GTLT - 2

NMSU-DT-4
UL: J 14-29S-8W
Luna County
Plugged & Abandoned

YEAR: 7/20/1981

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 7259
Order No. R-6773

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION ON ITS OWN MOTION TO PERMIT NEW MEXICO STATE UNIVERSITY AND FIREMEN'S FUND INSURANCE COMPANY TO APPEAR AND SHOW CAUSE WHY TWO CERTAIN GEOTHERMAL WELLS, BEING THE NEW MEXICO STATE UNIVERSITY WELL NO. TG-3 and WELL NO. DT-4, BOTH LOCATED IN THE NW/4 SE/4 OF SECTION 14, TOWNSHIP 29 SOUTH, RANGE 8 WEST, LUNA COUNTY, NEW MEXICO, SHOULD NOT BE ORDERED PLUGGED AND ABANDONED IN ACCORDANCE WITH A DIVISION-APPROVED PLUGGING PROGRAM.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 26, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 24th day of September, 1981, the Division Director, having considered the record and the recommendations of the Examiner and being fully advised in the premises,

FINDS:

That Case No. 7259 is hereby dismissed.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Joe D. Ramey
Director

S E A L

Form G-103
Adopted 10/1/74

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

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease State ☐ 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 ☐ Temp. Observation ☒ Low-Temp Thermal ☐ Injection/Disposal ☐
7. Unit Agreement Name

2. Name of Operator: New Mexico State University, C.A. Swanberg, Principal Investigator
8. Farm or Lease Name: NMSU

3. Address of Operator: Las Cruces, New Mexico 88003
9. Well No.: DT-4

4. Location of Well: Unit Letter J 2828.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range R8W NMPM.
10. Field and Pool, or Wildcat: Columbus

15. Elevation (*Show whether DF, RT, GR, etc.*): 3997 MSL
12. County: Luna

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☒	ALTERING CASING ☐
TEMPORARILY ABANDON ☐		COMMENCE DRILLING OPNS. ☐	PLUG & ABANDONMENT ☒
PULL OR ALTER CASING ☐	CHANGE PLANS ☐	CASING TEST AND CEMENT JOB ☐	
OTHER ☐		OTHER ☐	

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

The following work was performed by LarJon Drilling Company:

1. The 1" ID steel casing (981 feet) was pulled from the well.
2. The hole was washed to the original diameter of 5.25" to a depth of 660 ft.
3. Cement was pumped into the well using the drill casing as the conduit from 660 ft. to 2 ft. below the surface. The cementing process was completed in four stages and used 100 sacks of cement.
4. The surface was restored to the original condition.

The work commenced on July 7 and was completed on July 16, 1981. No loss of circulation was encountered. witnessed by R.E.J.

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

SIGNED Larry Scanwan TITLE Director, Energy Institute DATE July 20, 1981

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 7/24/81

CONDITIONS OF APPROVAL, IF ANY:

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Form G-103
Adopted 10/1/74

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease State ☐ 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 ☐ Temp. Observation XX ; Low-Temp Thermal ☐ Injection/Disposal ☐
7. Unit Agreement Name

2. Name of Operator: New Mexico State University, C.A. Swanberg, Principal Investigator
8. Farm or Lease Name: NMSU

3. Address of Operator: Las Cruces, New Mexico 88003
9. Well No.: DT-4

4. Location of Well: Unit Letter J 2828.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range R8W NMPM.
10. Field and Pool, or Wildcat: Columbus

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12. County: Luna

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☒	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐			COMMENCE DRILLING OPNS.	☐	PLUG & ABANDONMENT	☐
PULL OR ALTER CASING	☐	CHANGE PLANS	☐	CASING TEST AND CEMENT JOB	☐		
OTHER	☐			OTHER	☐		

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

Well was drilled in late September, 1980, and subsequently was temperature logged several times. Steel casing, 1" ID extends approximately 18" above grade.

A commercial well driller will perform this work under contract.

Repair will consist of the following actions:

1. Using a "wash-over" tool and rotary drilling rig, the hole will be enlarged to an 8-inch diameter around the casing to a depth of 650 feet.

2. The 1" casing will be pulled and removed to 650 feet minimum, while drill casing is still in place.

3. Using the drill casing as the conduit, cement will be pumped into the hole as the drill casing is removed, until the entire hole is filled with cement from a depth of 650 feet to ground surface.

Driller will exercise care while using the wash-over tool and heavy mud to assure circulation is maintained throughout the entire operation.

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

SIGNED Harold A. Daw TITLE Assoc. Acad. VP DATE 20 May 81

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 6/4/81

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Form G-103
Adopted 10/1/

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease State ☐ 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 ☐ Temp. Observation ☒☒ Low-Temp Thermal ☐ Injection/Disposal ☐
7. Unit Agreement Name

2. Name of Operator: New Mexico State University, C.A. Swanberg, Principal Investigator
8. Farm or Lease Name: NMSU

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9. Well No.: DT-4

4. Location of Well: Unit Letter J 2828.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range R8W NMPM.
10. Field and Pool, or Wildcat: Columbus

15. Elevation (Show whether DF, RT, GR, etc.): 3997 MSL
12. County: Luna

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☒	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	
TEMPORARILY ABANDON	☐			COMMENCE DRILLING OPNS.	☐	PLUG & ABANDONMENT	
PULL OR ALTER CASING	☐	CHANGE PLANS	☐	CASING TEST AND CEMENT JOB	☐		
OTHER	☐			OTHER			

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

Well was drilled in late September, 1980, and subsequently was temperature logged several times. Steel casing, 1" ID extends approximately 18" above grade.

A commercial well driller will perform this work under contract.

Repair will consist of the following actions:

1. Using a "wash-over" tool and rotary drilling rig, the hole will be enlarged to an 8-inch diameter around the casing to a depth of 650 feet.

2. The 1" casing will be pulled and removed to 650 feet minimum, while drill casing is still in place.

3. Using the drill casing as the conduit, cement will be pumped into the hole as the drill casing is removed, until the entire hole is filled with cement from a depth of 650 feet to ground surface.

Driller will exercise care while using the wash-over tool and heavy mud to assure circulation is maintained throughout the entire operation.

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

SIGNED Harold A. Daw TITLE Assoc. Acad. VP DATE 20 May 81

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 6/4/81

CONDITIONS OF APPROVAL, IF ANY:

Form G-103
Adopted 10/1/74

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

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease State ☐ 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 ☐ Temp. Observation ☒ Low-Temp Thermal ☐ Injection/Disposal ☐
7. Unit Agreement Name

2. Name of Operator: New Mexico State University, C.A. Swanberg, Principal Investigator
8. Farm or Lease Name: NMSU

3. Address of Operator: Las Cruces, New Mexico 88003
9. Well No.: DT-4

4. Location of Well: Unit Letter J 2828.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range R8W NMPM.
10. Field and Pool, or Wildcat: Columbus

15. Elevation *(Show whether DF, RT, GR, etc.)*: 3997 MSL
12. County: Luna

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

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐		COMMENCE DRILLING OPNS. ☐	PLUG & ABANDONMENT ☐
PULL OR ALTER CASING ☐	CHANGE PLANS ☐	CASING TEST AND CEMENT JOB ☐	
OTHER ☐		OTHER Information ☒	

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

Well was drilled during late September early October 1980 and subsequently temperature logged several times. Steel casing is approximately 18" above grade to facilitate future use as a temperature gradient well.

The well depth is approximately 1,000 ft (see attached logs).

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OIL CONSERVATION DIVISION
SANTA FE

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

SIGNED C. Swanberg TITLE Associate Professor DATE 5/15/81

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 6/4/81

CONDITIONS OF APPROVAL, IF ANY:

Form G-103
Adopted 10/1/74

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SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease State ☐ 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 ☐ Temp. Observation ☒ Low-Temp Thermal ☐ Injection/Disposal ☐
7. Unit Agreement Name

2. Name of Operator: New Mexico State University, C.A. Swanberg, Principal Investigator
8. Farm or Lease Name: NMSU

3. Address of Operator: Las Cruces, New Mexico 88003
9. Well No.: DT-4

4. Location of Well: Unit Letter J 2828.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range R8W NMPM.
10. Field and Pool, or Wildcat: Columbus

15. Elevation (*Show whether DF, RT, GR, etc.*): 3997 MSL
12. County: Luna

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

NOTICE OF INTENTION TO:
- PERFORM REMEDIAL WORK ☐
- PLUG AND ABANDON ☐
- TEMPORARILY ABANDON ☐
- PULL OR ALTER CASING ☐
- CHANGE PLANS ☐
- OTHER ☐

SUBSEQUENT REPORT OF:
- REMEDIAL WORK ☐
- ALTERING CASING ☐
- COMMENCE DRILLING OPNS. ☐
- PLUG & ABANDONMENT ☐
- CASING TEST AND CEMENT JOB ☐
- OTHER Information ☒

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

Well was drilled during late September early October 1980 and subsequently temperature logged several times. Steel casing is approximately 18" above grade to facilitate future use as a temperature gradient well.

The well depth is approximately 1,000 ft (see attached logs).

RECEIVED
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OIL CONSERVATION DIVISION
SANTA FE

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

SIGNED C. Kenneth A Swanberg TITLE Associate Professor DATE 5/15/81

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 6/4/81

CONDITIONS OF APPROVAL, IF ANY:

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Form C-103

Revised 10-1-78

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State ☐ Fee ☐

5a. 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 C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Geothermal Producer ☐ Temp. Observation ☒ Low-Temp. Thermal ☐ Injection Observ. ☐

7. Unit Agreement Name

2. Name of Operator: New Mexico State University
C.A. Swanberg, Principal Investigator

8. Farm or Lease Name: PSU

3. Address of Operator: Las Cruces, New Mexico 88003

9. Well No.: GT-4

4. Location of Well: Unit Letter J 2626.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range NEW NMPM

10. Field and Pool, or Wildcat: Columbus

15. Elevation (Show whether DF, RT, GR, etc.): 3997 MSL

12. County: Luna

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐
TEMPORARILY ABANDON	☐		
PULL OR ALTER CASING	☐	CHANGE PLANS	☐
OTHER:	☐		

SUBSEQUENT REPORT OF:

REMEDIAL WORK	☐	ALTERING CASING	☐
COMMENCE DRILLING OPNS.	☐	PLUG & ABANDONMENT	☐
CASING TEST AND CEMENT JOB	☐		
OTHER:			

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 103.

Well was drilled in late September, 1980, and subsequently was temperature logged several times. Steel casing, 1" ID extends approximately 18" above grade.

A commercial well driller will perform this work under contract.

Repair will consist of the following actions:

1. Using a "wash-over" tool and rotary drilling rig, the hole will be enlarged to an 8-inch diameter around the casing to a depth of 650 feet.

2. The 1" casing will be pulled and removed to 650 feet minimum, while drill casing is still in place.

3. Using the drill casing as the conduit, cement will be pumped into the hole as the drill casing is removed, until the entire hole is filled with cement from a depth of 650 feet to ground surface.

Driller will exercise care while using the wash-over tool and heavy mud to assure circulation is maintained throughout the entire operation.

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

SIGNED Harold A. Dean TITLE Assoc. Grad. VP DATE 20 May 81

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NEW MEXICO OIL CONSERVATION COMMISSION

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Form C-103

Revised 10-1-78

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State ☐ Fee ☐

5a. 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 C-101) for Such Proposals.

1. Type of Well: Geothermal Producer ☐ Test, Observation ☒ Low-Temp. Thermal ☐ Injection Source ☐

7. Unit Agreement Name

2. Name of Operator: New Mexico State University
C.A. Swanberg, Principal Investigator

8. Farm or Lease Name: NMSU

3. Address of Operator: Las Cruces, New Mexico 88003

9. Well No.: GT-4

4. Location of Well: Unit Letter J 2629.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range NEW Mexico

10. Field and Pool, or Wildcat: Columbus

15. Elevation (Show whether DF, RT, GR, etc.): 3997 MSL

12. County: Luna

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐
TEMPORARILY ABANDON	☐		
PULL OR ALTER CASING	☐	CHANGE PLANS	☐
Other			☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK	☐	ALTERING CASING	☐
COMMENCE DRILLING OPNS.	☐	PLUG & ABANDONMENT	☐
CASING TEST AND CEMENT JOB	☐		
Other			

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2. The 1" casing will be pulled and removed to 650 feet minimum, while drill casing is still in place.

3. Using the drill casing as the conduit, cement will be pumped into the hole as the drill casing is removed, until the entire hole is filled with cement from a depth of 650 feet to ground surface.

Driller will exercise care while using the wash-over tool and heavy mud to assure circulation is maintained throughout the entire operation.

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

SIGNED Harold R. Dart TITLE Asst. Area VP DATE 20 May 81

Santa Fe, New Mexico 87501

May 18, 1981

Dear Mr. Ramey:

Please find enclosed a copy of Forms G-103 for the two geothermal wells in Luna County. The formation and temperature logs are attached.

A second mailing will contain this same material in triplicate as per the OCD Rules and Regulations. Thank you for your patience in this matter.

Sincerely yours,

Larry Iceman
Director

cjs

Enclosure

DT-4

Form C-103
Adopted 10/1/74

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P. O. Box 2088, Santa Fe 87501

SUNDRY NOTICES AND REPORTS ON GEOTHERMAL RESOURCES WELLS

5. Indicate Type of Lease: State ☐ Fee XX
5a. 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 ☐ Temp. Observation ☒
Low-Temp. Thermal ☐ Injection/Disposal ☐

7. Unit Agreement Name

2. Name of Operator: New Mexico State University
C.A. Swanberg, Principal Investigator

8. Farm or Lease Name: NMSU

3. Address of Operator: Las Cruces, New Mexico 88003

9. Well No.: DT-4

4. Location of Well: Unit Letter J 2828.4 Feet From The North Line and 2,043.3 Feet From The East Line, Section 14 Township 29S Range R5W NMPM.

10. Field and Pool, or Wildcat: Columbus

15. Elevation (Show whether DF, RT, GR, etc.): 3997 MSL

12. County: Luna

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐			COMMENCE DRILLING OPNS.	☐	PLUG & ABANDONMENT	☐
PULL OR ALTER CASING	☐	CHANGE PLANS	☐	CASING TEST AND CEMENT JOB	☐		
OTHER	☐			OTHER Information	☒		

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 103.

Well was drilled during late September early October 1980 and subsequently temperature logged several times. Steel casing is approximately 18" above grade to facilitate future use as a temperature gradient well.

The well depth is approximately 1,000 ft (see attached logs).

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

SIGNED C. Swanberg TITLE Associate Professor DATE 5/15/81

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Depth leaders NMSU Identification Number DT-4

Depth	Bits used	Rock type
0		SAND
	1	
31.25		
	2	CLAY
62.50		
	3	
	4	HARD BASALTIC ROCK → ZONE OF LOST CIRCULATION
93.75		
	5	CLAY, GRAVELS
125		
	6	GRAVELS
156.25		
187.50	7	GRAVELS → ZONE OF LOST CIRCULATION
218.75		
	8	HARD BASALTIC ROCK
250		
	9	VERY HARD ROCK
		PERMEABILITY ZONE (CLAYS, GRAVELS) LOST CIRCULATION
281.25		
	10	
312.50		COARSE ROCK

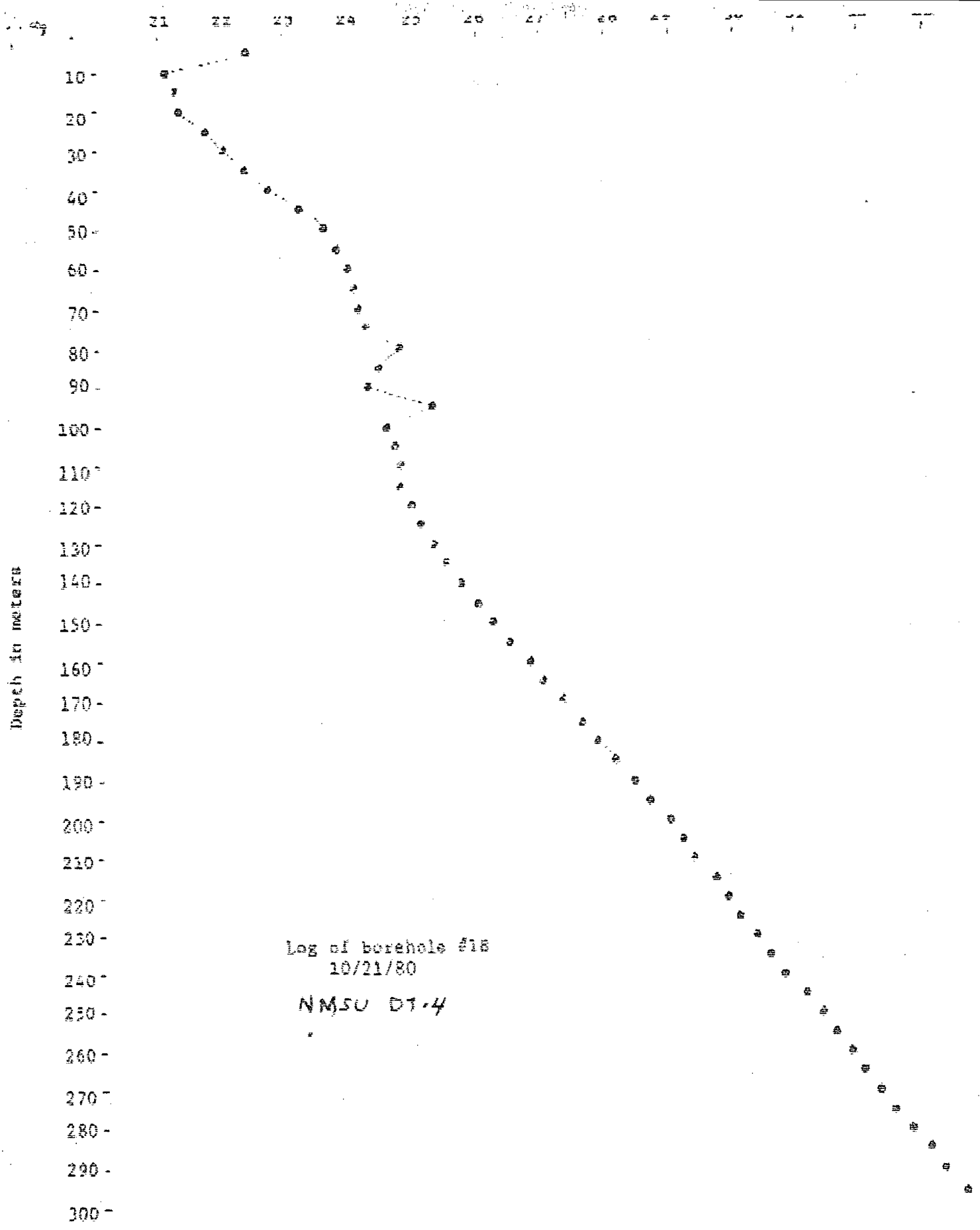
DR

NMSU DT-4

Test Hole #18, Columbus, N.M.

10/21/80

Depth m	Temp.
5	22.40
10	21.13
15	21.27
20	21.32
25	21.78
30	22.02
35	22.35
40	22.76
45	23.21
50	23.63
55	23.80
60	23.99
65	24.07
70	24.15
75	24.23
80	24.73
85	24.43
90	24.27
95	25.26
100	24.52
105	24.66
110	24.74
115	24.75
120	24.88
125	25.05
130	25.26
135	25.49
140	25.70
145	25.93
150	26.18
155	26.44
160	26.72
165	26.99
170	27.25
175	27.53
180	27.78
185	28.06
190	28.32
195	28.57
200	28.84
205	29.07
210	29.28
215	29.53
220	29.74
225	29.96
230	30.20
235	30.47
240	30.69
245	30.99
250	31.24
255	31.47
260	31.67
265	31.88
270	32.10
275	32.32
280	32.58
285	32.85
290	33.09
295	33.39
296	33.40



Log of borehole #18
10/21/80

NMSU DT-4

NMSU DT-4

Test Hole No. 18

Columbus, New Mexico
Logged 17 March, 1981

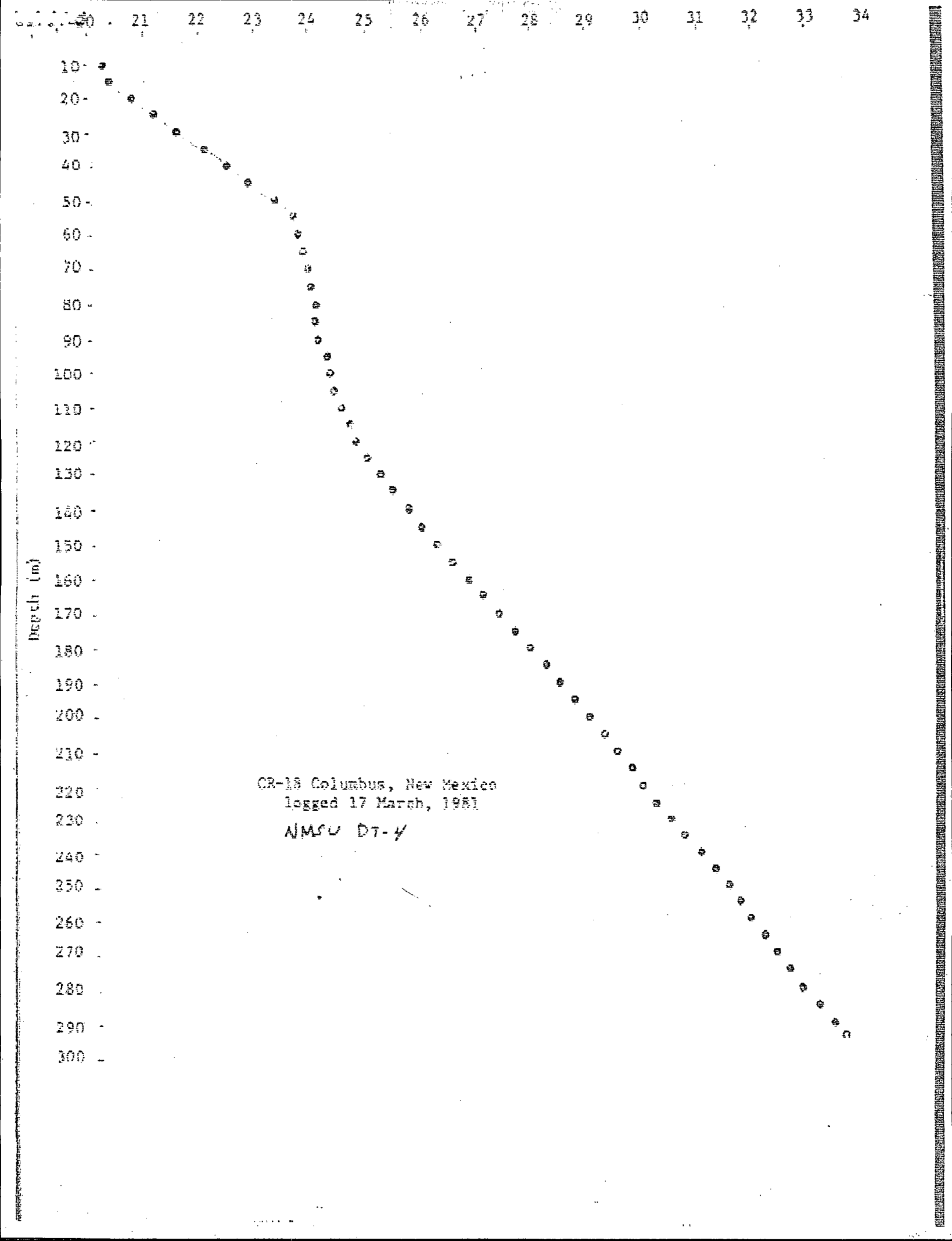
Depth(m)	Temp. (°C)	Depth(m)	Temp. (°C)
5	19.79	155	26.45
10	20.32	160	26.73
15	20.37	165	27.01
20	20.77	170	27.29
25	21.16	175	27.57
30	21.62	180	27.85
35	22.05	185	28.14
40	22.51	190	28.41
45	22.88	195	28.68
50	23.26	200	28.93
55	23.70	205	29.19
60	23.77	210	29.42
65	23.86	215	29.64
70	23.93	220	29.85
75	23.99	225	30.08
80	24.07	230	30.35
85	24.06	235	30.61
90	24.11	240	30.89
95	24.25	245	31.15
100	24.30	250	31.38
105	24.38	255	31.60
110	24.50	260	31.80
115	24.65	265	32.02
120	24.74	270	32.23
125	24.96	275	32.47
130	25.19	280	32.71
135	25.38	283	32.97
140	25.67	290	33.25
145	25.91	293	33.43
150	26.18		

$\frac{\Delta T}{\Delta z}$ = 50.5 ± 0.3 °C/km

T_o = 18.70 ± 0.07°C

for 130 to 293 m

34 pts.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270
280
290
300
Depth (m)
CR-18 Columbus, New Mexico
logged 17 March, 1951
AMSU D7-4

Memo

From
CARL ULVOG

To File NMSU # DT-4
J-14-29S-8W Luna Co.

10-1-80: Drilling underway. No representative of NMSU present. Driller advised depth of ± 750'. Water coming in uphole giving trouble. Water was encountered in 100' gradient hole offset.

4/29/81: Iron pipe hung from angle irons in open hole. Water standing at shallow depth in annulus of 1" - 1¼" pipe and ± 7" uncased hole. (see picture)

No reports submitted since G-101 & G-102 as of 4/30/81.

NEW MEXICO ENERGY INSTITUTE

OFFICE OF THE DIRECTOR
Box 3EI/Las Cruces, New Mexico 88003
Telephone (505) 646-1745

NEW MEXICO STATE UNIVERSITY

May 11, 1981

File DT-4

Mr. Carl Ulvog
Senior Geologist
Oil Conservation Division
State Land Office Building
P.O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ulvog:

Please find enclosed copies of the well logs for two geothermal temperature gradient wells, NMSU TG-3 and NMSU DT-4, that were drilled near Columbus, New Mexico. Wells TG-3 and DT-4 were permitted for 100 ft. and 1,000 ft., respectively.

If I can be of any further assistance in this matter, please do not hesitate to contact me.

Sincerely yours,

Larry Icerman

Larry Icerman
Director

cjs

Enclosure

NMSU Identification Number DT-4

DEPTH IN METERS	BITS USED	ROCK TYPE	DATE
0			
	1	SAND	9/29
31.25			
	2	CLAY	9/30
207' 62.50			
	3		
± 260' } ± 290' } →	4	HARD BASALTIC ROCK → ZONE OF LOST CIRCULATION	10/11 10/12
25120 309' 93.75			
	5	CLAY, GRAVELS	10/13
125			
	6	GRAVELS	10/14
156.25			
619' 187.50 ±	7	GRAVELS → ZONE OF LOST CIRCULATION	10/15
± 620' } ± 635' } →			
218.75			
	8	HARD BASALTIC ROCK	10/17
250			
	9	VERY HARD ROCK	10/18
		PERMEABILITY ZONE (CLAYS, GRAVELS) LOST CIRCUIATION	
928' 281.25			
± 930' →	10		10/19
1031' 312.50		COARSE ROCK	10/20

Form G-101
Adopted 10/1/74

NO. OF COPIES RECEIVED		
DISTRIBUTION		
File	1	✓
N.M.B.M.	1	
U.S.G.S.	1	
Operator	1	
~~Land Office~~ BLM	1	

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

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

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

1a. Type of Work: Drill ☒ Deepen ☐ Plug Back ☐
b. Type of Well: Geothermal Producer ☐ Low-Temp Thermal ☐ Temp Observation ☒ Injection/Disposal ☐
7. Unit Agreement Name:
8. Farm or Lease Name: NMSU
2. Name of Operator: New Mexico State University
C. A. Swanberg, Principal Investigator
9. Well No.: DT-4
3. Address of Operator: Las Cruces, New Mexico
10. Field and Pool, or Wildcat: Columbus
4. Location of Well: UNIT LETTER J LOCATED 2043.27 Ft. West and 188.35 Ft. South of the East Quarter Corner OF SEC. 14 TWP. 29S RGE. R8W NMPM
12. County: Luna

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
1000'	alluvial	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
3997 MSL	Fireman's Fund	Lar Jon Drilling Co., Las Cruces, NM	9/29/80

Grindell & Rollings, Bond No. 6358015

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
6"	1" (steel)	1.67 lb/ft	1000'	back filled	

Note: Carry location as 2828.4' FNL and 2043.3' FEL

RECEIVED
DEC 10 1980
OIL CONSERVATION DIVISION
SANTA FE

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

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

Signed Larry Mildrewood Title Engineer and Land Surveyor Date Dec. 9, 1980

(This space for State Use)

APPROVED BY Carl Ulvog TITLE SENIOR PETROLEUM GEOLOGIST DATE 12/11/80

CONDITIONS OF APPROVAL, IF ANY:

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

1000

Form G-102
Adopted 10/1/74

GEOTHERMAL RESOURCES WELL LOCATION AND ACREAGE DEDICATION PLAT

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

Operator	Lease	Well No.
New Mexico State University C.A. Swanberg, Principal Investigator	NMSU	DT-4

Unit Letter	Section	Township	Range	County
J	14	T29S	R8W	Luna

Actual Footage Location of Well:
2043.27 Ft. West and 188.35 Ft. South of the East Quarter Corner of said Section 14

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3997			Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

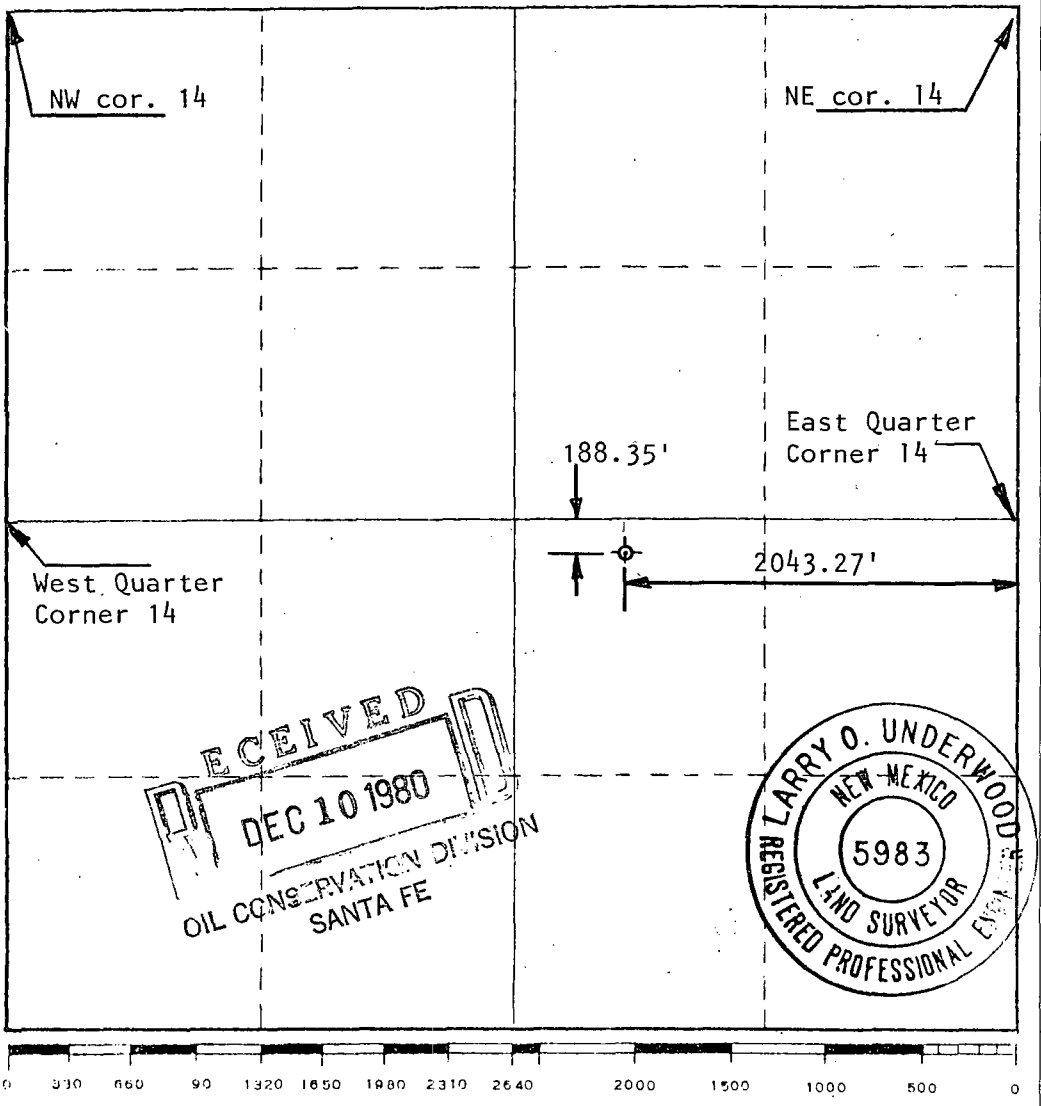
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownersip is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

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

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



CERTIFICATION

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

Name

Position

Company

Date

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

Dec. 9, 1980

Date Surveyed

Larry Underwood

Registered Professional Engineer and/or Land Surveyor

Larry O. Underwood
P.E. and L.S. # 5983

Certificate No.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

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

October 23, 1980

Prof. Chandler A. Swanberg
New Mexico State University
College of Arts & Science
Dept. of Physics
Box 3D
Las Cruces, New Mexico 88001

Dear Professor Swanberg:

Attached please find certain forms that you have filed for geothermal wells in Luna County. These are returned because they cannot be processed as submitted.

No geothermal operator can commence drilling operations until he has an approved geothermal plugging bond on file with the Division and has had his G-101 approved by the Division.

In your submissions you have no lease name or well number. Further, your G-102 is not signed by a Professional Engineer or Land Surveyor. The deeper test does not have sufficient casing to protect any shallow ground water that may be present in the area. Sufficient copies were not submitted.

For your information I am also attaching a copy of our Geothermal Rules and Regulations.

I would suggest you contact Mr. Carl Ulvog of this office and meet with him to determine what can be done to straighten out this mess.

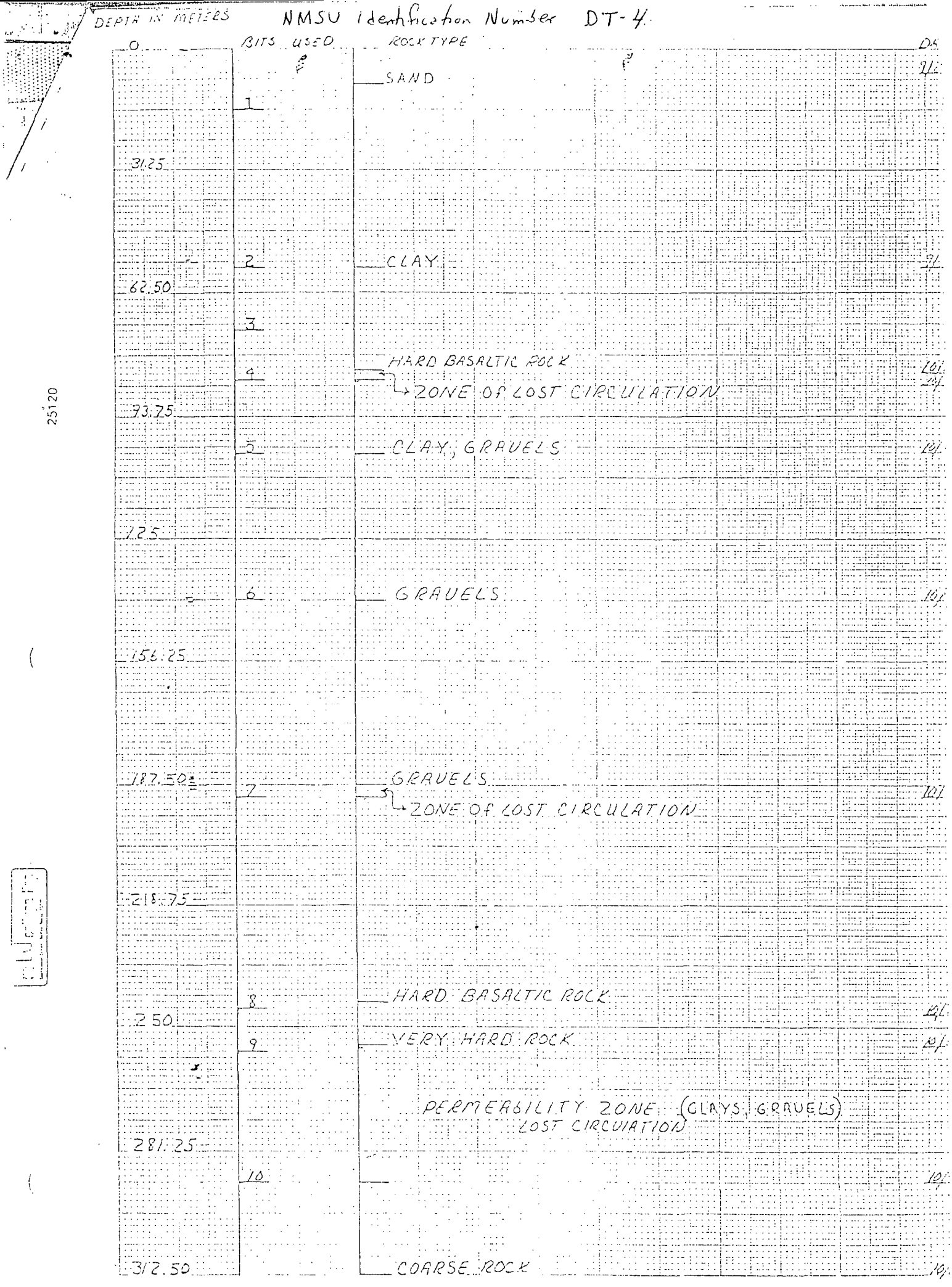
Yours very truly,

JOE D. RAMEY
Director

JDR/fd

cc: Carl Ulvog

NMSU Identification Number DT-4

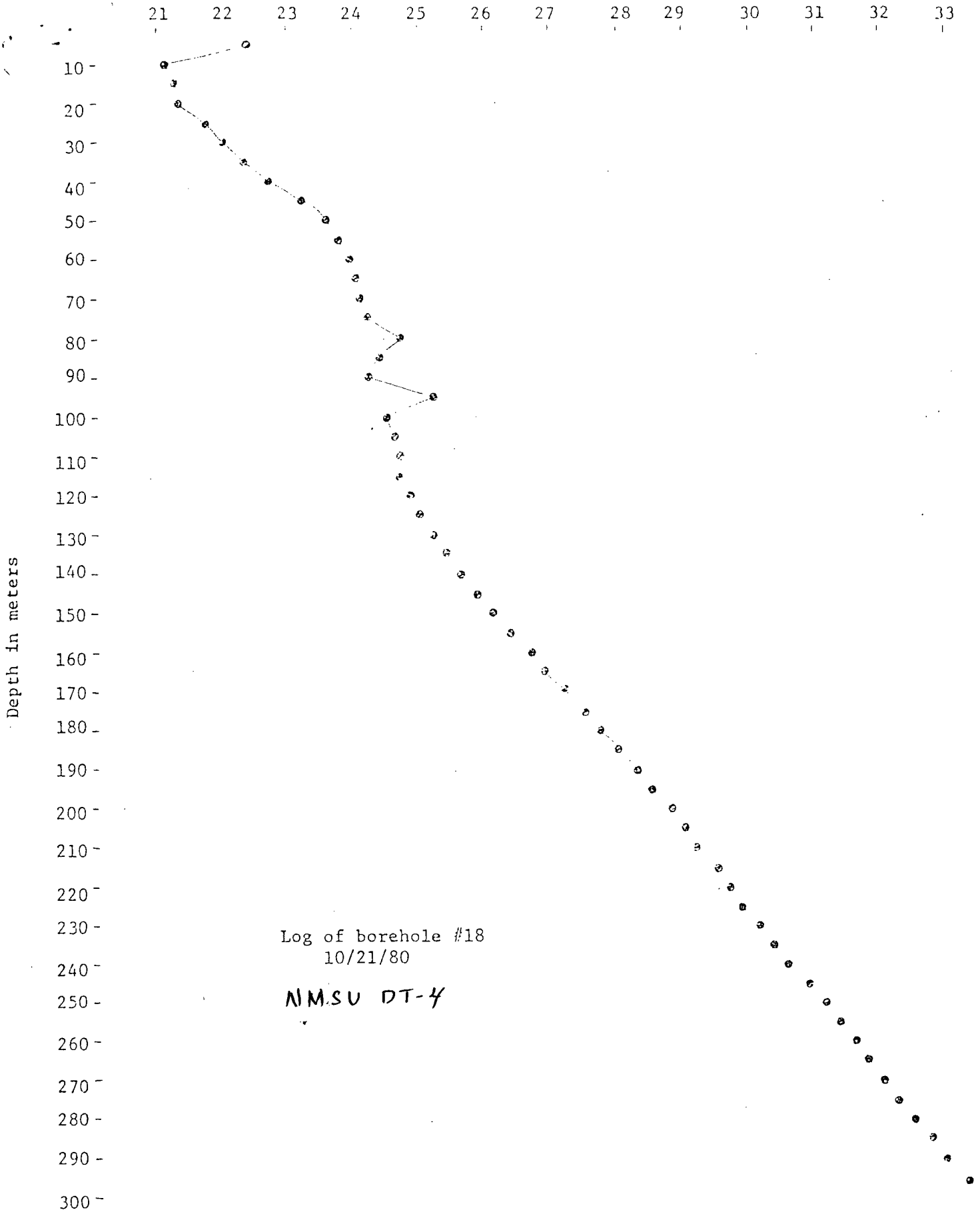


NMSU DT-4

Test Hole #18, Columbus, N.M.

10/21/80

Depth m	Temp.
5	22.40
10	21.13
15	21.27
20	21.32
25	21.78
30	22.02
35	22.35
40	22.76
45	23.21
50	23.63
55	23.80
60	23.99
65	24.07
70	24.15
75	24.23
80	24.73
85	24.43
90	24.27
95	25.26
100	24.52
105	24.66
110	24.74
115	24.75
120	24.88
125	25.05
130	25.26
135	25.49
140	25.70
145	25.93
150	26.18
155	26.44
160	26.72
165	26.99
170	27.25
175	27.53
180	27.78
185	28.06
190	28.32
195	28.57
200	28.84
205	29.07
210	29.28
215	29.53
220	29.74
225	29.96
230	30.20
235	30.47
240	30.69
245	30.99
250	31.24
255	31.47
260	31.67
265	31.88
270	32.10
275	32.32
280	32.58
285	32.85
290	33.09
295	33.39
296	33.40



Log of borehole #18
10/21/80

NMSU DT-4

NMSU DT-4

Test Hole No. 18

Columbus, New Mexico
Logged 17 March, 1981

Depth(m)	Temp. (°C)	Depth(m)	Temp. (°C)
5	19.79	155	26.45
10	20.32	160	26.73
15	20.37	165	27.01
20	20.77	170	27.29
25	21.16	175	27.57
30	21.62	180	27.85
35	22.05	185	28.14
40	22.51	190	28.41
45	22.88	195	28.68
50	23.36	200	28.93
55	23.70	205	29.19
60	23.77	210	29.42
65	23.86	215	29.64
70	23.93	220	29.85
75	23.99	225	30.08
80	24.07	230	30.35
85	24.06	235	30.61
90	24.11	240	30.89
95	24.26	245	31.15
100	24.30	250	31.38
105	24.38	255	31.60
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130	25.19	280	32.71
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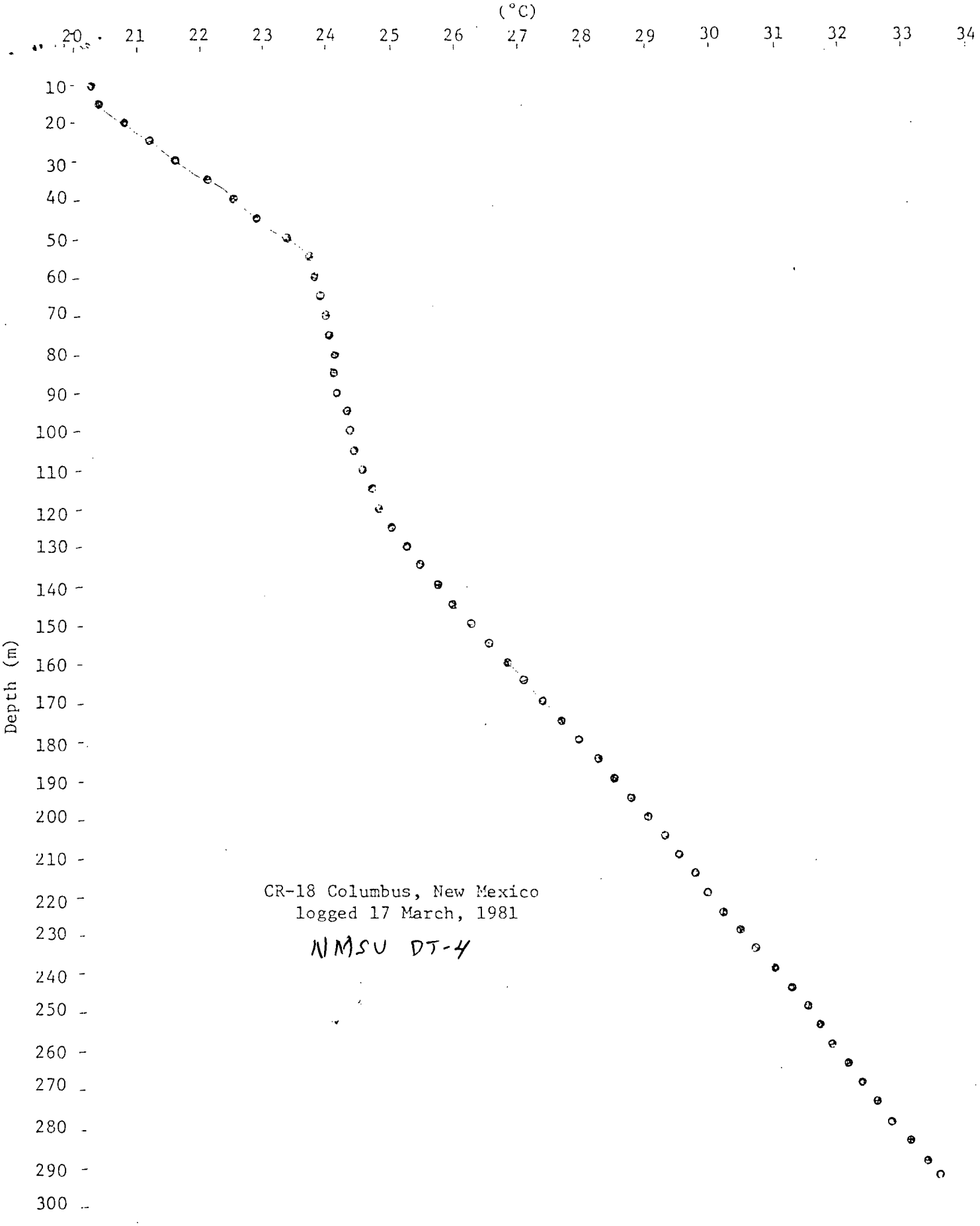
$\frac{\Delta T}{\Delta z} = 50.5 \pm 0.3$ °C/km

$T_o = 18.70 \pm 0.07$°C

for 130 to 293 m

34 pts.


(°C)
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Depth (m)
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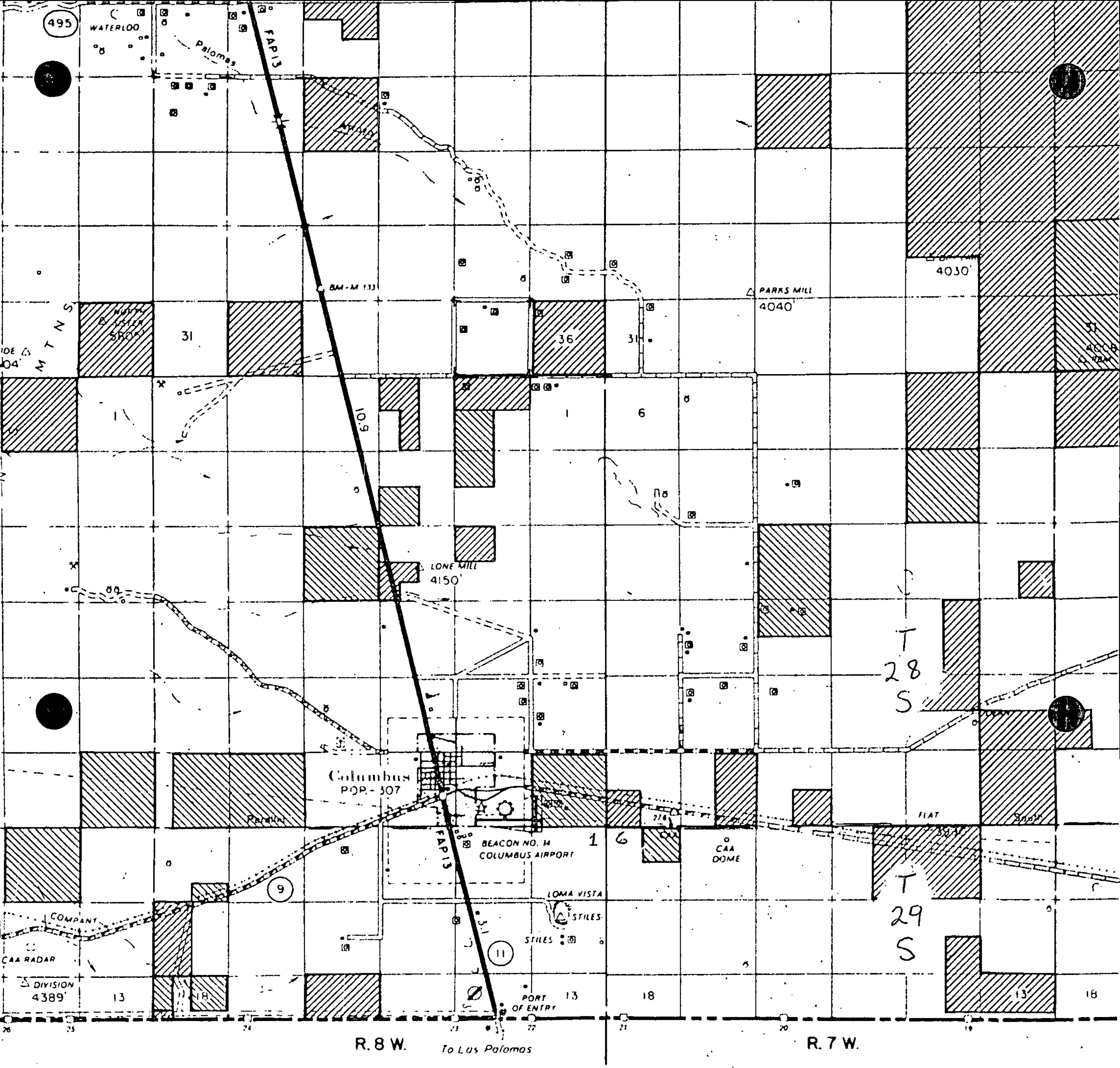
CR-18 Columbus, New Mexico
logged 17 March, 1981
NMSU DT-4



495
WATERLOO
Palomas
FAP 13
BM-M 133
PARKS MILL
4040'
4030'
31
36
1
6
10.9
LONE MILL
4150'
Columbus
POP.-307
FAP 13
BEACON NO. 34
COLUMBUS AIRPORT
CAA
DOME
LOMA VISTA
STILES
STILES
PORT
OF ENTRY
COMPANY
CAA RADAR
DIVISION
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R. 8 W.
To Las Palomas
R. 7 W.