

GL04484

*allow to 320'
Salvage to 580'
Hazard to 620'
The Basalt*

DRILLING HISTORY

Baltazor 1500-2, Humboldt County, Nevada

28 June - 7 July 79

1. OPERATOR: Earth Power Production Company
Tulsa, Oklahoma
 2. CONTRACTOR: American Geothermal Drilling Co.
Tulsa, Oklahoma
 3. WELL LOCATION: T.46N, R.28E, Sec. 14 - NE SW
Elevation: 4250'
 4. SPUD DATE: 28 June 79
 5. COMPLETION DATE: 7 July 79 (Added 30 ft. of tubing
on 18 July 79)
 6. RIG DESCRIPTION: Portadrill Model 524, Serial \$662,
60,000 lb. mast, 5½x8 Gardner-Denver
mud pump, Atlas Copco 125 psi @ 330
CFM air compressor. 2000 ft. 2-7/8"
IF drill pipe. 80 ft. 4½" drill
collars.
 7. TOTAL DEPTH: 1487'
Cased to 1440 with 2-3/8" tubing.
-

<u>DATE</u>	<u>DEPTH</u>	<u>SUMMARY OF OPERATIONS</u>
28 June 79	0-40	Set up water pipeline from Continental Lake. Repair road to site. Rig up. Mix mud. Spud at 5:30 p.m. in coarse gravels and cobbles with 6-3/4" bit.
29 June 79	0-120	Drilling pilot hole with 6-3/4" bit. Hole not staying clean due to large cuttings and gravel. Moderate lost circulation. Depth is 300 ft. at 7:45 p.m. Trip out of hole. Ream hole with 9-7/8" bit. Hole is reamed to 120 ft. at midnight.
30 June 79	120-220	Hole is reamed to 220 ft. at 1:30 a.m. Run 203 ft. of 7" T&C casing hung at 205 ft. Cement basket at 90ft. Cement thru casing with 56 sax Portland Type I-II. Cement returns ~ 35 Gals. to surface. Cement job done at 7:00 a.m. W.O.C. Nipple up at 5:00 p.m. to double manual B.O.P. with blind rams on bottom and 2-7/8" pipe rams on top. Haul mud. Change oil pump. At 10:15 p.m. pressure up on pipe rams on B.O.P. to 250 psi; pressure drops to 234 after 10 Mins. Trip into hole and begin drilling out cement
1 July 79	220-445	Drill out cement to 210' with 6" bit. Wash to 300 ft. Encounter hard basalt at 340. Depth is 350 at noon. Trip out for new bit. Trip in. Interlayered hard basalt and cinders. Depth is 445 at midnight.
2 July 79	445-620	Trip out for new bit. Trip in. Hard formation at 450 ft. Drilling faster at 475. Depth is 580 ft. at noon. Trip out for new bit. Trip in. Depth is 620' at midnight.
3 July 79	620-1000	Trip out at 620 ft. New bit. Trip in. Very hard to 710'. Intermittent hard to 820'. Very hard to 880'. Depth is 880 at noon. Depth is 970' at 8:00 p.m. Mud return temperature is 80°F. Depth is 1000 at 10:00 p.m. Trip out of hole.

<u>DATE</u>	<u>DEPTH</u>	<u>SUMMARY OF OPERATIONS</u>
4 July 79	1000	Holiday.
5 July 79	1000-1200	Start up again at 6:00 a.m. Rebuild swivel. Trip into hole. Wash to 400. Losing circulation. Mix up new pits with LCM. Circulation recovered. On bottom at noon. Depth is 1050' @ 2:10 p.m. Mud return temperature is 91°F. Depth is 1200 ft. at midnight.
6 July 79	1200-1487	Drilling thru intermittent hard basalts ~2-5 ft. thick. Lost circulation at 1240'. Mix up new pits with LCM. Circulation recovered. Very hard formation 1355-1405 ft. Depth is 1420 ft. at noon. Depth is 1487 ft. at 4:30 p.m. Mud return temperature is 96°F. Mud pump breaks down. Trip out of hole.
7 July 79	1487	Haul tubing to site. Run 1410 ft. of 2-3/8" tubing. Rig down.
18 July 79	1487	Add 30 ft. of 2-3/8" tubing to bring total to 1440 ft.

DRILLING HISTORY

Baltazor 1500-2, Humboldt County, Nevada

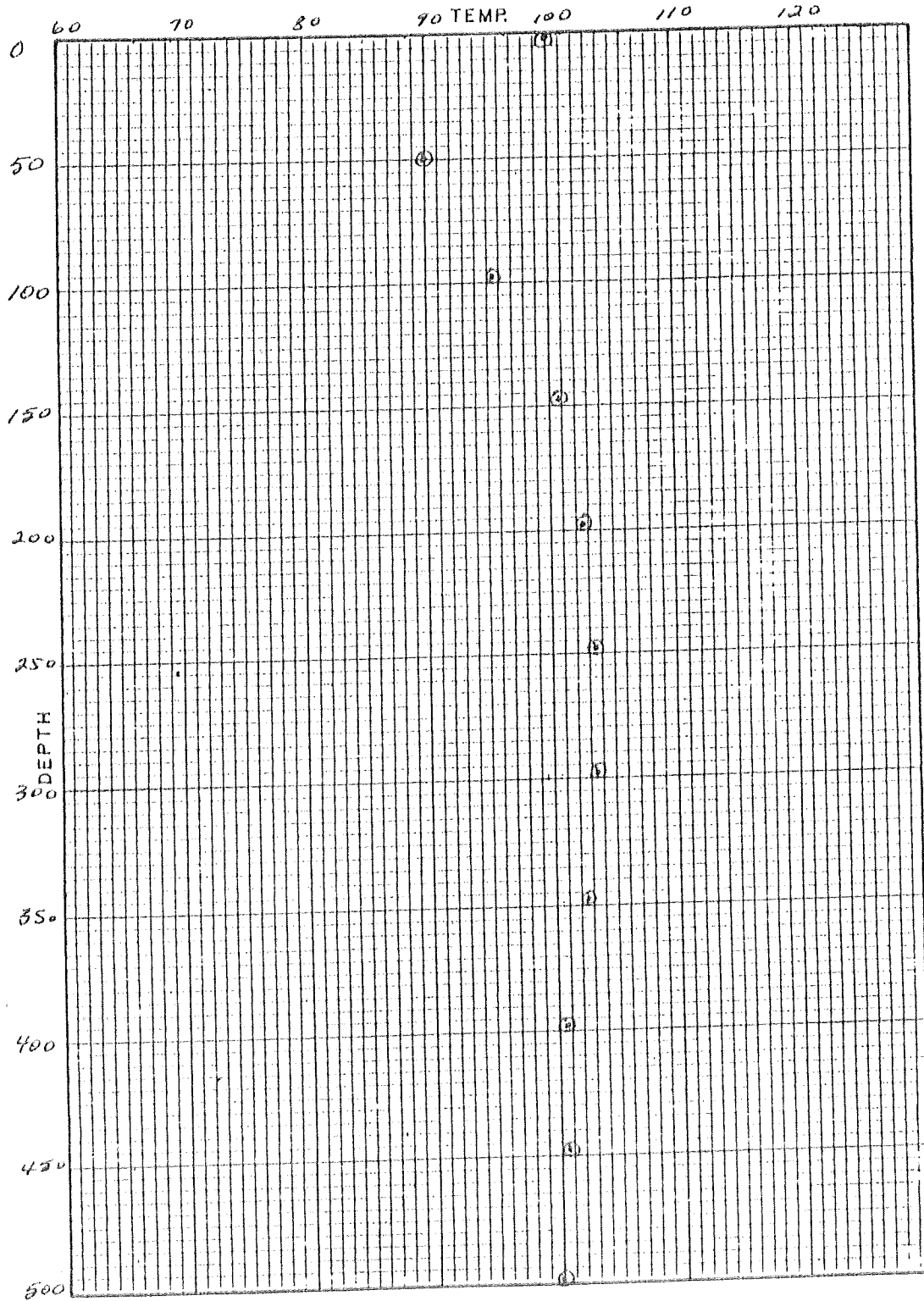
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Cased to 1440 with 2-3/8" tubing.
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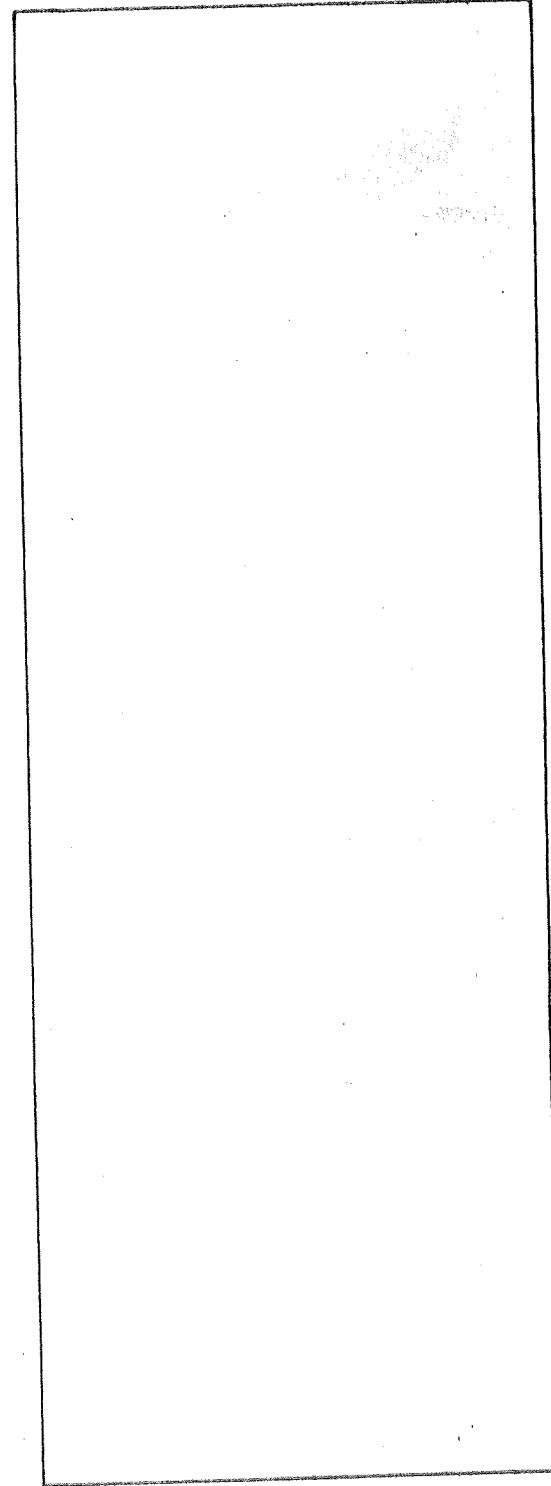
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29 June 79	0-120	Drilling pilot hole with 6-3/4" bit. Hole not staying clean due to large cuttings and gravel. Moderate lost circulation. Depth is 300 ft. at 7:45 p.m. Trip out of hole. Ream hole with 9-7/8" bit. Hole is reamed to 120 ft. at midnight.
30 June 79	120-220	Hole is reamed to 220 ft. at 1:30 a.m. Run 203 ft. of 7" T&C casing hung at 205 ft. Cement basket at 90ft. Cement thru casing with 56 sax Portland Type I-II. Cement returns ~35 Gals. to surface. Cement job done at 7:00 a.m. W.O.C. Nipple up at 5:00 p.m. to double manual B.O.P. with blind rams on bottom and 2-7/8" pipe rams on top. Haul mud. Change oil pump. At 10:15 p.m.: pressure up on pipe rams on B.O.P. to 250 psi; pressure drops to 234 after 10 Mins. Trip into hole and begin drilling out cement
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3 July 79	620-1000	Trip out at 620 ft. New bit. Trip in. Very hard to 710'. Intermittent hard to 820'. Very hard to 880'. Depth is 880 at noon. Depth is 970' at 8:00 p.m. Mud return temperature is 80°F. Depth is 1000 at 10:00 p.m. Trip out of hole.

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5 July 79	1000-1200	Start up again at 6:00 a.m. Rebuild swivel. Trip into hole. Wash to 400. Losing circulation. Mix up new pits with LCM. Circulation recovered. On bottom at noon. Depth is 1050' @ 2:10 p.m. Mud return temperature is 91 ^o F. Depth is 1200 ft. at midnight.
6 July 79	1200-1487	Drilling thru intermittent hard basalts ~2-5 ft. thick. Lost circulation at 1240'. Mix up new pits with LCM. Circulation recovered. Very hard formation 1355-1405 ft. Depth is 1420 ft. at noon. Depth is 1487 ft. at 4:30 p.m. Mud return temperature is 96 ^o F. Mud pump breaks down. Trip out of hole.
7 July 79	1487	Haul tubing to site. Run 1410 ft. of 2-3/8" tubing. Rig down.
18 July 79	1487	Add 30 ft. of 2-3/8" tubing to bring total to 1440 ft.

DEPTH	TEMP.	DEPTH	TEMP.
0	100.4	250	104.9
	95.4		105.0
	92.0		105.0
	89.0		104.9
	88.6		104.8
50	90.5	300	104.4
	91.8		104.2
	92.6		104.0
	93.7		103.7
	95.2		103.4
100	96.8	350	103.1
	98.2		102.8
	99.0		102.6
	99.9		102.3
	100.9		102.0
150	101.6	400	101.8
	102.2		101.4
	102.8		101.1
	103.2		101.2
	103.5		101.3
200	103.8	450	101.2
	104.1		100.4
	104.4		98.2
	104.5		98.2
	104.7		99.0



Balfagon LITHOLOGY HOLE # 1500-2

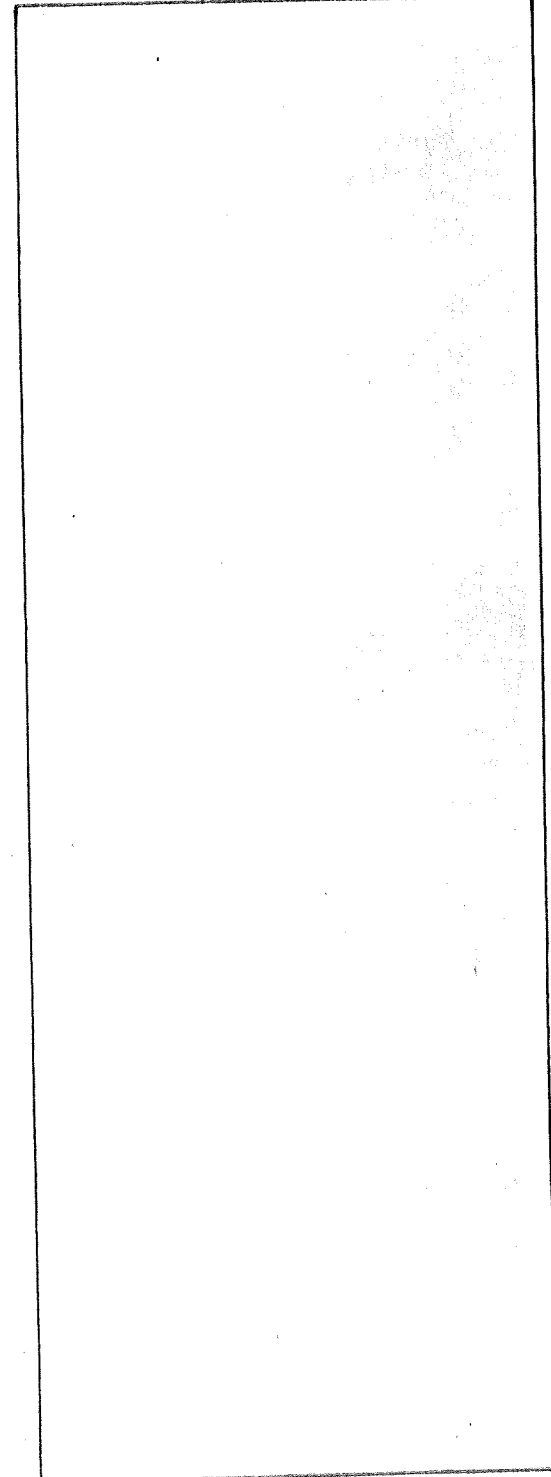
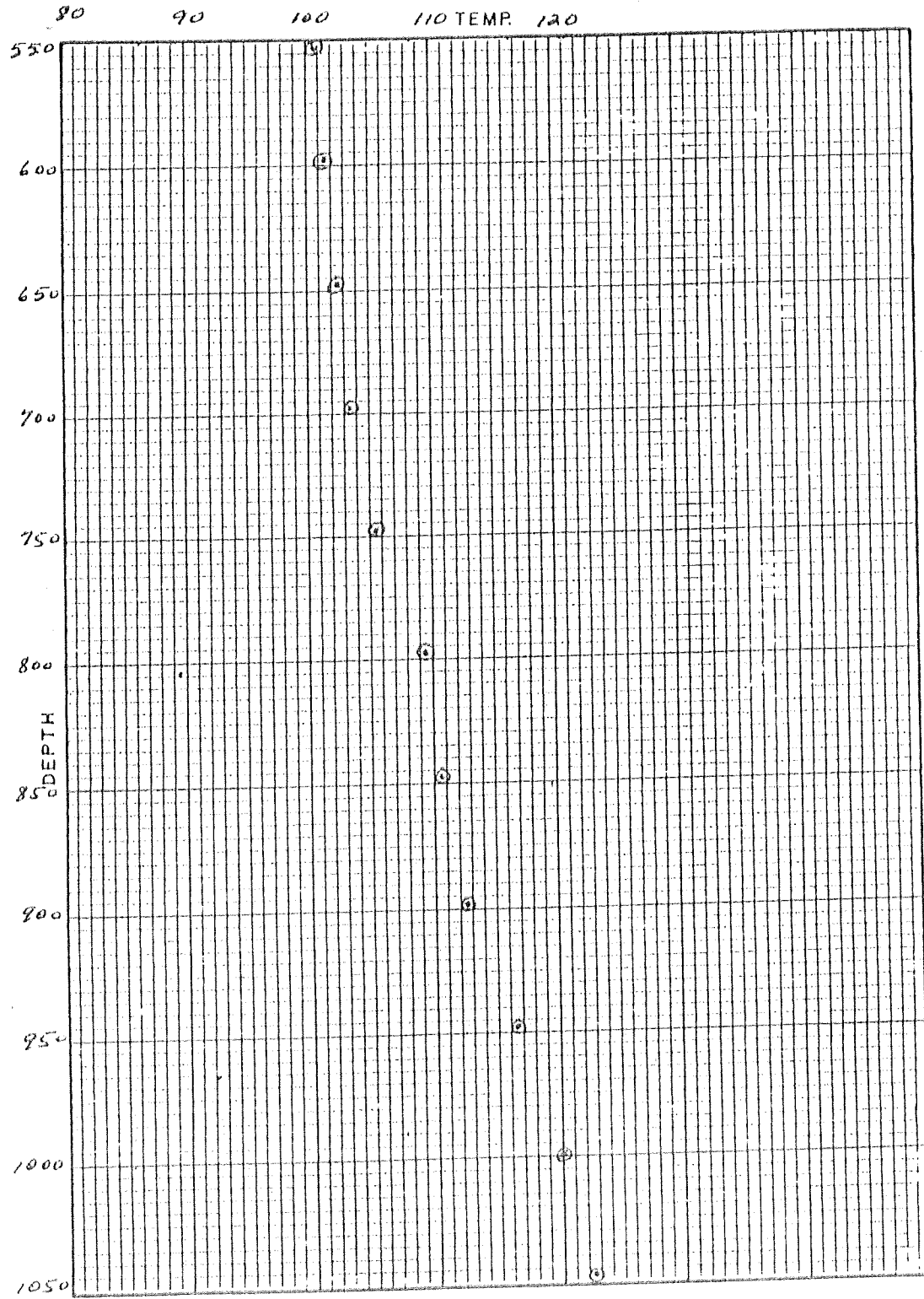


GRADIENT 1487'
T.D. 154.3
TEMP. AT T.D. 103.1
SURVEY DATE 27 July 79
SURVEY BY EPPC

PROSPECT Balfagon
LOCATION Humboldt Co., Nevada
SURF. ELEV. 7 July 79
DATE DRLD. 7 July 79

EARTH POWER
PRODUCTION COMPANY
TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
500	100.3	750	106.9
	101.0		107.1
	101.3		107.6
	101.5		107.8
	101.6		108.3
550	101.7	800	109.1
	101.8		109.4
	101.9		109.6
	102.1		110.1
	102.5		110.9
600	102.7	850	111.3
	102.9		111.4
	103.0		111.7
	103.1		113.1
	103.2		113.4
650	103.5	900	113.6
	103.7		114.9
	103.8		115.9
	104.1		116.8
	104.4		117.5
700	104.8	950	117.8
	105.2		118.2
	105.6		118.8
	106.0		119.2
	106.4		120.0



GRADIENT 1487'
T.D. 154.3
TEMP. AT T.D. 154.3
SURVEY DATE 27 JULY 79
SURVEY BY EPAC

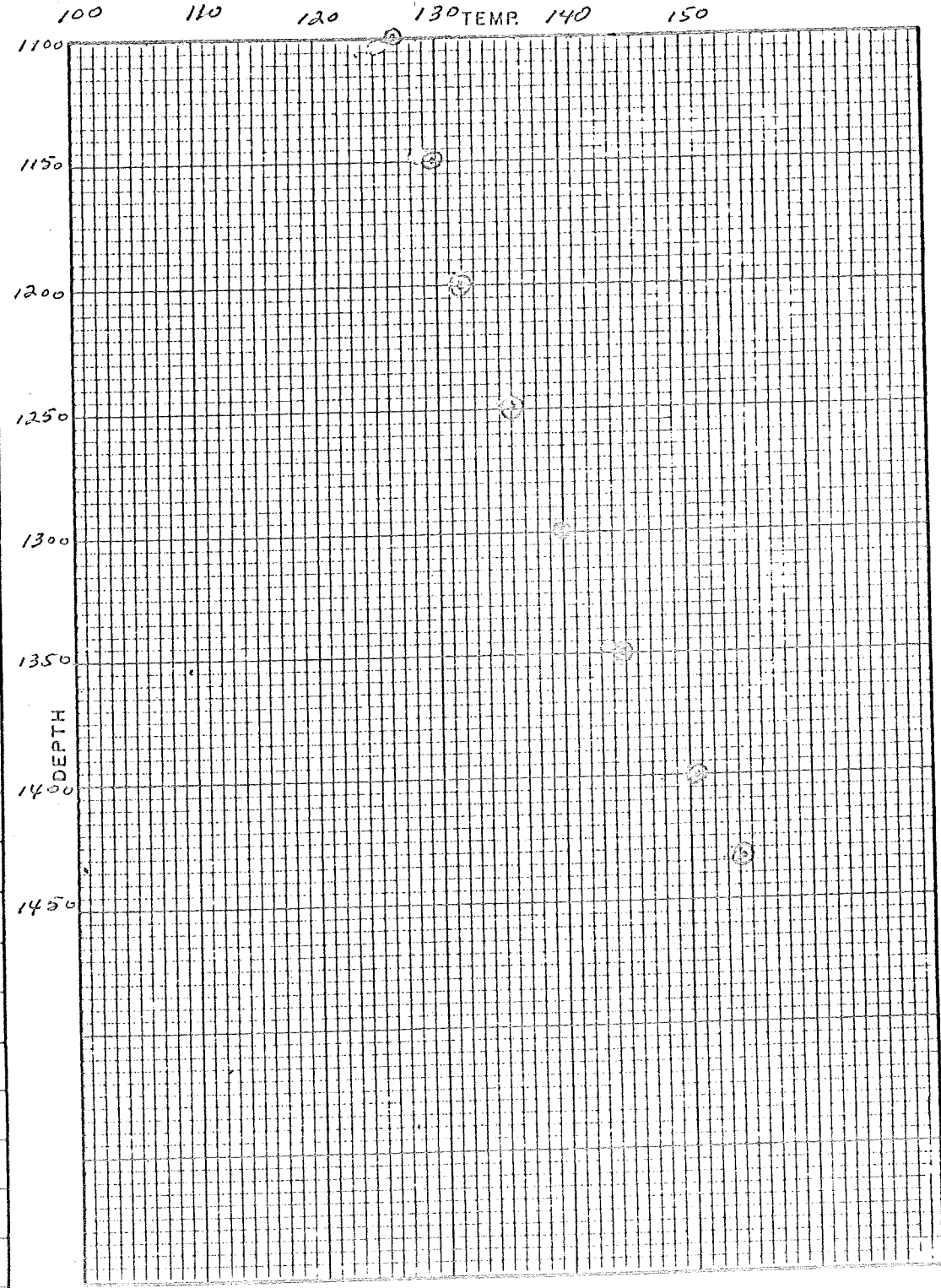
PROSPECT Baltzer
LOCATION Bombardier Co., Nevada
SURF. ELEV. 7 July 79
DATE DRLD. 7 July 79

EARTH POWER
PRODUCTION COMPANY
TULSA, OKLAHOMA

R 3

Baltzer HOLE # 1500-2
LITHOLOGY

DEPTH	TEMP.	DEPTH	TEMP.
1000	120.4	1250	136.0
	120.9		136.2
	121.6		136.9
	122.5		138.0
	123.0		139.0
1050	123.4	1300	140.0
	124.0		141.0
	125.0		142.0
	125.6		143.1
	126.1		143.8
1100	126.9	1350	144.9
	127.5		145.9
	128.1		147.2
	128.7		148.2
	129.3		149.5
1150	129.8	1400	150.6
	130.1		151.9
	130.5		153.0
	131.2		154.1
	131.6	TD 1434	154.3
1200	132.0		
	132.4		
	133.1		
	134.1		
	134.8		



GRADIENT _____ 14.87'

T.D. _____ 154.3

TEMP. AT T.D. _____ 27 July 79

SURVEY DATE _____ EPPC

SURVEY BY _____

PROSPECT Baltzer

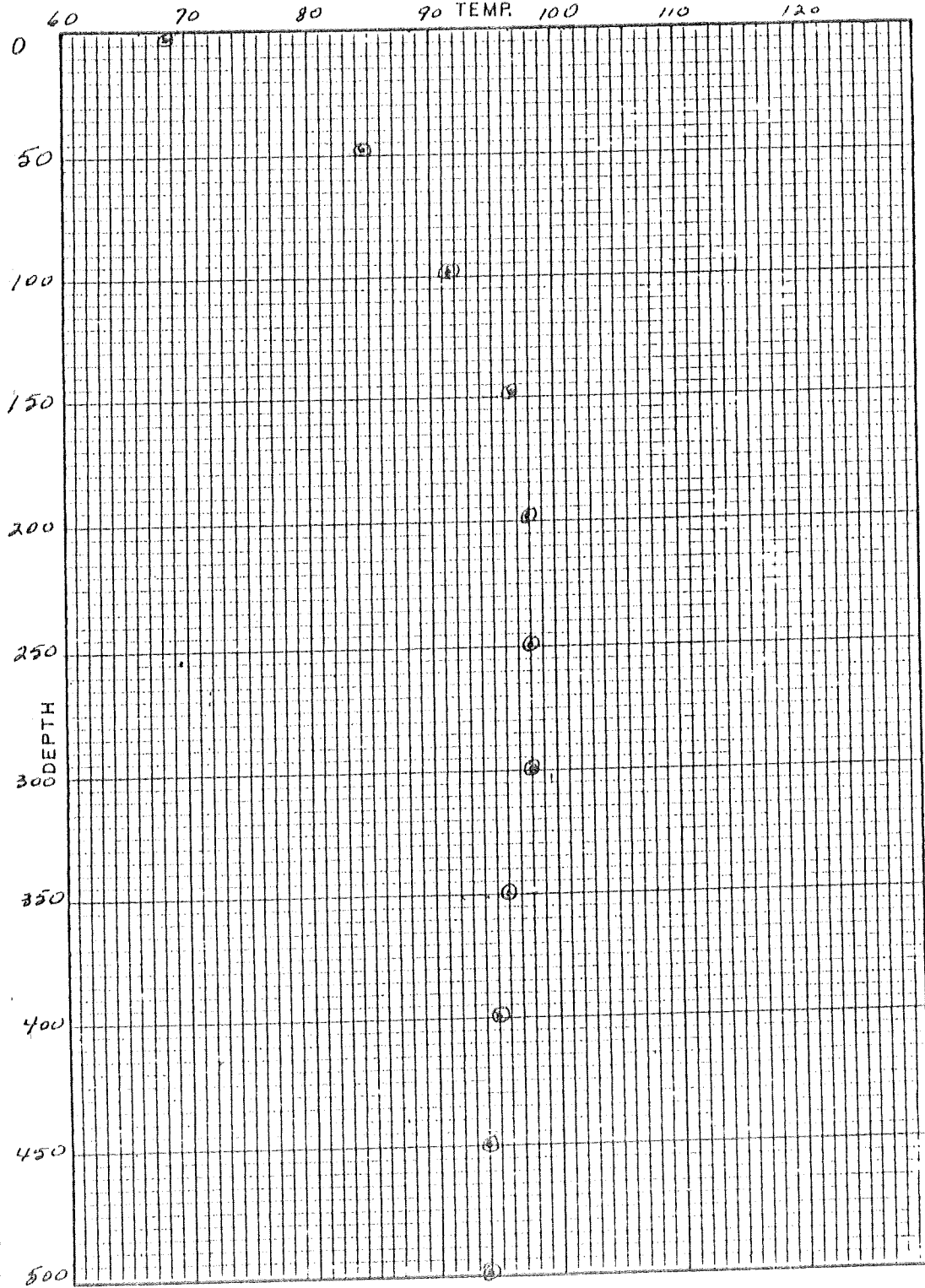
LOCATION Chamberlain Co., Nevada

SURF. ELEV. _____

DATE DRLD. 7 July 79

EARTH POWER
PRODUCTION COMPANY
TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
10	69.5		98.9
	70.3		98.8
	72.1		98.7
	74.0		98.3
50	85.5	300	98.1
	86.6		98.0
	88.0		97.7
	90.0		97.4
	91.2		97.0
100	92.6	350	96.8
	93.9		96.5
	94.6		96.3
	95.5		96.0
	96.4		95.8
150	97.0	400	95.2
	97.4		94.8
	97.8		94.9
	97.9		95.0
	98.0		95.0
200	88.3	450	94.3
	98.5		92.4
	98.6		91.8
	98.6		92.5
	98.8		93.4
250	98.9	500	94.2



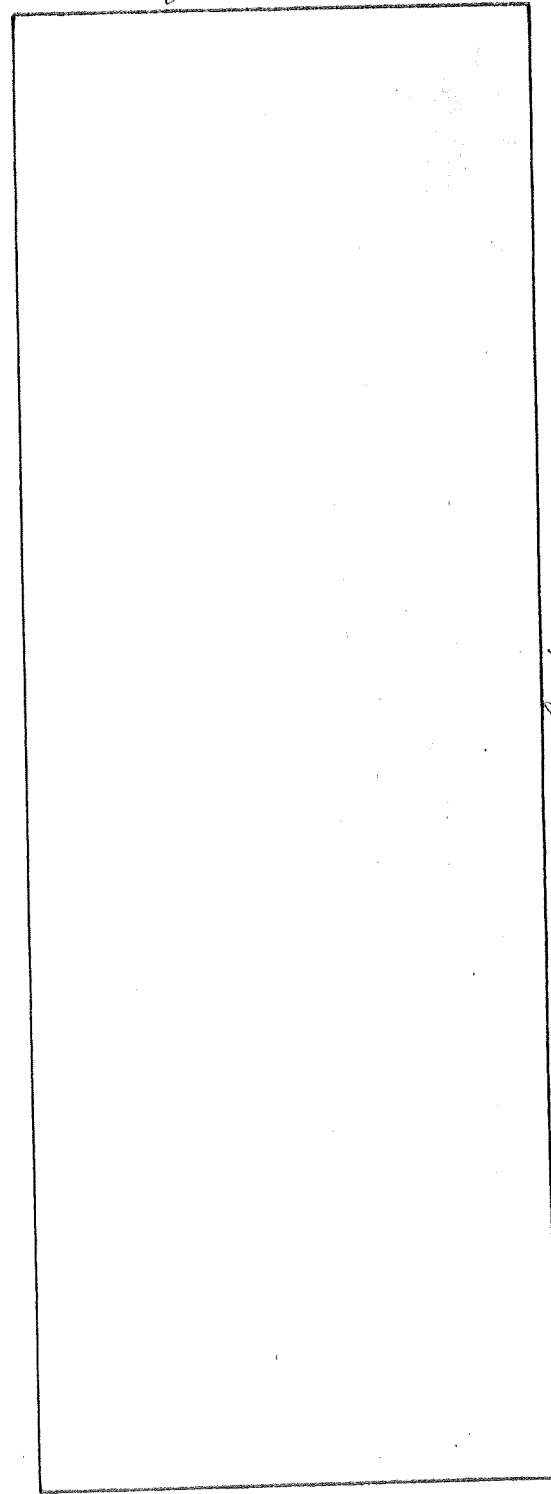
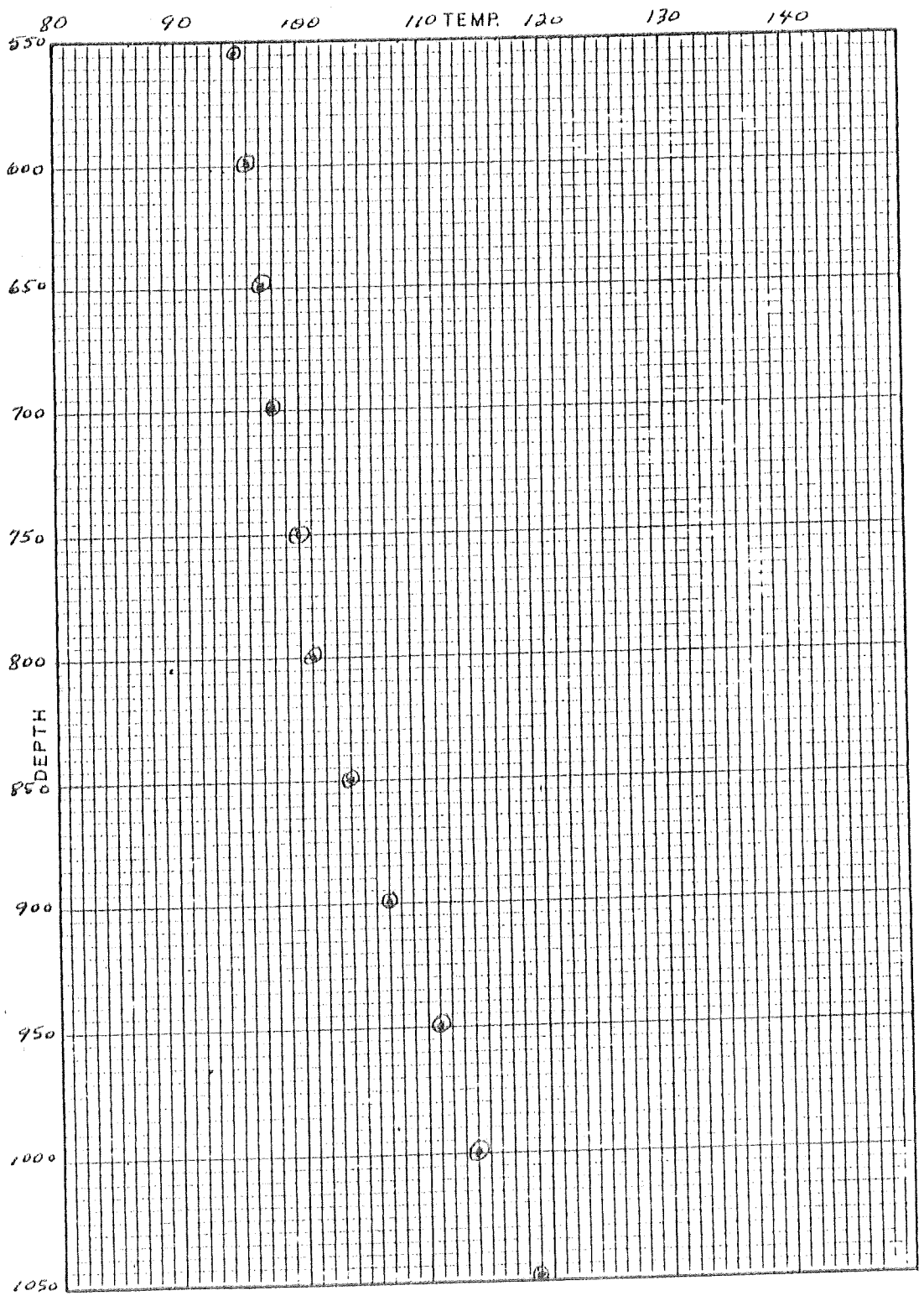
Baltazar LITHOLOGY HOLE # 1500-2

Temps every 10'

PROSPECT Baltazar GRADIENT 1487'
 LOCATION Cumboldt co., T.D. 147.3
Merada SURVEY DATE _____
 SURF. ELEV. _____ SURVEY BY _____
 DATE DRLD. 7 July 79

EARTH POWER
 PRODUCTION COMPANY
 TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
510	94.6		100.5
	95.0		100.8
	95.2		101.4
	95.4		102.0
550	95.4	800	102.5
	95.5		102.9
	95.5		103.9
	96.0		104.3
	96.2		104.6
600	96.2	850	104.8
	96.5		105.1
	96.7		105.5
	96.9		105.5
	97.1		106.2
650	97.3	900	107.6
	97.4		108.4
	97.6		109.4
	97.8		110.1
	98.1		110.8
700	98.4	950	111.4
	98.8		112.0
	99.0		112.7
	99.4		113.4
	99.4		114.1
750	100.0	1000	114.9

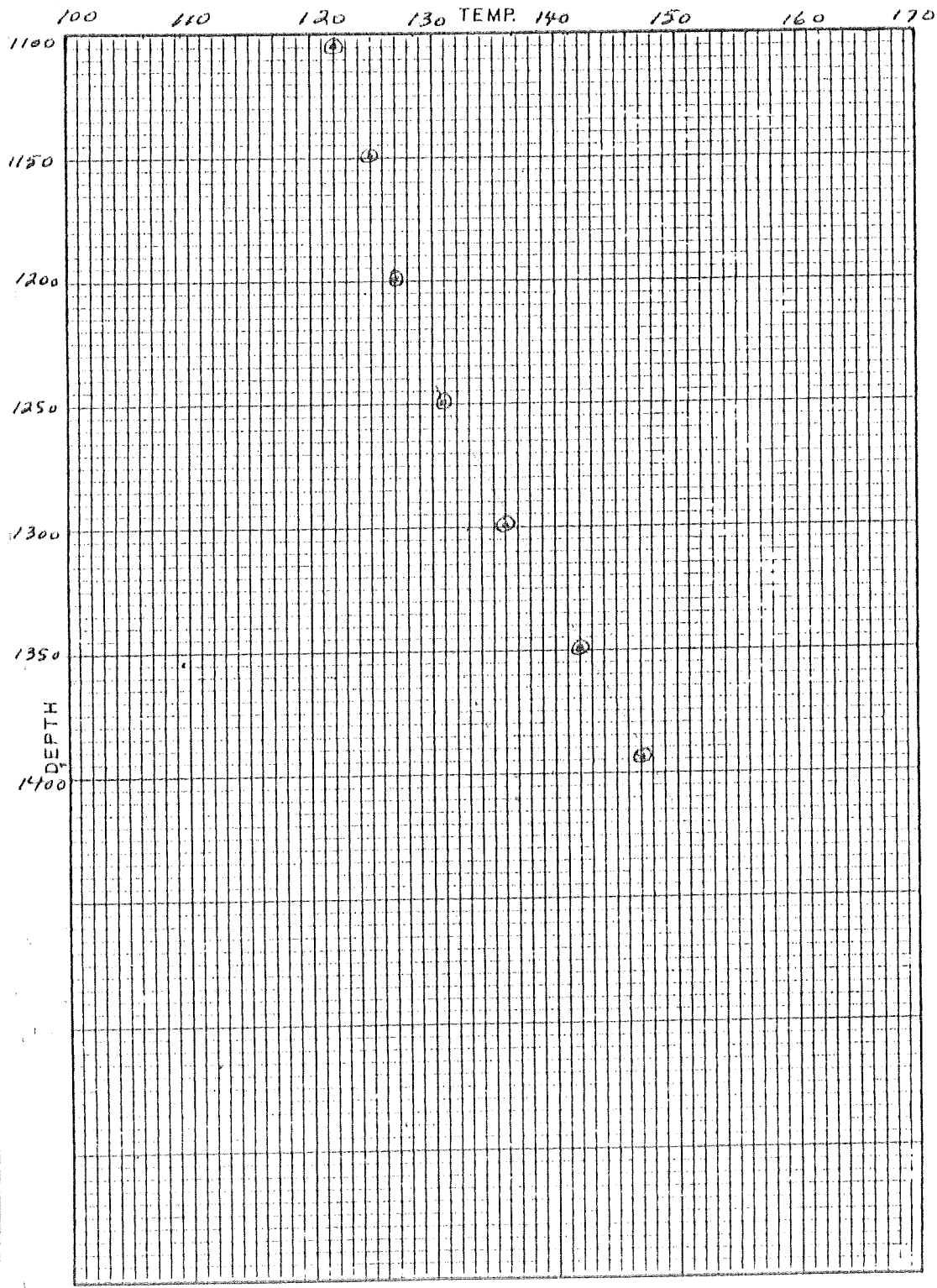


PROSPECT Battagay
 LOCATION Humble Oil Co.
 SURF. ELEV. 751.0
 DATE DRLD. 7 July 79

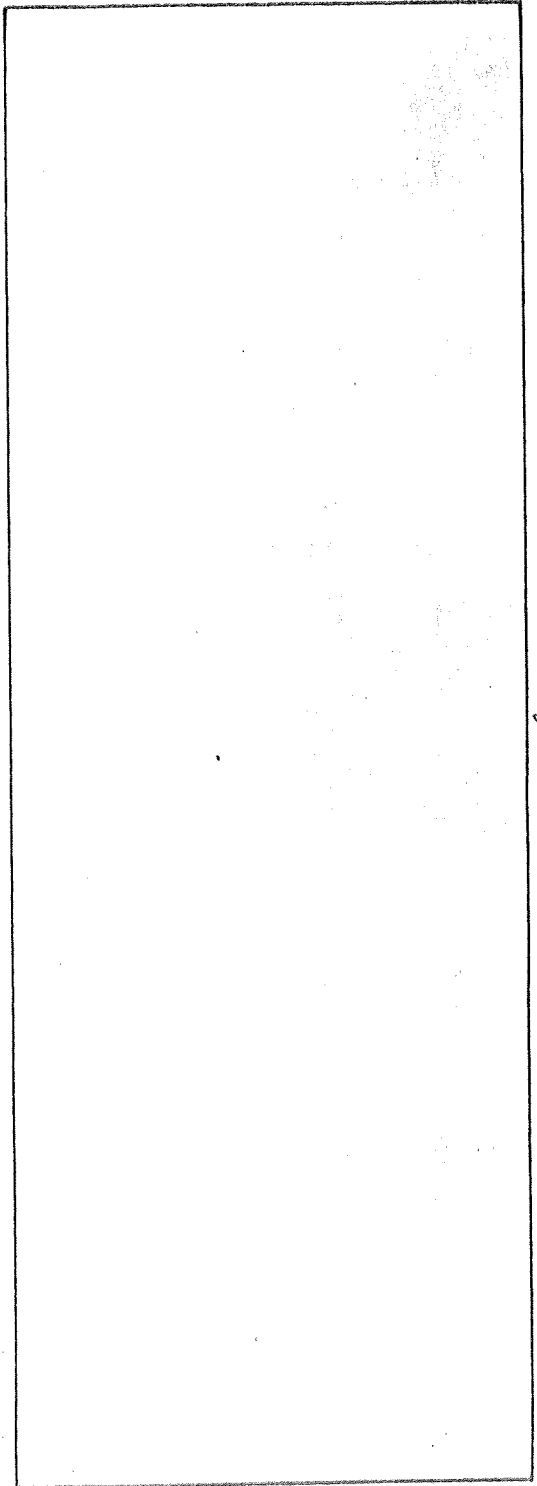
GRADIENT 1487'
 T.D. 147.3
 TEMP. AT T.D. _____
 SURVEY DATE _____
 SURVEY BY _____

EARTH POWER
 PRODUCTION COMPANY
 TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
1010	115.7		132.5
	116.5		133.4
	117.3		135.2
	118.2		136.0
1050	119.0	1300	136.9
	119.6		137.9
	120.4		138.9
	121.0		140.1
	121.8		141.4
1100	122.3	1350	142.7
	123.0		143.6
	123.6		144.8
	124.2		146.1
	124.7		147.1
1150	125.2	TD 1395	147.3
	125.5		
	125.8		
	126.4		
	126.8		
1200	127.3		
	128.1		
	129.2		
	130.1		
	131.2		
1250	131.6		



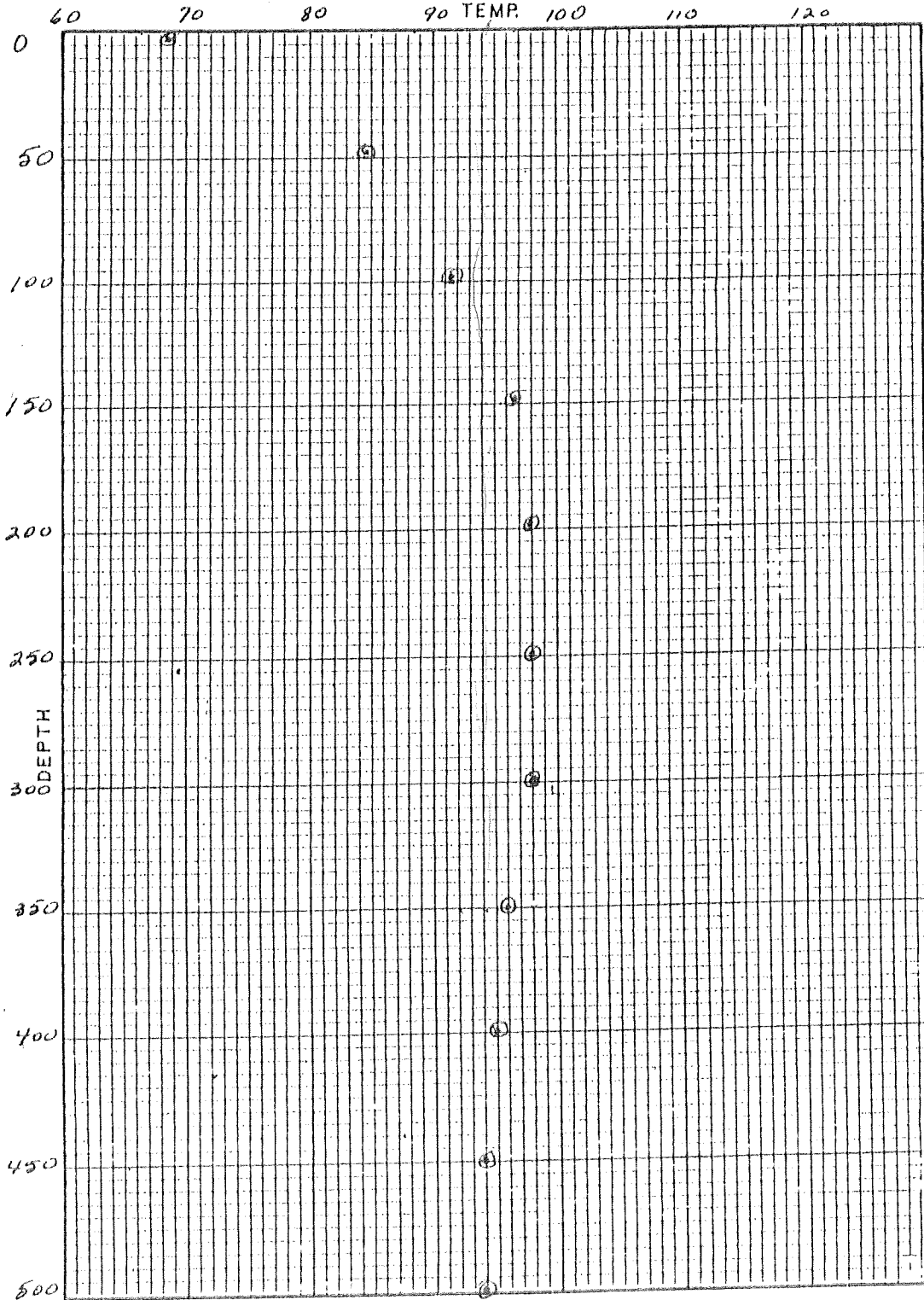
Battagor LITHOLOGY HOLE # 1500-2



PROSPECT Battagor GRADIENT 1487'
 LOCATION Hamblitt Co., Nevada T.D. 147.3
 SURF. ELEV. 7 July 79 TEMP. AT T.D. 147.3
 DATE DRLD. 7 July 79 SURVEY DATE
 SURVEY BY

EARTH POWER
 PRODUCTION COMPANY
 TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
10	69.5		98.9
	70.3		98.8
	72.1		98.7
	74.0		98.3
50	85.5	300	98.1
	86.6		98.0
	88.0		97.7
	90.0		97.4
	91.2		97.0
100	92.6	350	96.8
	93.9		96.5
	94.6		96.3
	95.5		96.0
	96.4		95.8
150	97.0	400	95.2
	97.4		94.8
	97.8		94.9
	97.9		95.0
	98.0		95.0
200	88.3	450	94.3
	98.5		92.4
	98.6		91.8
	98.6		92.5
	98.8		93.4
250	98.9	500	94.2



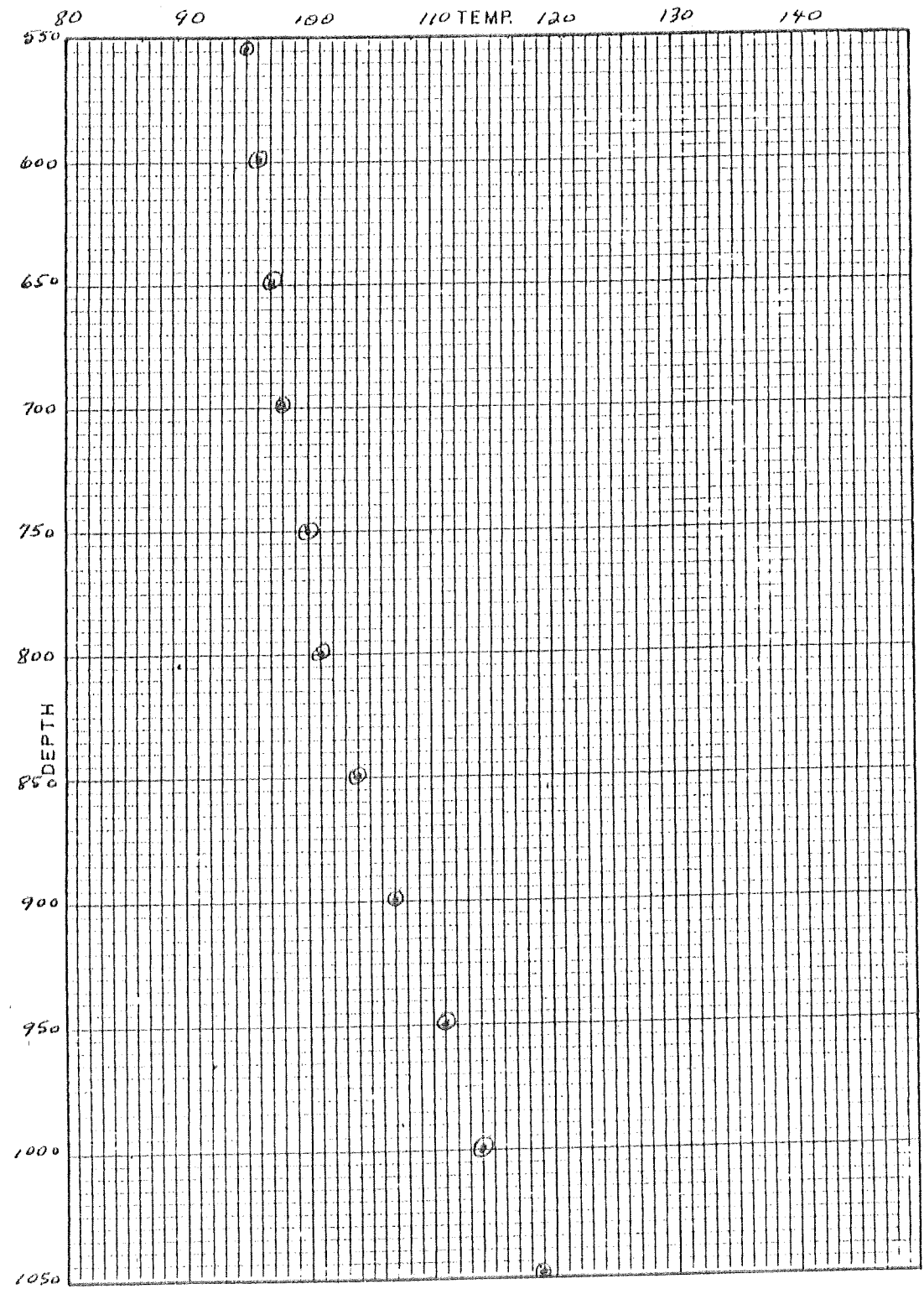
Baltazar LITHOLOGY HOLE # 1500-2

Temps every 10'

PROSPECT Baltazar GRADIENT 1487'
 LOCATION Chamberlain co., T.D. 147.3
Trade SURVEY DATE _____
 SURF. ELEV. _____ SURVEY BY _____
 DATE DRLD. 7 July 79

EARTH POWER
 PRODUCTION COMPANY
 TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
510	94.6		100.5
	95.0		100.8
	95.2		101.4
	95.4		102.0
550	95.4	800	102.5
	95.5		102.9
	95.5		103.9
	96.0		104.3
	96.2		104.6
600	96.2	850	104.8
	96.5		105.1
	96.7		105.5
	96.9		105.5
	97.1		106.2
650	97.3	900	107.6
	97.4		108.4
	97.6		109.4
	97.8		110.1
	98.1		110.8
700	98.4	950	111.4
	98.8		112.0
	99.0		112.7
	99.4		113.4
	99.4		114.1
750	100.0	1000	114.9

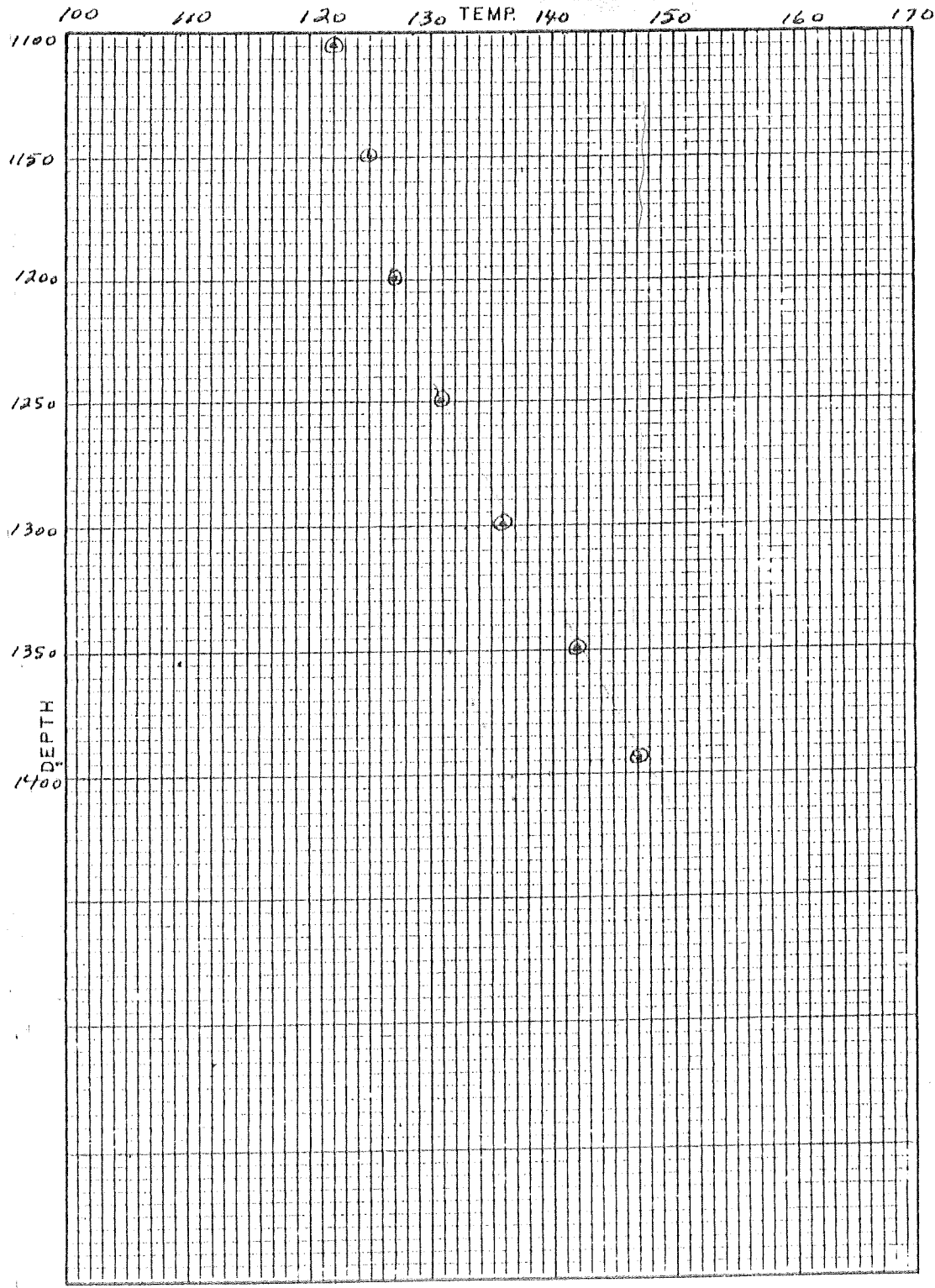


Battogee LITHOLOGY HOLE # 1500-2

PROSPECT Battogee GRADIENT 1487'
 LOCATION Bumblebee Mt Co. T.D. 147.3
 SURF. ELEV. 1147.3 SURVEY DATE _____
 DATE DRLD. 7 July 79 SURVEY BY _____

EARTH POWER
PRODUCTION COMPANY
 TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
1010	115.7		132.5
	116.5		133.4
	117.3		135.2
	118.2		136.0
1050	119.0	1300	136.9
	119.6		137.9
	120.4		138.9
	121.0		140.1
	121.8		141.4
1100	122.3	1350	142.7
	123.0		143.6
	123.6		144.8
	124.2		146.1
	124.7		147.1
1150	125.2	TP 1395	147.3
	125.5		
	125.8		
	126.4		
	126.8		
1200	127.3		
	128.1		
	129.2		
	130.1		
	131.2		
1250	131.6		

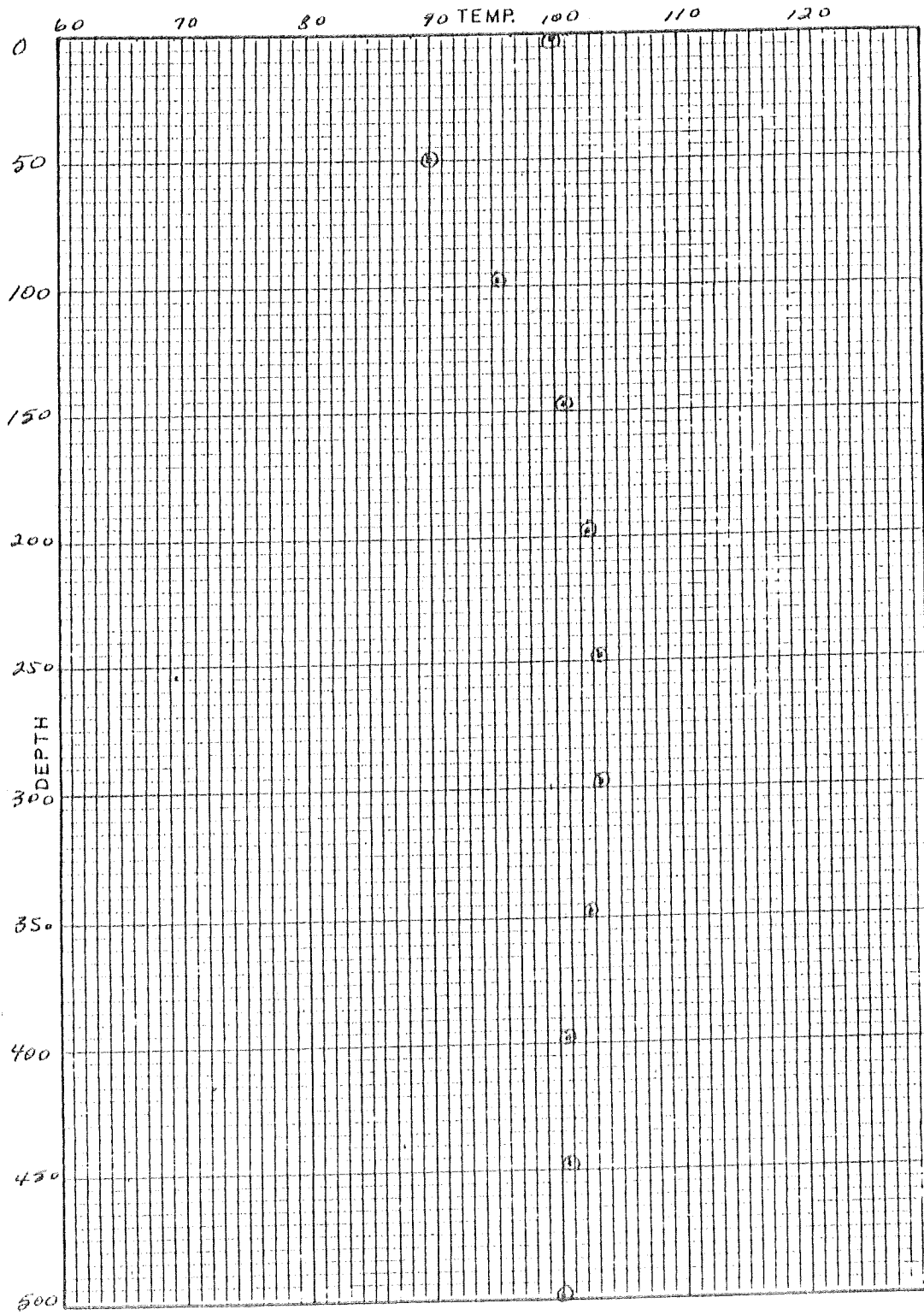


Baltzer LITHOLOGY HOLE # 1500-2

PROSPECT Baltzer GRADIENT 1487'
 LOCATION Humboldt Co., Nevada T.D. 1487'
 SURF. ELEV. 7 July 79 TEMP. AT T.D. 147.3
 DATE DRLD. 7 July 79 SURVEY DATE _____
 SURVEY BY _____

EARTH POWER
 PRODUCTION COMPANY
 TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
0	100.4	250	104.9
	95.4		105.0
	92.0		105.0
30	89.0		104.9
	88.6		104.8
50	90.5	300	104.4
60	91.8		104.2
70	92.6		104.0
80	93.7		103.7
90	95.2		103.4
100	96.8	350	103.1
	98.2		102.8
	99.0		102.6
	99.9		102.3
	100.9		102.0
150	101.6	400	101.8
	102.2		101.4
	102.8		101.1
	103.2		101.2
	103.5		101.3
200	103.8	450	101.2
	104.1		100.4
	104.4		98.2
	104.5		98.2
	104.7		99.0



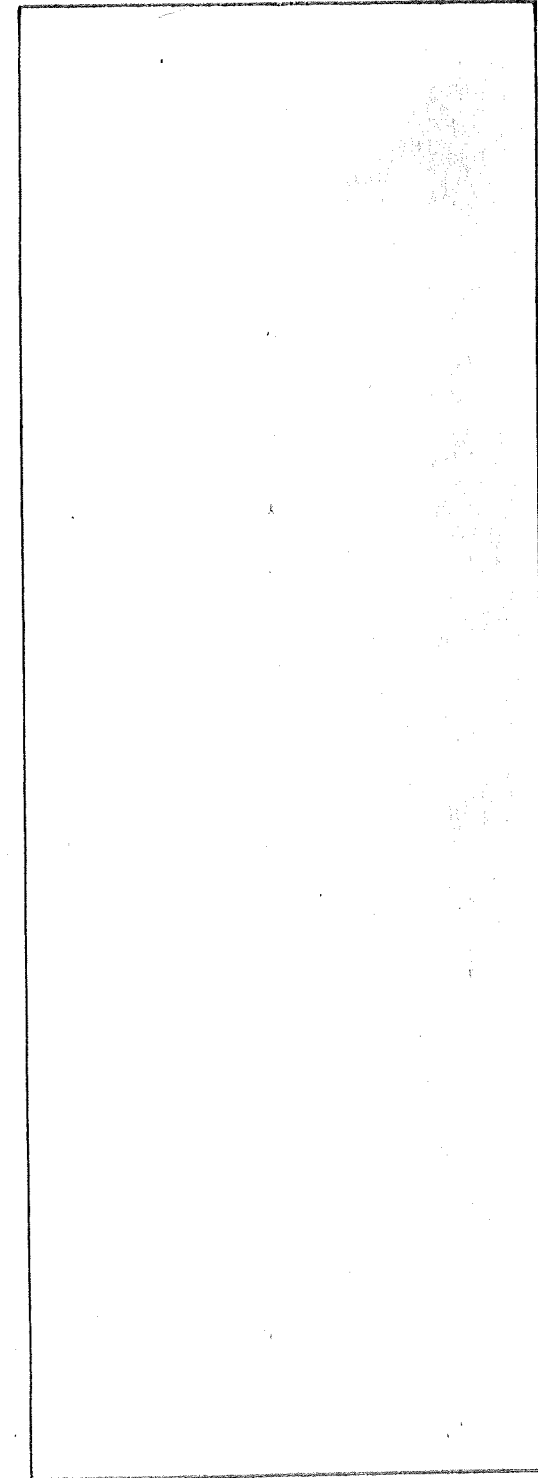
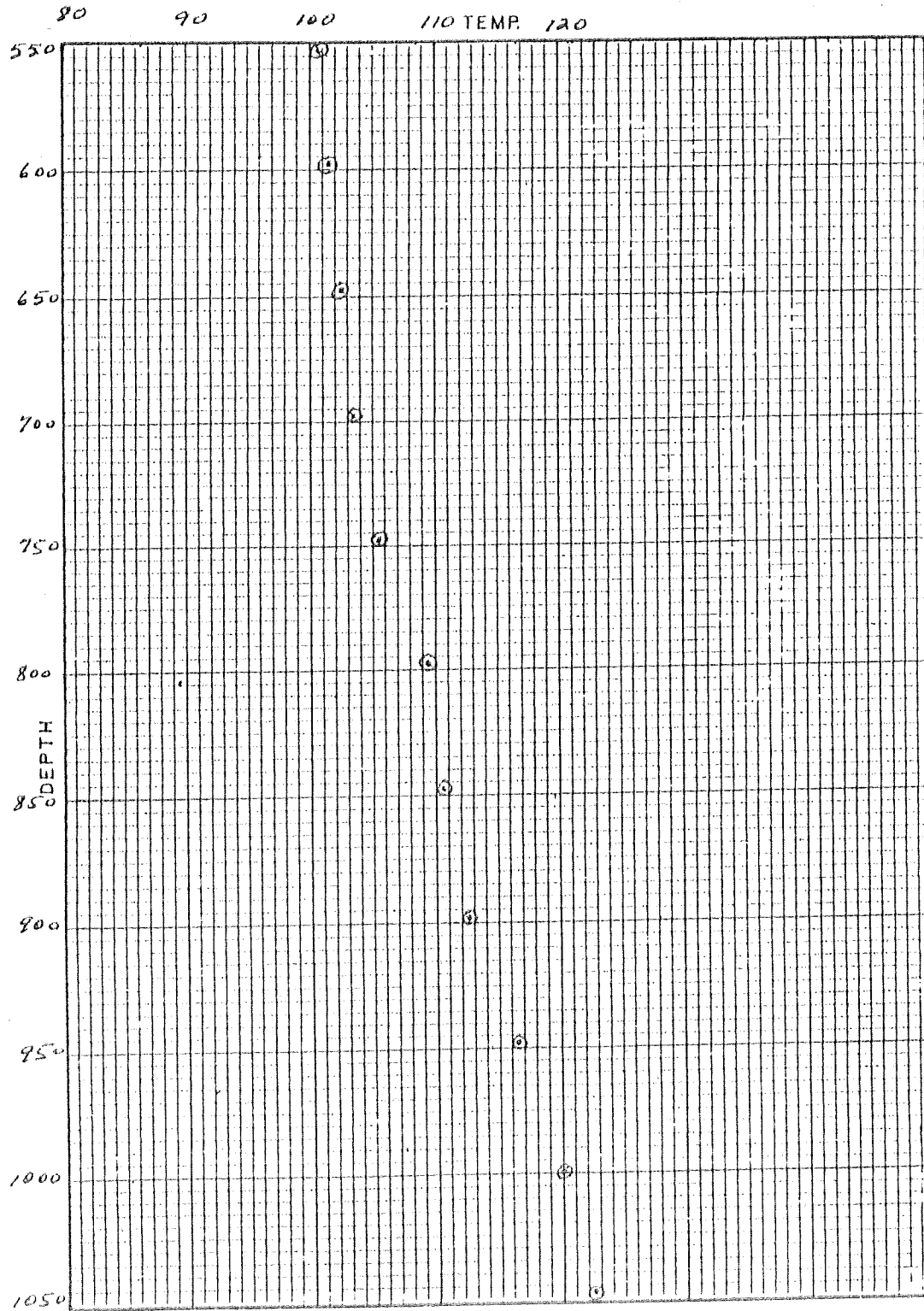
Baltagon HOLE # 1500-2
LITHOLOGY

GRADIENT 1487'
T.D. 154.3
TEMP. AT T.D. 154.3
SURVEY DATE 27 July 79
SURVEY BY EPPC

PROSPECT Balte 3 Br
LOCATION Bombard Co.,
Nebraska
SURF. ELEV. 7 July 79
DATE DRLD. 7 July 79

EARTH POWER
PRODUCTION COMPANY
TULSA, OKLAHOMA

DEPTH	TEMP.	DEPTH	TEMP.
500	100.3	750	106.9
	101.0		107.1
	101.3		107.6
	101.5		107.8
	101.6		108.3
550	101.7	800	109.1
	101.8		109.4
	101.9		109.6
	102.1		110.1
	102.5		110.9
600	102.7	850	111.3
	102.9		111.4
	103.0		111.7
	103.1		113.1
	103.2		113.4
650	103.5	900	113.6
	103.7		114.9
	103.8		115.9
	104.1		116.8
	104.4		117.5
700	104.8	950	117.8
	105.2		118.2
	105.6		118.8
	106.0		119.2
	106.4		120.0



PROSPECT Balteser
 LOCATION Thunderbolt Co., Texas
 SURF. ELEV. _____
 DATE DRLD. 7 July 79

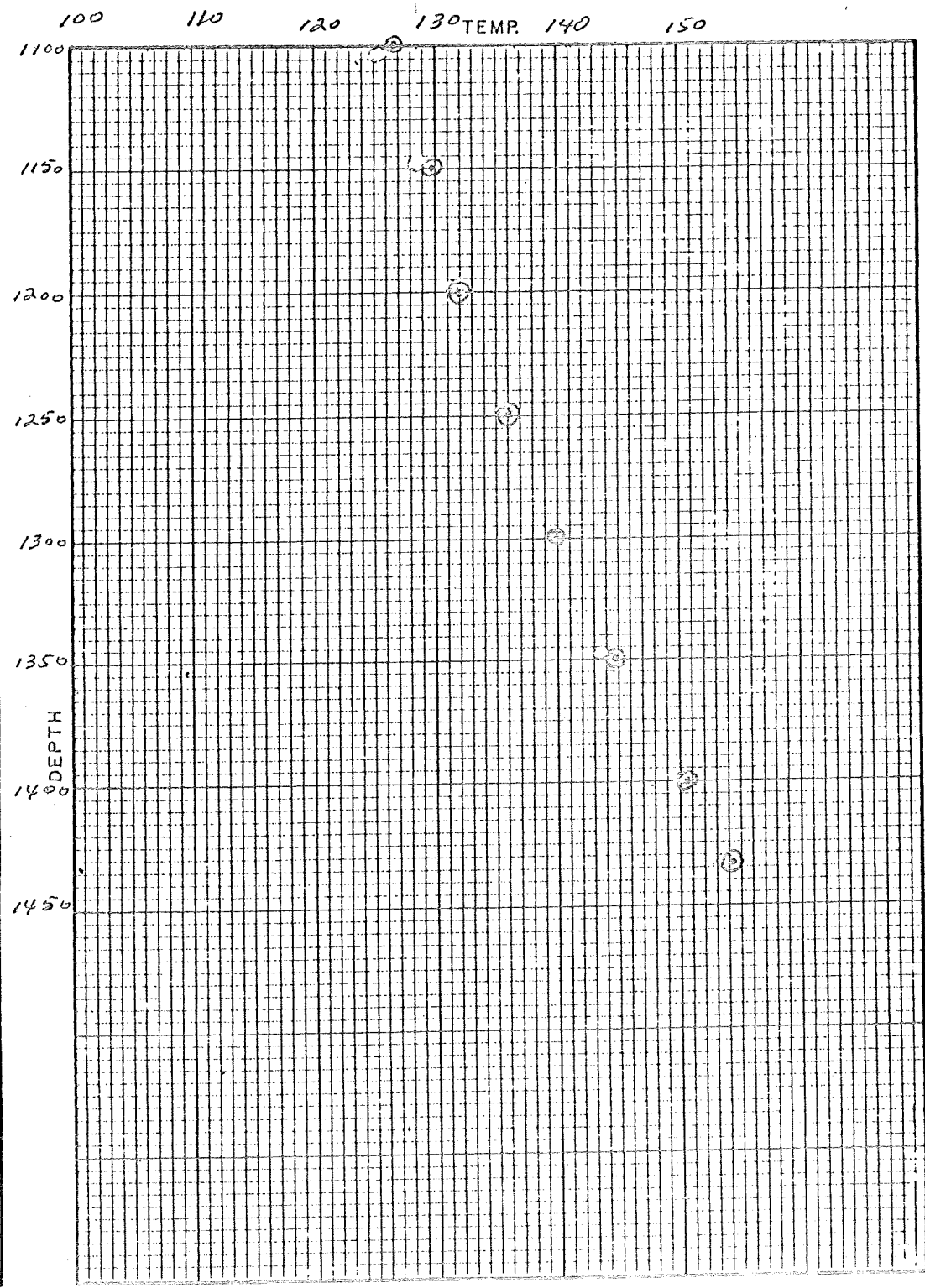
GRADIENT 1487'
 I.D. _____
 TEMP. AT T.D. 154.3
 SURVEY DATE 27 July 79
 SURVEY BY EPAC

EARTH POWER
 PRODUCTION COMPANY
 TULSA, OKLAHOMA

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Battersea HOLE # 1500-2
LITHOLOGY

DEPTH	TEMP.	DEPTH	TEMP.
1000	120.7	1250	136.0
	120.9		136.2
	121.6		136.9
	122.5		138.0
	123.0		139.0
1050	123.4	1300	140.0
	124.0		141.0
	125.0		142.0
	125.6		143.1
	126.1		143.8
1100	126.9	1350	144.9
	127.5		145.9
	128.1		147.2
	128.7		148.2
	129.3		149.5
1150	129.8	1400	150.6
	130.1		151.9
	130.5		153.0
	131.2		154.1
	131.6	TD 1434	154.3
1200	132.0		
	132.4		
	133.1		
	134.1		
	134.8		



PROSPECT Battersea
 LOCATION Chenabdet Co. 1
 SURF. ELEV. Nevada
 DATE DRLD. 7 July 79

GRADIENT 1487'
 T.D. 154.3
 TEMP. AT T.D. 27 July 79
 SURVEY DATE EPPC
 SURVEY BY

EARTH POWER
PRODUCTION COMPANY
 TULSA, OKLAHOMA