

**GTLT - \_\_\_\_\_ 2 \_\_\_\_\_**

**NMSU**

**UL:J 33-13S-04W**

**Sierra County**

SOUTHWEST TECHNOLOGY DEVELOPMENT INSTITUTE

Box 30001/Dept. 3SOL/Las Cruces, New Mexico 88003-0001  
Telephone: (505) 646-1846  
Telefax: (505) 646-2960

OIL CONSERVATION DIVISION  
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'91 JUL 22 AM 10



— Information Copy —  
FEDERAL LAND/MINERALS

18 July 1991

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

Dear Roy:

Please find the enclosed Form G-103 in triplicate for the abandonment of the TORC1 temperature gradient borehole.

Sincerely,

A handwritten signature in cursive script, appearing to read 'J. Witcher', written over the typed name.

James C. Witcher  
Geologist

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Operator		
Land Office		

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

5. Indicate Type of Lease  
STATE  none FEE   
5.a State Lease No. N/A

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 N/A  
8. Farm or Lease Name City of T. or C.

2. Name of Operator New Mexico State University  
Southwest Technology Development Institute

9. Well No. TORC 1

3. Address of Operator P. O. Box 30001 Dept 3 SOL Las Cruces, New Mexico 88003

10. Field and Pool, or Wildcat T. or C.

4. Location of Well UNIT LETTER J LOCATED 1970 FEET FROM THE south LINE  
AND 1470 FEET FROM THE east LINE OF SEC. 33 TWP. 13 south RGE. 4 west NMPM

12. County Sierra

19. Proposed Depth 300 feet  
19A. Formation Santa Fe Group  
20. Rotary or C.T. rotary  
21. Elevations (Show whether DF, RT, etc.) 4290 feet  
21A. Kind & Status Plug. Bond RIDER TO 10K MULTI-  
WELL BOND FORTHCOMING  
21B. Drilling Contractor Larjon  
22. Approx. Date Work will start May 1990

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
6 inch	1-2 inch				

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 James C. Witcher Title Geologist Date 4 May 1990

(This space for State Use)  
APPROVED BY Ry E. Hansen TITLE DISTRICT SUPERVISOR DATE 5-24-90  
CONDITIONS OF APPROVAL, IF ANY:

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U. S. G. S.		
Operator		
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SUNDRY NOTICES AND REPORTS  
ON  
GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease  
State  (NONE) Fee

5.a State Lease No.

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

1. Type of well Geothermal Producer <input type="checkbox"/> Temp. Observation <input checked="" type="checkbox"/> Low-Temp Thermal <input type="checkbox"/> Injection/Disposal <input type="checkbox"/>	7. Unit Agreement Name Not applicable
2. Name of Operator New Mexico State University/Southwest Technology Development Institute	8. Farm or Lease Name City of Truth or Consequences
3. Address of Operator P.O. Box 30001, Department 3SOL, Las Cruces, New Mexico 88003-0001	9. Well No. TORCI
4. Location of Well Unit Letter <u>J</u> <u>1970</u> Feet From The <u>South</u> Line and <u>1470</u> Feet From The <u>East</u> Line, Section <u>33</u> Township <u>13 South</u> Range <u>4 West</u> NMPM.	10. Field and Pool, or Wildcat T. or C.
15. Elevation (Show whether DF, RT, GR, etc.) 4290 (Surface)	12. County Sierra

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

<p>NOTICE OF INTENTION TO:</p> <p>PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/></p> <p>TEMPORARILY ABANDON <input type="checkbox"/></p> <p>PULL OR ALTER CASING <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/></p> <p>OTHER <input type="checkbox"/></p>	<p>SUBSEQUENT REPORT OF:</p> <p>REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/></p> <p>COMMENCE DRILLING OPNS. <input checked="" type="checkbox"/> PLUG &amp; ABANDONMENT <input checked="" type="checkbox"/></p> <p>CASING TEST AND CEMENT JOB <input type="checkbox"/></p> <p>OTHER <u>Information (See attached log)</u> <input type="checkbox"/></p>
---	--

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

Borehole was drilled to 68 meters depth June 1990, and abandoned July 1990. No water was encountered. Abandonment consisted of cutting PVC one inch casing below surface and capping. The borehole was then backfilled to surface.

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

SIGNED James C. Witcher TITLE Geologist DATE 7/12/91

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

CONDITIONS OF APPROVAL, IF ANY:

Table 4 Depth, logged temperature, and general lithologies for TORC-1, Truth or Consequences, New Mexico

Location: Unit letter J located 1,933 feet from the South line and 3,850 feet from West line, Section 33, Township 13S, Range 4W, New Mexico; Elevation 4283 feet; Temperature logged, 6/22/90; Total depth, 68 meters; Bottom-hole temperature, 24.91 °C.

Depth (M)	Temperature °C	Lithology
0	-	Pebbly sand: Terrace deposit.
10	22.30	Pebble conglomerate: Palomas Formation (fluvial facies-?)
15	22.25	Clay to clayey pebble conglomerate: Palomas Formation.
20	22.43	
25	22.67	Muddy, cobble-boulder conglomerate and mudstone: Palomas Formation (older proximal piedmont facies-?).
30	22.89	
35	23.11	
40	23.30	
45	23.58	
50	23.89	
55	24.18	
60	24.37	
65	24.74	
68	24.91	

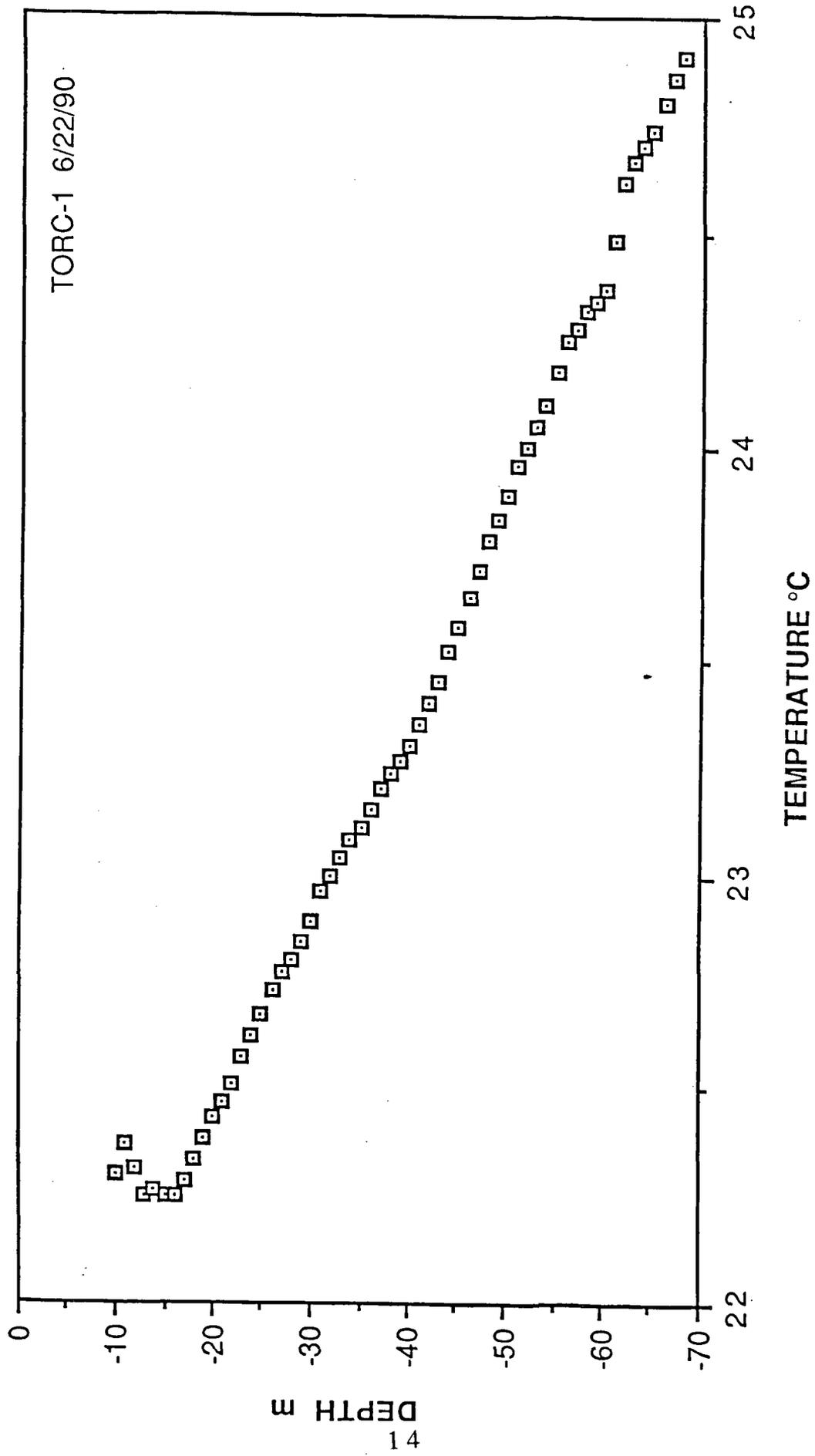


Figure 4b. Depth versus temperature plot for TORC-1.

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SUNDRY NOTICES AND REPORTS  
ON  
GEOTHERMAL RESOURCES WELLS

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3. Address of Operator P.O. Box 30001, Department 3SOL, Las Cruces, New Mexico 88003-0001	9. Well No. TORC1
4. Location of Well Unit Letter <u>J</u> <u>1970</u> Feet From The <u>South</u> Line and <u>1470</u> Feet From The <u>East</u> Line, Section <u>33</u> Township <u>13 South</u> Range <u>4 West</u> NMPM.	10. Field and Pool, or Wildcat T. or C.
15. Elevation (Show whether DF, RT, GR, etc.) 4290 (Surface)	12. County Sierra

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

SIGNED James C. Witcher TITLE Geologist DATE 7/10/91

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

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25 30 35 40 45 50 55 60 65 68	22.67 22.89 23.11 23.30 23.58 23.89 24.18 24.37 24.74 24.91	Muddy, cobble-boulder conglomerate and mudstone: Palomas Formation (older proximal piedmont facies-?).

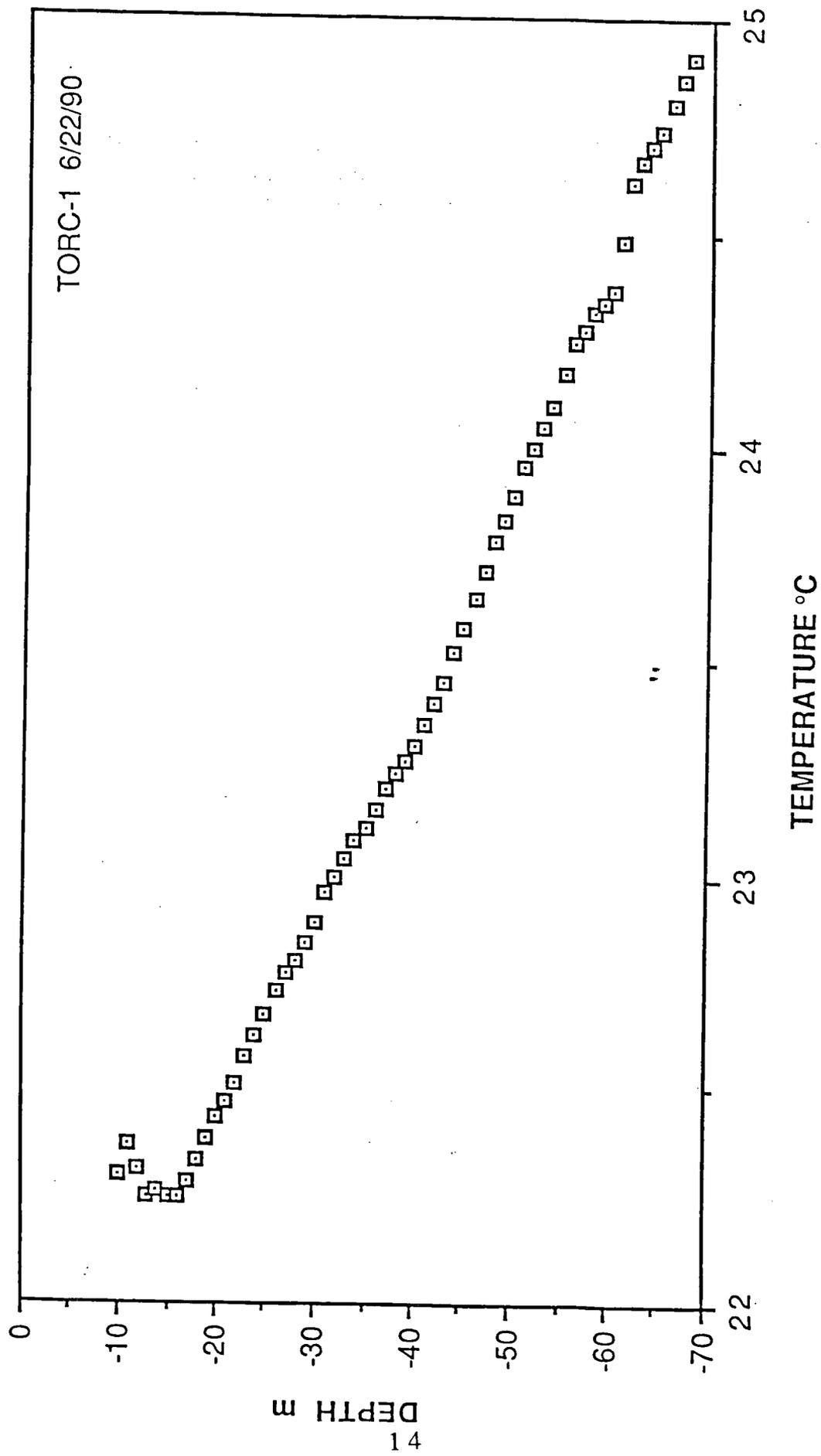


Figure 4b. Depth versus temperature plot for TORC-1.

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

SIGNED James C. Witcher TITLE Geologist DATE 7/12/91

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

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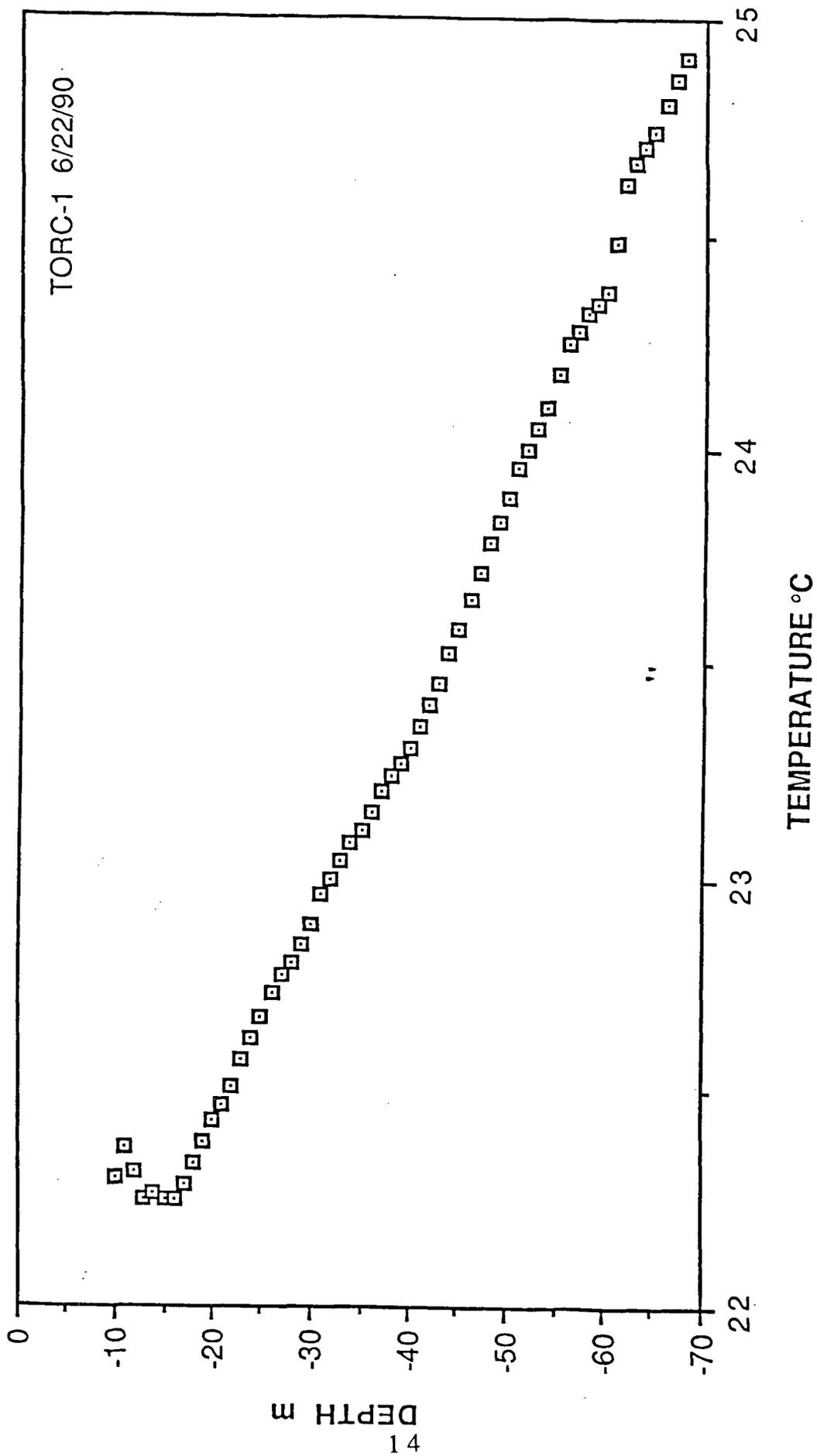


Figure 4b. Depth versus temperature plot for TORC-1.

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1. Type of well  
Geothermal Producer  Temp. Observation   
Low-Temp Thermal  Injection/Disposal

7. Unit Agreement Name  
Not applicable

2. Name of Operator  
New Mexico State University/Southwest Technology Development Institute

8. Farm or Lease Name City of  
Truth or Consequences

3. Address of Operator  
P.O. Box 30001, Department 3SOL, Las Cruces, New Mexico 88003-0001

9. Well No.  
TORC1

4. Location of Well  
Unit Letter J 1970 Feet From The South Line and 1470 Feet From  
The East Line, Section 33 Township 13 South Range 4 West NMPM.

10. Field and Pool, or Wildcat  
T. or C.

15. Elevation (Show whether DF, RT, GR, etc.)  
4290 (Surface)

12. County  
Sierra

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input checked="" type="checkbox"/>	PLUG & ABANDONMENT <input checked="" type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>		CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER <input type="checkbox"/>		OTHER <u>Information (See attached log)</u> <input type="checkbox"/>	

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SIGNED James C. WITCHEL TITLE Geologist DATE 7/12/91

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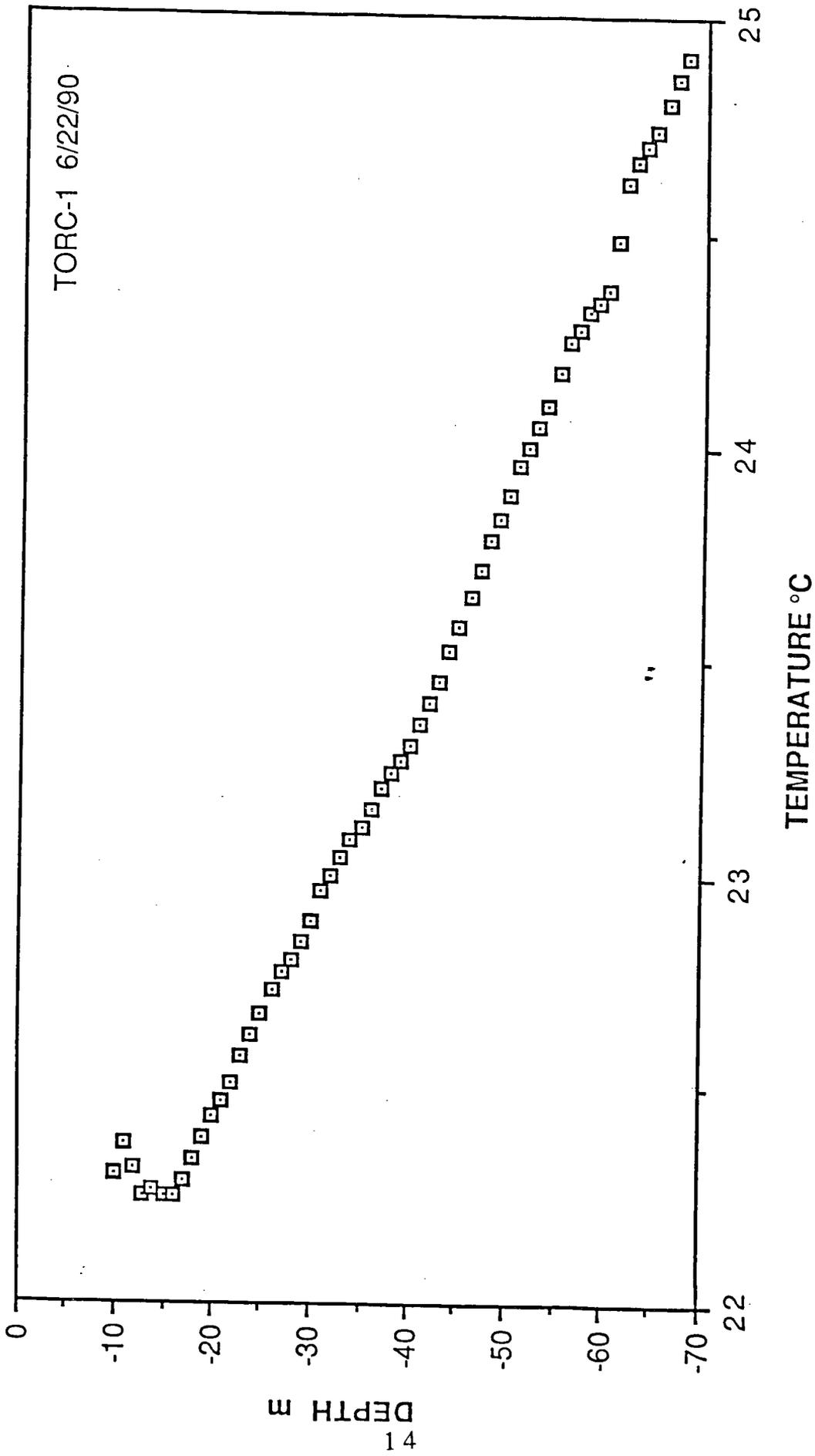


Figure 4b. Depth versus temperature plot for TORC-1.



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505  
(505) 827-7131

May 21, 1996

United States Fidelity and Guaranty Co.  
PO Box 7  
Denver, Co. 80201-0007

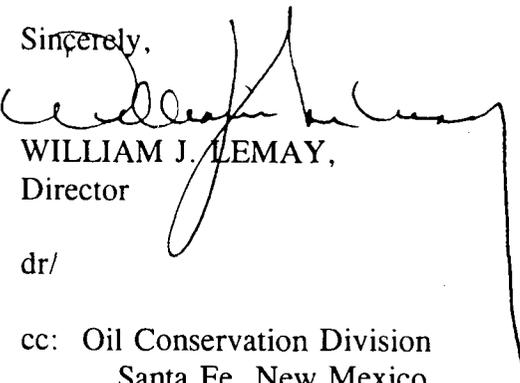
Attention: Julie M. Folwell

Re: \$5,000 One-Well Geothermal Bond  
City of Truth or Consequences, Principal  
United States Fidelity and Guaranty  
Company, Surety  
Bond No. 01-0130-320-80

Dear Ms. Folwell:

The Oil Conservation Division hereby approves cancellation of the above-referenced plugging bond and releases United States Fidelity and Guaranty Company of any liability.

Sincerely,



WILLIAM J. LEMAY,  
Director

dr/

cc: Oil Conservation Division  
Santa Fe, New Mexico

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

5. Indicate Type of Lease  
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N/A

7. Unit Agreement Name  
N/A

8. Farm or Lease Name  
City of T. or C.

9. Well No.  
TORC 1

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Southwest Technology Development Institute

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4. Location of Well UNIT LETTER J LOCATED 1970 FEET FROM THE south LINE  
AND 1470 FEET FROM THE east LINE OF SEC. 33 TWP. 13 south RGE. 4 west NMPM

12. County  
Sierra

19. Proposed Depth  
300 feet

19A. Formation  
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20. Rotary or C.T.  
rotary

21. Elevations (Show whether DF, RT, etc.)  
4290 feet

21A. Kind & Status Plug. Bond  
*RIDER TO 10K MULTI-  
WELL BOND FOR FORTHCOMING*

21B. Drilling Contractor  
Larjon

22. Approx. Date Work will start  
May 1990

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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.

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Signed James C. Witcher Title Geologist Date 4 May 1990

APPROVED BY R. E. Johnson TITLE DISTRICT SUPERVISOR DATE 5-24-90

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 New Mexico State University Southwest Technology Development Institute		Lease City of T. or C.		Well No. TORC 1
Unit Letter J	Section 33	Township 13 south	Range 4 west	County Sierra

Actual Footage Location of Well:

1970 feet from the south line and 1470 feet from the east line

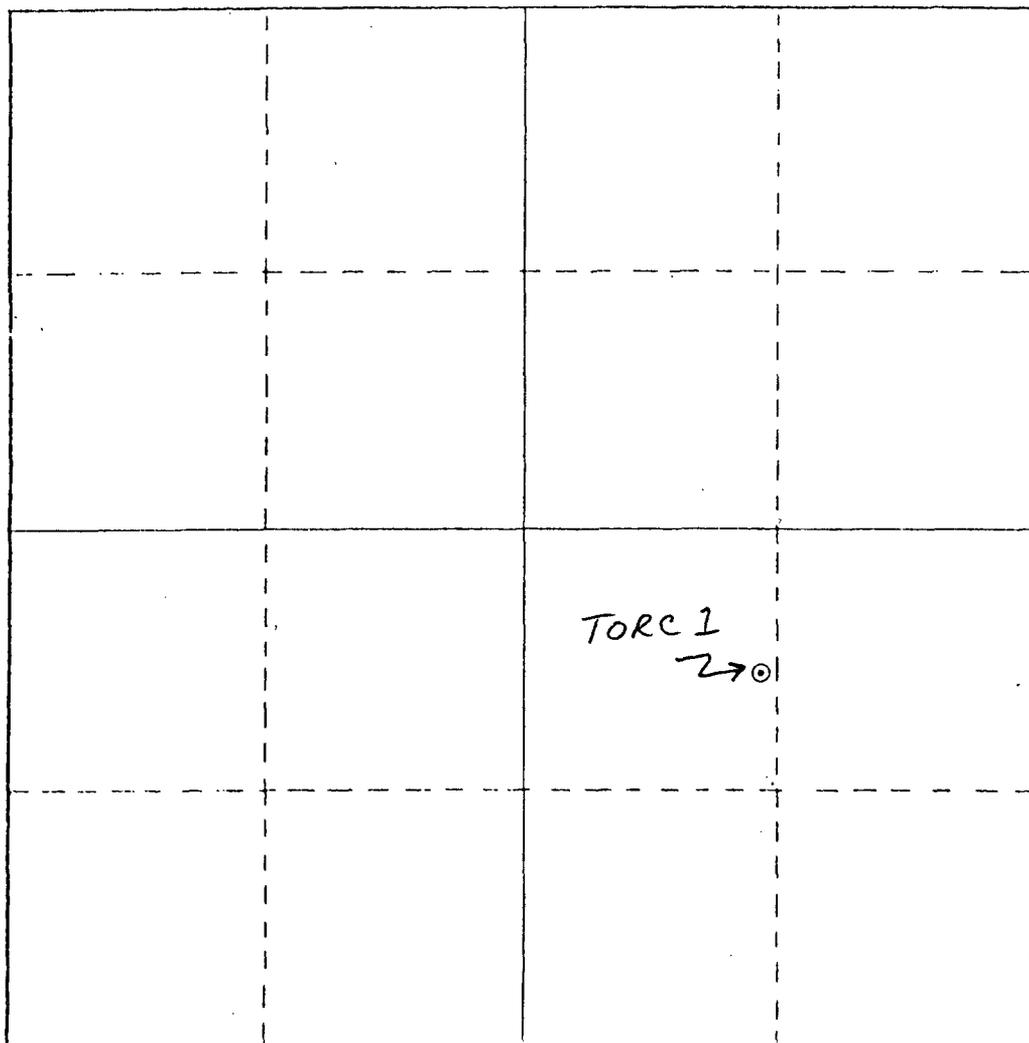
Ground Level Elev. 4290 feet	Producing Formation Tertiary Santa Fe Group	Pool T. or C.	Dedicated Acreage: 1.0 Acres
---------------------------------	--	------------------	---------------------------------

- 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.

*[Handwritten Signature]*  
Name

James C. Witcher

Position

Geologist

Company

SWTDI-NMSU

Date

4 MAY 1990

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.



SOUTHWEST TECHNOLOGY DEVELOPMENT INSTITUTE

Box 30001/Dept. 3SOL/Las Cruces, New Mexico 88003-0001  
Telephone: (505) 646-1846  
Telefax: (505) 646-2960



10 May 1990

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

Dear Roy:

Please find the enclosed OCD Forms G-101 and G-102 for a temperature-gradient hole drilling project in Truth or Consequences. Also, enclosed is a multiple-well bond to cover the drilling. A rider to this bond covering the T. or C. well is forthcoming in a few days. I am at 646-3949 if you need more information or have questions concerning the TORC-1 borehole. Thank you.

Sincerely,

A handwritten signature in cursive script, appearing to read 'J.C. Witcher'.

James C. Witcher  
geologist

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1a. Type of Work Drill  Deepen  Plug Back   
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Low-Temp Thermal  Injection/Disposal



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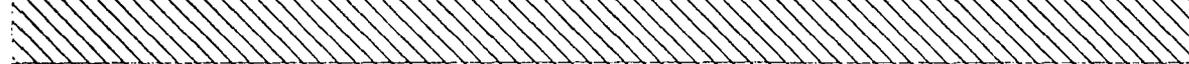
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TORC 1

4. Location of Well UNIT LETTER J LOCATED 1970 FEET FROM THE south LINE  
AND 1470 FEET FROM THE east LINE OF SEC. 33 TWP. 13 south RGE. 4 west NMPM

10. Field and Pool, or Wildcat  
T. or C.



12. County  
Sierra



21. Elevations (Show whether DF, RT, etc.) 4290 feet	21A. Kind & Status Plug. Bond	19. Proposed Depth 300 feet	19A. Formation Santa Fe Group	20. Rotary or C.T. rotary
21B. Drilling Contractor Larjon		22. Approx. Date Work will start May 1990		

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
6 inch	1-2 inch				

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 James C. Witcher Title Geologist Date 4 May 1990

(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 New Mexico State University Southwest Technology Development Institute		Lease	City of T. or C.		Well No. TORC 1
--	--	-------	------------------	--	--------------------

Unit Letter J	Section 33	Township 13 south	Range 4 west	County Sierra
------------------	---------------	----------------------	-----------------	------------------

Actual Footage Location of Well:  
1970 feet from the south line and 1470 feet from the east line

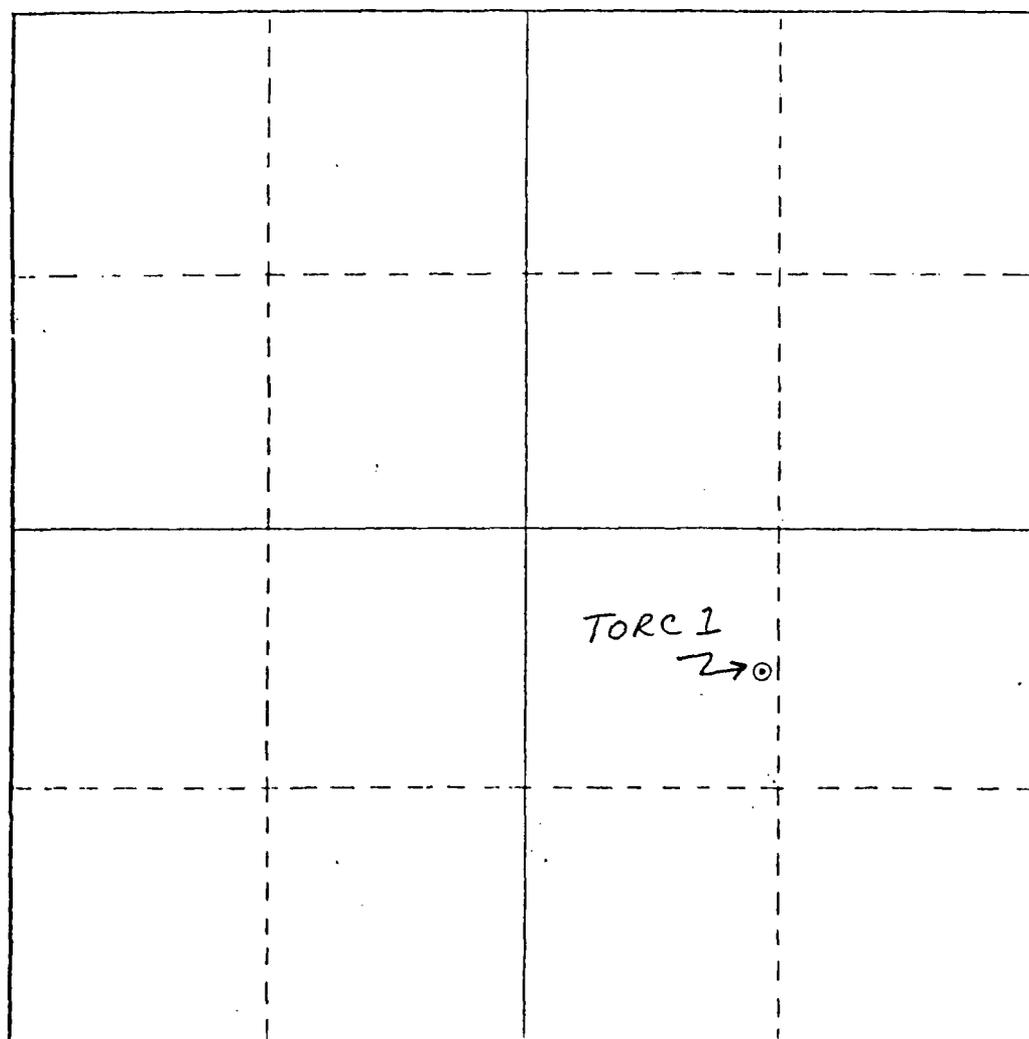
Ground Level Elev. 4290 feet	Producing Formation Tertiary Santa Fe Group	Pool T. or C.	Dedicated Acreage: 1.0 Acres
---------------------------------	--	------------------	---------------------------------

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.

*James C. Witcher*  
Name  
James C. Witcher

Position  
Geologist

Company  
SWTDI-NMSU

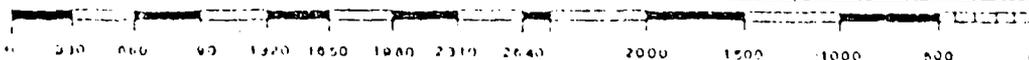
Date  
4 MAY 1990

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.



GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

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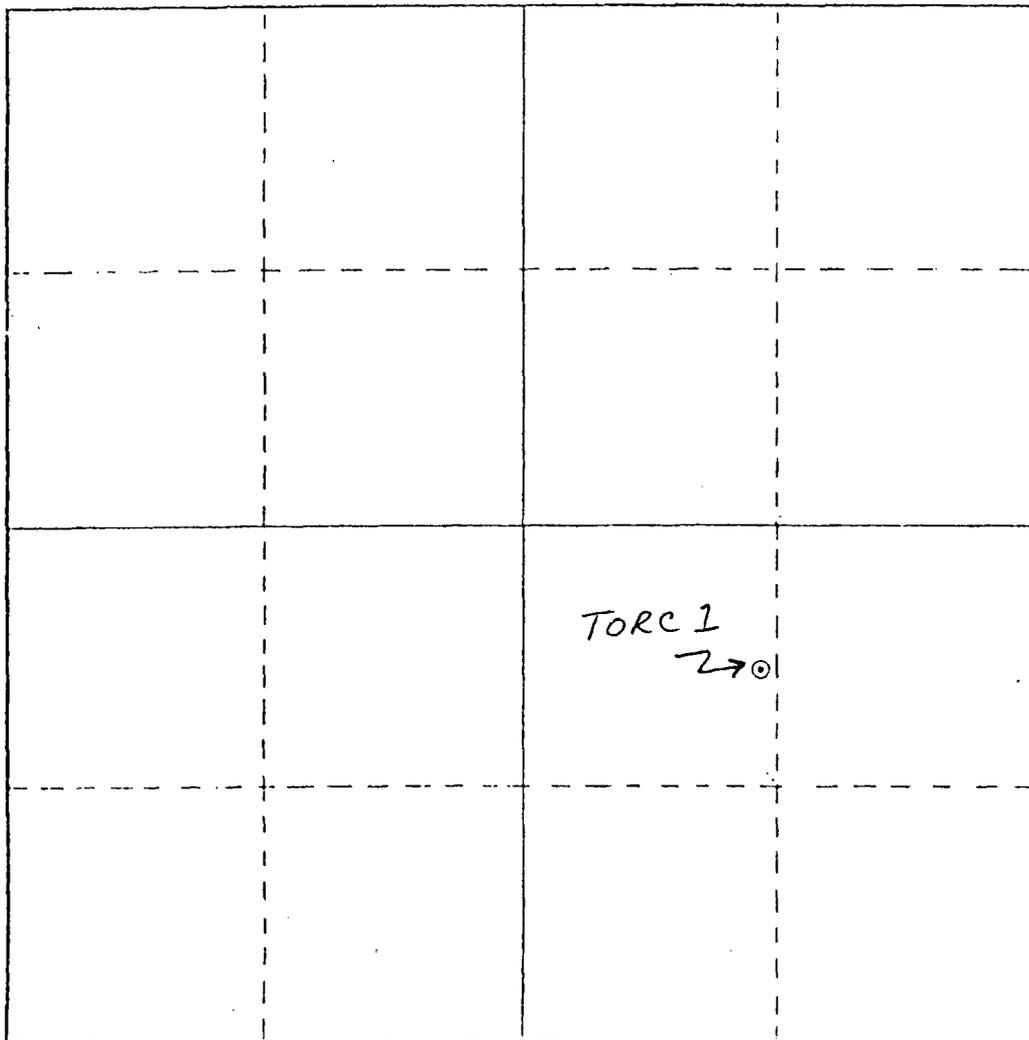
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Unit Letter J	Section 33	Township 13 south	Range 4 west	County Sierra
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*James C. Witcher*  
Name

James C. Witcher  
Position

Geologist  
Company

SWTDI-NMSU  
Date

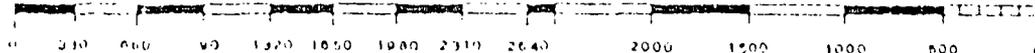
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GEOHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

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Operator New Mexico State University Southwest Technology Development Institute		Lease	City of T. or C.		Well No. TORC 1
Unit Letter J	Section 33	Township 13 south	Range 4 west	County Sierra	

Actual Footage Location of Well:

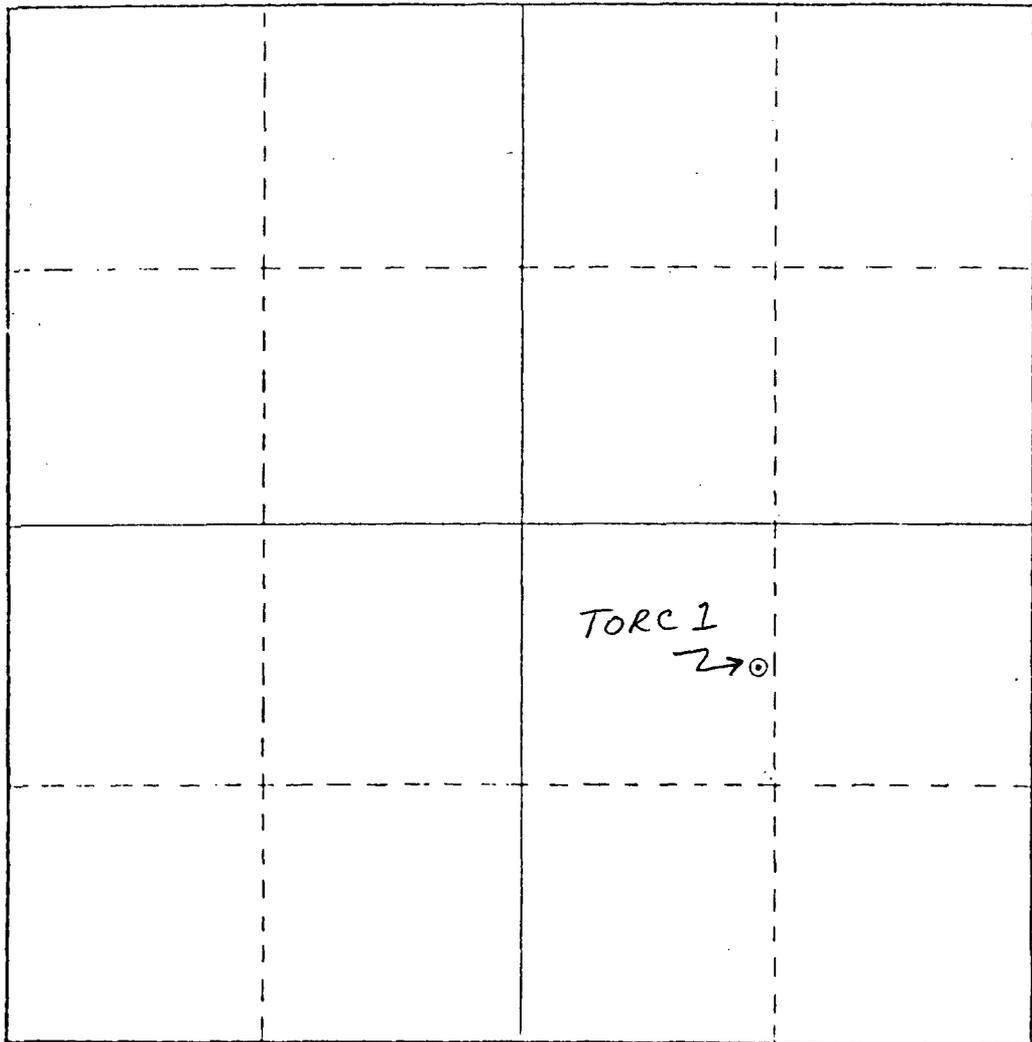
1970	feet from the	south	line and	1470	feet from the	east	line
Ground Level Elev. 4290 feet	Producing Formation Tertiary Santa Fe Group		Pool T. or C.	Dedicated Acreage: 1.0		Acres	

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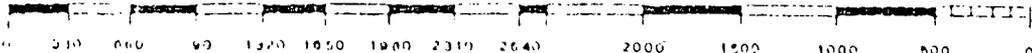
*James C. Witcher*

Name	James C. Witcher
Position	Geologist
Company	SWTDI-NMSU
Date	4 MAY 1990

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Date Surveyed	
Registered Professional Engineer and/or Land Surveyor	

Certificate No.



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U.S.G.S.		
Operator		
Land Office		

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

5. Indicate Type of Lease  
STATE  none FEE   
5.a State Lease No.  
N/A

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  
N/A

2. Name of Operator  
New Mexico State University  
Southwest Technology Development Institute

8. Farm or Lease Name  
City of T. or C.

3. Address of Operator  
P. O. Box 30001 Dept 3 SOL Las Cruces, New Mexico 88003

9. Well No.  
TORC 1

4. Location of Well  
UNIT LETTER J LOCATED 1970 FEET FROM THE south LINE  
AND 1470 FEET FROM THE east LINE OF SEC. 33 TWP. 13 south RGE. 4 west NMPM

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19. Proposed Depth 300 feet  
19A. Formation Santa Fe Group  
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21. Elevations (Show whether DF, RT, etc.) 4290 feet  
21A. Kind & Status Plug. Bond RIDER TO 10K MULTI-  
WELL BOND FORTHCOMING  
21B. Drilling Contractor Larjon  
22. Approx. Date Work will start May 1990

PROPOSED CASING AND CEMENT PROGRAM

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Signed James C. Witcher Title Geologist Date 4 May 1990

(This space for State Use)

APPROVED BY Ry E. Johnson TITLE DISTRICT SUPERVISOR DATE 5-24-90

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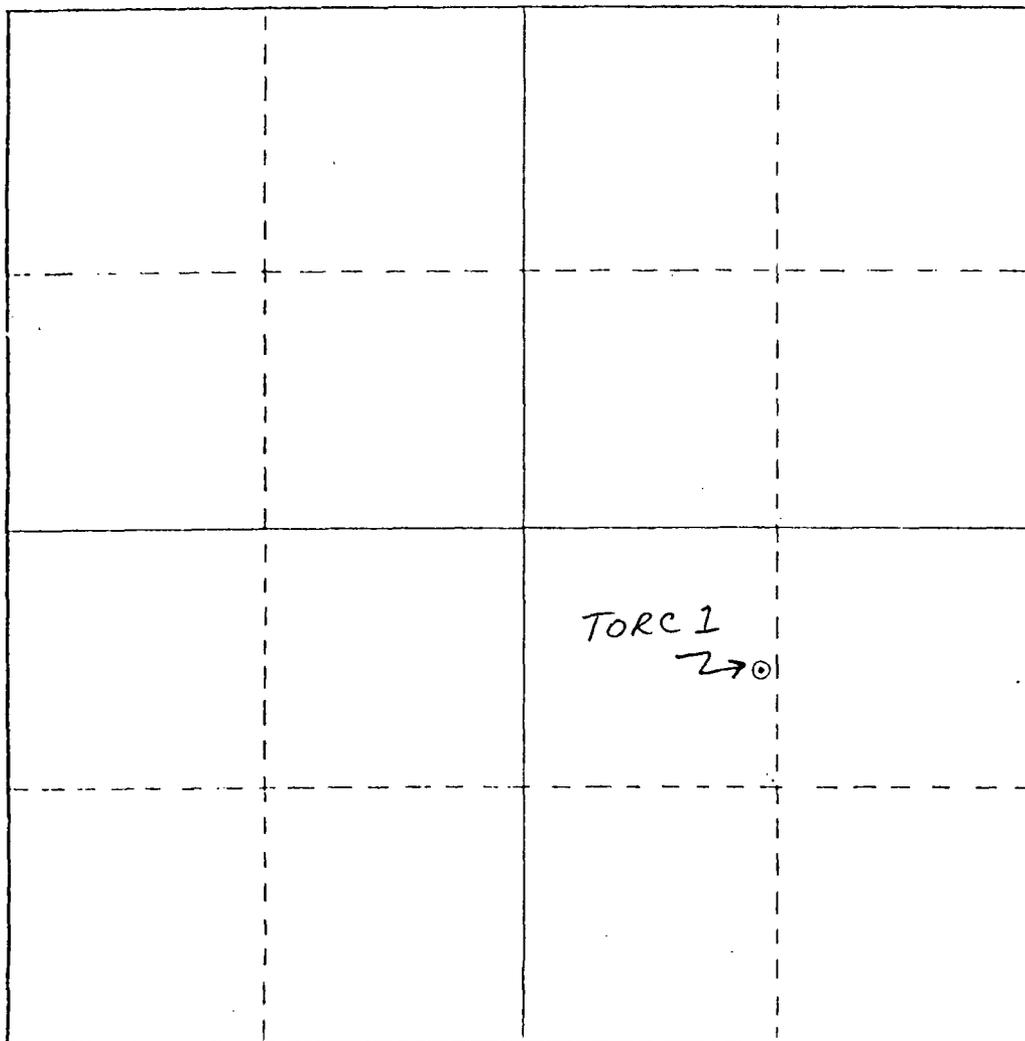
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