

**GTLT - \_\_\_\_\_ 3 \_\_\_\_\_**

**Lightning Dock Geothermal,  
Inc.**

**TG: 12-7; 36-7; 41-13; 42-18;  
44-7; 52-7; 52-8; 53-7; 56-14;  
57-7; 64-7 & 78-12**

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APPLICATION FOR PERMIT TO DRILL, DEEPEN,  
OR PLUG BACK—GEOHERMAL RESOURCES WELL

3. Indicate Type of Lease  
STATE  FEE  XX  
5. State Lease No.

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

2. Name of Operator  
Lightning Dock Geothermal, Inc.

3. Address of Operator  
224 West Greening Ave.

4. Location of Well UNIT LETTER B LOCATED 1200 FEET FROM THE North LINE  
 AND 3100 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

7. Unit Agreement Name  
none

8. Farm or Lease Name  
Fed. NM-34790

9. Well No.  
TG 52-7

10. Field and Pool, or Wildcat  
Lightning Dock KGRA

15. County  
Hidalgo

19. Proposed Depth  
3000 ft

19A. Formation  
Alluvium/ volcanics

20. Rotary or C.T.  
Rotary

21. Elevations (SHOW whether DF, RT, etc.)  
4200 Gr

21A. Kind & Status Plug. Band  
Federal, in place

21B. Drilling Contractor  
Everett D. Burgett, Animas NM

22. Approx. Date Work will start  
July 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10 3/4"	36.88	40 ft	30	ground surf
9 7/8"	7 5/8"	26.40	300 ft	40	ground surf

Pilot hole (6. 5/8") will be drilled to define subsurface formation for landing the surface casing. If result differs from this permit Application, changes will be made known by submittal of Sundry Notice and G-103.

Well will be drilled with mud rotary. Subsurface temperature expected to be lower than 240 F. If water bearing zones are Encountered, limited DST will be completed by airlift.

Depending on drilling results, well can be completed by inserting water-filled, 2-3/8-inch steel gradient pipe to TD. Well would be Retained as permanent temperature observation well until all useful measurements are completed.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM; If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] TITLE PRESIDENT, LDC, INC. DATE 18 June 2003

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 6/19/03

CONDITIONS OF APPROVAL, IF ANY: FED. MINERALS

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

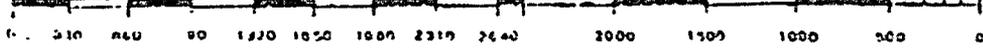
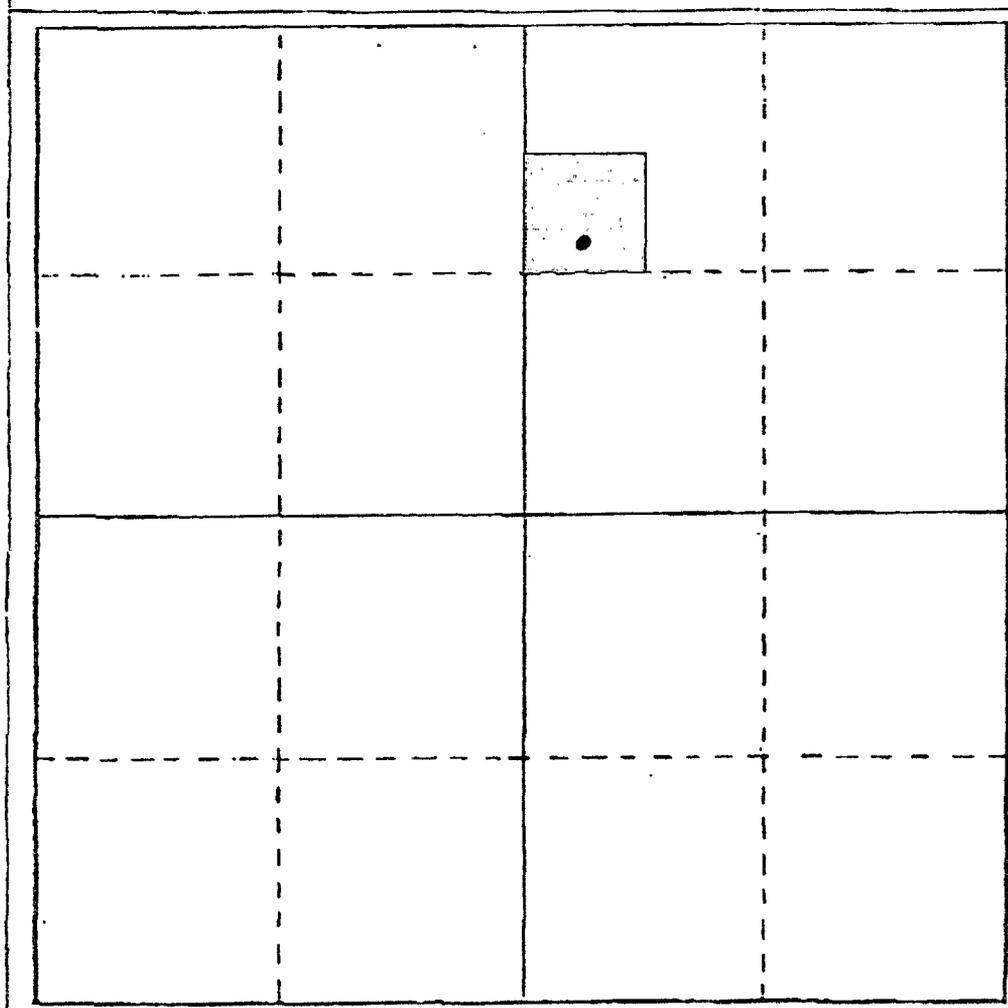
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.		Lease Fed. Geothermal NM-34790		Well No. TG 52-7	
Unit Letter B	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 3100 feet from the West line and 1200 feet from the North line					
Ground Level Elev. 4200	Producing Formation NA	Pool NA		Dedicated Acreage: 10 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?  
  
 Yes    No   If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

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

*Ray A. Cunningham*

Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

Date  
18 June 2003

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer  
and/or Land Surveyor

Certificate No. \_\_\_\_\_

**LIGHTNING DOCK GEOTHERMAL, INC.**  
**224 W. GREENING AVENUE**  
**LAS CRUCES, NM 88005**

April 12, 2003

Roy Johnson  
Oil Conservation Division  
1220 S. St. Francis Drive  
Santa Fe, NM 87205

Dear Mr. ~~Johnson~~ *Roy*:

Enclosed are completed applications for nine (9) geothermal temperature gradient holes to be drilled on our Federal Geothermal Resources Lease NM34790.

All of the holes will be drilled on private surface land owned by Dale Burgett. All of the holes have the identical drilling program as contained in the G-101 applications for each hole.

We expect to drill on only three (3) of these locations, but at this time we do not know which three. We are exploring the thermal regime of the Animas Valley geothermal resources. Information gained as each new hole is drilled will allow us to move closer to final site selection.

Depending on final approval of all required permits, we anticipate that drilling will commence on the first hole on or about May 1, 2003.

Thank you for your assistance.

Sincerely,



Roy A. Cunniff  
President

Encl: a/s

*4/14/03*  
*Roy, as you know these*  
*will take BLM approval.*  
*Good luck*  
*Ry*

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

3. Indicate Type of Lease  
STATE  REC   
5. State Lease No.

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

7. Unit Agreement Name  
none  
8. Form of Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 56-14

3. Address of Operator  
224 West Greening Ave., Las Cruces 88005

10. Field and Prod. or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER J LOCATED 3880 FEET FROM THE North LINE  
AND 2790 FEET FROM THE West LINE OF SEC. 14 TWP. 25 South RGE. 20 West NMPM

11. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Alluvium	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4210 Gr	21A. Kind & Status Plug. Used Federal; in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start April 20, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

*Federal Minerals*

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give abatement prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 3-28-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 3/31/03

CONDITIONS OF APPROVAL, IF ANY:

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

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

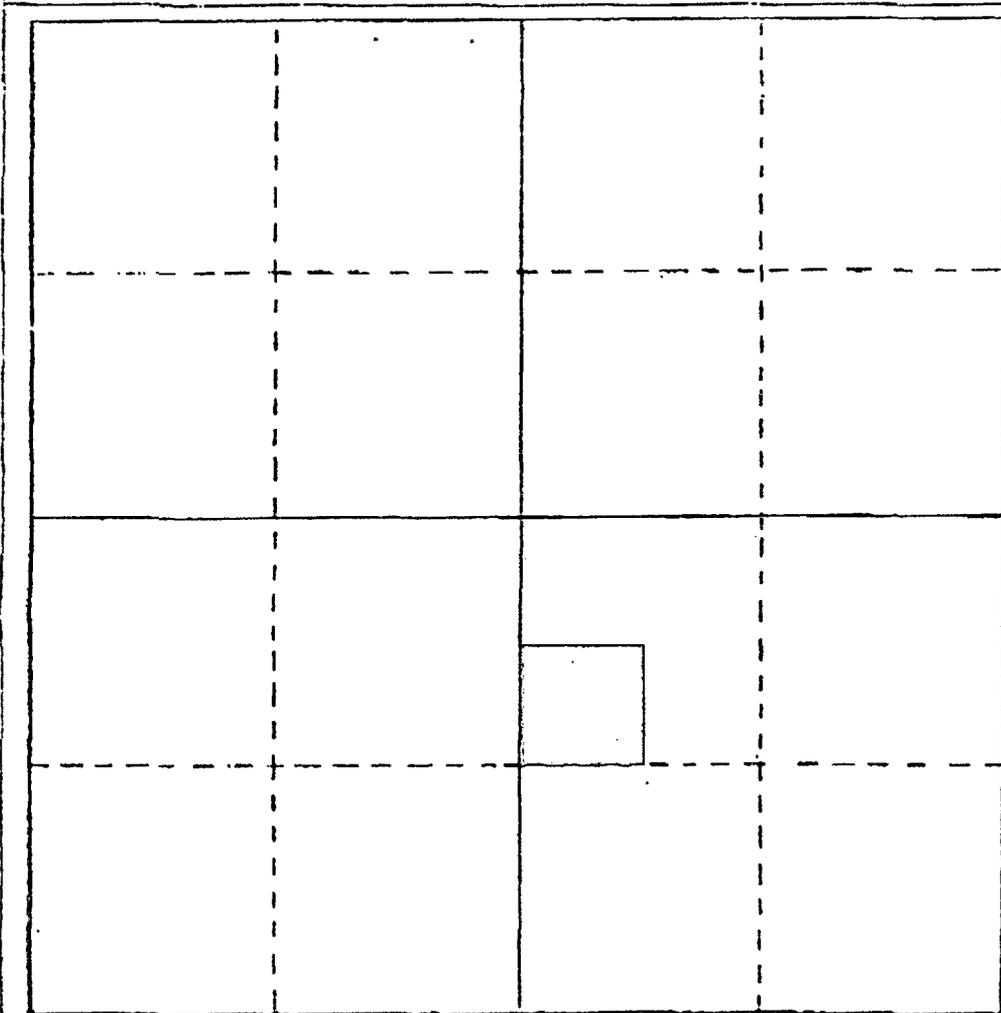
Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease; Burgett Private surface			Well No. TG56-14
Unit Letter J	Section 14	Township 25 South	Range 20 West	County Hidalgo	
Actual Footage Location of Well: 2,790 feet from the West line and 3,880 feet from the North line					
Ground Level Elev. 4210	Producing Formation NA		Pool NA	Dedicated Acreage: 10 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

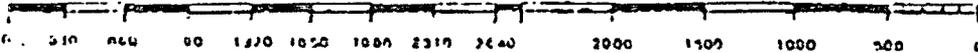
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name *Engelmann*  
 Position President  
 Company Lightning Dock Geothermal, Inc.  
 Date 3-28-03

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed \_\_\_\_\_  
 Registered Professional Engineer and/or Land Surveyor

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

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

7. Unit Agreement Name  
none  
8. Term of Lease Name  
LDG: Fed. Geothermal lease

7. Name of Operator  
Lightning Dock Geothermal, Inc.  
9. Well No.  
TG 78-12

3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005  
10. Field and Prod. or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER P LOCATED 5036 FEET FROM THE North LINE  
AND 4049 FEET FROM THE West LINE OF SEC. 12 TWP. 25 South RGE. 20 West NMPM

15. County  
Hidalgo

19. Proposed Depth  
1000 ft  
19A. Formation  
Tertiary volcanics  
20. Rotary or C.T.  
Rotary

21. Elevations (Show whether DF, RT, etc.)  
4193 Gr  
21A. Kind & Status Plug. Band  
Federal, in place  
21B. Drilling Contractor  
Everett D. Burgett  
22. Approx. Date Work will start  
May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [Signature] Title PRESIDENT Date 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4-14-03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

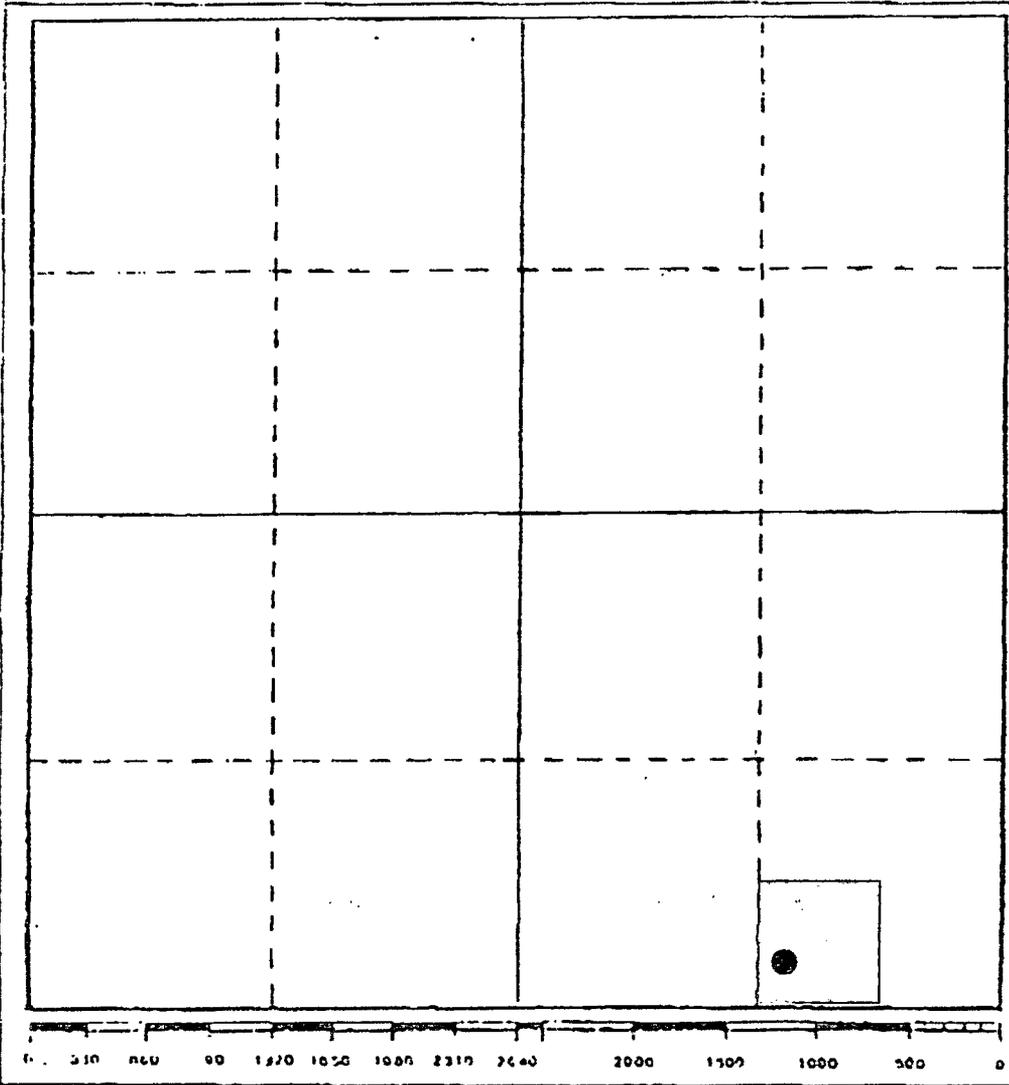
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease: Burgett private surface		Well No. TG 78-12
Unit Letter P	Section 12	Township 25 South	Range 20 West	County Hidalgo
Actual Footage Location of Well: 5036 feet from the North line and 4049 feet from the West line				
Ground Level Elev. 4193	Producing Formation NA	Pool NA	Dedicated Acreage: 10 Acres	

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?  
 Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

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

Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

Date \_\_\_\_\_

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer  
and/or Land Surveyor

Certificate No. \_\_\_\_\_

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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

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

7. Unit Agreement Name  
none  
8. Term or Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.  
3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

9. Well No.  
TG 64-7  
10. Field and Prod. or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER G LOCATED 2228 FEET FROM THE North LINE  
AND 3730 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

11. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Tertiary volcanics	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4207 Gr	21A. Kind & Status Plug, Band Federal, in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [Signature] Title PRESIDENT DATE 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

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

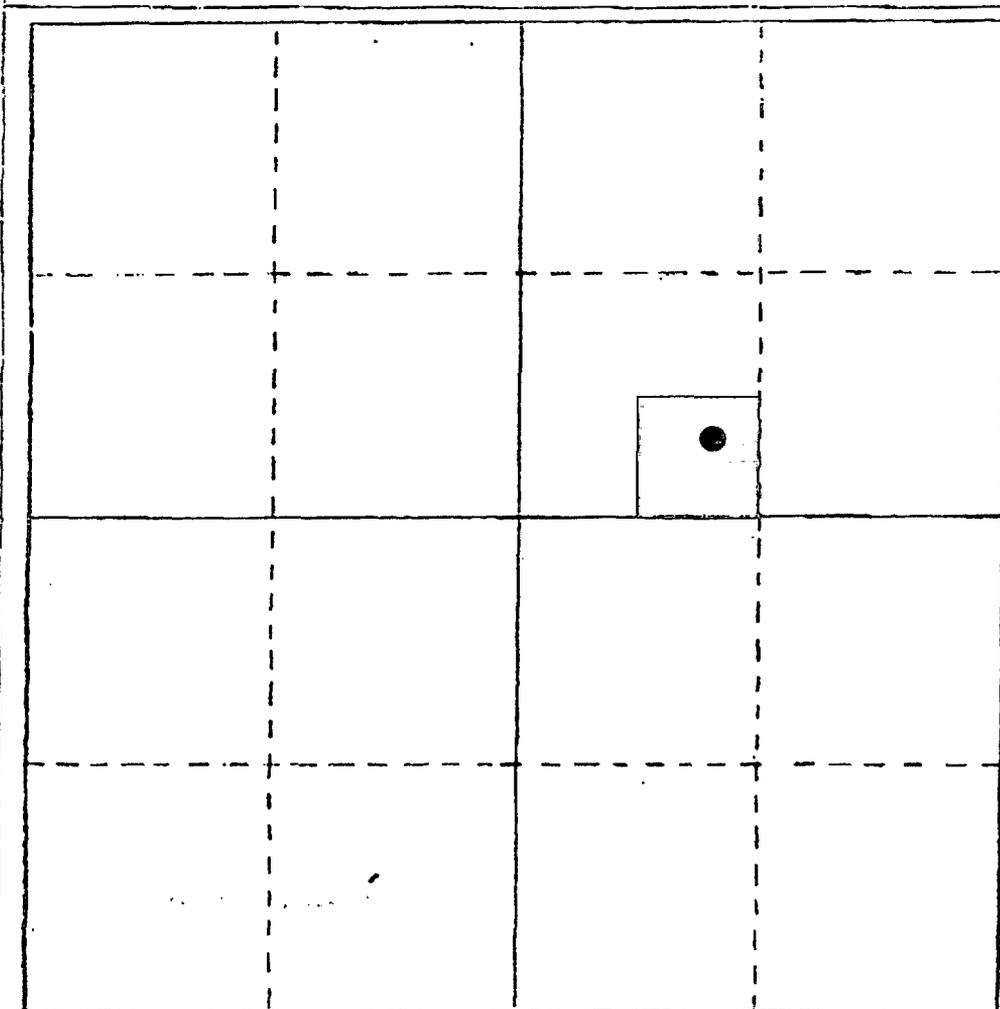
Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease: Burgett private surface			Well No. TG 64-7
Unit Letter G	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 2228 feet from the North line and 3730 feet from the West line					
Ground Level Elev. 4207	Producing Formation NA		Pool NA	Dedicated Acreage: 10 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, force-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

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

---

Name \_\_\_\_\_

---

Position  
President

---

Company  
Lightning Dock Geothermal, Inc.

---

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.*

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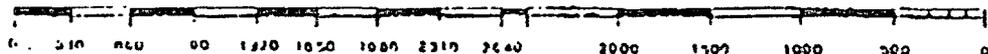
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Registered Professional Engineer  
and/or Land Surveyor \_\_\_\_\_

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Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEC

5. State Lease No.  


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

7. Unit Agreement Name  
none  
8. Farm or Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 53-7

3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

10. Field and Prod. or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER G LOCATED 1601 FEET FROM THE North LINE  
AND 3294 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM



13. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Tertiary volcanics	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4205 Gr	21A. Kind & Status Plug. Bond Federal, in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM; If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] TITLE PRESIDENT DATE 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

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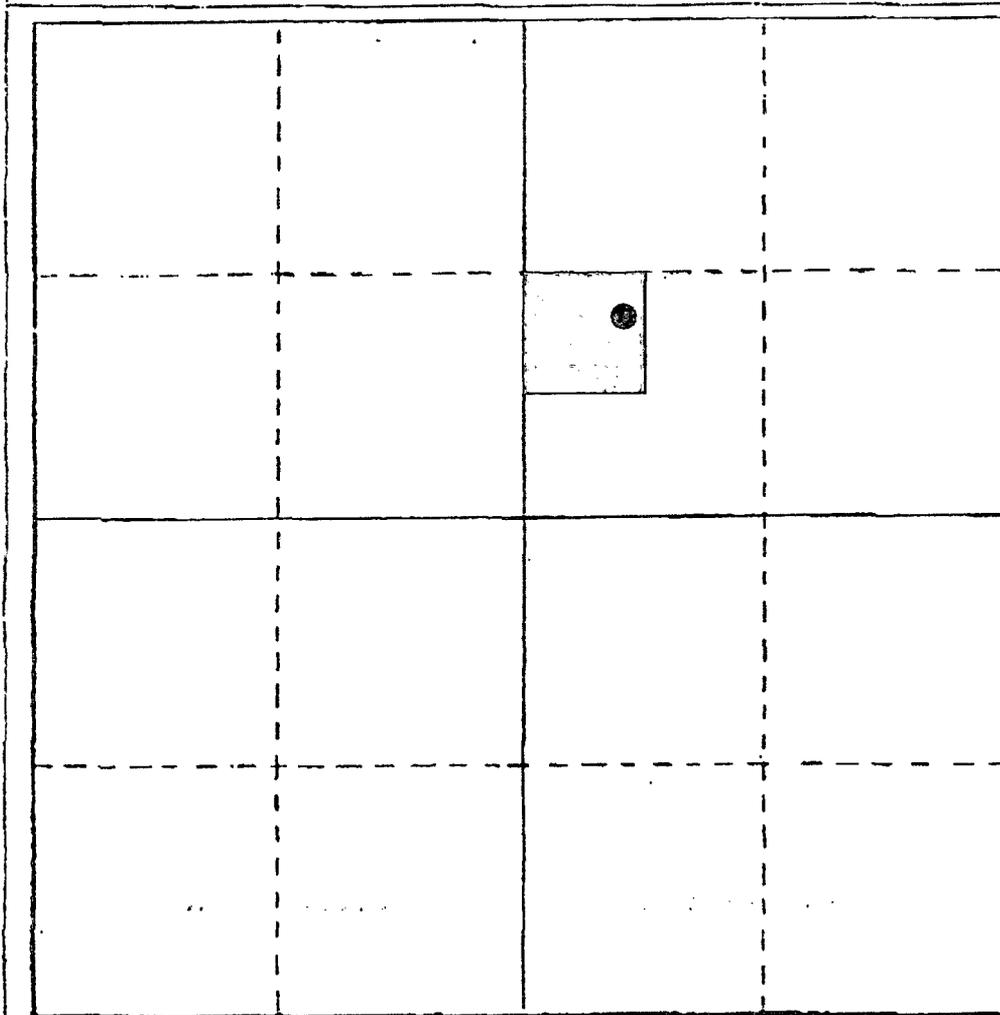
Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease; Burgett private surface			Well No. TG 53-7
Unit Letter G	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 1601 feet from the North line and 3294 feet from the West line					
Ground Level Elev. 4205	Producing Formation NA		Pool NA	Dedicated Acreage: 10 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).
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Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

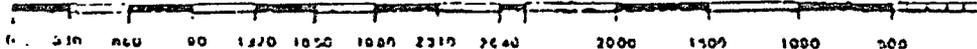
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Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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OR PLUG BACK--GEOTHERMAL RESOURCES WELL

3. Indicate Type of Lease  
STATE  PEC   
5. State Lease No.

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

7. Unit Agreement Name  
none  
8. Name of Lease Name  
LDG; Fed. Geothermal lease

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Lightning Dock Geothermal, Inc.

9. Well No.  
TG 57-7

3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

10. Field and Pool, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER O LOCATED 4137 FEET FROM THE North LINE  
AND 3238 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

11. County  
Hidalgo



19. Proposed Depth 1000 ft	19A. Formation Tertiary volcanics	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4205 Gr	21A. Kind & Status Plug, Band Federal, in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
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9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

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IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.  
Signed [Signature] Title PRESIDENT Date 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03  
CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

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

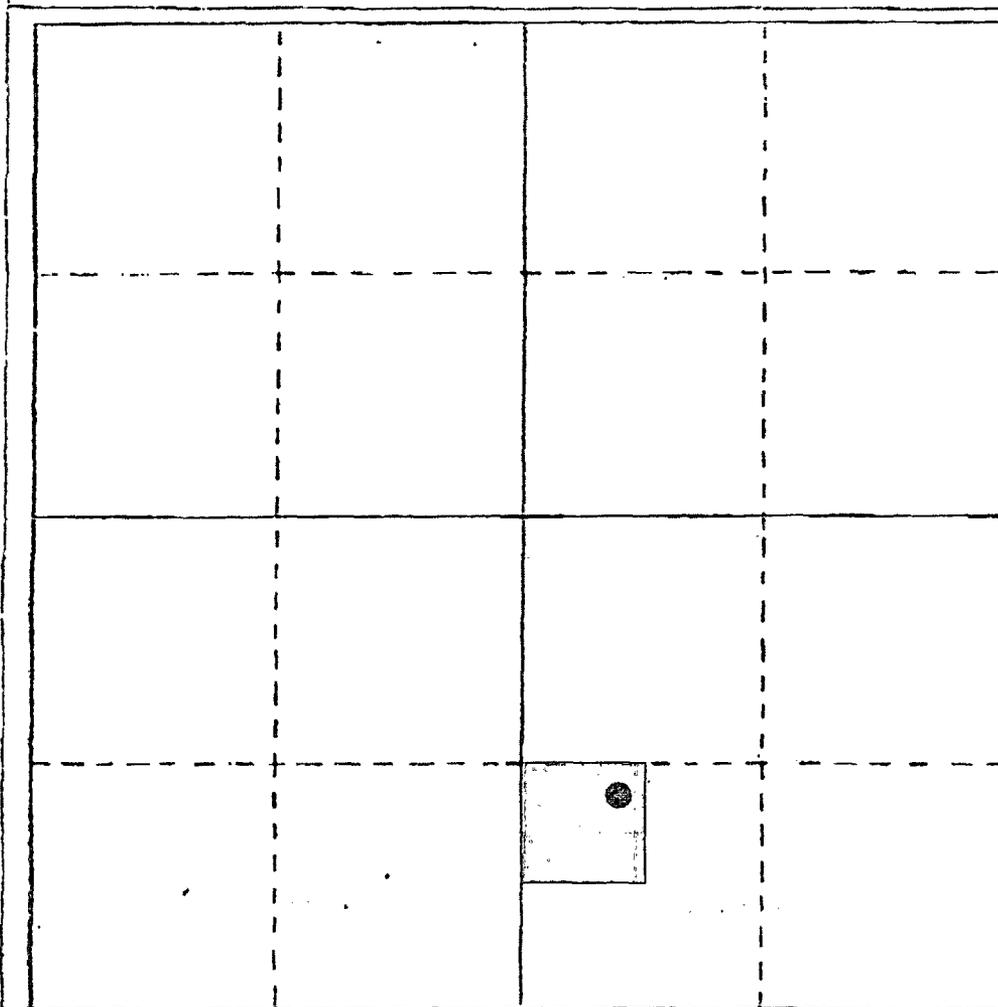
Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease: Burgett private surface			Well No. TG 57-7
Unit Letter O	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 4137 feet from the North line and 3238 feet from the West line					
Ground Level Elev. 4205	Producing Formation NA		Pool NA		Dedicated Acreage: 10 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

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

Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

Date \_\_\_\_\_

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

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

7. Unit Agreement Name  
none  
8. Term or Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.  
3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005  
4. Location of Well UNIT LETTER B LOCATED 1237 FEET FROM THE North LINE  
AND 2736 FEET FROM THE West LINE OF SEC. 18 TWP. 25 South RGE. 19 West NMPM

9. Well No.  
TG 52-18  
10. Field and Pool, or Wildcat  
Lightning Dock KGRA

12. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Tertiary volcanics	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4209 Gr	21A. Kind & Status Plug. Bond Federal, in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM; If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

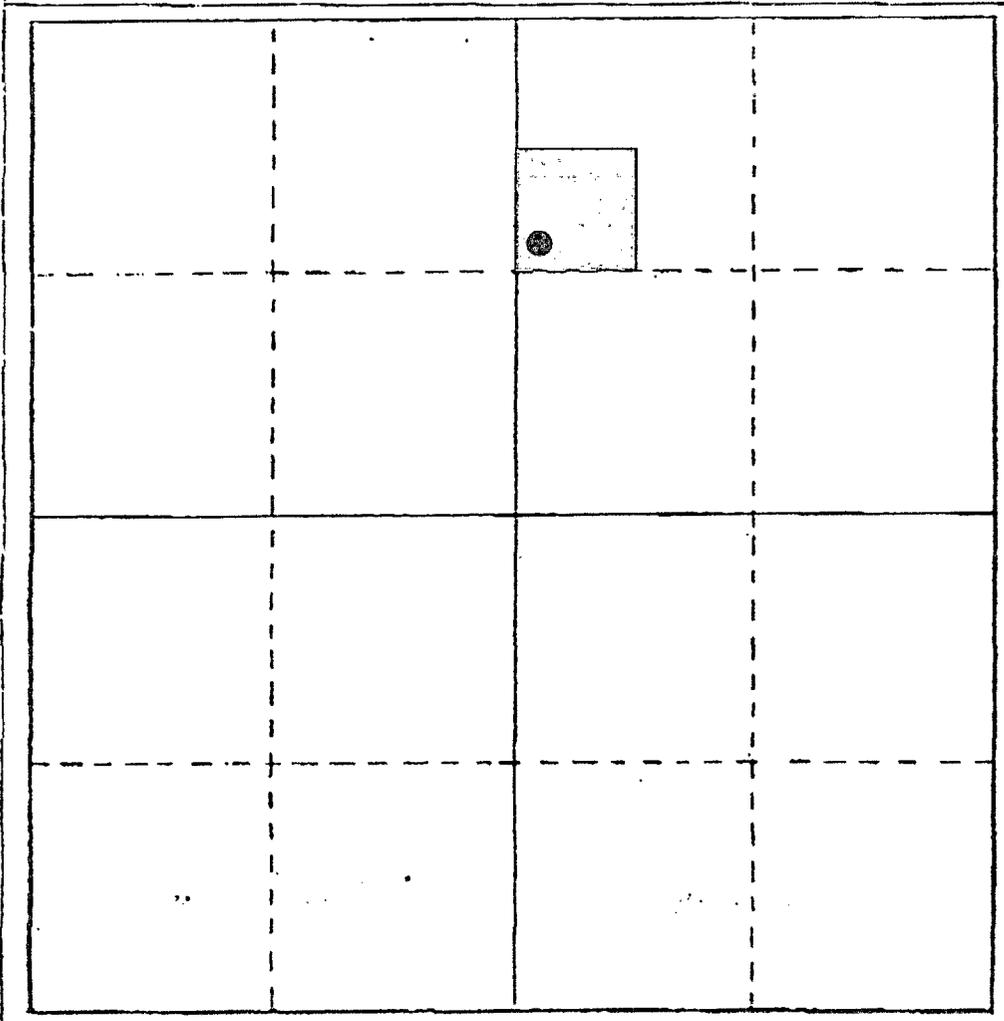
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease; Burgett private surface			Well No. TG 52-18
Unit Letter B	Section 18	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 1237 feet from the North line and 2736 feet from the West line					
Ground Level Elev. 4209	Producing Formation NA	Pool NA			Dedicated Acreage: 10 Acres

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?  
 Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

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Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

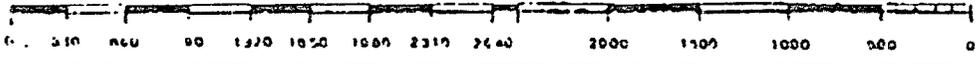
Date \_\_\_\_\_

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Date Surveyed \_\_\_\_\_

Registered Professional Engineer  
and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

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

7. Unit Agreement Name  
NONE  
8. Name of Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.  
3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

9. Well No.  
TG 44-7  
10. Field and Foot, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER F LOCATED 2595 FEET FROM THE North LINE  
AND 2431 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

11. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Tertiary volcanics	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4198 Gr	21A. Kind & Status Plug. Used Federal, in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT DATE 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

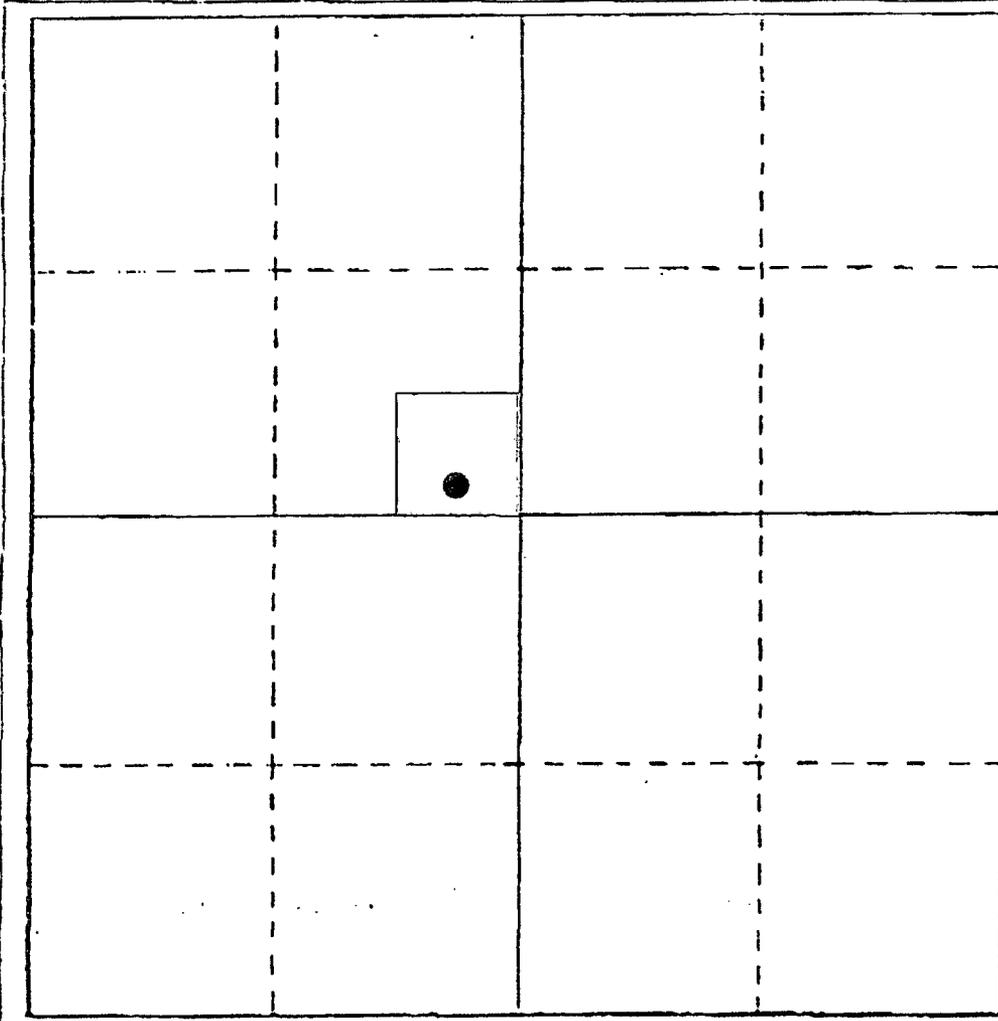
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease; Burgett private surface			Well No. TG 44-7
Unit Letter F	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 2595 feet from the North line and 2431 feet from the West line					
Ground Level Elev. 4198	Producing Formation NA		Pool NA		Dedicated Acreage: 10 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?  
  
 Yes    No   If answer is "yes," type of consolidation \_\_\_\_\_

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

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**CERTIFICATION**

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

---

Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

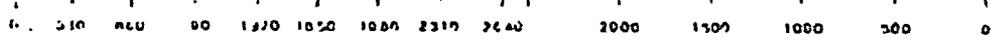
Date \_\_\_\_\_

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Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

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

7. Unit Agreement Name  
none  
8. Term of Lease Name  
LDG; Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 42-18

3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

10. Field and Pool, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER C LOCATED 1227 FEET FROM THE North LINE  
AND 2044 FEET FROM THE West LINE OF SEC. 18 TWP. 25 South RGE. 19 West NMPM

12. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Tertiary volcanics	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4200 Gr	21A. Kind & Status Plug. Band Federal, in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

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Signed [Signature] Title PRESIDENT DATE 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

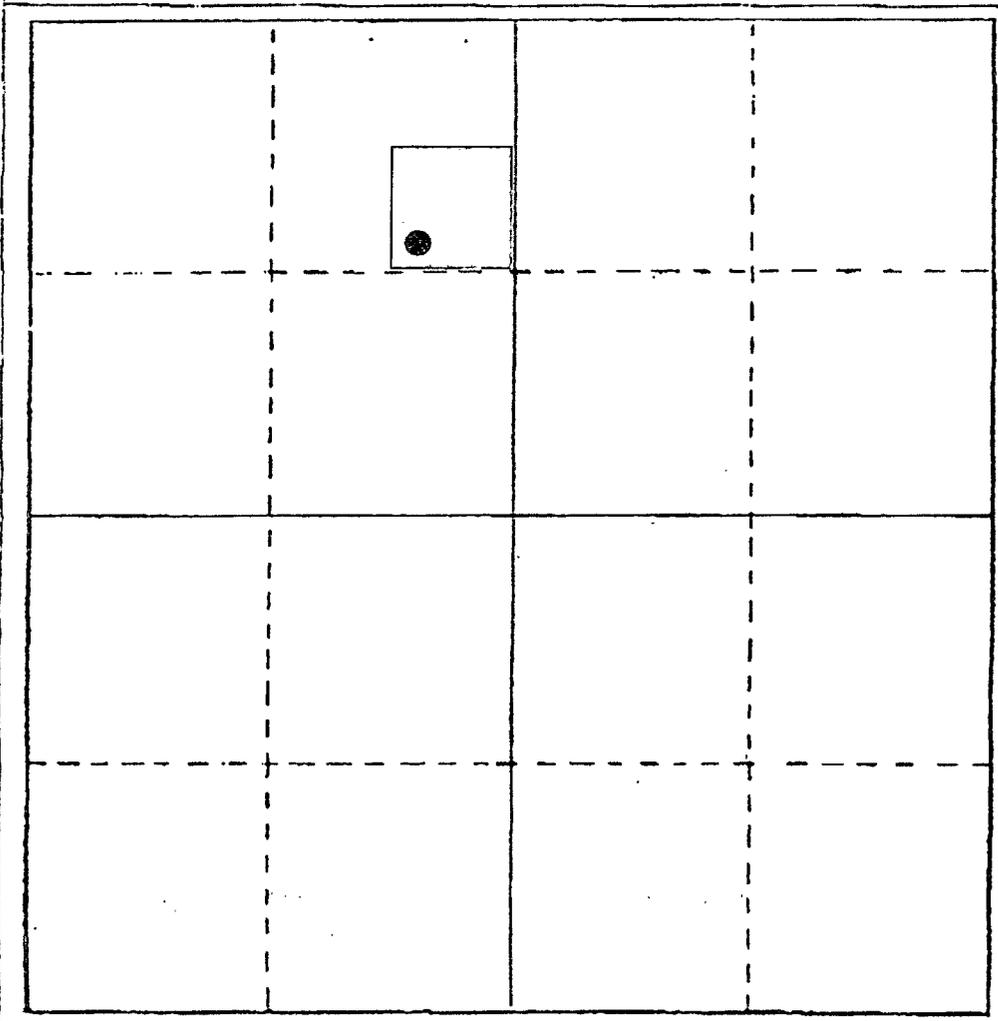
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.			Lease LDG Federal lease; Burgett private surface		Well No. TG 42-18
Unit Letter C	Section 18	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 1227 feet from the North line and 2044 feet from the West line					
Ground Level Elev. 4200	Producing Formation NA		Pool NA	Dedicated Acreage: 10 Acres	

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
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Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

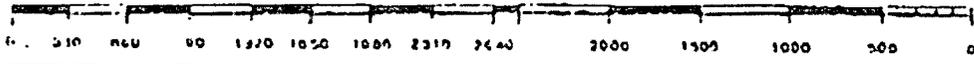
Date \_\_\_\_\_

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Date Surveyed \_\_\_\_\_

Registered Professional Engineer  
and/or Land Surveyor

Certificate No. \_\_\_\_\_



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

5. Indicate Type of Lease  
STATE  FEC   
5.1 State Lease No.

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

7. Unit Agreement Name  
none  
8. Term or Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 41-13

3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

10. Field and Prod. or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER C LOCATED 568 FEET FROM THE North LINE  
AND 2536 FEET FROM THE West LINE OF SEC. 13 TWP. 25 South RGE. 20 West NMPM

12. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Alluvium	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4196 Gr	21A. Kind & Status Plug. Used Federal: in place	21B. Drilling Contractor Everett D. Burgett
		22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM; If original is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [Signature] TITLE PRESIDENT DATE 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

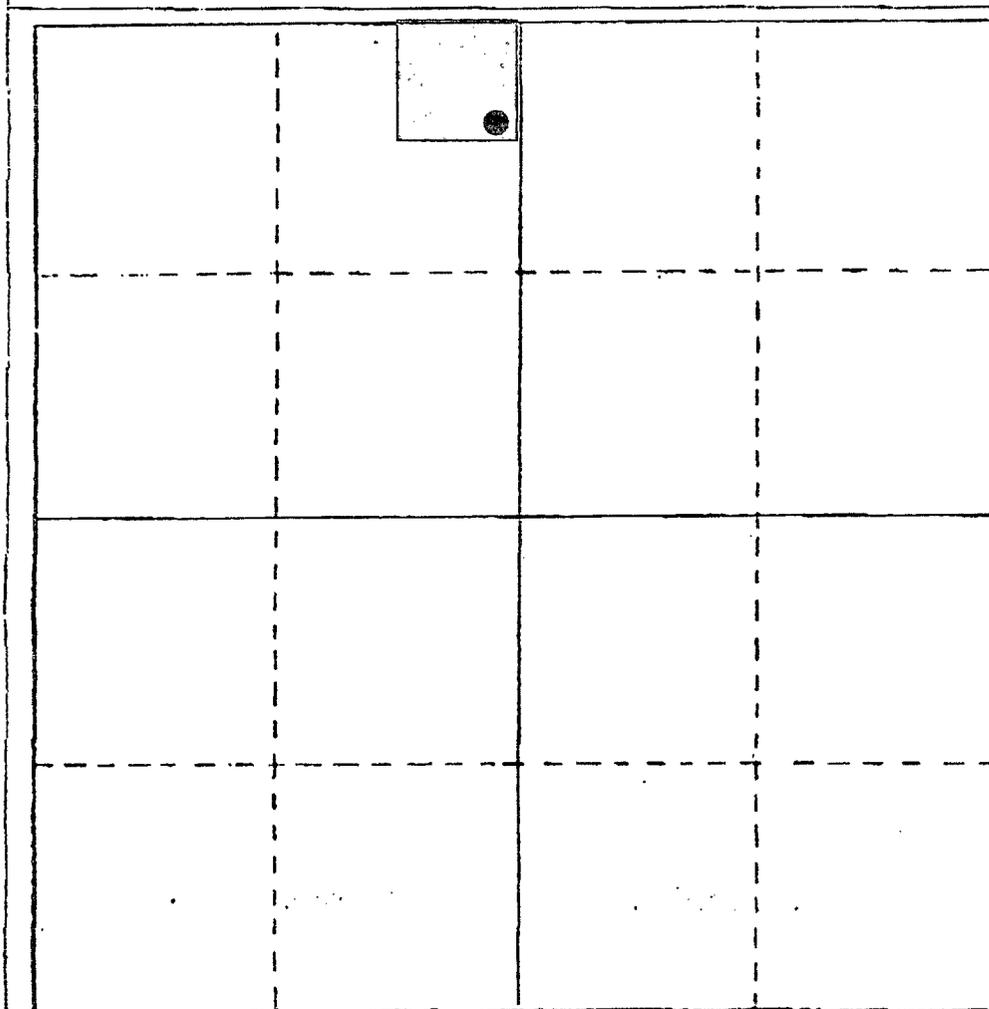
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease; Burgett private surface			Well No. TG 41-13
Unit Letter C	Section 13	Township 25 South	Range 20 West	County Hidalgo	
Actual Footage Location of Well: 568 feet from the North line and 2536 feet from the West line					
Ground Level Elev. 4196	Producing Formation NA		Pool NA	Dedicated Acreage: 10 Acres	

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communization, unitization, force-pooling, etc?  
 Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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**CERTIFICATION**

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Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

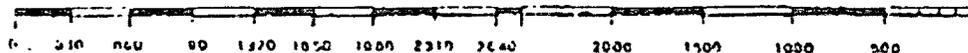
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Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
State Lease No.

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

7. Unit Agreement Name  
none  
8. Farm or Lease Name  
LDG: Fed. Geothermal lease

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 36-7

3. Address of Operator  
224 West Greening Ave., Las Cruces, NM 88005

10. Field and Pool, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER K LOCATED 3744 FEET FROM THE North LINE  
AND 1568 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

12. County  
Hidalgo

19. Proposed Depth 1000 ft  
19A. Formation Tertiary volcanics  
20. Rotary or C.T. Rotary

21. Elevations (Show whether DF, RT, etc.) 4195 Gr  
21A. Kind & Status Plug. Band Federal, in place  
21B. Drilling Contractor Everett D. Burgett  
22. Approx. Date Work will start May 1, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
16"	10-3/4"	38.88	20 ft	15	ground surf.
9-7/8"	7-5/8"	26.40	200 ft	35	ground surf.

Hole will be completed by inserting water-filled, 2-3/8-inch upset steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for a period of up to one year after completion, and then will be plugged and abandoned IAW Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 4-12-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 4/14/03

CONDITIONS OF APPROVAL, IF ANY:

Federal

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

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

Operator Lightning Dock Geothermal, Inc.		Lease LDG Federal lease; Burgett private surface			Well No. TG 36-7
Unit Letter K	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 3744 feet from the North line and 1568 feet from the West line					
Ground Level Elev. 4195	Producing Formation NA	Pool NA			Dedicated Acreage: 10 Acres

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
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- If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?  
  
 Yes    No   If answer is "yes," type of consolidation \_\_\_\_\_

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Name \_\_\_\_\_

Position  
President

Company  
Lightning Dock Geothermal, Inc.

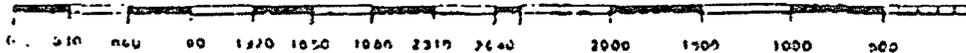
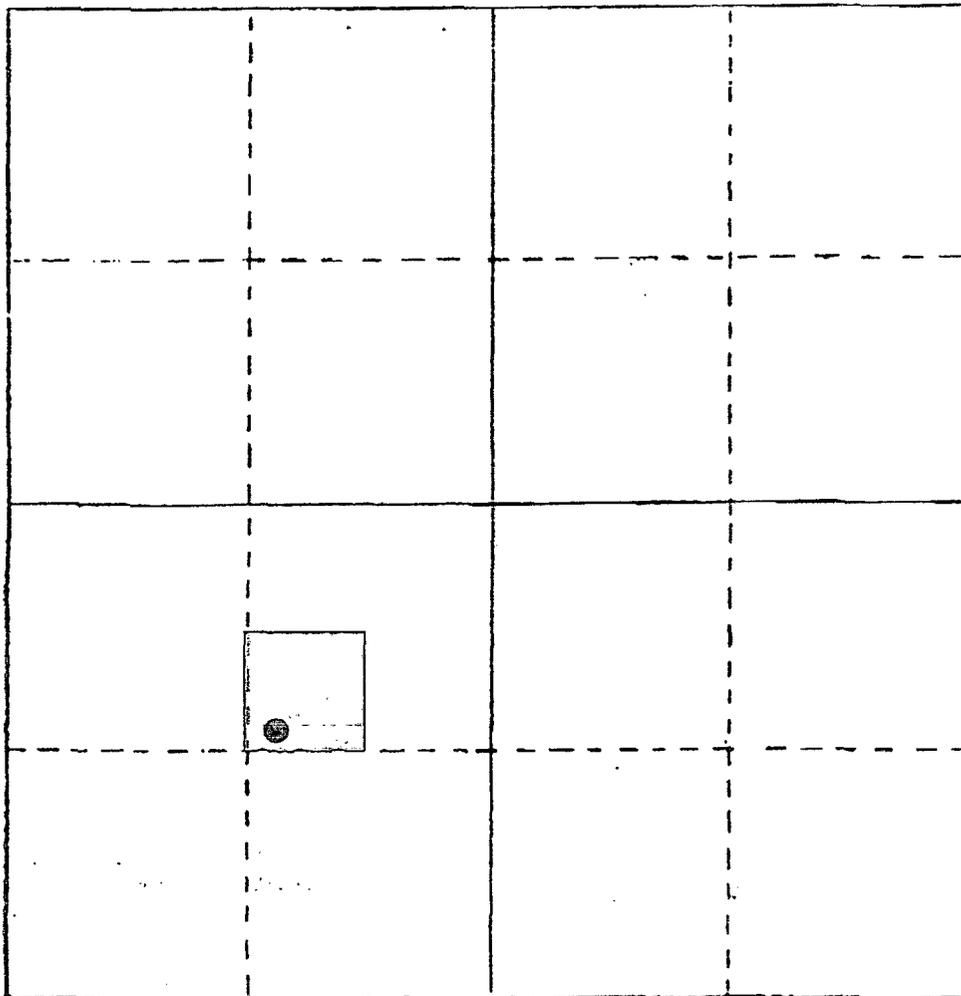
Date \_\_\_\_\_

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Date Surveyed \_\_\_\_\_

Registered Professional Engineer  
and/or Land Surveyor

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
3. State Lease No.

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

7. Unit Agreement Name  
None  
8. Form of Lease Name  
Fed. NM-34790

2. Name of Operator  
Lightning Dock Geothermal, Inc.  
3. Address of Operator  
224 West Greening Ave.  
4. Location of Well UNIT LETTER B LOCATED 1200 FEET FROM THE North LINE  
AND 3100 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NM304

9. Well No.  
TG 52-7  
10. Field and Pool, or Wildcat  
Lightning Dock KGRA

12. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Alluvium	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4200 Gr	21A. Kind & Status Plug Back Federal; in place	21B. Drilling Contractor Driver Drilling, Sierra Vista, AZ
		22. Approx Date Work will start Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP ground surf.
9-5/8"	6-5/8"	17	200 ft	50	

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth  
This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed [Signature] Title PRESIDENT Date 1-31-03

APPROVED BY [Signature] TITLE DISTRICT SUPERVISOR DATE 2/6/03

CONDITIONS OF APPROVAL, IF ANY:

\* As these are Federal leases/NM1000 authority pertains only to surface restoration.

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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

1a. Type of Work: Drill  Deepen  Plug Back   
 1b. Type of Well: Geothermal Producer  Temp Observation   
 Low-Temp Thermal  Injection/Disposal   
 7. Unit Agreement Name: none  
 8. Name of Lease: Fed. NM-34790  
 9. Well No.: TG 12-7  
 10. Field and Pool or Wildcat: Lightning Dock KGRA  
 12. County: Hidalgo  
 19. Proposed Depth: 1000 ft  
 19A. Formation: Alluvium  
 20. Rotary or C.T.: Rotary  
 21. Elevations (Show whether DF, RT, etc.): 4200 Gr  
 21A. Kind & Status Plug Bond: Federal, in place  
 21B. Drilling Contractor: Driver Drilling, Sierra Vista, AZ  
 22. Approx Date Work will start: Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
9-5/8"	6-5/8"	17	200 ft	50	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

ON ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If program is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed: [Signature] Title: PRESIDENT Date: 1-31-03

APPROVED BY: [Signature] TITLE: DISTRICT SUPERVISOR DATE: 2/6/03

CONDITIONS OF APPROVAL, IF ANY.

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Operator	
Land Office	

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

3. Indicate Type of Lease  
STATE  REC   
4. State Lease No.

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

7. Unit Agreement Name  
none  
8. Farm or Lease Name  
Fed. NM-34790

2. Name of Operator  
Lightning Dock Geothermal, Inc.  
3. Address of Operator  
224 West Greening Ave.

9. Well No.  
TG 12-7  
10. Field and Pool, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER D LOCATED 1150 FEET FROM THE North LINE  
AND 500 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

11. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Alluvium	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4190 Gr	21A. Kind & Status Plug. Bond Federal: in place	21B. Drilling Contractor Driver Drilling, Sierra Vista, AZ
		22. Approx. Date Work will start Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 1-29-03  
(This space for State Use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY:

GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

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

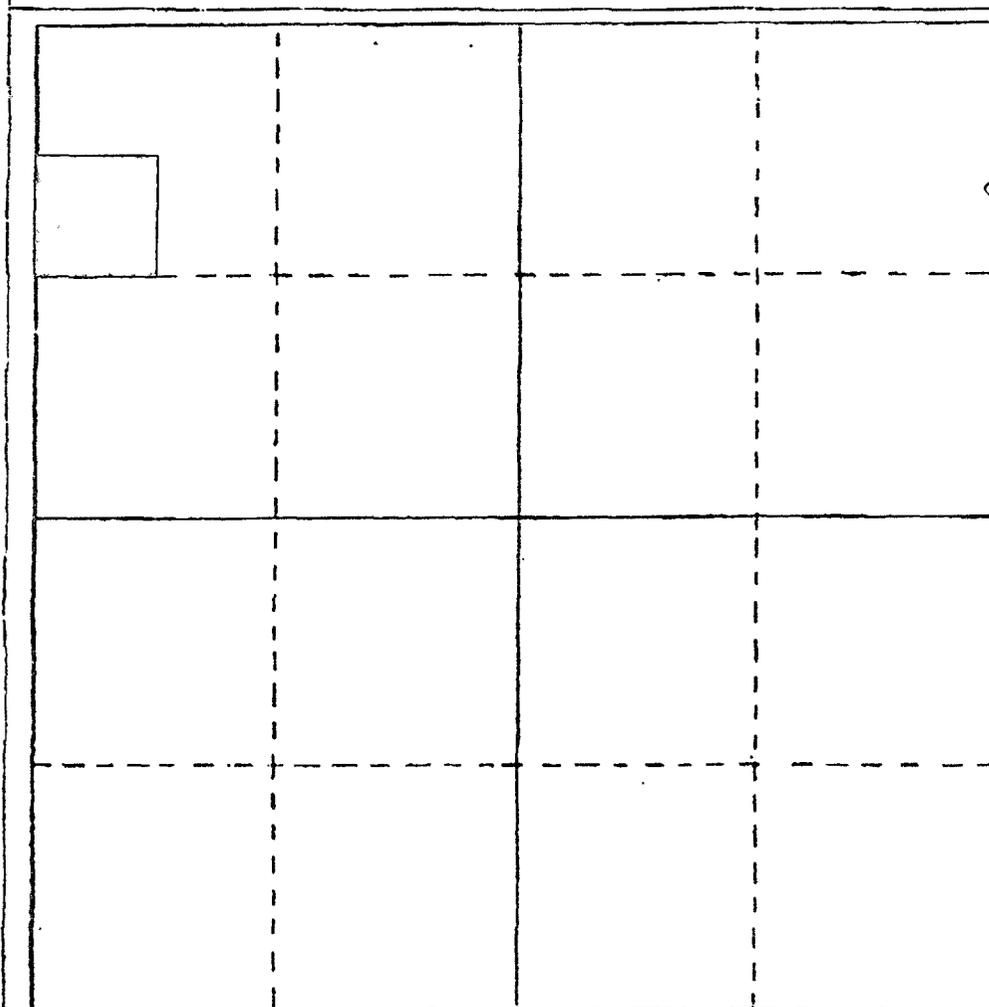
Operator Lightning Dock Geothermal, Inc.		Lease Fed. Geothermal NM-34790			Well No. TG 12-7
Unit Letter D	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 500 feet from the West line and 1150 feet from the North line					
Ground Level Elev. 4190	Producing Formation NA	Pool NA			Dedicated Acreage: 10 Acres

- Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
- If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
- If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



CERTIFICATION

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

*Roy A. Curwitz*  
Name  
ROY A. CURWITZ

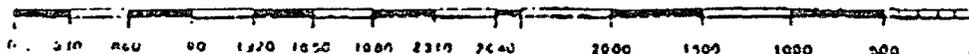
Position  
President  
Company  
Lightning Dock Geothermal, Inc.

Date  
1-29-03

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed  
Registered Professional Engineer and/or Land Surveyor

Certificate No.



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

3. Indicate Type of Lease  
STATE  FEE   
4. State Lease No.

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

7. Unit Agreement Name: none  
8. Name of Lease: Fed. NM-34790

2. Name of Operator: Lightning Dock Geothermal, Inc.

9. Well No.: TG 12-7

3. Address of Operator: 224 West Greening Ave.

10. Name and Foot. or Width of: Lightning Dock KGRA

4. Location of Well: UNIT LETTER D LOCATED 1150 FEET FROM THE North LINE  
AND 500 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NEARW

12. County: Hidalgo

19. Proposed Depth: 1000 ft	19A. Formation: Alluvium	20. Rotary or C.T.: Rotary
21. Elevations (Show whether OF, RT, etc.): 4190 Gr	21A. Kind & Status Plug Bond: Federal; in place	21B. Drilling Contractor: Driver Drilling, Sierra Vista, AZ
		22. Approx. Date Work will start: Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed: [Signature] Title: PRESIDENT Date: 1-29-03  
(This space for State Use)

APPROVED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

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

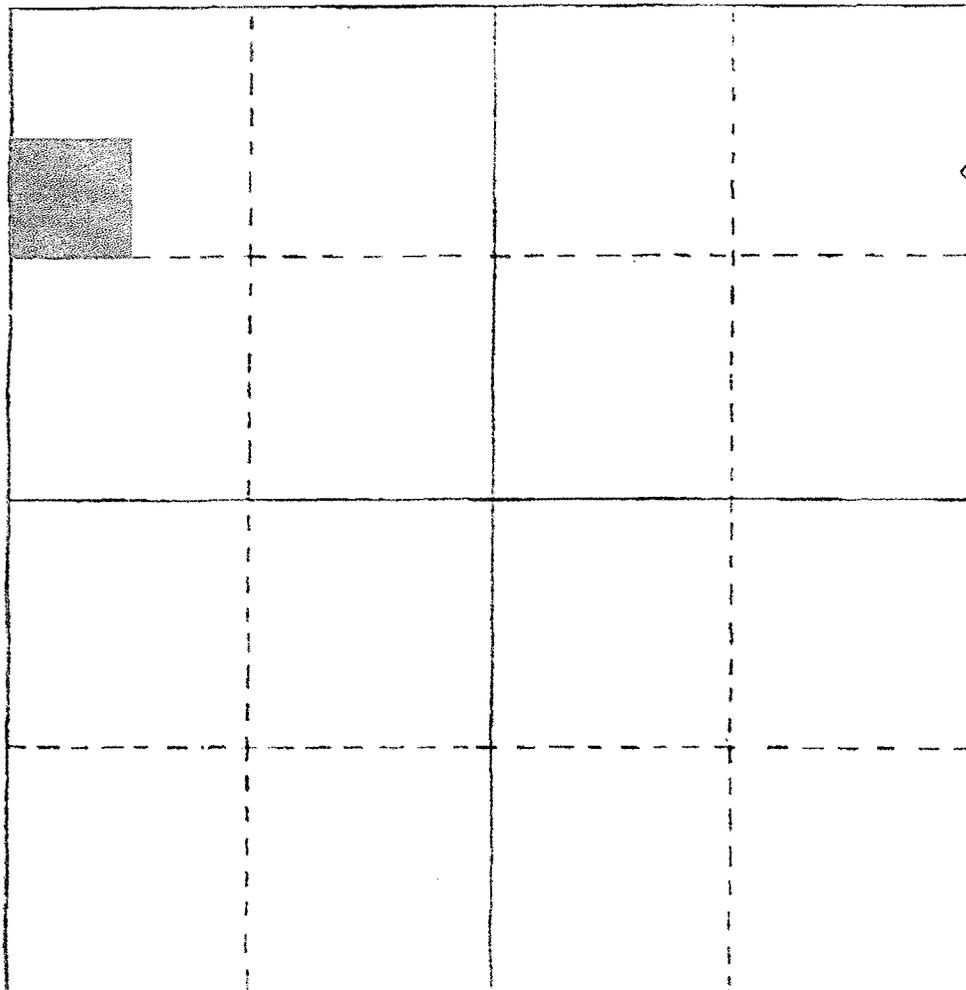
Operator Lightning Dock Geothermal, Inc.		Lease Fed. Geothermal NM-34790			Well No. TG 12-7
Unit Letter D	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 500 feet from the West line and 1150 feet from the North line					
Ground Level Elev. 4190	Producing Formation NA	Pool NA	Dedicated Acreage: 10 Acres		

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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 Division.



CERTIFICATION

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

*Roy A. Curwitz*  
Name  
ROY A. CURWITZ

Position  
President

Company  
Lightning Dock Geothermal, Inc.

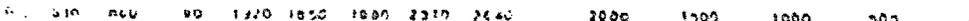
Date  
1-29-03

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.



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

3. Indicate Type of Lease  
STATE  FEDERAL   
4. State Lease No.

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

7. Unit Agreement Name  
none  
8. Farm or Lease Name  
Fed. NM-34790

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 12-7

3. Address of Operator  
224 West Greening Ave.

10. Field and Pool, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER D LOCATED 1150 FEET FROM THE North LINE  
AND 500 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NEARBY

12. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Alluvium	20. Rotary or C.T. Rotary
21. Elevations (Show whether DF, RT, etc.) 4190 Gr	21A. Kind & Status Plug Bond Federal; in place	21B. Drilling Contractor Driver Drilling, Sierra Vista, AZ
		22. Approx. Date Work will start Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present production zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 1-29-03  
(This space for State Use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
CONDITIONS OF APPROVAL, IF ANY, \_\_\_\_\_

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

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

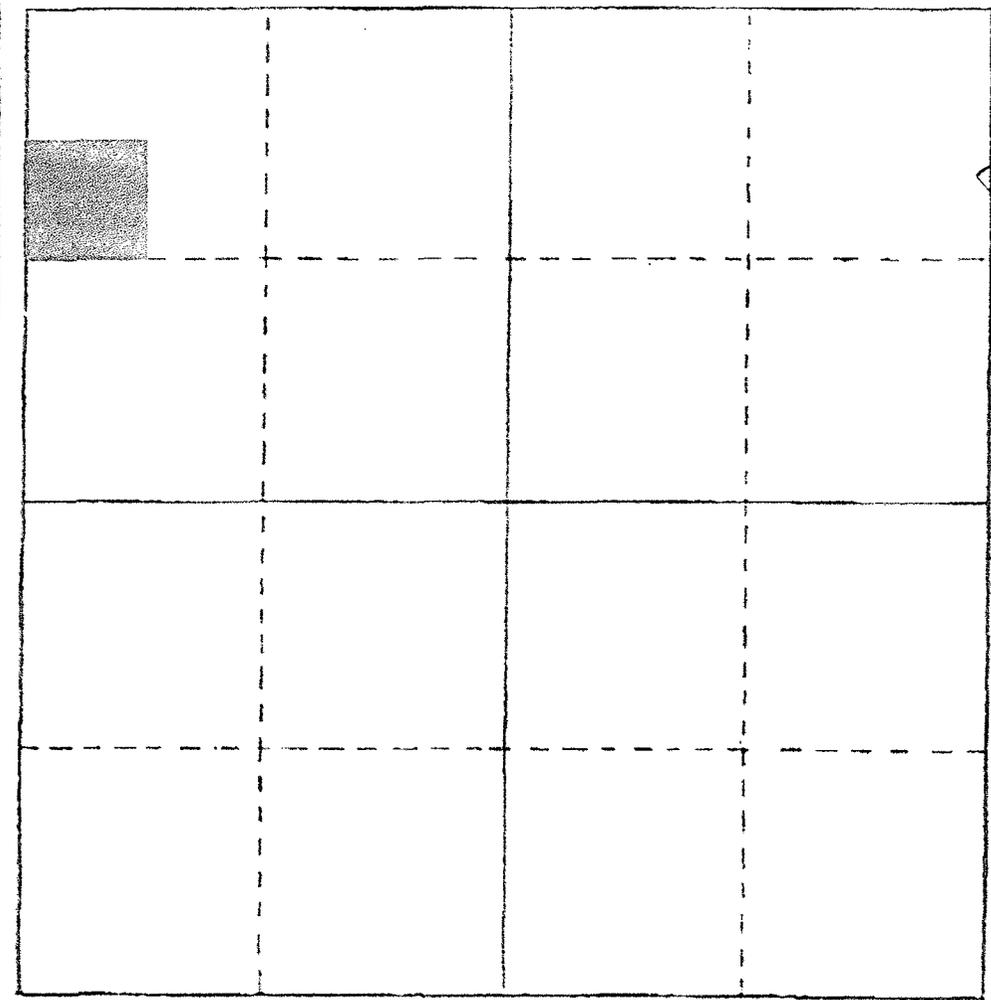
Operator Lightning Dock Geothermal, Inc.		Lease Fed. Geothermal NM-34790			Well No. TG 12-7
Unit Letter D	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 500 feet from the West line and 1150 feet from the North line					
Ground Level Dev. 4190	Producing Formation NA		Pool NA	Dedicated Acreage: 10 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?
 

Yes    No   If answer is "yes," type of consolidation \_\_\_\_\_

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

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CERTIFICATION

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

*Roy A. Curwitz*

Name  
**ROY A. CURWITZ**

Position  
President

Company  
Lightning Dock Geothermal, Inc.

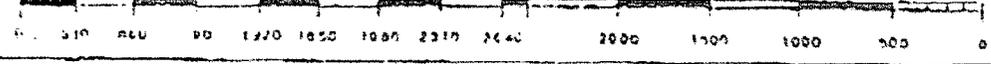
Date  
**1-29-03**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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

3. Indicate Type of Lease  
STATE  FEDERAL   
7. State Lease No.

1a. Type of Work Drill  Deepen  Plug Back   
 b. Type of Well Geothermal Producer  Temp Observation   
 Low-Temp Thermal  Injection/Disposal   
 2. Name of Operator Lightning Dock Geothermal, Inc.  
 3. Address of Operator 224 West Greening Ave.  
 4. Location of Well UNIT LETTER D LOCATED 1150 FEET FROM THE North LINE  
 AND 500 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NEMPM

7. Unit Agreement Name none  
 8. Farm or Lease Name Fed. NM-34790  
 9. Well No. TG 12-7  
 10. Field and Prod. or Wildcat Lightning Dock KGRA

11. County Hidalgo

19. Proposed Depth 1000 ft  
 19A. Formation Alluvium  
 20. Rotary or C.T. Rotary  
 21. Elevations (Show whether OF, RT, etc.) 4190 Gr  
 21A. Kind & Status Plug Bond Federal; in place  
 21B. Drilling Contractor Driver Drilling, Sierra Vista, AZ  
 22. Approx. Date Work will start Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 1-29-03  
 (This space for State Use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

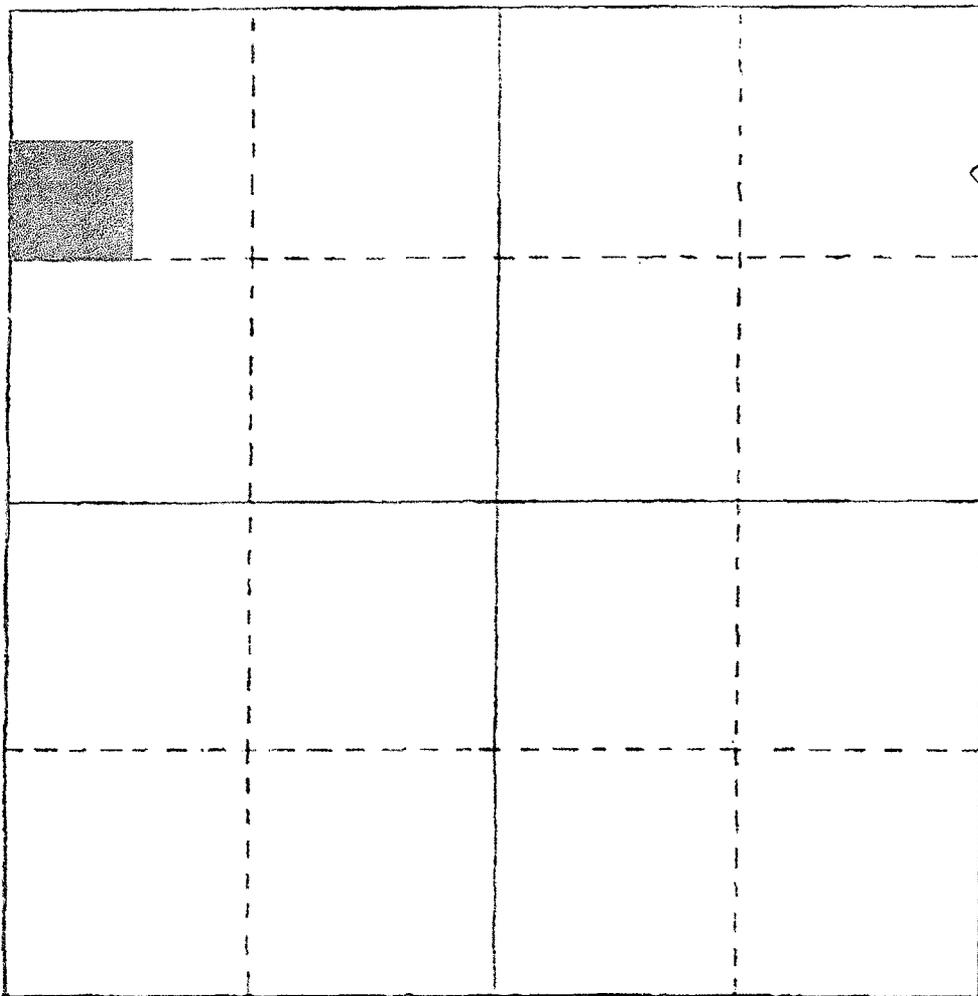
All distances must be from the outer boundaries of the Section.

Operator Lightning Dock Geothermal, Inc.		Lease Fed. Geothermal NM-34790		Well No. TG 12-7	
Unit Letter D	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 500 feet from the West line and 1150 feet from the North line					
Ground Level Elev. +190	Producing Formation NA		Pool NA	Dedicated Acreage: 10 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
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CERTIFICATION

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

*Roy A. Curwitz*

Name  
ROY A. CURWITZ

Position  
President

Company  
Lightning Dock Geothermal, Inc.

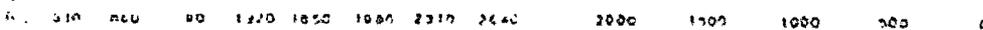
Date  
1-29-03

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Registered Professional Engineer and/or Land Surveyor

Certificate No.



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

3. Indicate Type of Lease  
STATE  FEDERAL   
5. State Lease No.

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

7. Unit Agreement Name  
none

8. Perm or Lease Name  
Fed. NM-34790

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 52-7

3. Address of Operator  
224 West Greening Ave.

10. Field and Pool, or Wildcat  
Lightning Dock KGRA

4. Location of Well    UNIT LETTER B LOCATED 1200 FEET FROM THE North LINE  
 AND 3100 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

11. County  
Hidalgo

19. Proposed Depth    1000 ft    19A. Formation    Alluvium    20. Rotary or C.T.    Rotary

21. Elevations (Show whether DF, RT, etc.)    4200 Gr    21A. Kind & Status Plug. Band    Federal: in place    21B. Drilling Contractor    Driver Drilling, Sierra Vista, AZ    22. Approx. Date Work will start    Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth  
 This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged  
 and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

signed [Signature] Title PRESIDENT Date 1-29-03  
 (This space for State Use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
 CONDITIONS OF APPROVAL, IF ANY:

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

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

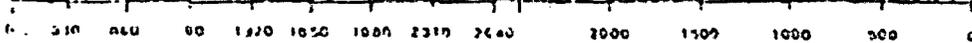
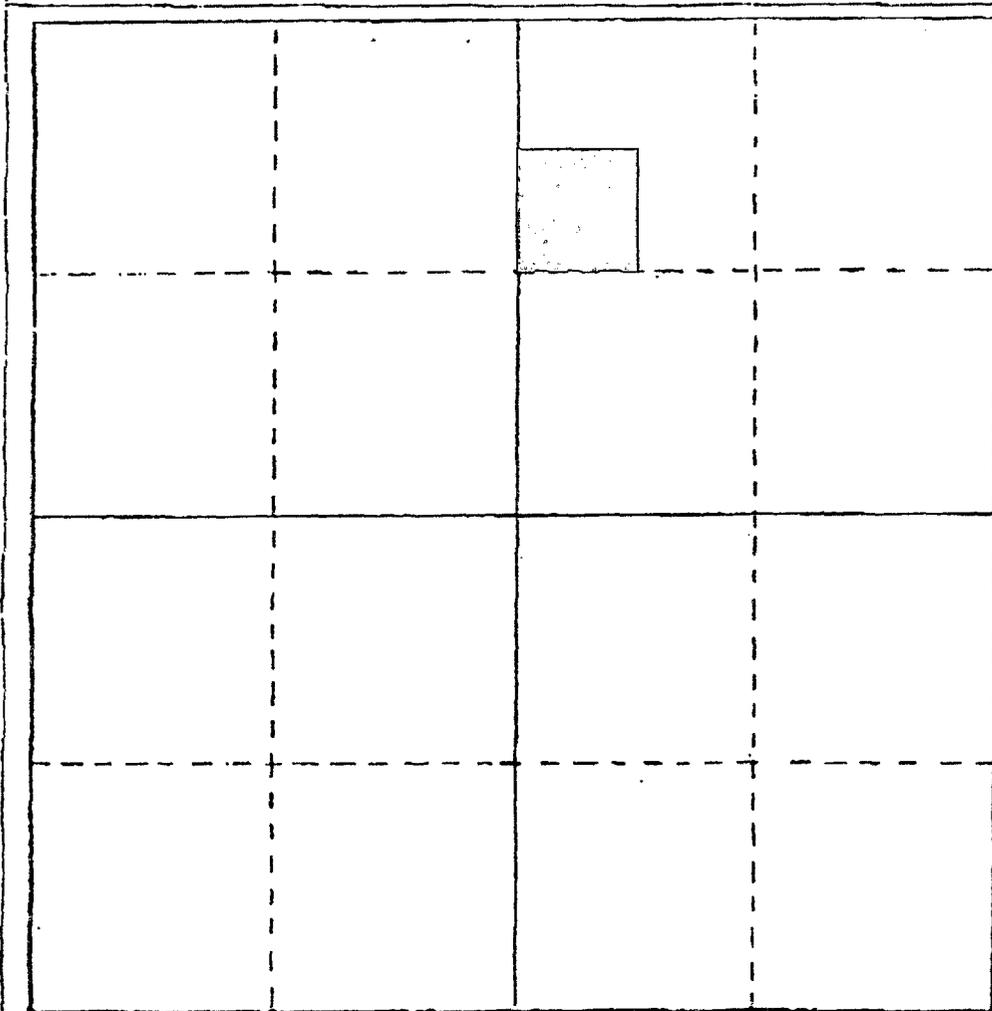
Operator Lightning Dock Geothermal, Inc.		Lease Fed. Geothermal NM-34790			Well No. TG 52-7
Unit Letter B	Section 7	Township 25 South	Range 19 West	County Hidalgo	
Actual Footage Location of Well: 3100 feet from the West line and 1200 feet from the North line					
Ground Level Elev. 4200	Producing Formation NA	Pool NA	Dedicated Acreage: 10 Acres		

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

Yes  No If answer is "yes," type of consolidation \_\_\_\_\_

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**CERTIFICATION**

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

*[Signature]*

Name  
BOYA, CYNTHIA

Position  
President

Company  
Lightning Dock Geothermal, Inc.

Date  
1-29-03

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_

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

3. Indicate Type of Lease  
STATE  FEDERAL   
3a. State Lease No.

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

7. Unit Agreement Name  
none  
8. Name of Lessee  
Fed. NM-34790

2. Name of Operator  
Lightning Dock Geothermal, Inc.

9. Well No.  
TG 52-7

3. Address of Operator  
224 West Greening Ave.

10. Field and Foot, or Wildcat  
Lightning Dock KGRA

4. Location of Well UNIT LETTER B LOCATED 1200 FEET FROM THE North LINE  
AND 3100 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMMWA

11. County  
Hidalgo

19. Proposed Depth 1000 ft	19A. Formation Alluvium	20. Rotary or C.T. Rotary
21. Elevations (Show whether OF, RT, etc.) 4200 Gr	21A. Kind & Status Plug Head Federal; in place	21B. Drilling Contractor Driver Drilling, Sierra Vista, AZ
		22. Approx. Date Work will start Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout prevention program, if any.

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

Signed [Signature] Title PRESIDENT Date 1-29-03  
(This space for State Use)

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAN**

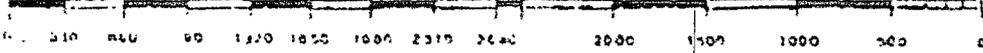
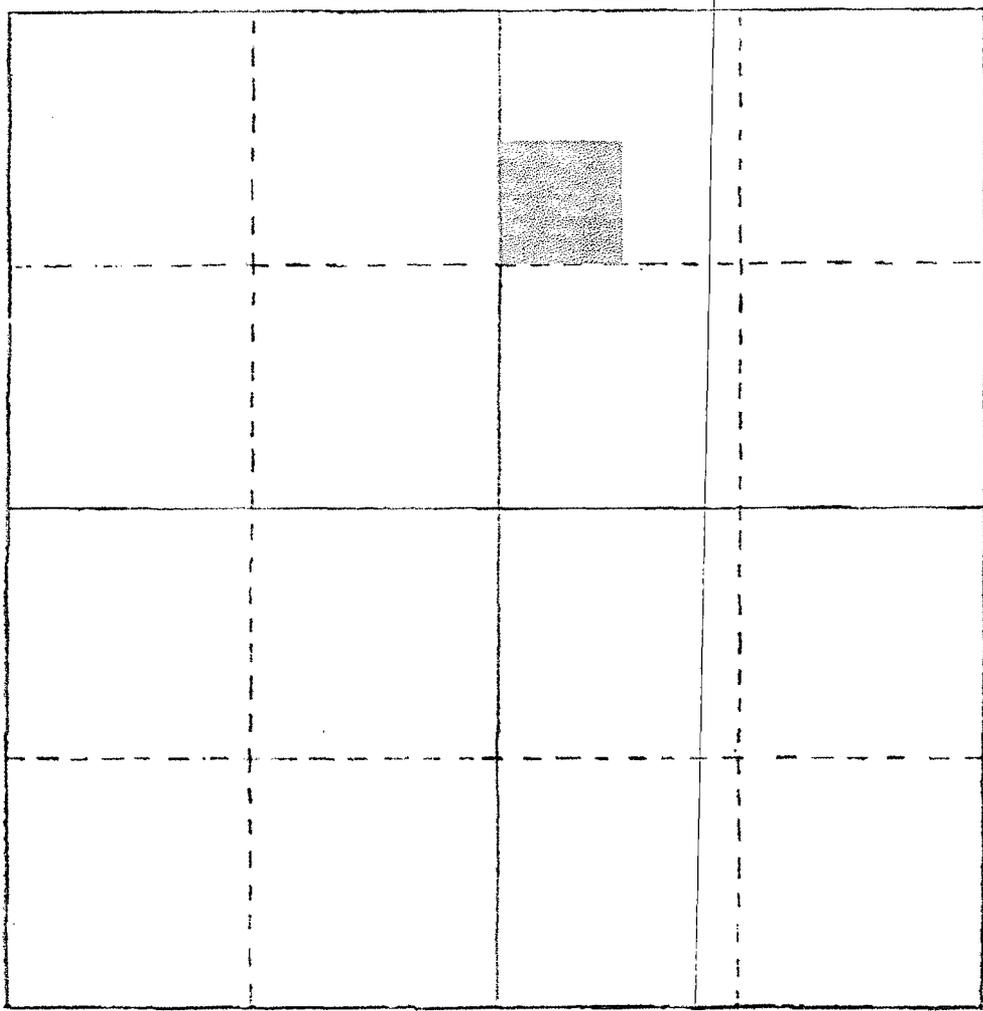
All distances must be from the outer boundaries of the Section.

Operator <b>Lightning Dock Geothermal, Inc.</b>		Lease <b>Fed. Geothermal NM-34790</b>			Well No. <b>TG 52-7</b>
Unit Letter <b>B</b>	Section <b>7</b>	Township <b>25 South</b>	Range <b>19 West</b>	County <b>Hidalgo</b>	
Actual Footage Location of Well: <b>3100</b> feet from the <b>West</b> <b>End</b> and <b>1200</b> feet from the <b>North</b> line					
Ground Level Elev. <b>4200</b>	Producing Formation <b>NA</b>	Pool <b>NA</b>	Dedicated Acreage: <b>10</b> Acres		

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?  
  
 Yes     No    If answer is "yes," type of consolidation \_\_\_\_\_

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

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division.



**CERTIFICATION**

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

*[Signature]*

Name  
**BOYA CUNIFF**

Position  
**President**

Company  
**Lightning Dock Geothermal, Inc.**

Date  
**1-29-03**

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_

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U.S.C.S.	
Operator	
Land Office	

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

5. Indicates Type of Lease  
STATE  FEDERAL   
6. State Lease No.

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

7. Unit Agreement Name: none  
8. Farm or Lease Name: Fed. NM-34790

1. Name of Operator: Lightning Dock Geothermal, Inc.

9. Well No.: TG 52-7

3. Address of Operator: 224 West Greening Ave.

10. Field and Prod. or Wildcat: Lightning Dock KGRA

4. Location of Well: UNIT LETTER B LOCATED 1200 FEET FROM THE North LINE  
AND 3100 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMPM

11. County: Hidalgo

19. Proposed Depth: 1000 ft  
19A. Formation: Alluvium  
10. Rotary or C.T.: Rotary

21. Elevations (Show whether DF, RT, etc.): 4200 Gr  
21A. Kind & Status Plug Bond: Federal; in place  
21B. Drilling Contractor: Driver Drilling, Sierra Vista, AZ  
22. Approx. Date Work will start: Feb. 10, 2003

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
8"	6"	20	200 ft	30	ground surf.

Hole will be completed by inserting a water-filled, 2-inch galvanized steel tubing from surface to total depth. This will be a temperature observation well. It will be monitored for at least one year after completion, and then plugged and abandoned IAW with Federal and State regulations and requirements.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. Give blowout preventer program, if any.

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

Signed: [Signature] Title: PRESIDENT Date: 1-29-03  
(This space for State Use)

APPROVED BY: \_\_\_\_\_ TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

**GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT**

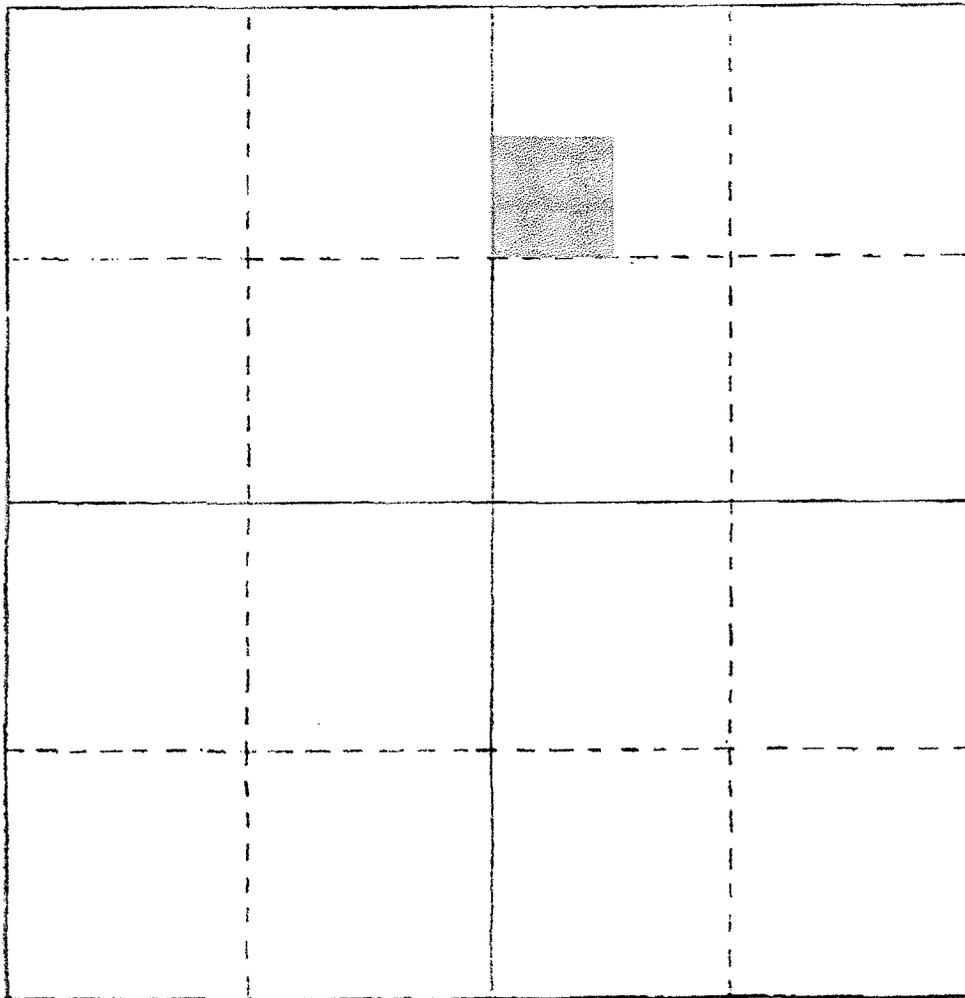
All distances must be from the outer boundaries of the Section.

Operator <b>Lightning Dock Geothermal, Inc.</b>		Lease <b>Fed. Geothermal NM-34790</b>		Well No. <b>TG 52-7</b>
Unit Letter <b>B</b>	Section <b>7</b>	Township <b>25 South</b>	Range <b>19 West</b>	County <b>Hidalgo</b>
Actual Footage Location of Well: 3100 feet from the West line and 1200 feet from the North line				
Ground Level Elev. <b>4200</b>	Producing Formation <b>NA</b>	Pool <b>NA</b>	Dedicated Acreage: <b>10 Acres</b>	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
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**CERTIFICATION**

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

*[Signature]*

Name **ROYA. CUNIFF**

Position **President**

Company **Lightning Dock Geothermal, Inc.**

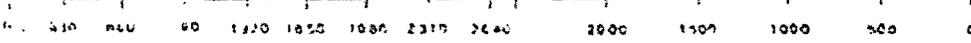
Date **1-29-03**

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



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U.S.C.S.	
Operator	
Land Office	

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

3. Indicate Type of Lease  
STATE  FEDERAL   
4. State Lease No.

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

7. Unit Agreement Name: none  
 8. Farm or Lease Name: Fed. NM-34790  
 9. Well No.: TG 52-7  
 10. Field and Pool, or Wildcat: Lightning Dock KGRA  
 11. County: Hidalgo

2. Name of Operator: Lightning Dock Geothermal, Inc.  
 3. Address of Operator: 224 West Greening Ave.  
 4. Location of Well: UNIT LETTER B LOCATED 1200 FEET FROM THE North LINE  
 AND 3100 FEET FROM THE West LINE OF SEC. 7 TWP. 25 South RGE. 19 West NMMRM

19. Proposed Depth: 1000 ft  
 19A. Formation: Alluvium  
 20. Rotary or C.T.: Rotary  
 21. Elevations (Show whether DF, RT, etc.): 4200 Gr  
 21A. Kind & Status Plug Bond: Federal, in place  
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Signed: [Signature] Title: PRESIDENT Date: 1-29-03

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

CONDITIONS OF APPROVAL, IF ANY:

**GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAN**

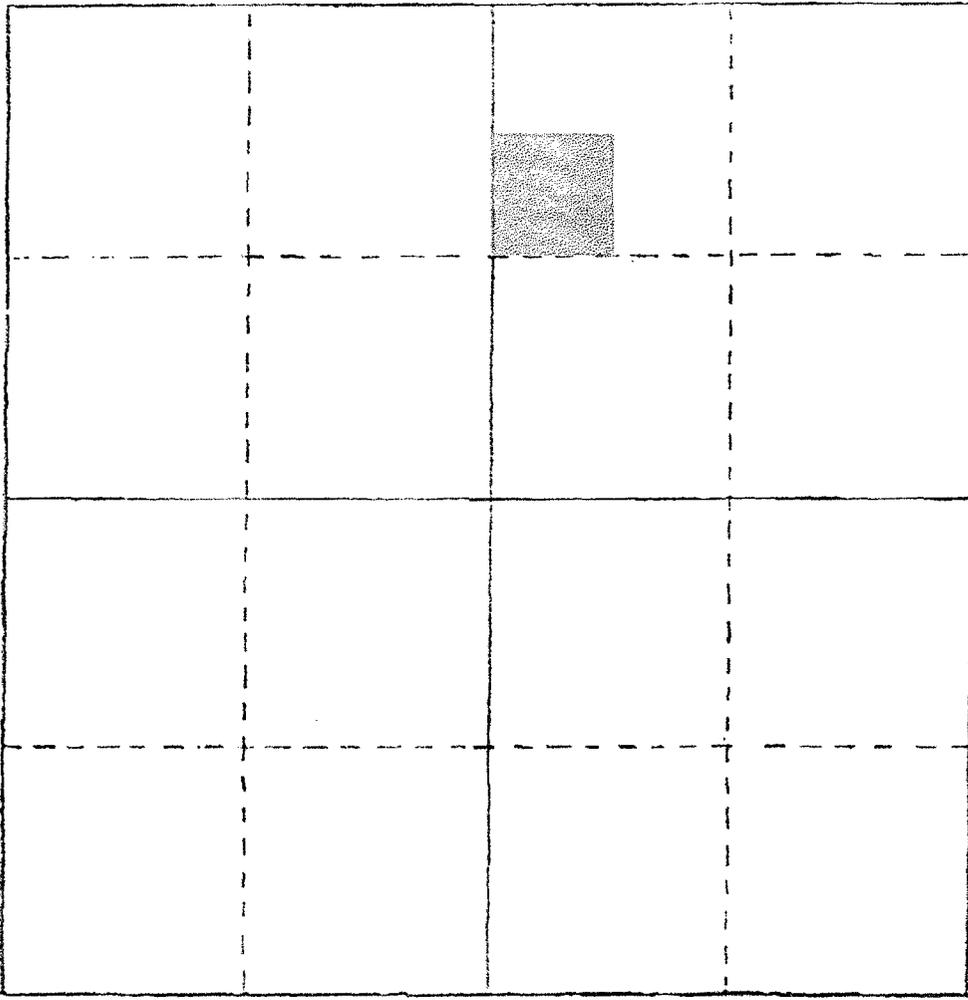
*All distances must be from the outer boundaries of the Section.*

Operator <b>Lightning Dock Geothermal, Inc.</b>		Lease <b>Fed. Geothermal NM-34790</b>		Well No. <b>TG 52-7</b>
Unit Letter <b>B</b>	Section <b>7</b>	Township <b>25 South</b>	Range <b>19 West</b>	County <b>Hidalgo</b>
Actual Footage Location of Well: 3100 feet from the West line and 1200 feet from the North line				
Ground Level Elev. <b>4200</b>	Producing Formation <b>NA</b>	Pool <b>NA</b>	Dedicated Acreage: <b>10</b> Acres	

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*[Signature]*

Name **ROYA. CUNNIFF**

Position **President**

Company **Lightning Dock Geothermal, Inc.**

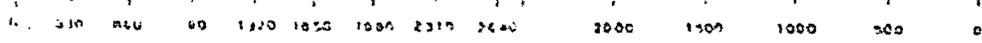
Date **1-29-03**

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.*

Date Surveyed \_\_\_\_\_

Registered Professional Engineer and/or Land Surveyor \_\_\_\_\_

Certificate No. \_\_\_\_\_



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires: January 31, 2004

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
NM-34790

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.  
TG52-7

9. API Well No.

10. Field and Pool, or Exploratory Area  
Lightning Dock KGRA

11. County or Parish, State  
Hidalgo County, NM

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

1. Type of Well  
 Oil Well    Gas Well    Other Geothermal Temperature-Gradient Exploration Hole

2. Name of Operator  
Lightning Dock Geothermal, Inc.

3a. Address  
224 West Greening Ave.

3b. Phone No. (include area code)  
505-523-6803

4. Location of Well (Footage, Sec., T, R., M., or Survey Description)  
Approx. fm 1200 ft, fm 3000 ft., Section 7, T25S, R19W, NMPM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

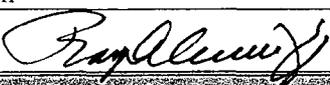
TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

3. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

See attached Proposed Drilling Plan.

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed) Roy A. Cunniff      Title President

Signature       Date 12-29-03

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by (Signature) \_\_\_\_\_      Name (Printed/Typed) \_\_\_\_\_      Title \_\_\_\_\_

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.      Office \_\_\_\_\_      Date \_\_\_\_\_

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on next page)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires: January 31, 2004

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
NM-34790

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.  
TG12-7

9. API Well No.

10. Field and Pool, or Exploratory Area  
Lightning Dock KGRA

11. County or Parish, State  
Hidalgo County, NM

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

1. Type of Well  
 Oil Well  Gas Well  Other Geothermal Temperature-Gradient Exploration Hole

2. Name of Operator  
Lightning Dock Geothermal, Inc.

3a. Address  
224 West Greening Ave.

3b. Phone No. (include area code)  
505-523-6803

4. Location of Well (Footage, Sec., T, R., M., or Survey Description)  
Approx. fm1 1200 ft, fm2 500 ft., Section 7, T25S, R19W, NMPM

**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

3. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

See attached Proposed Drilling Plan.

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed)  
Roy A. Cunniff

Title  
President

Signature 

Date  
12-29-03

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by (Signature)	Name (Printed/Typed)	Title
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	Date

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(Continued on next page)

**PROPOSED DRILLING PLAN**

**Lightning Dock KGRA**

**Hidalgo County, New Mexico**

**Federal Geothermal Resources Lease NM 34790**

**PROPOSED OPERATIONS: Drill two (2) temperature gradient holes**

**OBJECTIVE: To test for boundaries on known geothermal resources**

**LIGHTNING DOCK GEOTHERMAL INC. (LDG)**

**224 W. Greening Avenue**

**Las Cruces, NM 88005**

**Telephone: (505) 523-7908**

**DRILLING CONTRACTOR: Driver Drilling Company**

**FIELD SUPERVISORS, LDG, Inc.**

**Roger L. Bowers (775) 289-3537**

**Roy A. Cunniff (505) 523-7908**

## TABLE OF CONTENTS

	Page
Introduction .....	1
Location and Roads .....	1
Site Geology and Hydrology.....	2
Scope of Proposed Work .....	3
Drill site construction .....	3
Drilling program .....	4
Environmental factors .....	5
Emergency contingency plan.....	8

### List of Attachments

1. Exhibit "A": Hole location map
2. Exhibit "B": Hole diagrams
3. Exhibit "C": Mapped spread of geothermal fluid
4. Exhibit "D": Water quality for typical geothermal groundwater
5. Exhibit "E": Temperatures for two wells

## INTRODUCTION

Lightning Dock Geothermal, Inc. ("LDG") proposes to drill two (2) temperature gradient holes on our Federal Geothermal Resources Lease, NM 34790, at the Lightning Dock KGRA in Hidalgo County, New Mexico. The gradient holes have a target depth of 1,000 feet, and will be sited within our lease on private surface land owned by T.H. McCants pursuant to an Operating Agreement with Mr. McCants entered into by and between McCants and AMAX Exploration, Inc. That Operating Agreement is part of the lease, and is currently in force. A copy is on file with the Las Cruces Field Office of the BLM.

In accordance with 32CFR3251.12, this Drilling Plan is submitted for approval to undertake the proposed work.

## LOCATION AND ROADS

Proposed site locations for the two temperature gradient holes are shown on map Exhibit "A", which shows the topography of the area, existing roads and trails, and other man-made features. The planned well locations are listed as follows:

<u>Hole Number</u>	<u>Location</u>
TG 12-7	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , Sec 7, T25S R19W
TG 52-7	SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ , Sec 7, T25S R19W

As depicted on Exhibit A, access to hole number TG 12-7 will be from the paved road (designated by Hidalgo County as Hot Water Road), passing through an existing gate, thence east on an existing unimproved trail leading to the drill site. Access to hole number TG 52-7 will be along Hot Water Road to an existing improved dirt roads leading to the drill site.

There will be no need for building additional roads

## SITE GEOLOGY AND HYDROLOGY

The Lightning Dock KGRA in the Animas Valley contains a very warm and shallow geothermal resource, with boiling water temperature in the range of 210 to 225 °F) at the water table , currently at about 70 feet of depth. This shallow boiling water is a highly localized phenomenon, and within a relatively short distance from the hot spot in certain directions, ground water at depth is cool. Boiling geothermal water is believed to represent upwards flow along a fault conduit. When the hot water reaches the shallow alluvium, the hot water flows underground to the north and northwest for several miles before completely cooling and mixing with normal groundwater. This plume of hot water has been mapped as covering an area extending about 4 miles to the north and about 3 miles to the northwest gradually cooling and mixing with normal groundwater before it finally reaches equilibrium with cooler valley groundwater. Kintzinger (1956) and Summers (1961) mapped the spread of the hot water plume (See Exhibit "C").

In addition to retaining a temperature image of the geothermal source, the groundwater to the north and northwest of the hot spot retains a chemical signature from the geothermal source. At the hot spot, geothermal fluid contains about 1,150 to 1,250 mg of dissolved minerals per liter of fluid. Away from the hot spot, wells located within a few hundred meters, such as the AmeriCulture Federal No. 1, have the identical chemical composition but are significantly cooler. (See water quality at Exhibit "D".) For example, the original hot well completed in 1948, in the center of what is now the Burgett geothermal complex, encountered water with a temperature of 215 °F at 80 feet of depth. For the AmeriCulture well, the maximum temperature is 191 °F at 195 feet of depth.

The earliest shallow geothermal wells encountered volcanic rock at depths of 60 to 80 feet. The rock has been described as very dense, reddish in color, and is weathered and fissured rhyolite. The fault conduit for the geothermal fluid is believed to be a relatively Recent fault in this volcanic rock strata.

From drilling records and other geological and geophysical research conducted on the KGRA, it is expected that the two gradient wells would be drilled into alluvium for most of their depth. However, hole TG 52-7 possibly could intersect volcanic rock at an unknown depth, possibly as

shallow as 500 feet of depth. Exhibit B contains sketches of likely subsurface conditions expected to be encountered during drilling operations.

## **SCOPE OF PROPOSED WORK**

### **Drill site construction**

Hole TG 52-7 is sited on ground previously highly disturbed by human occupation and activities. It is on the original farm road used for more than 70 years as access to the farm house and ranching activities. Hole TG 12-7 also is sited on previously disturbed ground. The unimproved road to be used as the drill pad for hole TG 12-7 has been heavily used for more than 20 years. In the early 1980's, the trail was used to install a 2-1/2-inch water pipeline leading to the old Beall greenhouse (now used by AmeriCulture as a fish farm.) More recently in the past two years, a second 2-inch water pipeline was installed in this trail by T.H. McCants to serve his farmhouse and ranching operations.

The ground surface at both drill sites is level ground with minimal to no vegetative cover. The sites are well drained and the soil consists of gravel and fine sand. Accordingly, no need exists for any earthwork such as leveling and grading the ground surface. Because these are small-diameter gradient holes, the well pads will be very small; not more than 50 ft by 75 ft.

It is planned to drill hole TG 12-7 with air; accordingly, it is anticipated that there will be no need for a mud pit. For hole TG 52-7, drilling with mud will be used to control temperature. A small mud pit will be excavated by backhoe, and used for mixing small amounts of bentonite mud or other EPA-approved polymers used as drilling additives.

Water for drilling and make up water will be supplied via a purchase agreement with a local rancher

There is no plan to conduct drill stem tests on this hole; accordingly, there is no need for a reserve pit, and none will be built.

## Drilling program

### 1. Description of Drilling Plan

Two temperature gradient holes will be drilled and completed. For each hole, an 8-inch diameter hole will be drilled by air rotary (or mud rotary if necessary) to 200 feet. Six-inch steel pipe will be installed, and grout will be placed in the annulus using a 1-inch tremie pipe

Continuation drilling will use air rotary, with a 4 1/2-inch hammer drill bit to target depth of 1,000 feet. The slim hole will be completed by inserting 1,000 feet of 2-inch galvanized steel tubing. The tube will be filled with water and used for subsequent temperature measurements.

No need is foreseen for Blow-out Prevention Equipment (BOPE) because the maximum temperature likely to be encountered on hole TG 12-7 is not expected to exceed 145° F. For hole TG 52-7, the maximum expected mud temperature is about 145° F. It is expected that a temperature reversal will occur with deeper drilling.

These conclusions are supported by a review of the nearest deep geothermal wells; namely AMAX gradient hole 225, located in the SE 1/4 SE 1/4 SW 1/4 of Section 6, about 2,000 feet NW of location 12-7, and the existing Test for Discovery well 55-7 completed about 1,700 feet south of location TG 52-7. For the AMAX gradient hole, maximum subsurface temperature was 155° F at the total depth of 1,000 feet. (See Exhibit "E", temperature profile for AMAX gradient hole 225.) For well 55-7, the maximum mud temperature was about 125° F at a depth of 1,000 feet, and about 175° F at 3,800 feet of depth. (See Exhibit "E", temperature profile for drilling well 55-7, in 1984-85).

Personnel from Lightning Dock Geothermal, Inc will be on site during the entire drilling program, and will monitor return mud temperatures to assure that excessive temperatures do not occur. If return mud temperature rises higher than 150° F, drilling will be suspended until either a mud cooler or BOPE can be brought to the site.

## 2. Equipment and Personnel

The drill rig will be supplied by Driver Drilling Company, located in Sierra Vista, Arizona, and consists of a Schramm Model 985 ROTADRILL. This is truck-mounted, top drive, air rotary rig. Personnel from Driver Drilling will conduct the drilling.

Lightning Dock Geothermal, Inc. will supply the drilling supervisor in the person of Roger L. Bowers, Vice-President and a registered geologist.

Water for drilling and make up water will be supplied via a purchase agreement with a local rancher.

## 3. Logging and Sampling Program

Formation samples will be collected and mud logs will be maintained. Temperature measurements of the completed gradient hole will be taken at completion of the drilling program and also at intervals following completion. It is expected that two or three separate temperature surveys will be completed in each hole over a one-year period after drilling.

## 4. Completion and Abandonment

Upon completion of each gradient hole, the tubing will be chained and locked to prevent unauthorized borehole entry. Upon completion of all temperature measurements, the hole will be abandoned in accordance with an approved Sundry Notice.

### **Environmental Factors**

#### 1. General environmental procedures

All operations will be conducted in compliance with environmental protection requirements set forth in Geothermal Resources Operations Order #4, and all other applicable federal and state regulations.

#### 2. Soil erosion.

Both of the proposed drill sites are located on surface land that has been exposed to and in constant use for more than 70 years for vehicle access and

other ranching operations. The land surface is level, and has been heavily trafficked and disturbed for more than 70 years. Accordingly, the land surface currently is highly compacted, and drilling operations will not cause any significant additional disturbance. Thus, soil erosion is not expected to occur.

Only minor site leveling and grading may be done. Upon abandonment, the ground surface will be restored to the satisfaction of the surface landowner. Care will be exercised to avoid making any changes to drainage in the existing land surface.

### 3. Waste disposal

Portable sanitary facilities will be provided and maintained in accordance with federal and state health standards. Solid waste such as paper, cans, and packing materials will be collected at the site in an approved container and disposed of at an approved solid waste facility.

### 4. Ground water protection

All of the shallow ground water in the vicinity of the two proposed gradient holes is composed of geothermal water originating at depth and rising to near surface in the eastern portion of Section 7. The area has been studied and researched by many expert geologists and hydrologists for the past 40 years. Temperature measurements made in 1956 by Kintzinger, and in 1976 by Summers (See Exhibit "C") showed that the spreading geothermal fluid covers an area of about four square miles to the north and northwest of the greenhouse complex located in the eastern part of Section 7. (This greenhouse complex is depicted on Exhibit A.) Geothermal groundwater contains approximately 1,150 to 1,250 mg of dissolved minerals per liter of fluid. (See Exhibit "D" for typical chemical composition of geothermally associated groundwater).

Accordingly, the drilling program is highly unlikely to encounter more heavily mineralized geothermal fluid. Moreover, there are no fresh water zones that would be at risk of contamination from drilling operations.

All drilling fluids will be formulated from non-toxic components as defined by the U.S. Environmental Protection Agency. Drilling mud and fluids will

be contained in open steel tanks or excavated lined sumps during the drilling phase.

All petroleum products, such as vehicle fuel and lubricants, will be stored in approved containers and equipment fuel tanks.

#### 5. Clean air and noise standards.

Diesel or gasoline engines are used to power drilling machinery. Exhaust stacks on all power-generating equipment and vehicles will be equipped with mufflers. *All equipment will be properly maintained and muffled to assure compliance with federal and state regulations.*

Noise and equipment operation will be restricted to a maximum of a 12-hour drilling day. In addition, drilling operations are expected to be completed at each of the two drill sites within a 10-day period of time.

## EMERGENCY CONTINGENCY PLAN

### Overview

Types of emergency situations that could occur are fire, injury, drilling fluid spills, and uncontrolled blowout. Any emergency that might arise will be controlled by the driller and by the on-site Drilling Supervisor appointed by Lightning Dock Geothermal, Inc(LDG, Inc.). As necessary and appropriate, and as soon as operationally feasible, LDG, Inc. will notify all regulatory agencies of any significant emergency. Written documentation will be provided to the cognizant State and Federal agencies as soon as possible after the event.

### Fires

The LDG, Inc. Drilling Supervisor will take every reasonable precaution to prevent, control, and suppress any fire on ranch land at and near the drill sites. Fire extinguishing equipment, water, and tools will be on site and will be made available as fire suppression and control

### Injuries

Personnel will use first aid supplies available on site to render first aid. If needed, assistance will be requested from the Lordsburg medical facilities, and severely injured personnel can be evacuated by air ambulance to the more complete facilities in Silver City or Tucson.

### Drilling Fluids Spills

Drilling fluids are composed of a nontoxic mixture of water, EPA-approved additives, and solid material used in drilling operations to lubricate and cool the drill bit and to carry drill cuttings out of the hole. Drilling fluids will be stored in open tanks at the drill site. Potential sources of drill fluid discharge are leakage from the tanks, or tanks overflow; the chances are minimal that either event would occur.

Fluid accidentally discharged by leakage or overflow will be contained and cleaned up.

## **Uncontrolled Blowout**

As described previously in this document, there is a very remote likelihood that deeper drilling, especially in hole TG 12-7, could encounter subsurface temperatures higher than 150° F. For hole 52-7, because drilling will be done with heavy mud, there is little likelihood that the mud temperature would be higher than about 125 °f. Even so, however, if the drill stem intersects a higher temperature zone, heat build up will be detected very quickly and control measures to guard against uncontrolled blowout would be put into effect. The easiest control mechanism is water quench, and ample supplies of water will be available at the drill site.

The driller will maintain two water tankers, one of 1,200 gallons and one with 1,500 gallon capacity. The replenishment water point, consisting of a 14,000 gallon water storage tank, is located only about 300 feet from 52-7. In addition, coordination has been made with a second potential source, also located a few hundred feet away, where the storage capacity is 40,000 gallons.

## **List of Attachments**

- Exhibit "A": Hole location map
- Exhibit "B": Hole diagrams
- Exhibit "C": Mapped spread of geothermal water
- Exhibit "D": Water quality for several wells
- Exhibit "E": Temperatures for two wells.

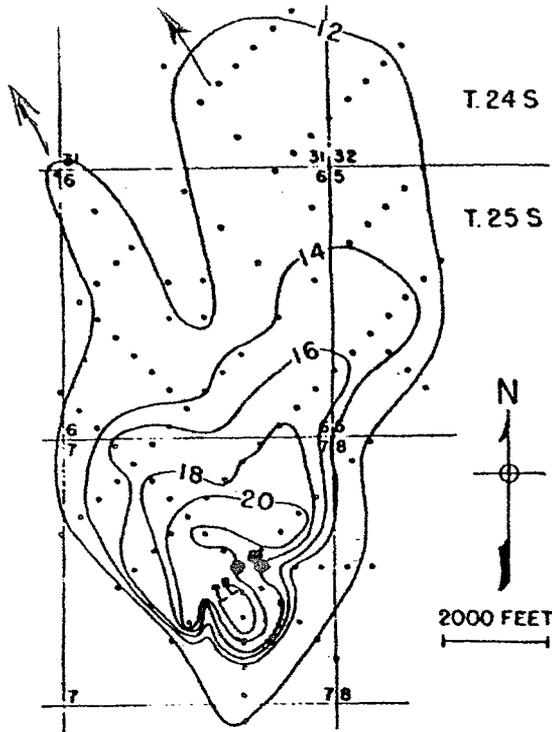




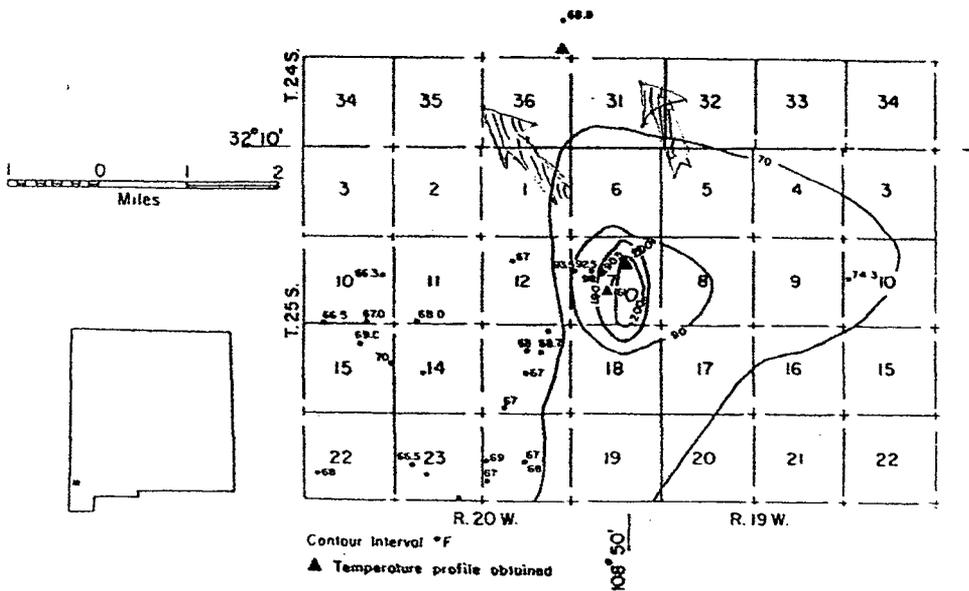


# EXHIBIT "C"

## Mapped spread of geothermal fluid



TEMPERATURE AT A DEPTH OF ONE METER AROUND HOT WELLS  
(in Kintzinger, 1956)

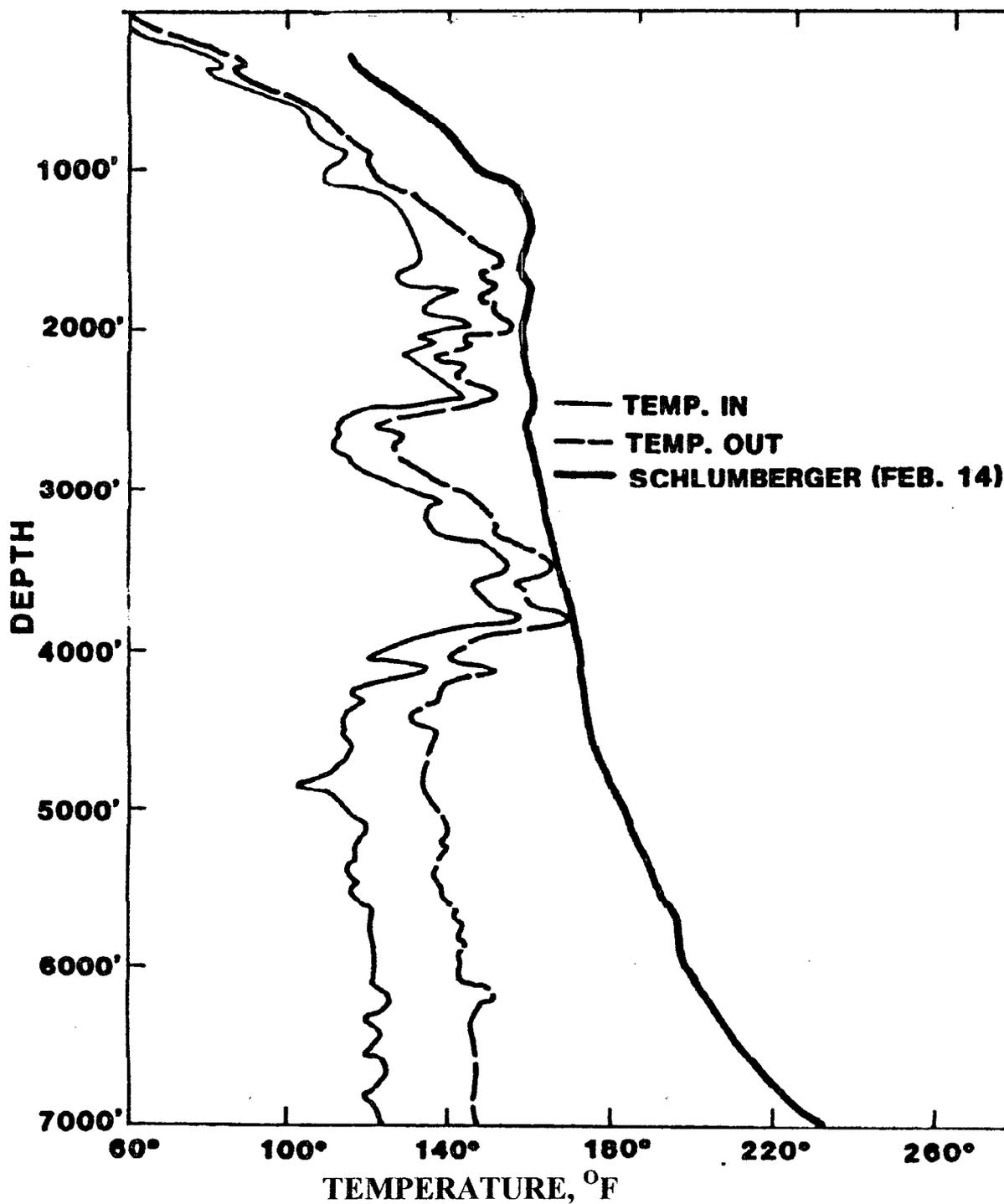


MAP OF THE THERMAL ANOMALY IN THE ANIMAS VALLEY,  
SHOWING TEMPERATURES OF DISCHARGING WATER AND LOCATIONS  
(in Summers, 1976)

**EXHIBIT D**  
**Water Quality: For Typical Geothermal Groundwater**

<b>Dissolved Mineral</b>	<b>Burgett Hot well 102 °C</b>	<b>McCants Hot well 98 °C</b>	<b>Folks Hot well 54 °C</b>	<b>Folks Hot well 46 °C</b>	<b>AmeriCultur Fed.No.1 88 °C</b>
pH	7.8	8.1	7.0	8.3	7.38
Cl	112	84	130	87	81.2
F	15.0	12.0	7.8	10.1	0.8
HCO <sub>3</sub>	90	80	93	40	119
SiO <sub>2</sub>	145	130	99	63	113.5
SO <sub>4</sub>	400	460	700	265	394.6
Na	340	330	420	400	255.3
K	20	19	26	6	9.8
Ca	20	21	70	11	20.7
Mg	0.3	0.1	5	2	
Li	0.5	0.5	0.8	0.4	
B	0.4	0.3	0.2	1.0	
Mo ug/l	N/A	25	30	N/A	
NH <sub>3</sub>	0.12	0.12	0.2	0.1	
<b>Total dissolved solids</b>	<b>1143</b>	<b>1137</b>	<b>1552</b>	<b>1245</b>	<b>1092</b>

**EXHIBIT "E"**  
**Temperature curves for two**  
**wells**



**Mud Temperatures for Well 55-7**

# EXHIBIT "E"

## Temperature curves for two wells

