT-015) Cc: "Brooks, David K., EMNRD" <david.brooks@state.nm.us>, "VonGonten, Glenn,

EMNRD" <Glenn.VonGonten@state.nm.us> Bcc: Attached: C:\ATTACHMENTS\LRG\_4489\_WATERRIGHT\_5000AFY.pdf;

Good Morning Carl,

Thank you very much for the information links. Yesterday after getting back from Christmas in Artesia, I FEDEXed an overnight a package with materials that I had gathered earlier in November and December to address most items in your letter of 12 October, 2011 to Alexander Masson. I am still reviewing some files and also compiling all NM SEO files on the wells, etc. The FEDEX package contains the following.

1) A well location table along with a location map showing wells in the 7.5 minute Seldon Canyon orthophoto quad. I will find a good coordinate registered air photo and add locations (should be able to obtain one from Dona Ana County).

2) A table showing the OCD well form/permit inventory, except for production record forms.

3) An air photo showing the greenhouse, pipelines, heat exchanger location, and general location of production and injection.

4) A diagrammatic view of how the geothermal water is used for greenhouse heating and a flow path from production to injection.

5) Various land status maps: 1) a map showing the location of Federal mineral estate adjacent the Masson Greenhouse; 2) a map showing the Masson Federal geothermal lease; 3) a map showing numbered surface ownership parcels along with a table showing general ownership and acreage north of the Rio Grande in the vicinity of the Masson Greenhouse.

6) Copies of three reports or memorandum: 1) Drilling report for Masson 36 (Federal lease); 2) the Gross pump test report; and 3) Peggy Barroll's, NM SEO Theis analysis. Attached is another NM SEO Theis analysis associated with an Application for Permit to Appropriate Underground Water in 2008, covering all wells.
7) A generalized geologic map and conceptual cross section. The hypothetical wells shown in the cross section are only located approximately.

I am still searching for any discharge permits or WQCC materials with either OCD, NM SEO, or NMED, etc. I will be speaking with Alexander Masson tomorrow and will inquire more about injection permitting and the location of any copies of actual bonds for the wells and injection. In the meantime, I will begin gathering up materials to address WQCC requirements under Title 20, Chapter 6, Part 2 in case this has not been addressed in the past.

Also, I am compiling well construction detail for all the wells, along with drillers formation logs, etc that I will share. The only well that I know detail is Masson 36 as I sited, specified, planned, and managed the drilling of the well.

Regards, Jim

### At 02:49 PM 12/20/2011, you wrote:

Jim:

Good afternoon. I am writing to follow-up on our telephone call this afternoon.

First, the New Mexico Oil Conservation Division (OCD) needs to confirm that you are the designated agent for Masson Farms and the above subject OCD Permit? A letter, e-mail and/or fax from Mr. Masson is requested to confirm this.

Second, you are sending a package of information to address the OCD's recent letter. The OCD will contact Masson Farms after we have had a chance to review the package and understand the current standing of geothermal operations at the facility, wells, etc. The call will likely focus on the path forward based on all of our information and occur after the OCD's 1/3/2012 meeting to discuss aspects of the project.

Please find below some links to assist you based on our telephone call today.

OCD Forms (geothermal application, C-108s, bonds, etc.):

OCD Resource Page (OCD Geothermal Regulations)::

WQCC Class V Injection Well Regulations & Financial Assurance (20.6.2 NMAC):

Case Study (Lightning Dock – <u>GTHT-1</u>)

Energy, Minerals & Natural Resources Department- ECMD/OCD Historical Resource Documents

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 Office: (505) 476-3490 Fax: (505) 476-3462 E-mail: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "Why not Prevent Pollution; Minimize Waste; Reduce the Co

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C Maria ana a  $\square$ 



Geology modified from Seager (1975)

GEOLOGIC CROSS SECTOR AND HYDROGEOLOGC **WNDOW** 



Witcher

MASSON 36 WELL RADIUM SPRINGS









SURFACE SWALLSHIP

Map # Surface Owner	Acres	Section			
1 private	98.08				
2 private	178.73	3			
3 private	115	9			
4 U. S. Government	541.98				
5 private	6.59				
6 U. S. Government	488				
7 private	115				
8 private	14				
9 U. S. Government	636.34				
10 private	10.01				•
11 private	50.31				
12 private	38.38		-	4	
13 U. S. Government	55.46				
14 U. S. Government	40.04				
15 U. S. Government	4.04			· · ·	· .
16 private	3.24				
17 private	0.00				
18 private	2.02				
19 private	1.45				
20 private	1.45				
20 private 21 private	5.68				
	2.84				
22 private	2.84				
23 private	2.04	10			
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FEDERAL MINEAALS - BLUE HACHURE

### Chavez, Carl J, EMNRD

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Sent: Wednesday, December 28, 2011 10:27 AM
To: Chavez, Carl J, EMNRD
Cc: Brooks, David K., EMNRD; VonGonten, Glenn, EMNRD
Subject: Re: Masson Farms Geothermal Project (GTLT-015)

To: "Chavez, Carl J, EMNRD" <CarlJ.Chavez@state.nm.us> From: James Witcher <jimwitcher@zianet.com> Subject: Re: Masson Farms Geothermal Project (GTLT-015) Cc: "Brooks, David K., EMNRD" <david.brooks@state.nm.us>, "VonGonten, Glenn,

EMNRD" <Glenn.VonGonten@state.nm.us> Bcc: Attached: C:\ATTACHMENTS\LRG\_4489\_WATERRIGHT\_5000AFY.pdf;

Good Morning Carl,

Thank you very much for the information links. Yesterday after getting back from Christmas in Artesia, I FEDEXed an overnight a package with materials that I had gathered earlier in November and December to address most items in your letter of 12 October, 2011 to Alexander Masson. I am still reviewing some files and also compiling all NM SEO files on the wells, etc. The FEDEX package contains the following.

1) A well location table along with a location map showing wells in the 7.5 minute Seldon Canyon orthophoto quad. I will find a good coordinate registered air photo and add locations (should be able to obtain one from Dona Ana County).

2) A table showing the OCD well form/permit inventory, except for production record forms.

3) An air photo showing the greenhouse, pipelines, heat exchanger location, and general location of production and injection.

4) A diagrammatic view of how the geothermal water is used for greenhouse heating and a flow path from production to injection.

5) Various land status maps: 1) a map showing the location of Federal mineral estate adjacent the Masson Greenhouse; 2) a map showing the Masson Federal geothermal lease; 3) a map showing numbered surface ownership parcels along with a table showing general ownership and acreage north of the Rio Grande in the vicinity of the Masson Greenhouse.

6) Copies of three reports or memorandum: 1) Drilling report for Masson 36 (Federal lease); 2) the Gross pump test report; and 3) Peggy Barroll's, NM SEO Theis analysis. Attached is another NM SEO Theis analysis associated with an Application for Permit to Appropriate Underground Water in 2008, covering all wells.
7) A generalized geologic map and conceptual cross section. The hypothetical wells shown in the cross section are only located approximately.

I am still searching for any discharge permits or WQCC materials with either OCD, NM SEO, or NMED, etc. I will be speaking with Alexander Masson tomorrow and will inquire more about injection permitting and the location of any copies of actual bonds for the wells and injection. In the meantime, I will begin gathering up materials to address WQCC requirements under Title 20, Chapter 6, Part 2 in case this has not been addressed in the past.

Also, I am compiling well construction detail for all the wells, along with drillers formation logs, etc that I will share. The only well that I know detail is Masson 36 as I sited, specified, planned, and managed the drilling of the well.

Regards, Jim

11

### At 02:49 PM 12/20/2011, you wrote:

Jim:

Good afternoon. I am writing to follow-up on our telephone call this afternoon.

First, the New Mexico Oil Conservation Division (OCD) needs to confirm that you are the designated agent for Masson Farms and the above subject OCD Permit? A letter, e-mail and/or fax from Mr. Masson is requested to confirm this.

Second, you are sending a package of information to address the OCD's recent letter. The OCD will contact Masson Farms after we have had a chance to review the package and understand the current standing of geothermal operations at the facility, wells, etc. The call will likely focus on the path forward based on all of our information and occur after the OCD's 1/3/2012 meeting to discuss aspects of the project.

Please find below some links to assist you based on our telephone call today.

OCD Forms (geothermal application, C-108s, bonds, etc.):

OCD Resource Page (OCD Geothermal Regulations)::

WQCC Class V Injection Well Regulations & Financial Assurance (20.6.2 NMAC):

Case Study (Lightning Dock – <u>GTHT-1</u>)

Energy, Minerals & Natural Resources Department- ECMD/OCD Historical Resource Documents

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 Office: (505) 476-3490 Fax: (505) 476-3462 E-mail: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at: http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental )

4

### Chavez, Carl J, EMNRD

From:Chavez, Carl J, EMNRDSent:Tuesday, December 20, 2011 2:49 PMTo:James WitcherCc:Brooks, David K., EMNRD; VonGonten, Glenn, EMNRDSubject:Masson Farms Geothermal Project (GTLT-015)

Jim:

Good afternoon. I am writing to follow-up on our telephone call this afternoon.

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http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

### Chavez, Carl J, EMNRD

From:	Chavez, Carl J, EMNRD
Sent:	Tuesday, December 20, 2011 12:15 PM
То:	Chavez, Carl J, EMNRD
Subject:	Masson Farms (GTLT-015) Follow-Up on OCD Oct. 12, 2011 Info. Request Letter to
	Geothermal Operator

To whom this message may concern.

On 12/20/2011 at ~8:17 a.m. I left a voice mail message for Mr. Masson at (913) 301-3281 to contact me regarding the above subject letter that Masson has not responded to.

The OCD is attempting to communicate with the operator to address the information request letter and to assess possible State of New Mexico permit requirements for the facility based on the extraction of heat from geothermal wells at the facility. Ok.

\*\*\*\*\*\*

On 12/20/2011 at ~ Noon Mr. Masson called and informed me that he had assigned Jim Witcher to respond to the OCD Letter and that he had indicated that a package had been sent to the OCD. I informed him that the package had not arrived, but that I would look for it. No package found, and Mr. Masson said that OCD should not be creating more work now that we don't need. He said Mr. Witcher has the explanation for why the facility should not be permitted by the OCD.

I informed him that OCD has a meeting scheduled on January 3, 2011 to discuss how it will proceed and that the information requested in the letter may assist OCD with a path forward on the OCD permit issue for his greenhouse. I asked him if Jim Witcher was his designated agent, but he was unclear. I reminded him that a response to the OCD letter is requested. Ok..

Carl J. Chavez, CHMM New Mexico Energy, Minerals & Natural Resources Dept. Oil Conservation Division, Environmental Bureau 1220 South St. Francis Dr., Santa Fe, New Mexico 87505 Office: (505) 476-3490 Fax: (505) 476-3462 E-mail: CarlJ.Chavez@state.nm.us Website: <u>http://www.emnrd.state.nm.us/ocd/</u> "Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:

http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental)

## FOCUS ON GREENHOUSE HEATING DIRECT-USE GEOTHERMAL -

### James C. Witcher



Masson Geothermal Greenhouse, Radium Springs, New Mexico

# RADIUM SPRINGS EXAMPLE



Geology modified from Seager (1975)

### PRODUCTION WELL RADIUM SPRINGS

- Isothermal in Paleozoic carbonate reservoir
- Conductive across Tertiary Palm Park Aquitard



# WHY USE GEOTHERMAL?

- DRAWBACKS 1) Up front capital Approach costs. Acceptance of unfamiliar.
- Can require risk.



Southwest Technology Development **New Mexico State University** Institute, geothermal greenhouse

NMSU

## REQUIREMENTS

CO-LOCATION OF 1) Suitable land. 2) Geothermal resource. 3) Fresh water source. 4) Labor force. 5) Sunshine. 6) Market for crop.



NMSU

## GEOTHERMAL GREENHOUSE HEATING - THE DETAIL

The primary object of geothermal green housing is to grow the best quality crop profitably with energy savings.



Masson Geothermal Greenhouse Radium Springs, New Mexico

NMSU

## PRODUCTION WELLS AND INJECTION WELLS

Drilling Masson Federal 36, Radium Springs, New Mexico, Masson Geothermal Greenhouse

- LARGE DIAMETER
- DESIGNED TO HOST PUMP EQUIPMENT
- DRILLED TO MINIMIZE FORMATION DAMAGE
- COST HIGHLY VARIABLE (\$75 TO \$400/ft)

Witcher

### **BENCH HEATING WITH FINNED** PERIMETER, OVERHEAD, AND TUBING

### FINNED PIPE Prevents cold spots.

Can be used in first stage heating.

Use with other heating such and floor, overhead and benchtop heating.


# RADIANT FLOOR HEATING



Construction of new 2-acre greenhouse range with radiant floor heating, Masson Geothermal Greenhouse, Radium Springs, New Mexico

Williamson, NREI

## ADVANTAGES

- Provides thermal mass and stabilized heating system
- Decreases geothermal well production
- Places uniform heat at plant roots
- Allows for flood irrigation

## HOT WATER STORAGE

Hot water storage tank, Masson Geothermal Greenhouse, Radium Springs, New Mexico



Williamson, NREL

### PROBLEMS

- Slow heating response to rapid temperature/weather changes
- SOLUTIONS Continue optimal heating if one of the well pumps fails on a winter night
- storage tank to buffer heating system Use large 167,000 gallon insulated hot water
- Use radiant floor heating

New Mexico Energy, Minerals and Natural Resources Department

Susana Martinez Governor

John H. Bemis Cabinet Secretary-Designate

**Brett F. Woods, Ph.D.** Deputy Cabinet Secretary Jami Bailey Division Director Oil Conservation Division



### OCTOBER 12, 2011

Mr. Alexander Masson Masson Farms of New Mexico, Inc. P.O. Box 170 Linwood, Kansas 66052

### Re: INFORMATION REQUEST (GTLT-015): Masson Inc. (Masson) Radium Springs Farm, Section 10, Township 21 South, Range 1 West, NMPM, Dona Aña County, New Mexico

Dear Mr. Masson:

The New Mexico Oil Conservation Division (OCD) contacted you on Wednesday morning, September 28, 2011 to discuss a recent letter from the Bureau of Land Management (BLM) to Masson where you expressed an interest in beginning geothermal production from Federal Well No. 36 on the lease.

The OCD inquired about Masson's operations and determined that the primary use of the well water was for the extraction of heat from the natural low-temperature geothermal ground water to heat greenhouses at the facility during the cold period. The OCD informed you that OCD has jurisdiction over Geothermal Regulations (i.e., Chapter 71, Article 5 NMSA 1978 (Geothermal Resources Conservation Act) and Title 19, Chapter 14 NMAC (Geothermal Power)) and determined during the phone call that they are applicable to your geothermal operations. The area was apparently proved to be a "Known Geothermal Resource Area" (KGRA) as G-108 and 110 Forms are in the file.

The OCD discussed a follow-up letter with forthcoming requested items from Masson to be submitted within 60 days from the date of this letter. The requested information shall include:

- 1) Any discharge permits issued by the OCD to Masson Farms.
- 2) A complete listing of wells ever drilled at the site with well type, date drilled, well status, and map depicting their locations at the facility. A map of the state land vs. federal land with well depiction would be helpful for BLM and OCD. The OCD Online "GTLT-015" well file indicates that there is well information for at least 36 wells, i.e., Well Nos. 1 through 35, and more recently, Federal Well No. 36. Display greenhouses, and infrastructure (i.e., pits, ponds, tanks, below grade tanks, sumps, process units, etc. at the facility).
- 3) Any authorization to inject and produce per well forms available in your files to the OCD. For example provide any G-104 (Certificate of Compliance and Authorization to Produce) and 112 (Application to Place Well on Injection) Forms to the OCD. Provide all G-Forms in your files to the OCD.
- 4) Have all inactive wells been plugged and abandoned?

### Mr. Alexander Masson

Masson Farms of New Mexico, Inc. October 12, 2011

- 5) What wells are in operation for production versus injection and/or disposal? Same question, but which wells have been plugged and abandoned? There was some information indicating Well Nos. 24 and 27 had been plugged and abandoned. There was also indication that Well Nos. 16, 19 and 25 are injection wells.
- 6) What other exploration wells (i.e., temperature gradient wells) are present and unplugged? What exploration wells have been plugged and abandoned?
- 7) Well Forms for all geothermal production (also known as development wells) and injection wells or any other type geothermal wells at the facility (include inactive wells).
- 8) Copies of all bonding for the facility, geothermal and WQCC injection wells. A copy of a Geothermal Multi-Well Bond in the amount of \$10,000 was in the well file; however, the OCD Bond Coordinator does not have records of the existence of an original geothermal multi-well bond.
- 9) Any geothermal well summaries and/or testing that have occurred, since the wells were first drilled and tested.

A WQCC discharge permit (5-yr.) with \$100 filing fee for application review and processing may be required and will be addressed in a separate letter after the OCD has received the above requested information. If we determine that a discharge permit is required for your facility, a \$1,700 permit fee payable to the "Water Quality Management Fund" must be received when the permit is issued. The permit process (if we determine that it is applicable) will include public notice requirements under WQCC Regulations (20.6.2.3108 NMAC). OCD will post a draft discharge permit and other documentation (see attachments) under this permit process.

Please contact me at (505) 476-3490 or <u>CarlJ.Chavez@state.nm.us</u> if you have questions. Thank you in advance for your cooperation in this geothermal discharge permit review process.

Sincerely,

Chl.J.

Carl J. Chavez Environmental Engineer

CJC/cjc

Xc: OCD Artesia District Office Bureau of Land Management- Las Cruces



### United States Department of the Interior

BUREAU OF LAND MANAGEMENT Las Cruces District Office 1800 Marquess Street Las Cruces, New Mexico 88005 www.blm.gov/nm



In Reply Refer To: NMNM 34793 3203 (L0310)

2011 SEP 23 P 10: 12

SEP 2 2 2011

### CERTIFIED--RETURN RECEIPT REQUESTED 7004 1350 0002 8394 3111

Mr. Alexander Masson Masson Farms of New Mexico, Inc. 2100 CR-D061 Radium Springs, NM 88054

### Dear.Mr. Masson:

The Bureau of Land Management (BLM), Las Cruces District Office (LCDO) has received (September 6, 2011) your recent letter regarding the metering of Well #36 on your Federal geothermal lease (NMNM 34793). Your letter indicates that you are interested in beginning production from this lease. Federal regulations (43 CFR 3274.10) require that Federal geothermal leaseholders and operators obtain a commercial use permit approved by the BLM prior to beginning operations. Please be aware that this requirement also applies to all geothermal leases even though you did not elect to convert to the new Federal royalty schedule (43 CFR 3200.7(a)).

Requirements for a commercial use permit are outlined in 43 CFR 3274.11, a copy of which is included with this letter. There is no standard form for a commercial use permit, so please prepare a concise summary of how you will meet the requirements of 43 CFR 3274.11, including all required diagrams. In addition to the information required by regulation, please include a concise description of how wastewater will be disposed after it exits the heat exchangers in the greenhouse (43 CFR 3274.11(j)).

The LCDO suggests that you contact our office to arrange a mutually convenient time to meet at your leasehold. This will help us to understand the nature and extent of your proposed operation. Please contact Michael Smith, Geologist, at (575) 525-4421, if you have any questions and to arrange a field visit.

Your proposed operation may also be regulated by the State of New Mexico under existing State laws and statutes. Please contact the New Mexico Oil Conservation Division, District 2 at (575) 748-1283, to inquire if a State permit is necessary.

Sincerely,

Edward Serim

Edward Seum Supervisory Multi-Resources Specialist Division of Multi-Resources

1 Enclosure

cc: Richard Estabrook Randy Dade ✓ Carl Chavez

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FEBRARY 1, 1991

OIL CONSERVATION DIVISION P.O. BOX 2088 LAND OFFICE BLDG. SANTA FE, NEW MEX., 87501

DEAR MR. JOHNSON,

THIS LETTER IS TO REPORT THE PAST MONTHS READING. FROM THE FLOW METER REGARDING THE <u>FRESH</u> WATER USAGE, FROM WELL # LRG - 4487 & 4487-S.

2-1-91(- 2,146,200

SINCERELY,

MARTHA REY RADIUM SPRINGS FARM





FEBRUARY 1, 1991

OIL CONSERVATION DIVISION P.O. BOX 2088 LAND OFFICE BLDG. SANTA FE, NM 87501

DEAR MR. JOHNSON,

THIS LETER IS TO REPORT THE PAST MONTHS READING FROM THE FLOW METER REGARDING GEOTHERMAL WATER USAGE.

2/1/92 - 56,355,000

SINCERELY, art MARTH'A REY RADIUM SPRINGS FARM























OIL CONSERVE ON DIVISION RECEIVED Alex R. 46 FLOW DECORATIVE FOL IAGE PLANTS PLANT CARE ACCESSORIES Exclusively Wholesale FAX 913/441-0846 Linwood, Kansas 66052 Drawer F 913/723-3712 Oil Construction Division P.O. Box 2088 Sand Office Blde Santa 70, new mexico 8750 Dear Mr. Johnson, This letter is to report the past months reading from the flow meter regarding geothermal water usage llow august 1<sup>st</sup>, 1990- 8,335,800 Sincerely, A Filzy Br Radium Springs Farm

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Radium Springs Parm



OIL CONSERVATION DIVISION RECEIVED Alex R. AM 9 18 FLOWERING PLANTS DECORATIVE FOLIAGE PLANTS PLANT CARE ACCESSORIES Exclusively Wholesale Linwood, Kansas 66052 FAX 913/441-0846 Drawer F 913/723-3712 Oil Conservation Duision P.O. BOX 2088 Land Office Bldg. Santa Fe, New Mexico 8750 Dear Mr. Johnson, Shis letter is to report that our flow moter quit functioning and we were able to replace it within 2 weeks. She old moter went out around gune 8,1990. At was replaced on June 20, 1990 00 please note that our last heading was as follows: June 8, -289, 719,000. She new flow motor reading of geothermal Water Usage 12, 1990-22, 307 Actually ttgquelle Radium Springe Jarm (lower















Carolh Sitzgerald

Radium Springs Jarm























Sunflower Ste



FLOWERING PLANTS DECORATIVE FOLIAGE PLANTS PLANT CARE ACCESSORIES

Drawer F Linwood, Kansas 66052

Oil Concernation Division P.O. Box 2088 Land Office Bldg. Santa 7e; New Mexico 87501

RECENTRD

AUG 7 1989

OIL CONSERVATION DIV. SANTA FE

Dear Mr. Johnson, This letter is to report the past months reading from the flow meter regarding geothermal usage. August 1<sup>st</sup>, 1989-182, 322,000 Sincerely, Carsel Tingerald Kadium Springs Farm



FLOWERING PLANTS DECORATIVE FOLIAGE PLANTS PLANT CARE. ACCESSORIES

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

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JUL 1 0 1989

DIL CONSERVATION DIV.

Dear Mr. Johnson, Jhio letter is to report the past months reading from the flow meter regarding geothermal usage. July 1<sup>st</sup>, 1989-179, 203,000

> Sincerely, Bre Hogelo Radium Springe Farm