

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

GEOPHYSICAL LOGS FOR POWDER RIVER AND DAWSON COUNTIES, MONTANA

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Chapter C of  
Preliminary Report of 1977 Coal Drilling in  
Eastern Montana and Northeastern Wyoming

By U.S. Geological Survey  
and  
Montana Bureau of Mines and Geology

Open-File Report 77-721-C

1978

This report has not been edited  
for conformity with Geological  
Survey editorial standards or  
stratigraphic nomenclature.

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## EXPLANATION OF DRILL-HOLE LOCATIONS

The location of a drill hole within a section is identified on the logs by a letter-designated tract system and by footage from section lines. Each section is subdivided into four quadrants, with the north-east quadrant designated as A, and continuing counterclockwise to D. Each quadrant is then subdivided into four equal parts with a similar letter designation. This is repeated until a section is subdivided into 256 units. Using this system, the largest subdivision in a section is listed first. For example, a tract designation of ABCD would be located in the SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> of the section.

PRELIMINARY REPORT OF 1977 COAL DRILLING IN EASTERN MONTANA AND  
NORTHEASTERN WYOMING

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GEOPHYSICAL LOGS FOR POWDER RIVER AND DAWSON COUNTIES, MONTANA

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INTRODUCTION AND ACKNOWLEDGMENTS

This report is the third in a series on the 1977 drilling program (hole nos. 7799-77148) being conducted by the Montana Bureau of Mines and Geology (MBMG) under Grant no. 14-08-0001-G-441 from the U.S. Geological Survey (USGS). Other chapters will follow as data are received.

The drilling is being done as part of a USGS program to evaluate and classify mineral lands in the public domain. Similar information from 806 drill holes and approximately 200 coal samples from the same areas and from western North Dakota was presented in earlier reports (USGS/MBMG 1973, 1974, 1976a, 1976b, 1977a, 1977b, 1977c, USGS/NDGS 1976, 1977, and Kistner, 1977).

This report includes only geophysical logs. Core samples from some of the holes have been submitted to the U.S. Bureau of Mines for proximate analyses, determination of Btu/lb values, and form of sulfur present. Trace element analyses will be done by V. E. Swanson, USGS.

Fieldwork was carried out by the following MBMG and USGS personnel: Robert E. Matson, Chief, Energy Division; Miller Hansen and John Pinchock, geologists; Leigh Sauer and J. Jensen, technicians, and D. Fowler, hydrologist. Coordination and technical guidance were provided by Robert E. Matson, MBMG, and Elmer M. Schell, USGS.

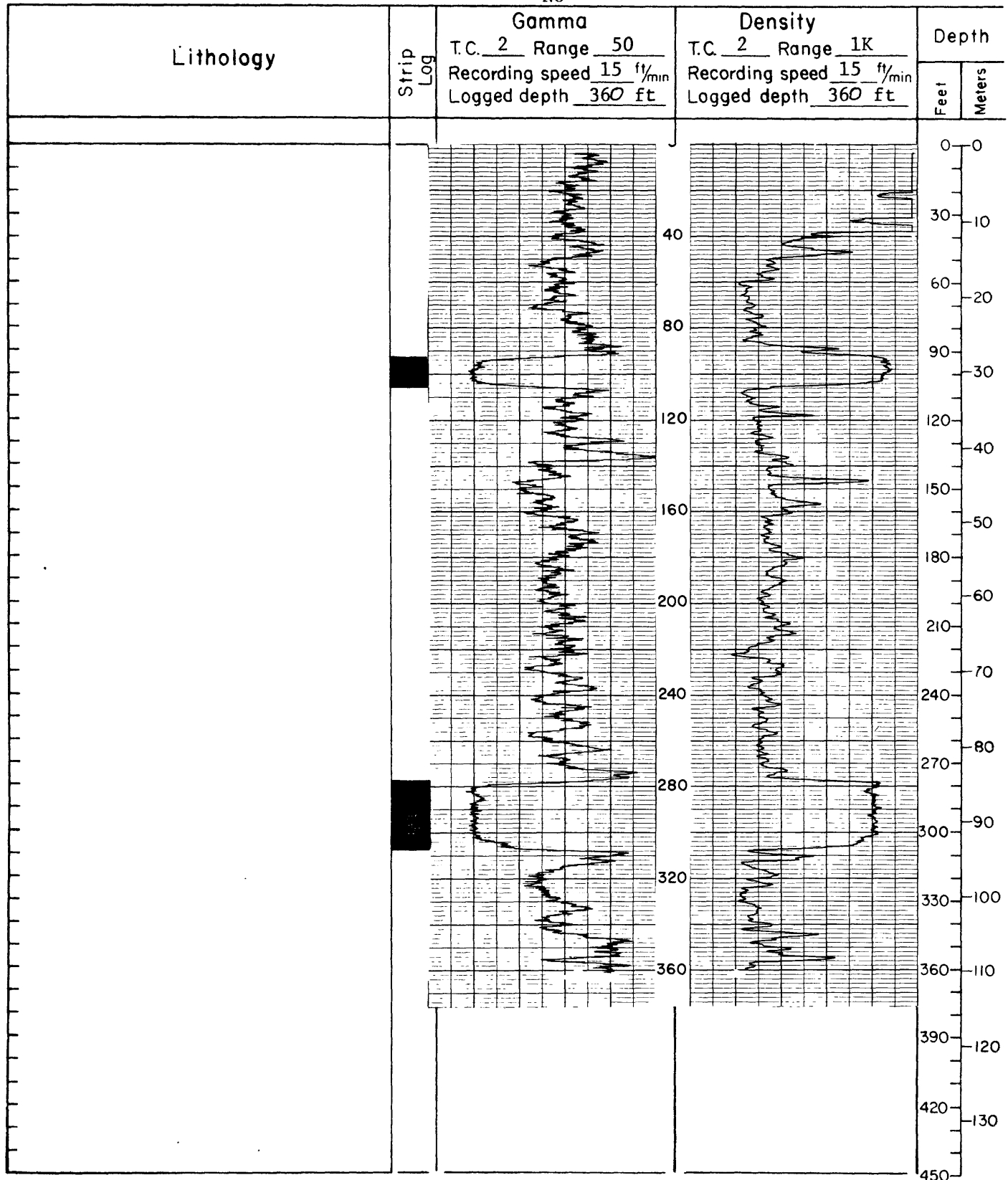
**MONTANA BUREAU OF MINES AND GEOLOGY**  
**Montana College of Mineral Science and Technology**

Hole no: US-7799 Map: Otter Date 8/14/77 State: Montana County: Powder River  
 Elev.: 3842 ft Location: T. 8 S, R. 45 W, Sec. 9, Tract CBAD Drilled depth: 362 ft  
 Measured: 2100 ft FSL, 1240 ft FWL Hole size 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

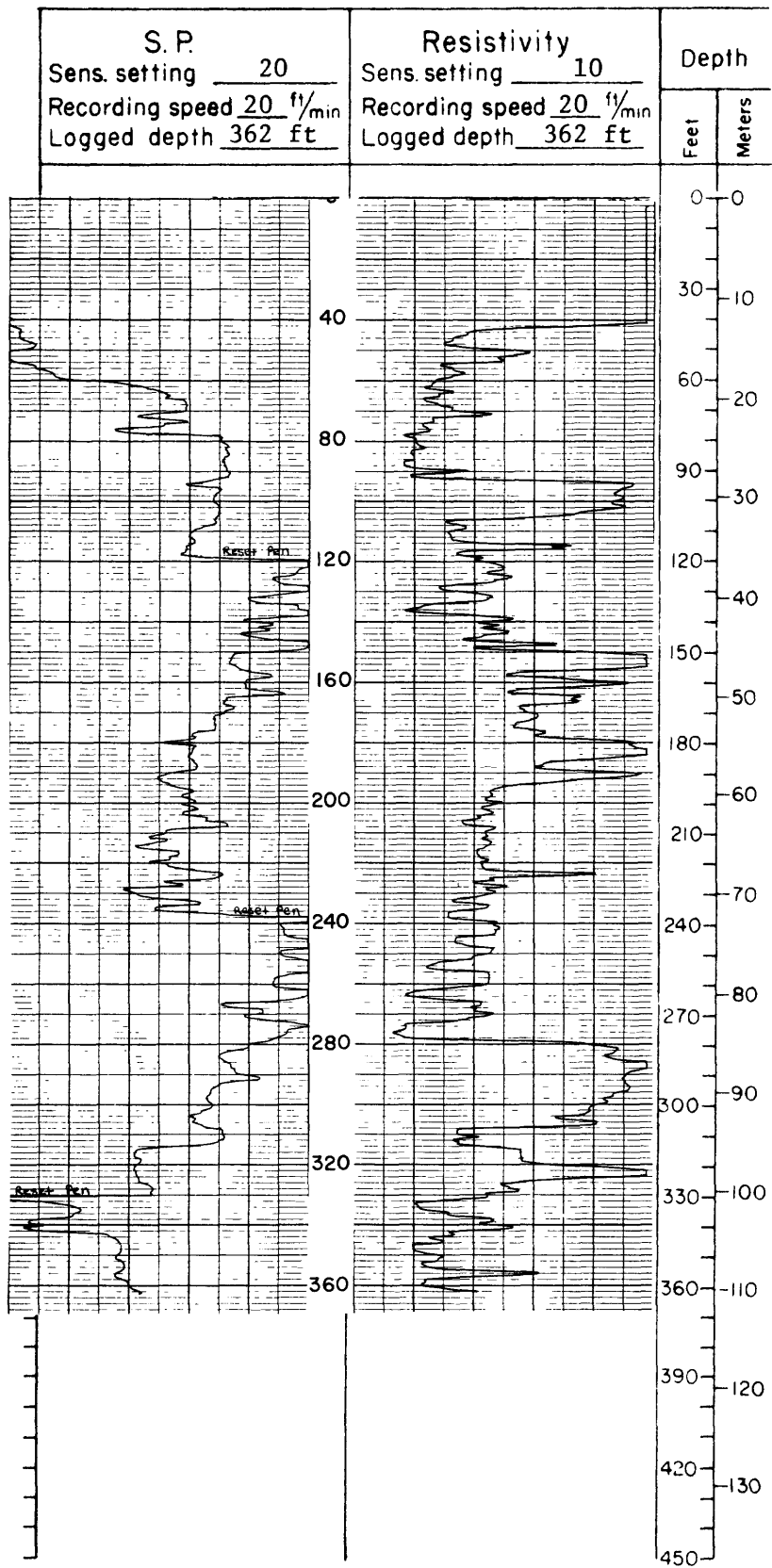
Recorded by: E. WOODS

Geologist ~~NO~~ Recorded by: J. JENSEN



Hole number (continued)

US-7799



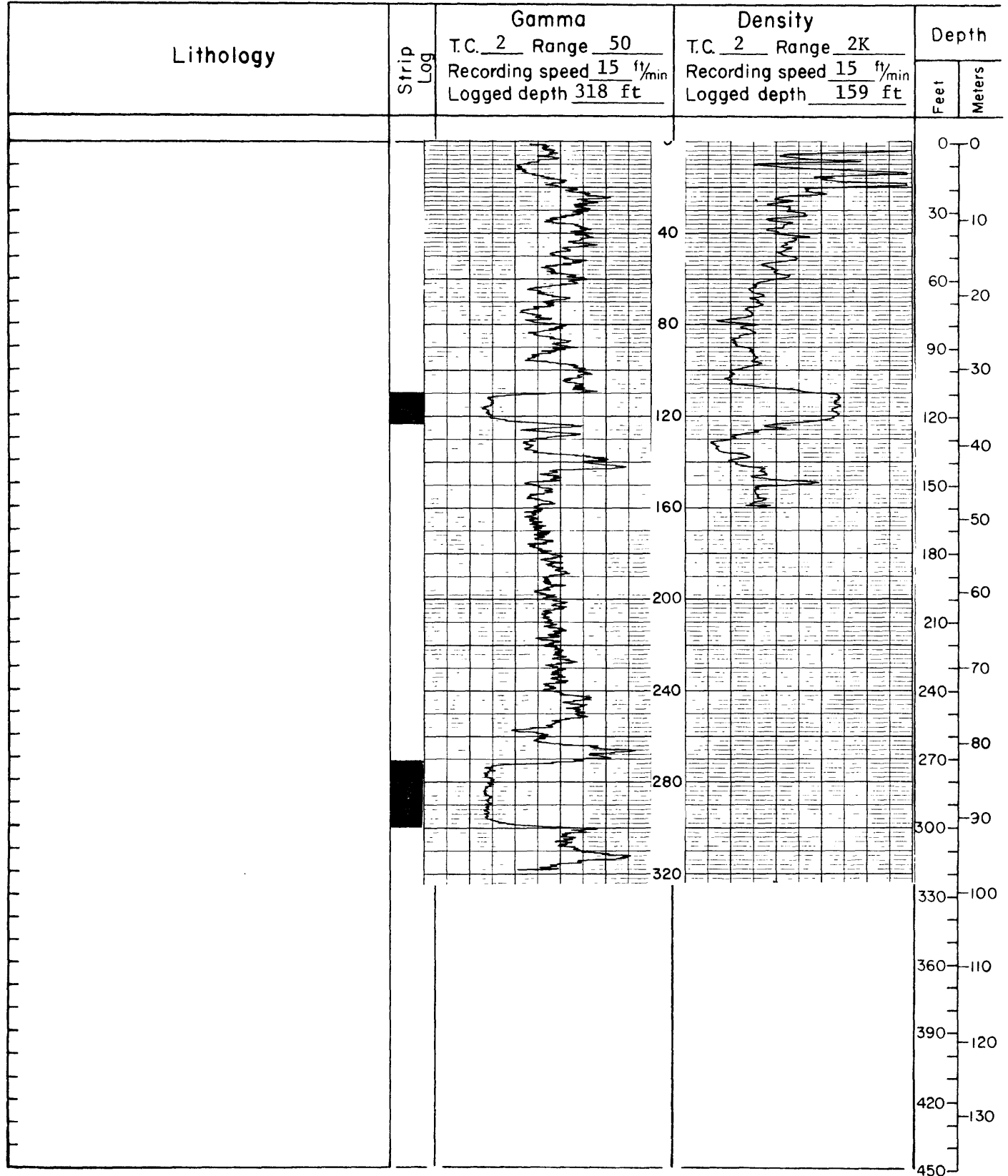
**MONTANA BUREAU OF MINES AND GEOLOGY**  
**Montana College of Mineral Science and Technology**

Hole no: US-77100 Map: Otter Date 8/14/77 State: Montana County: Powder River  
 Elev.: 3906 ft Location: T. 8 S, R. 45 E, Sec. 4, Tract CDBB Drilled depth: 320 ft  
 Measured: 1200 ft ~~FSL~~ 1350 ft ~~FWL~~ Hole size: 4 3/4 in Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

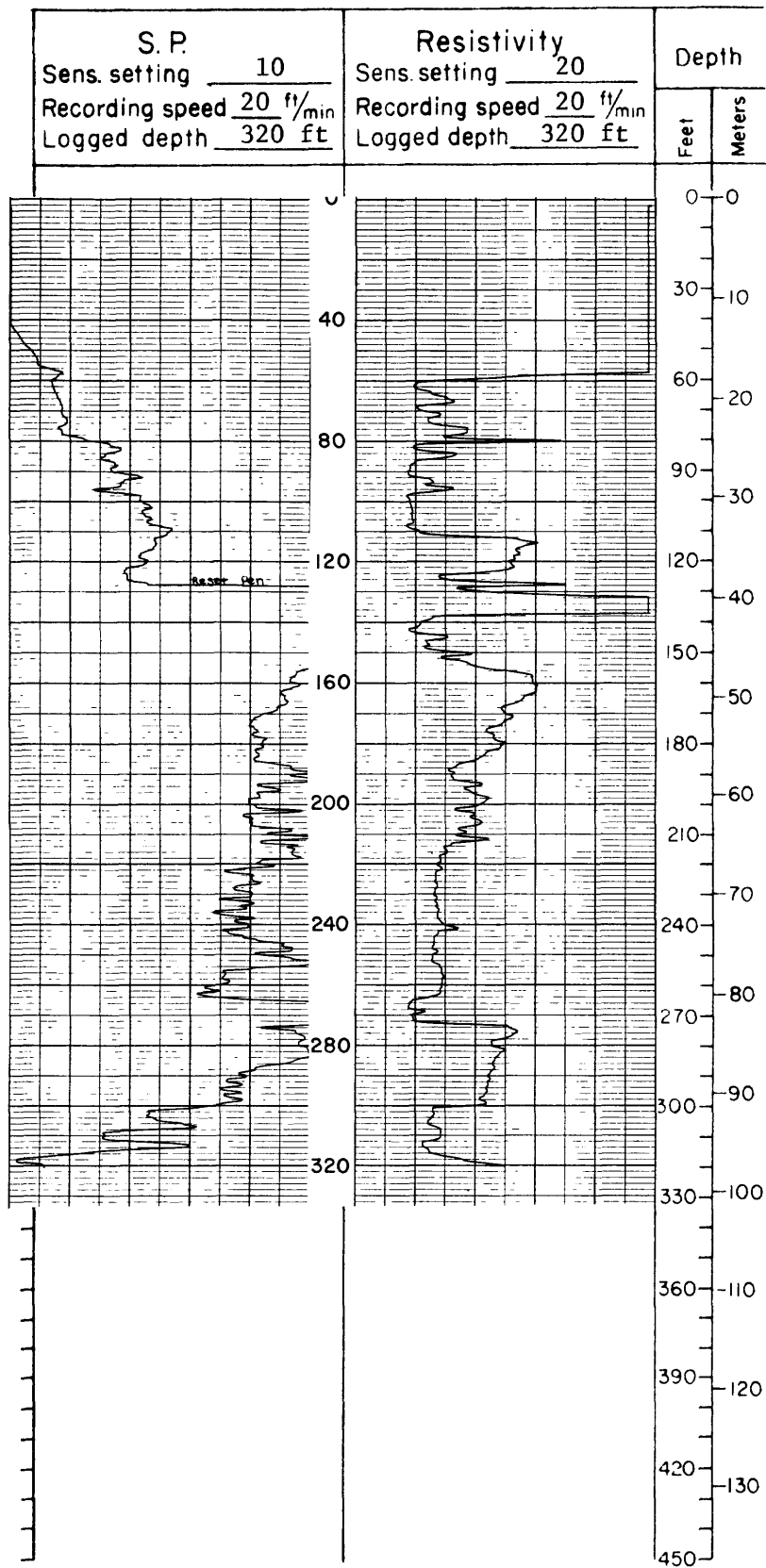
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN



# Hole number (continued)

US - 77100



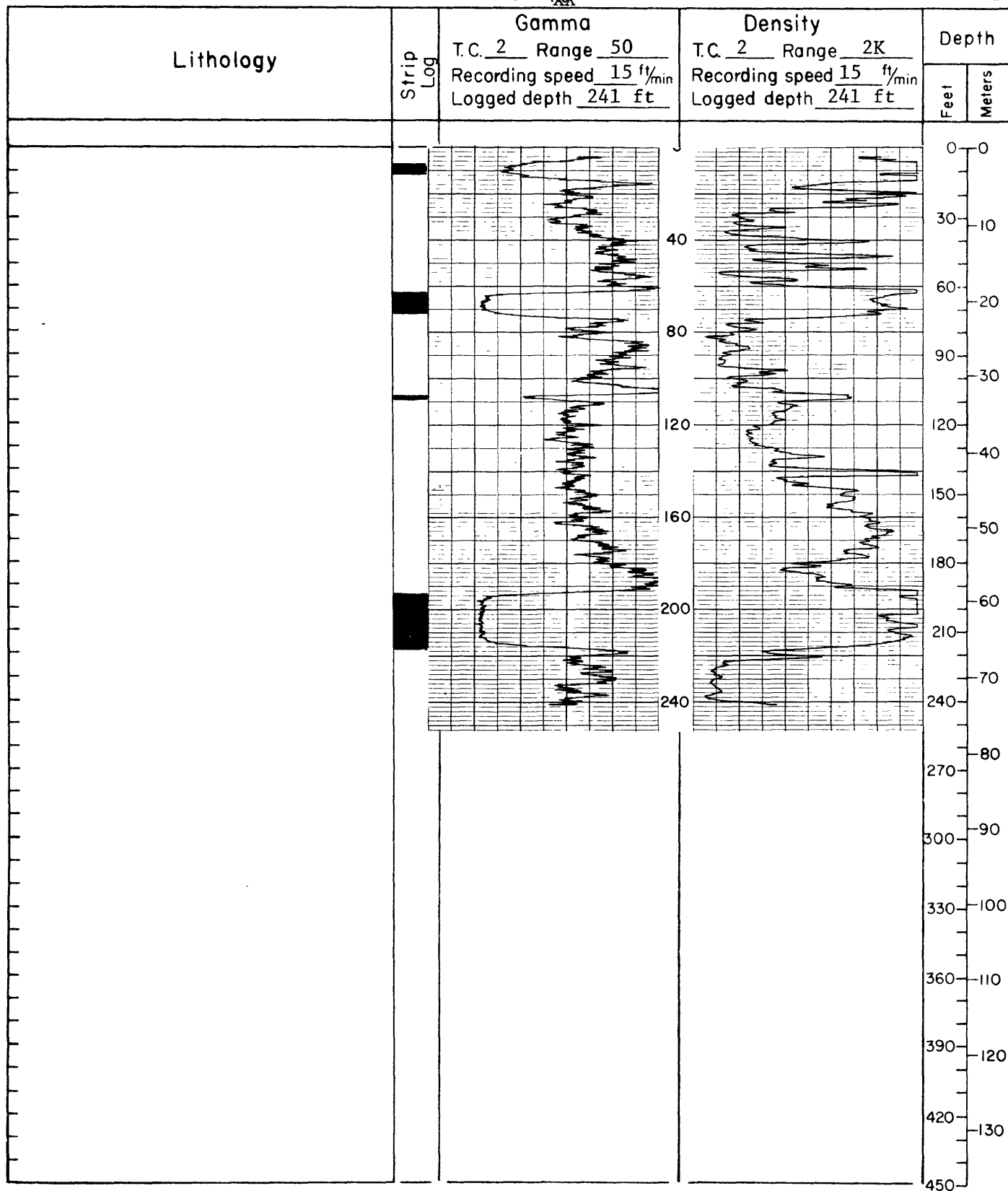
**MONTANA BUREAU OF MINES AND GEOLOGY**  
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Hole no: US-77101 Map: Otter Date 8/15/77 State Montana County: Powder River  
 Elev.: 3880 ft Location: T. 8 <sup>N</sup>~~S~~, R. 45 <sup>E</sup>~~W~~, Sec. 11, Tract ADDA Drilled depth: 241 ft  
 Measured: 2100 ft <sup>FNL</sup>~~FSL~~, 125 ft <sup>FEL</sup>~~FWL~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

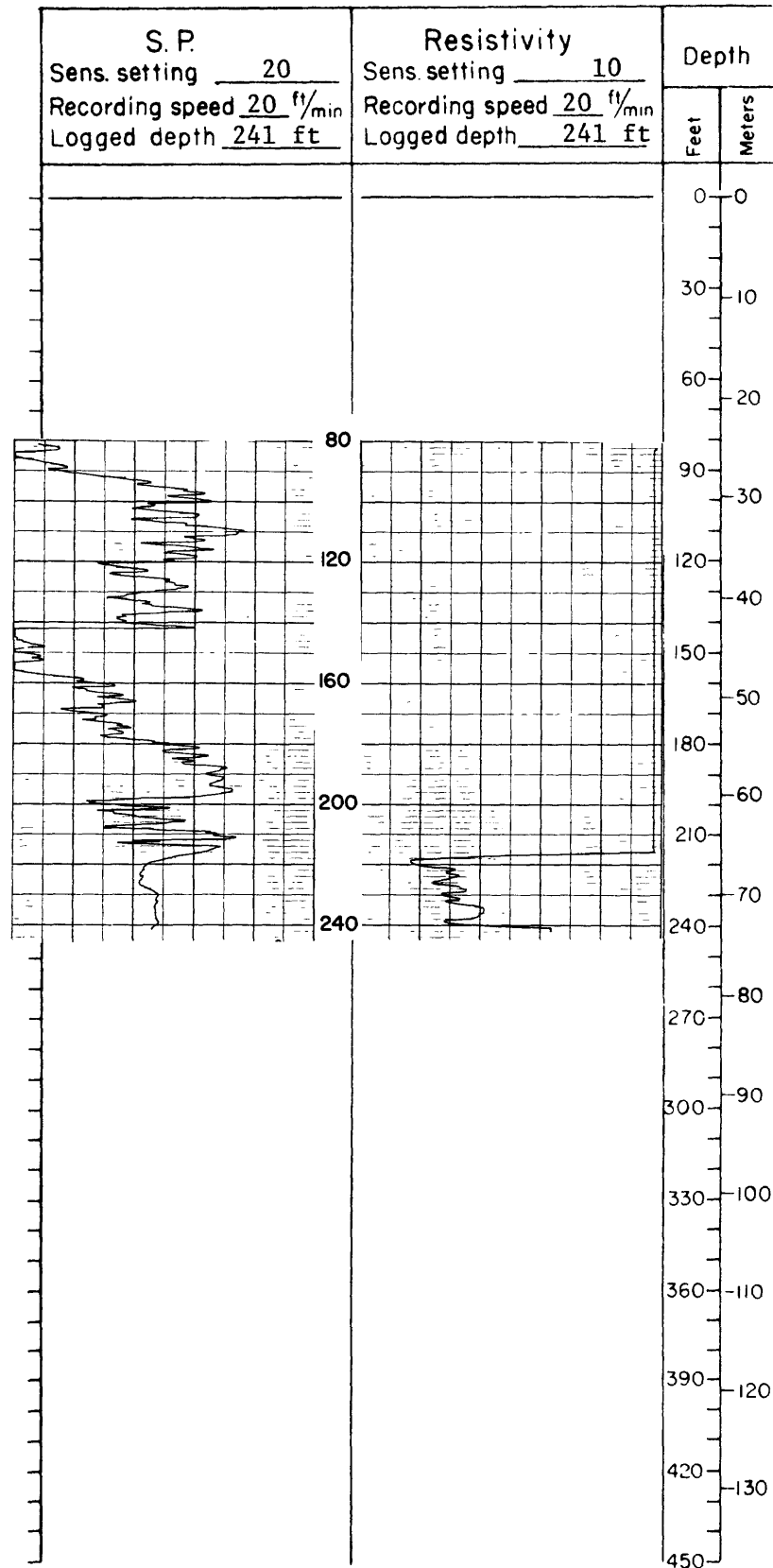
Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN





# Hole number (continued)

U S - 77101



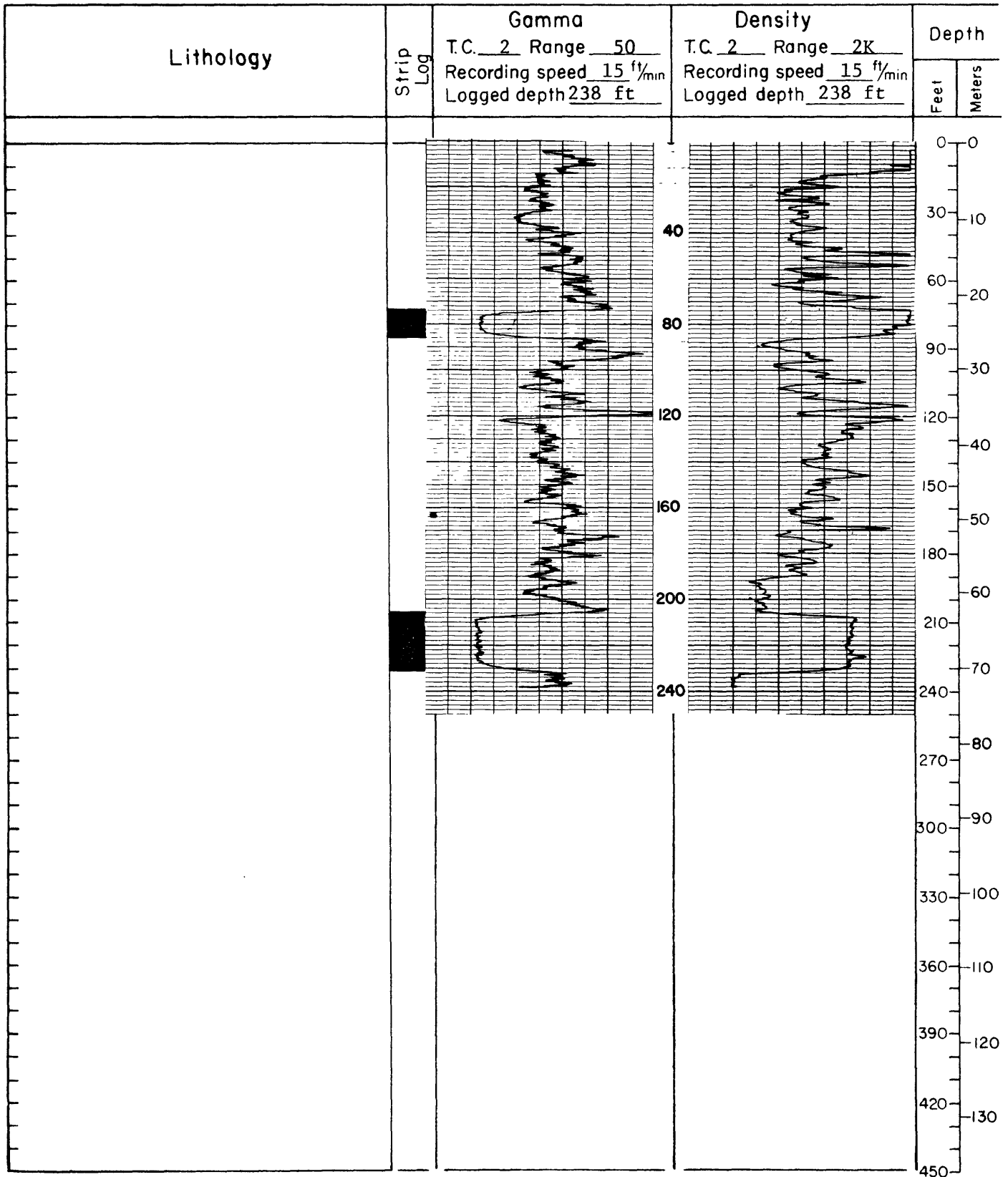
**MONTANA BUREAU OF MINES AND GEOLOGY**  
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Hole no: US-77102 Map: Otter Date: 8/15/78 State: Montana County: Powder River  
 Elev.: 3848 ft Location: T. 8 N. R. 45 E. Sec. 14, Tract CADC Drilled depth: 240 ft  
 Measured: 1460 ft ~~FSL~~ 2000 ft ~~FWL~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: D. FOWLER

Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN



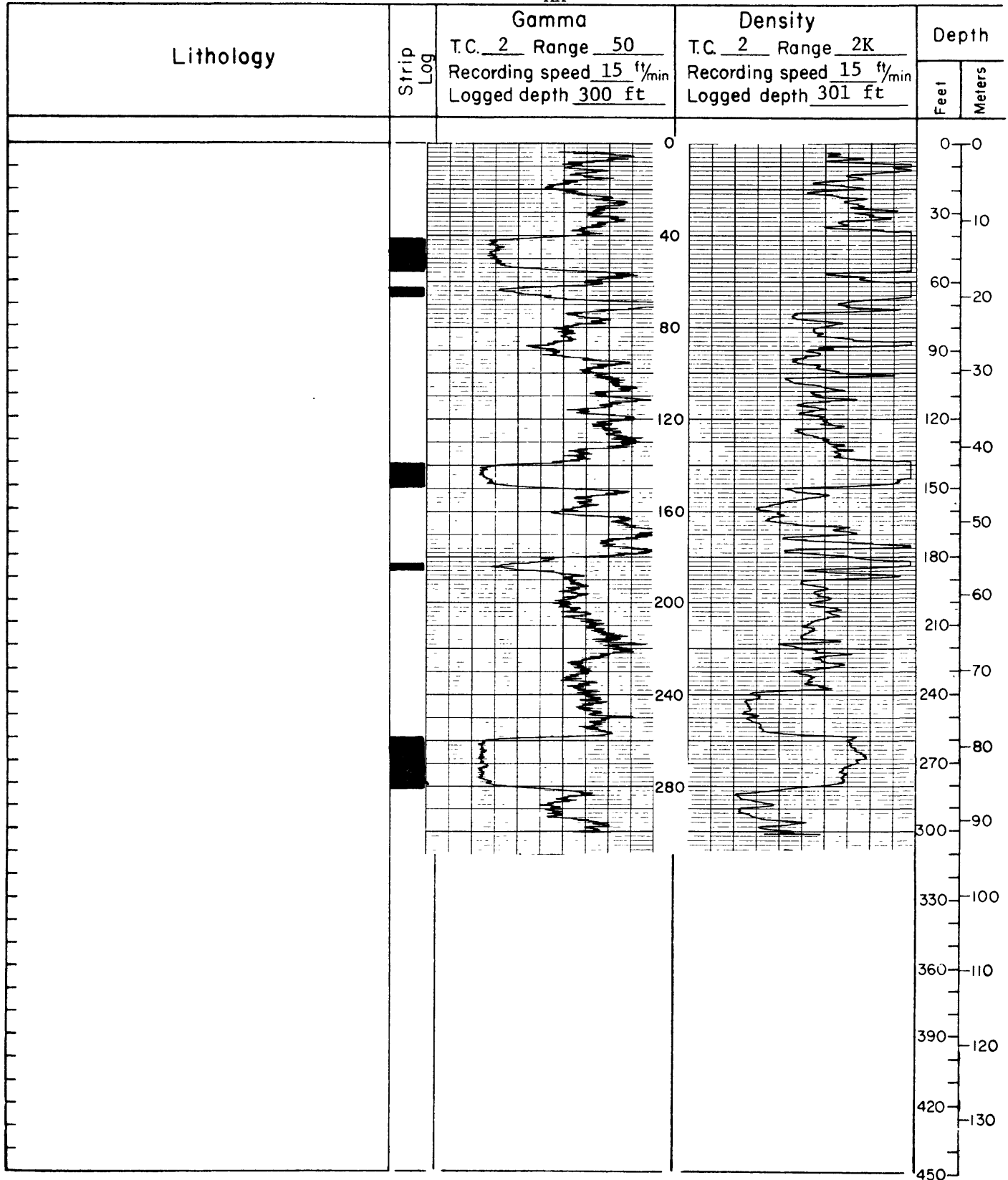
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Hole no: US-77103 Map: Bear Creek School Date: 8/15/77 State: Montana County: Powder River  
 Elev.: 3880 ft Location: T. 8 <sup>N</sup><sub>S</sub>, R. 45 <sup>E</sup><sub>W</sub> Sec. 26, Tract BDBC Drilled depth: 301 ft  
 Measured: 1900 ft <sup>FNL</sup><sub>SSL</sub>, 1460 ft <sup>FWL</sup><sub>FWL</sub> Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

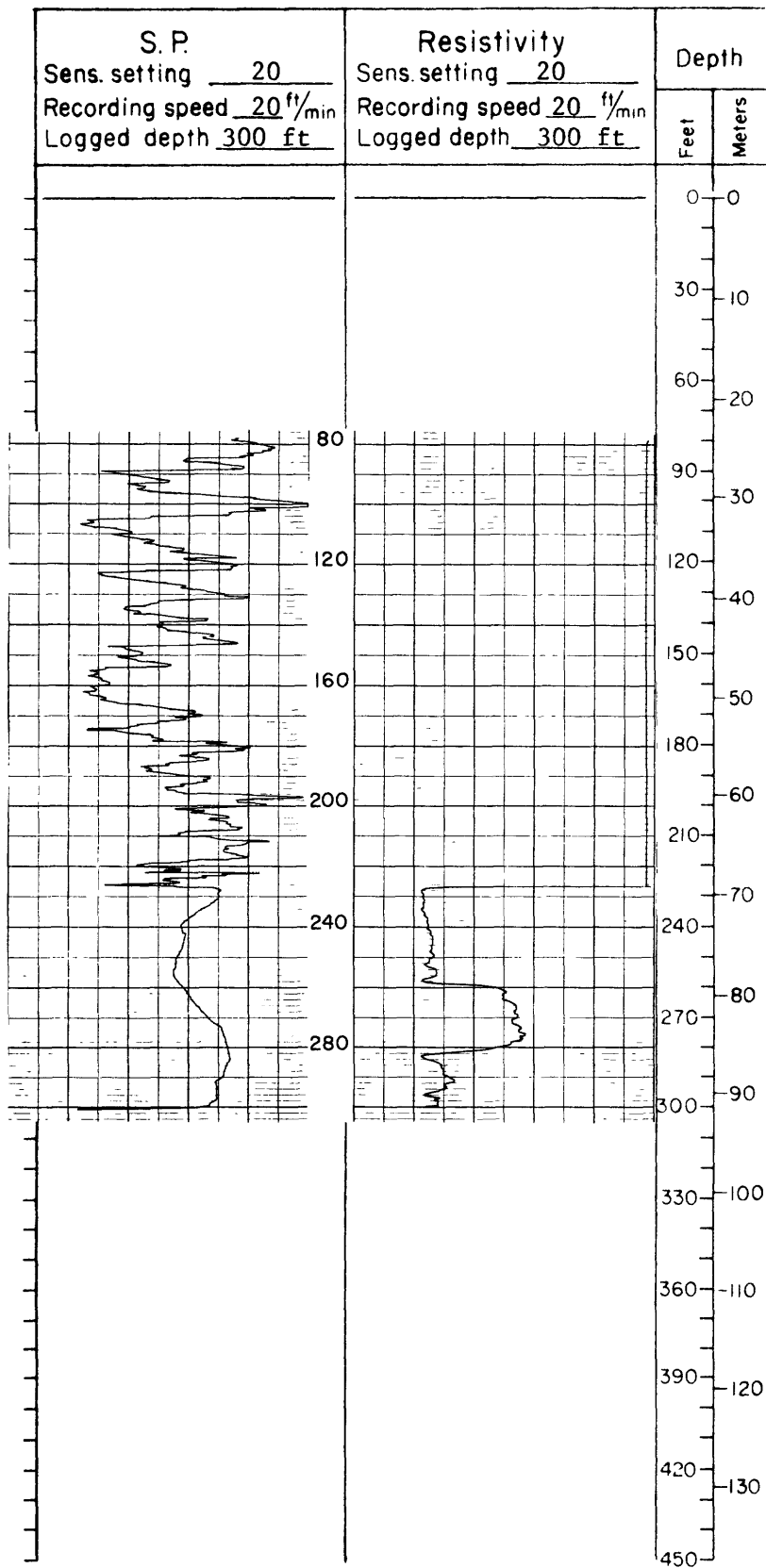
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup><sub>No</sub> Recorded by: J. JENSEN



# Hole number (continued)

US - 77103



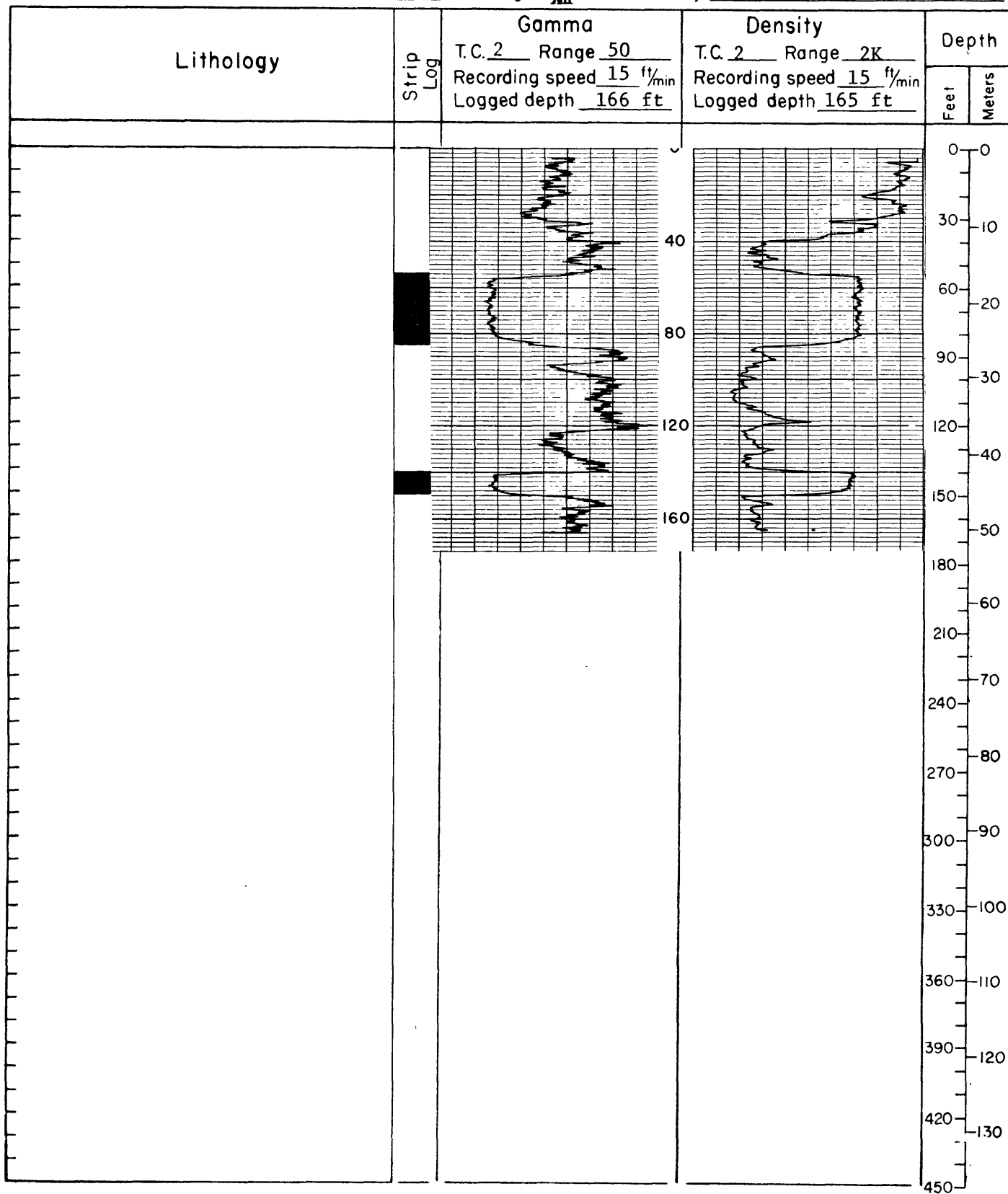
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Hole no: US-77104 Map: Bear Creek School Date: 8/15/77 State: Montana County: Powder River  
 Elev.: 3802 ft Location: T. 9 <sup>N</sup> S. 45 <sup>E</sup> W. Sec. 4, Tract BABC Drilled depth: 173 ft  
 Measured: 415 ft <sup>FNL</sup> ~~SS~~, 1470 ft <sup>SS</sup> ~~WL~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: Hit rock at 173 ft. Could not get rock bit through gravel.

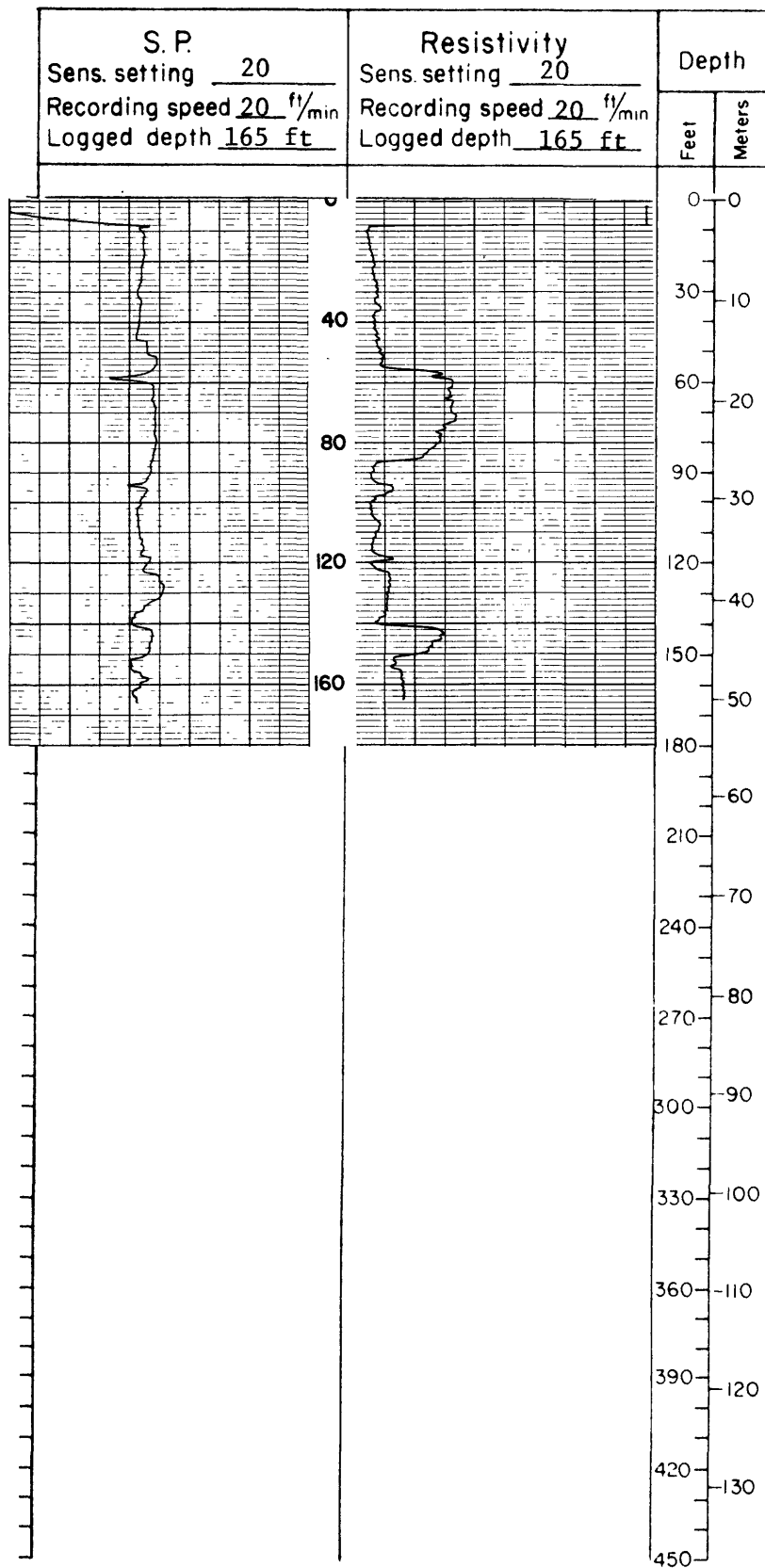
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~XX~~ Recorded by: J. JENSEN



# Hole number (continued)

US-77104



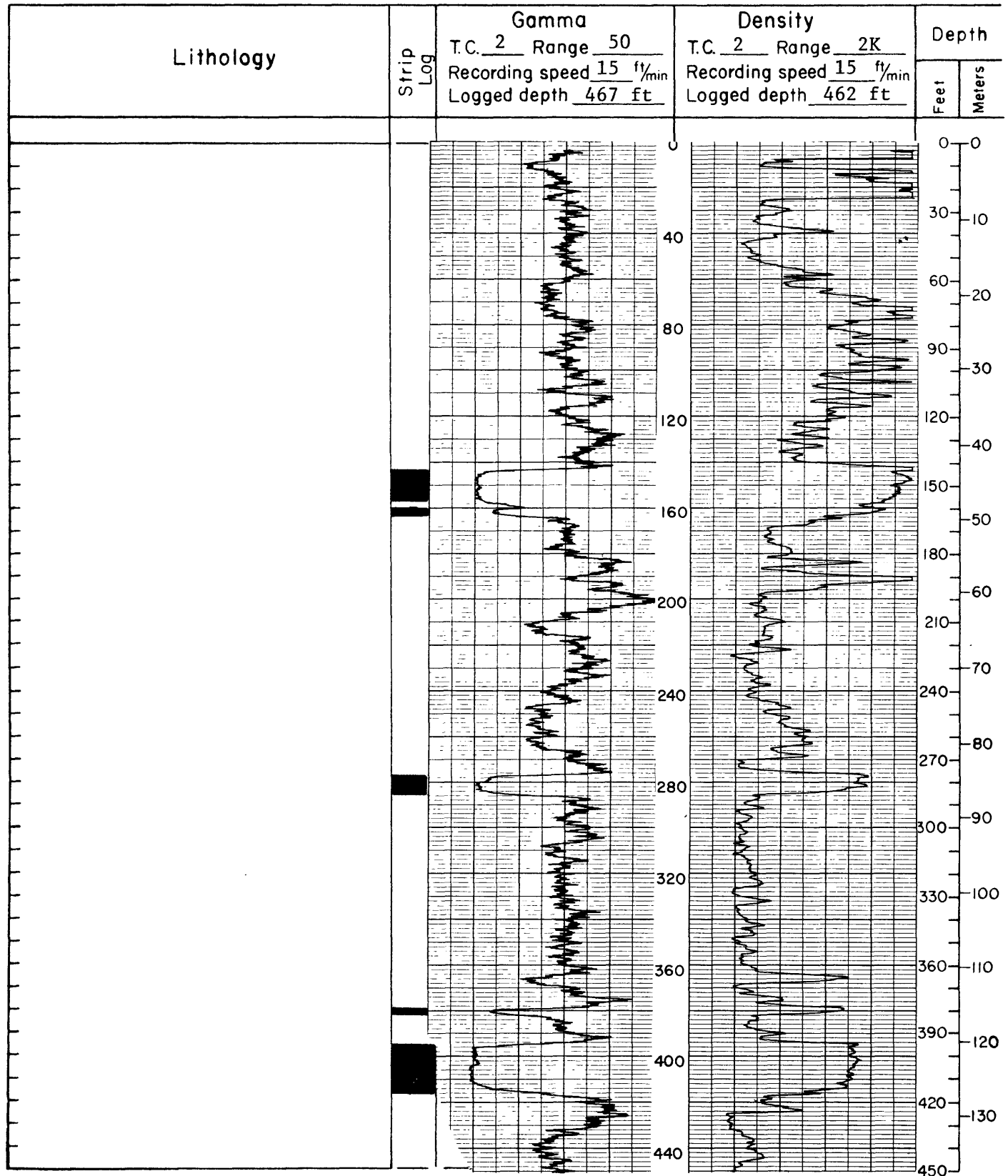
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Hole no: US-77105 Map Bear Creek School Date: 8/15/78 State: Montana County: Powder River  
 Elev.: 3945 ft Location: T. 9 <sup>N</sup><sub>S</sub>, R. 45 <sup>E</sup><sub>W</sub>, Sec. 10, Tract DACD Drilled depth: 467 ft  
 Measured: 1520 ft ~~RNK~~ FSL, 850 ft ~~RNK~~ FEL ~~RNK~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☒ No ☐

Remarks: \_\_\_\_\_



Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN



Hole number (continued)

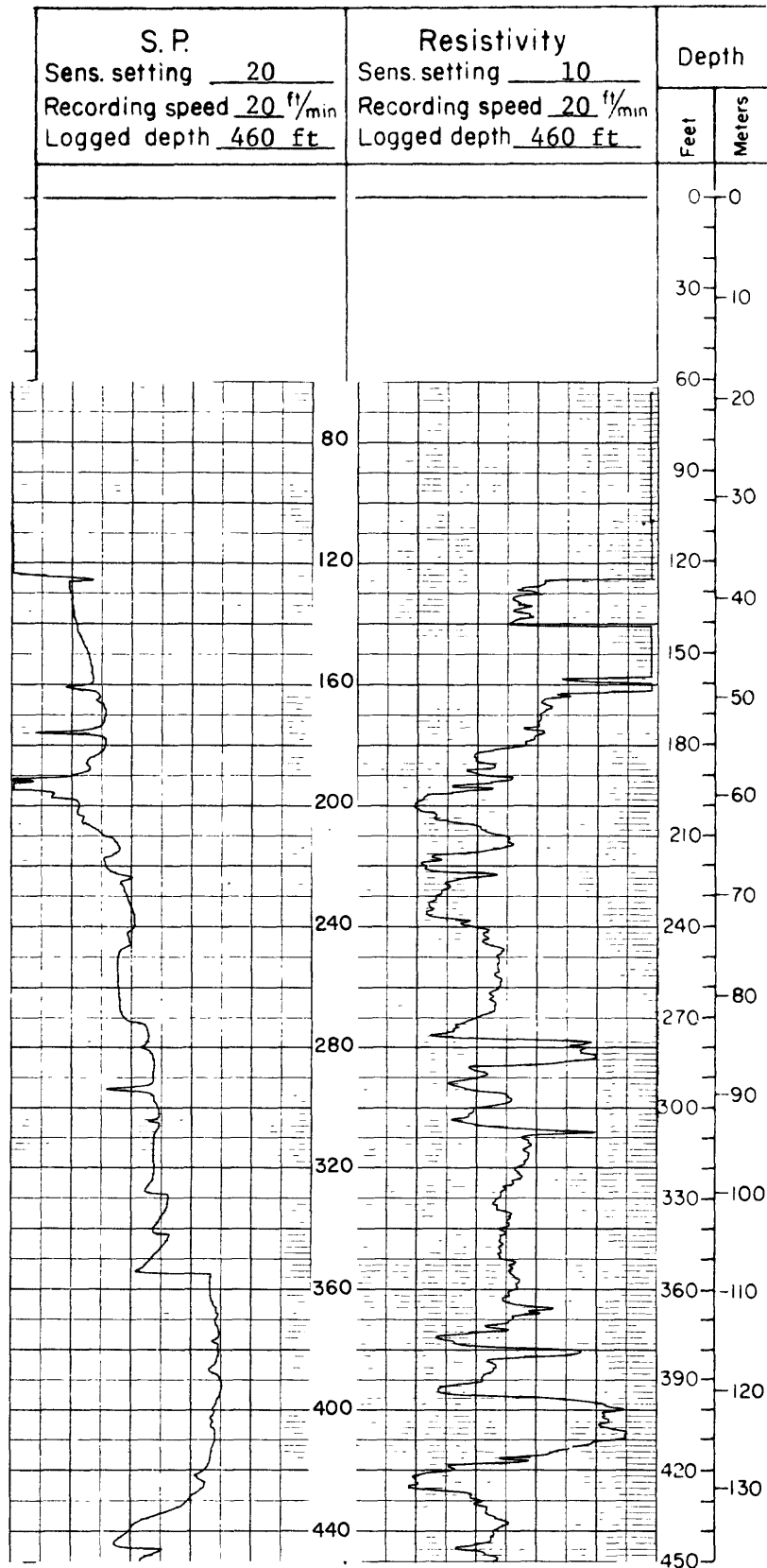
US - 77105

Lithology	Strip Log	Gamma	Density	Depth	
		T.C. <u>2</u> Range <u>50</u> Recording speed <u>15</u> ft/min Logged depth <u>467</u> ft	T.C. <u>2</u> Range <u>2K</u> Recording speed <u>15</u> ft/min Logged depth <u>462</u> ft	Feet	Meters
				450	140
				480	150
				510	160
				540	170
				570	180
				600	190
				630	200
				660	210
				690	220
				720	230
				750	240
				780	250
				810	260
				840	270
				870	
				900	



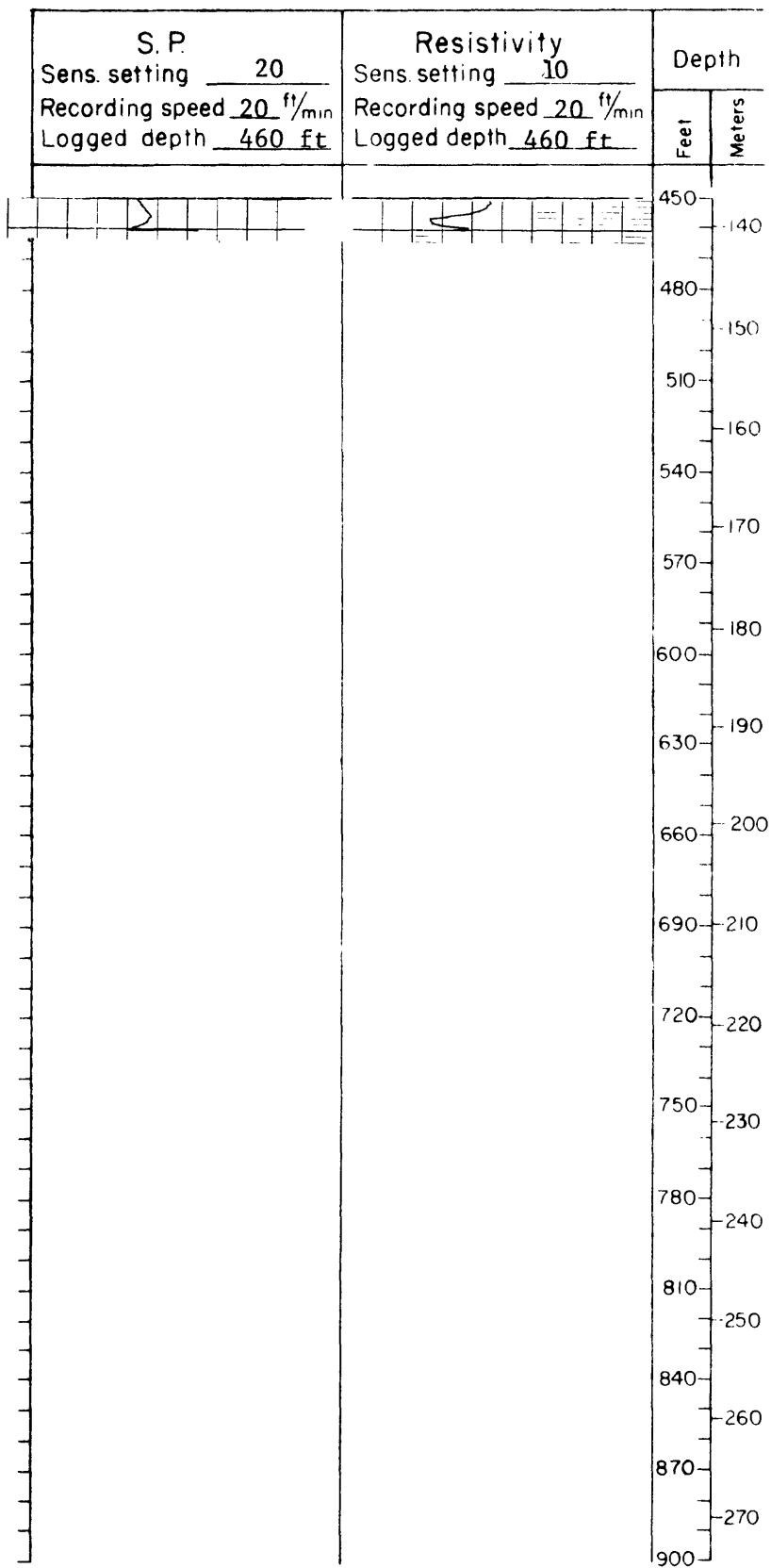
# Hole number (continued)

US- 77105



Hole number (continued)

US - 77105



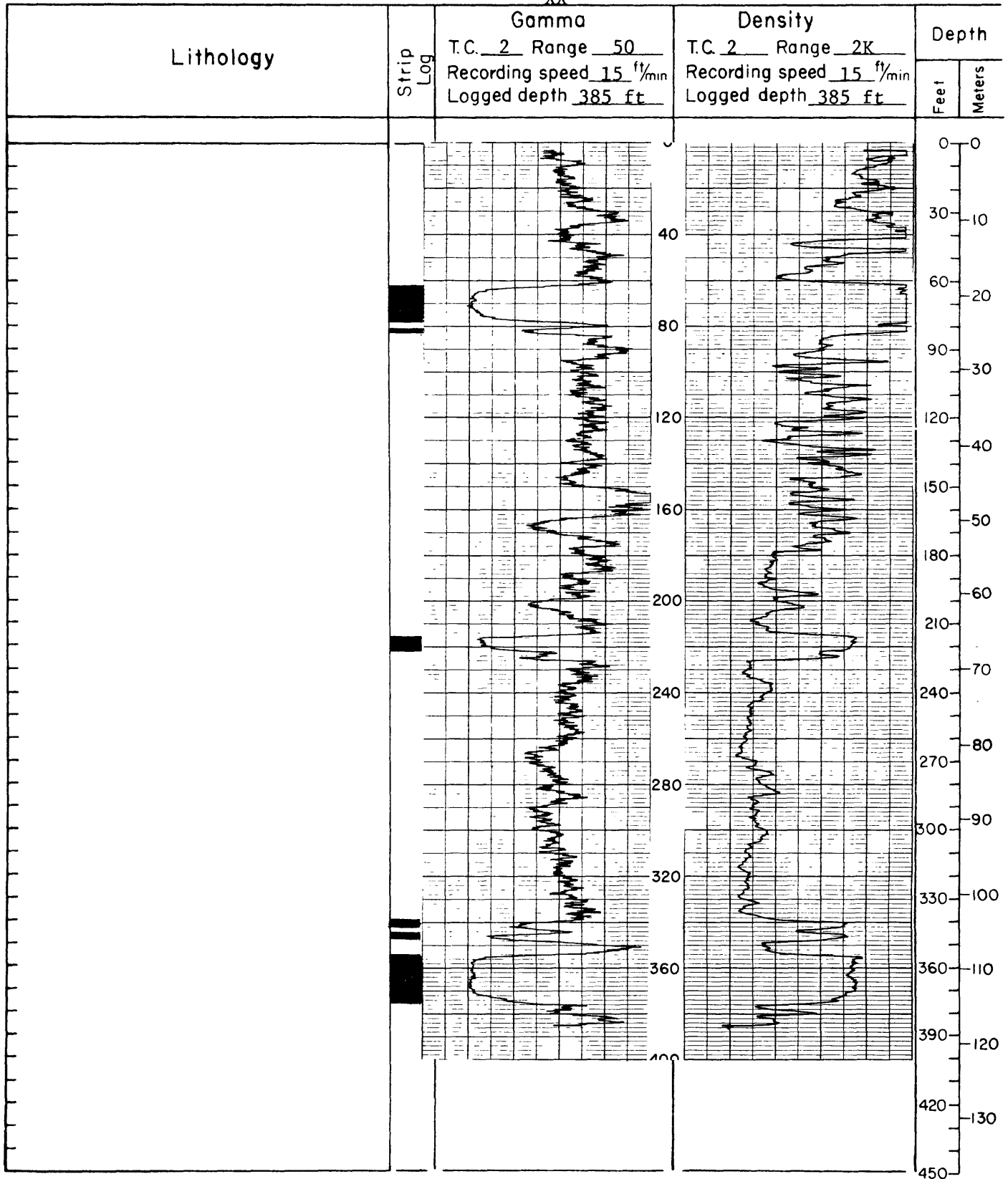
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Hole no: US-77106 Map: Bear Creek School Date: 8/15/77 State: Montana County: Powder River  
 Elev.: 3960 ft Location: T. 9 <sup>N</sup><sub>S</sub>, R. 45 <sup>E</sup><sub>W</sub>, Sec. 11, Tract DABB Drilled depth: 385 ft  
 Measured: 2460 ft <sup>FNL</sup><sub>FSL</sub>, 1025 ft <sup>FEL</sup><sub>FHL</sub> Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup><sub>No</sub> Recorded by: J. JENSEN



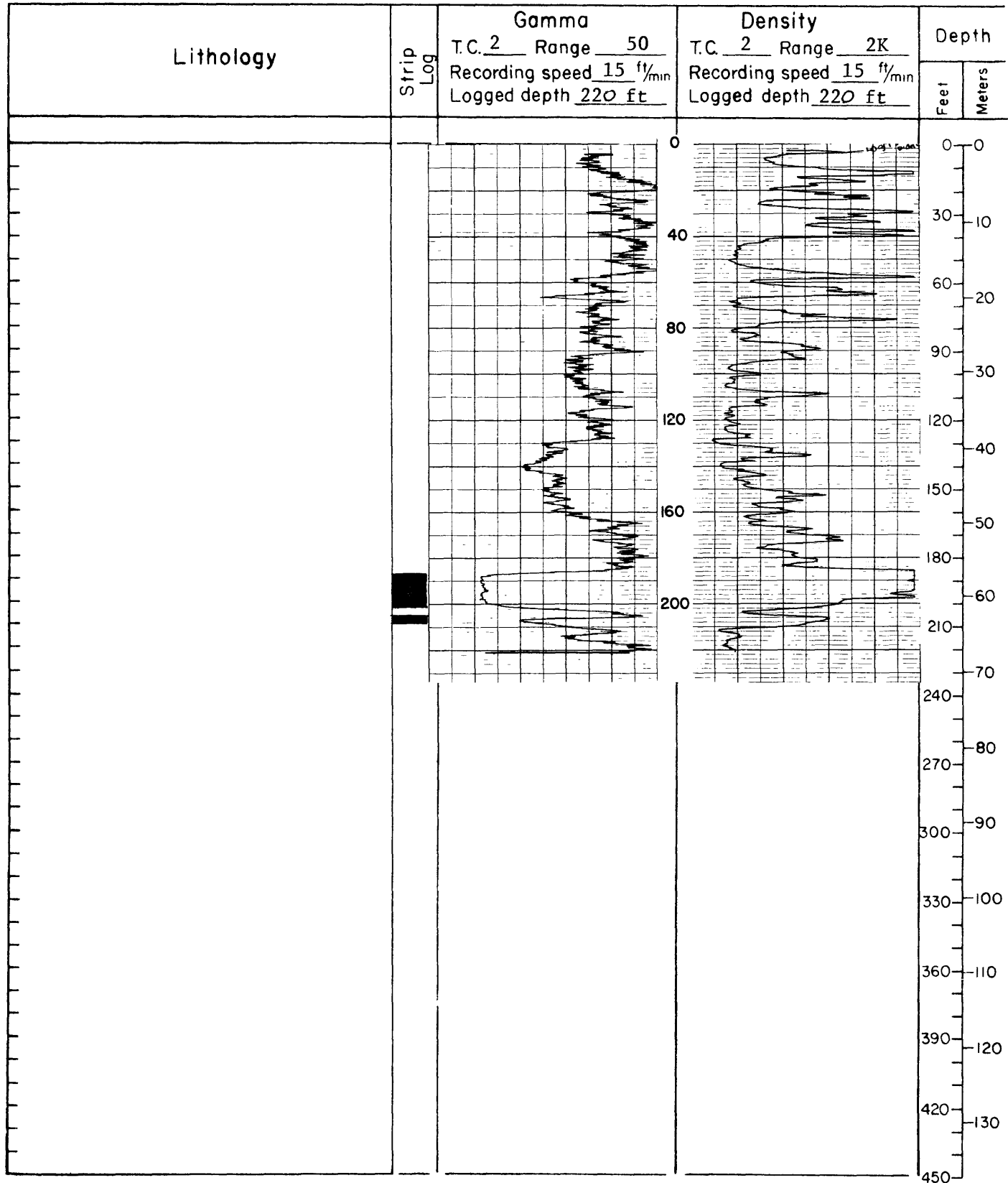
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Hole no: US-77107 Map: Bear Creek School Date: 8/15/77 State: Montana County: Powder River  
 Elev.: 4063 ft Location: T. 8 <sup>N</sup><sub>S</sub>, R. 45 <sup>E</sup><sub>W</sub>, Sec. 35, Tract DCDC Drilled depth: 220 ft  
 Measured: 10 ft <sup>FSL</sup><sub>FSL</sub>, 1700 ft <sup>FEL</sup><sub>FEL</sub> Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup><sub>XX</sub> Recorded by: J. JENSEN



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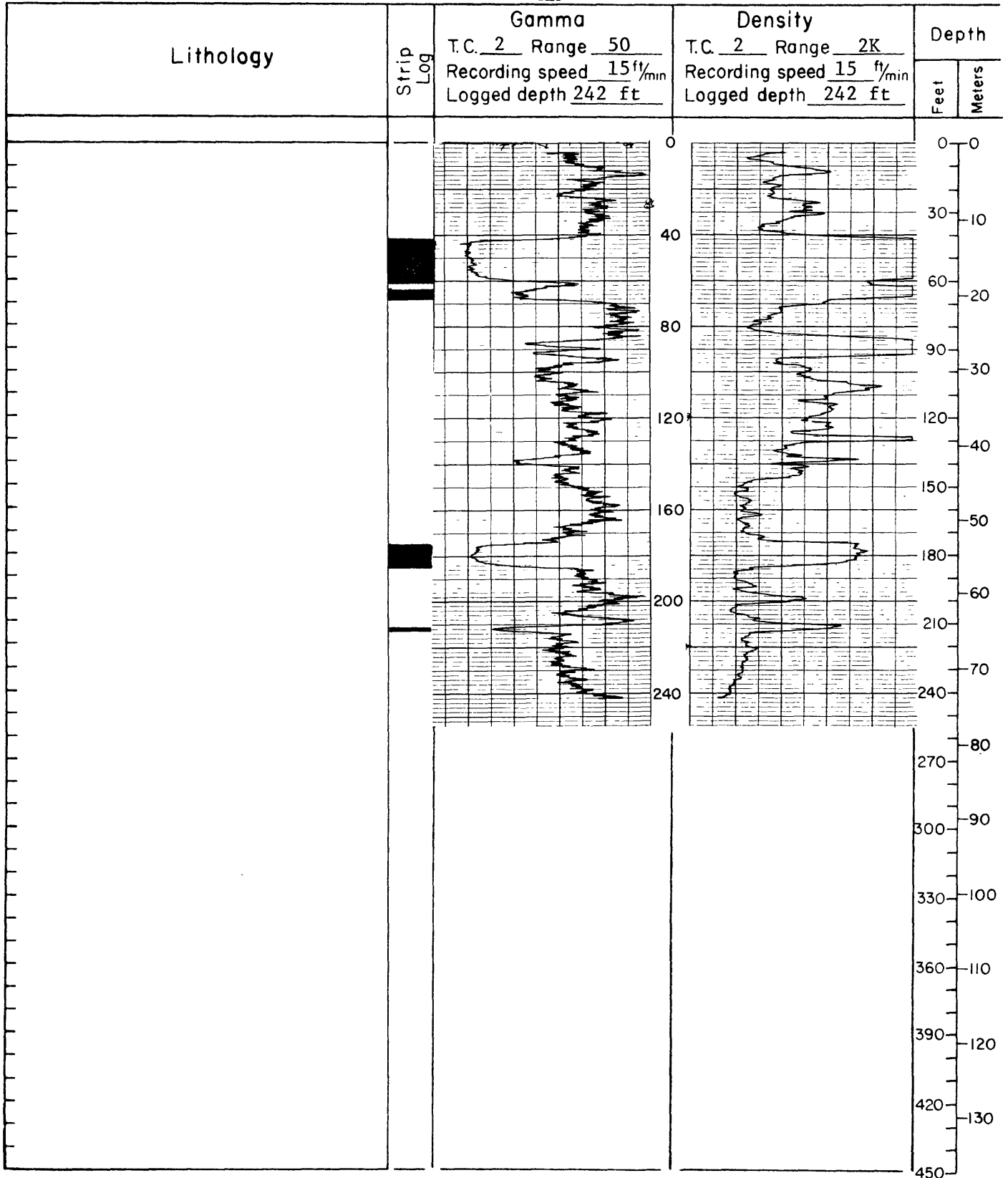
Hole no: US-77108 Map: Bear Creek School Date: 8/17/77 State: Montana County: Powder River  
 Elev.: 3910 ft Location: T. 8 N. S. R. 45 E. W. Sec. 25, Tract BBDC Drilled depth: 242 ft  
 Measured: 1180 ft FNL 800 ft FWL Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

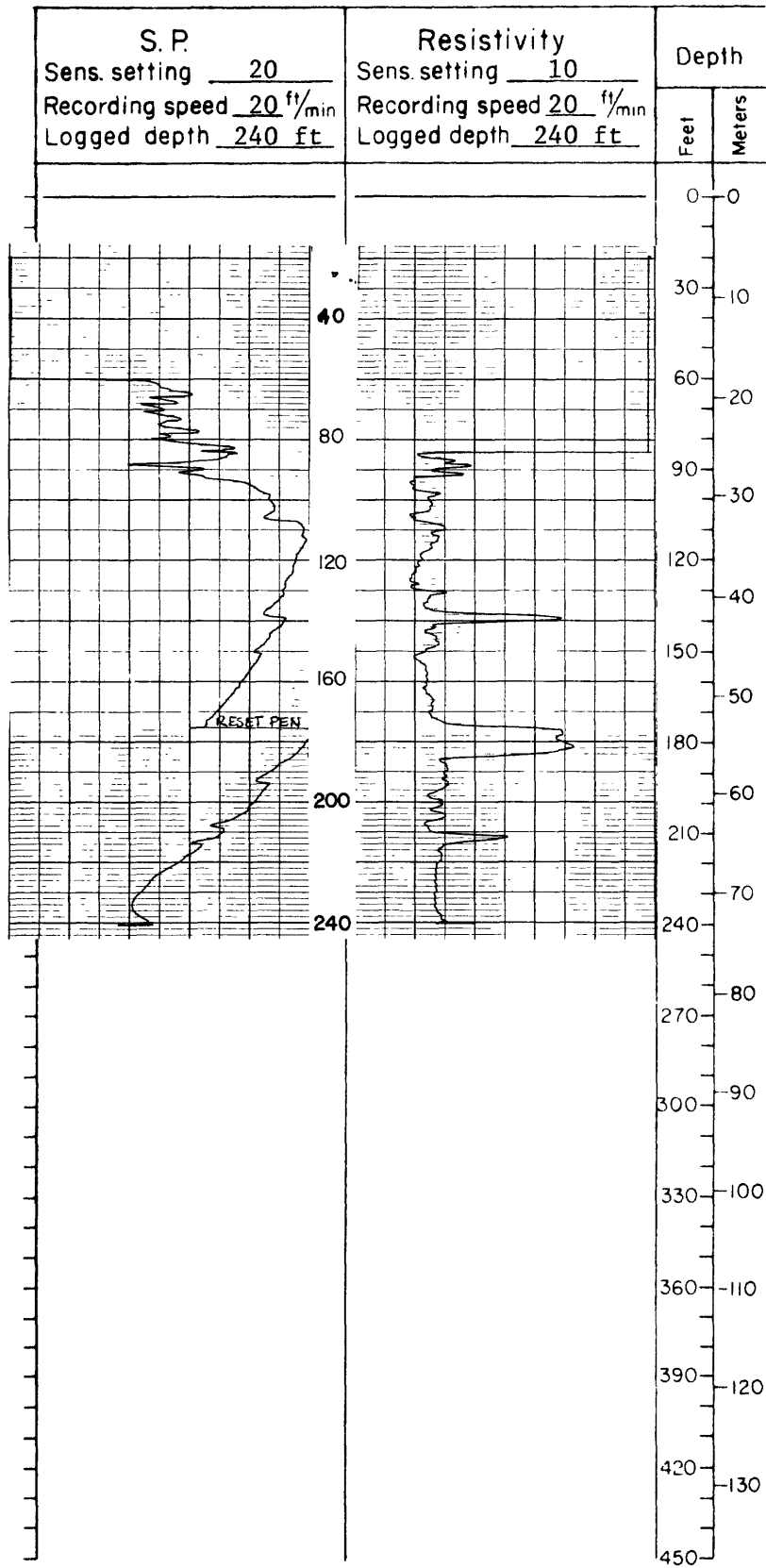
Geologist: Yes  
XX

Recorded by: J. JENSEN



Hole number (continued)

US - 77108



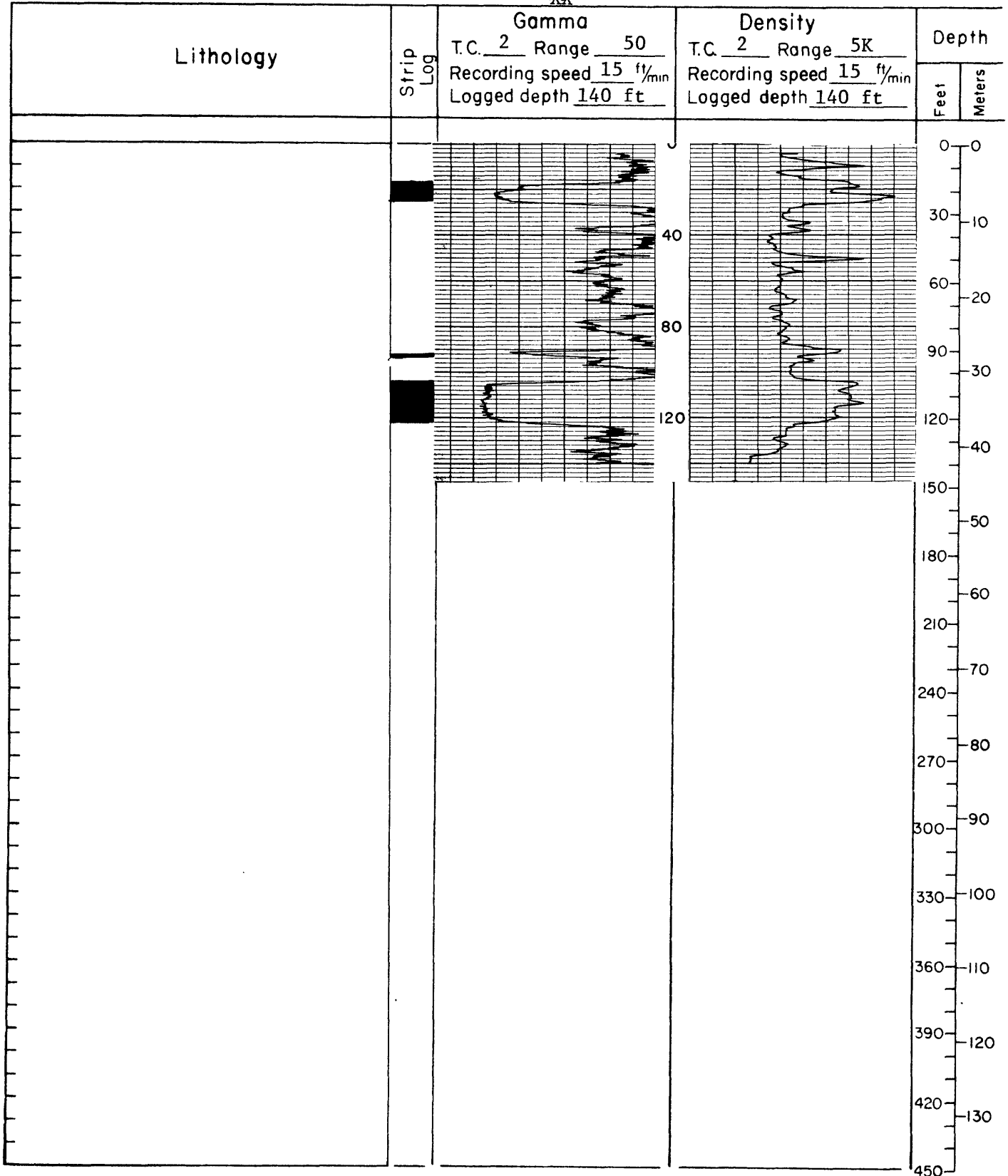
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Hole no: US-77109 Map: Bear Creek School Date: 8/17/77 State: Montana County: Powder River  
 Elev.: 3838 ft Location: T. 8 <sup>N.</sup> S., R. 46 <sup>E.</sup> W., Sec. 30, Tract ACDA Drilled depth: 140 ft  
 Measured: 2300 ft <sup>FNL</sup> ~~ESL~~ 1550 ft <sup>FEL</sup> ~~SWL~~ ~~XXX~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN

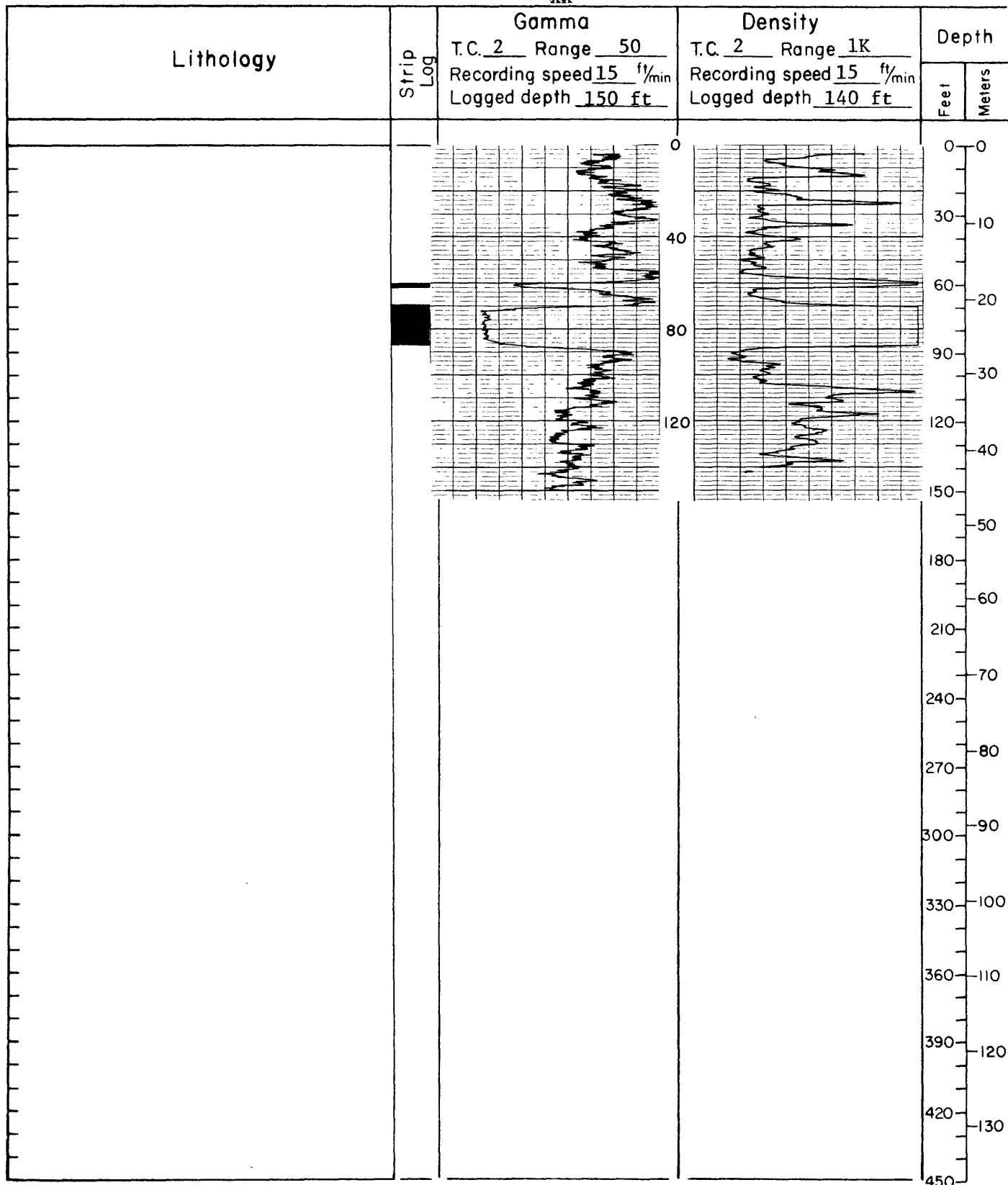


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Hole no: US-77110 Map: Sayle Hall Date: 8/17/77 State: Montana County: Powder River  
 Elev.: 3855 ft Location: T. 8 <sup>N</sup><sub>S</sub>, R. 46 <sup>E</sup><sub>W</sub>, Sec. 20, Tract DCAC Drilled depth: 150 ft  
 Measured: 750 ft ~~FSL~~ <sup>FEL</sup>, 1900 ft ~~FSL~~ <sup>FEL</sup> Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: D. FOWLER Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN





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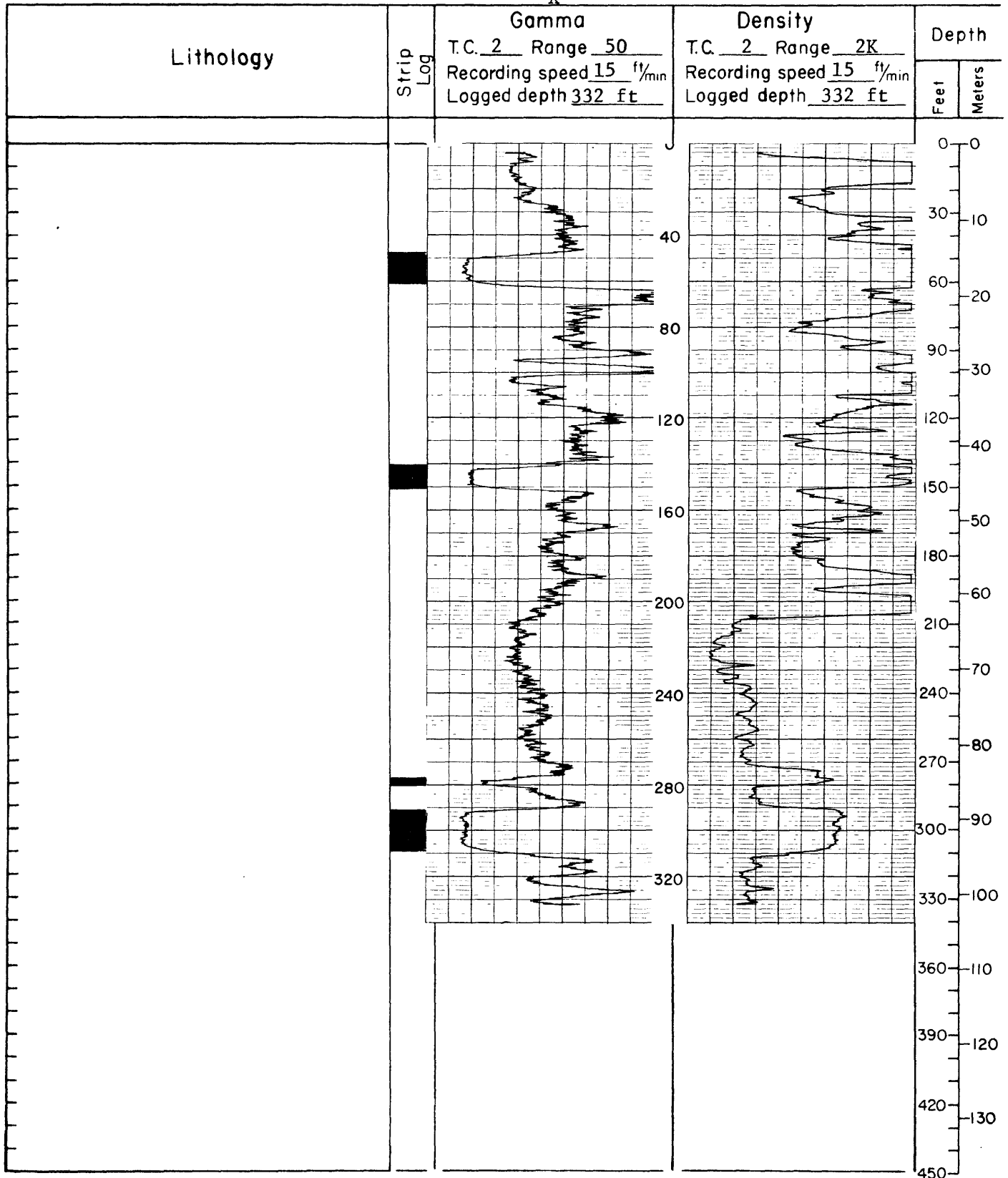
Hole no: US-77111 Map: Sayle Hall Date: 8/17/78 State: Montana County: Powder River  
 Elev.: 3975 ft Location: T. 8 <sup>NK</sup> S, R. 46 <sup>W</sup> E, Sec. 33, Tract DDDA Drilled depth: 340 ft  
 Measured: 370 ft ~~XXX~~ FSL, 300 ft ~~XXX~~ FEL ~~XXX~~ Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☒ No ☐

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~

Recorded by: J. JENSEN



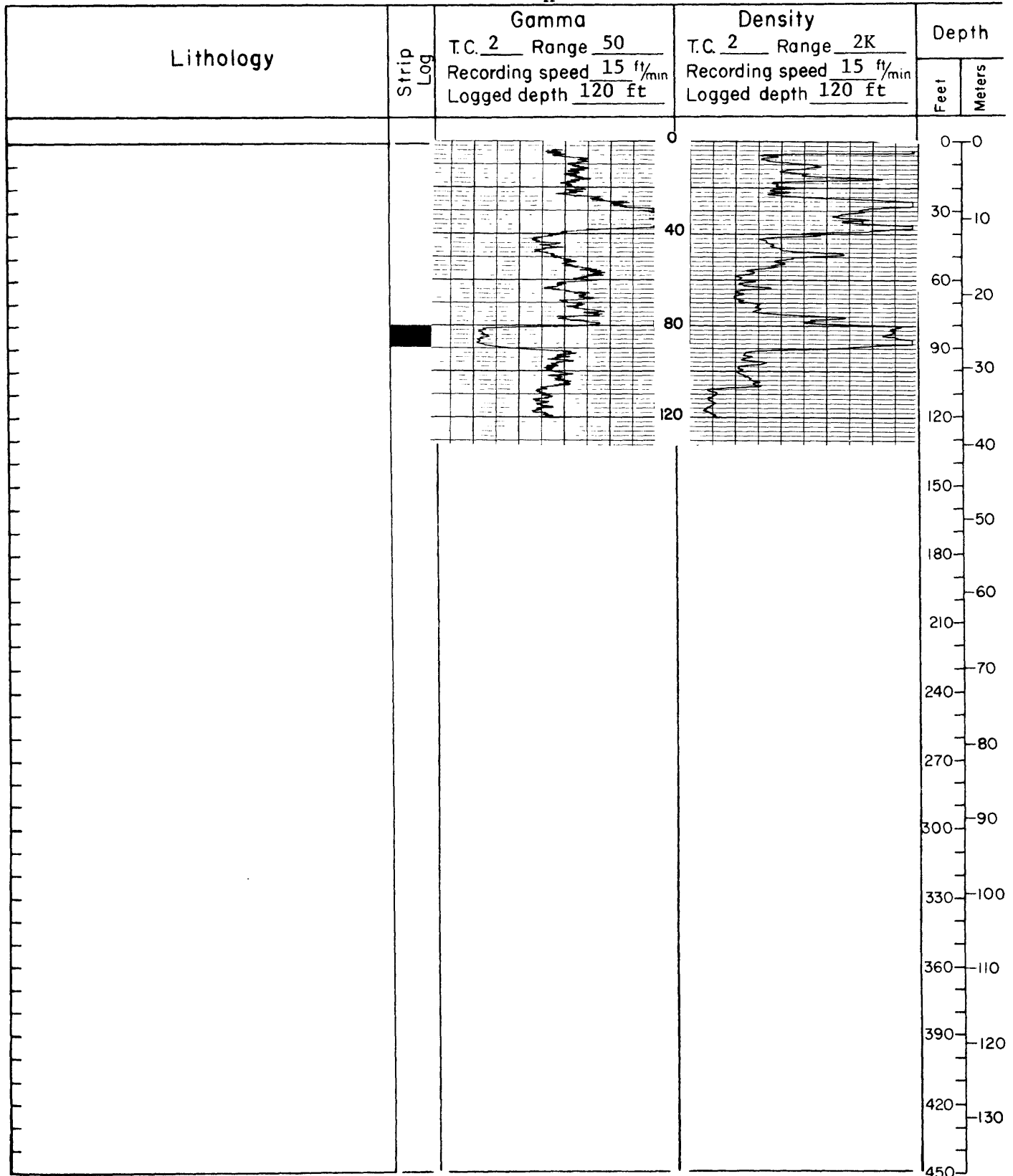
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**Montana College of Mineral Science and Technology**

Hole no: US-77112 Map: Sayle Hall Date: 8/18/77 State: Montana County: Powder River  
 Elev.: 3920 ft Location: T. 8 <sup>N.</sup> S., R. 46 <sup>E.</sup> W., Sec. 28, Tract DCCA Drilled depth: 120 ft  
 Measured: 425 ft <sup>FSL</sup> 2200 ft <sup>FEL</sup> Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN



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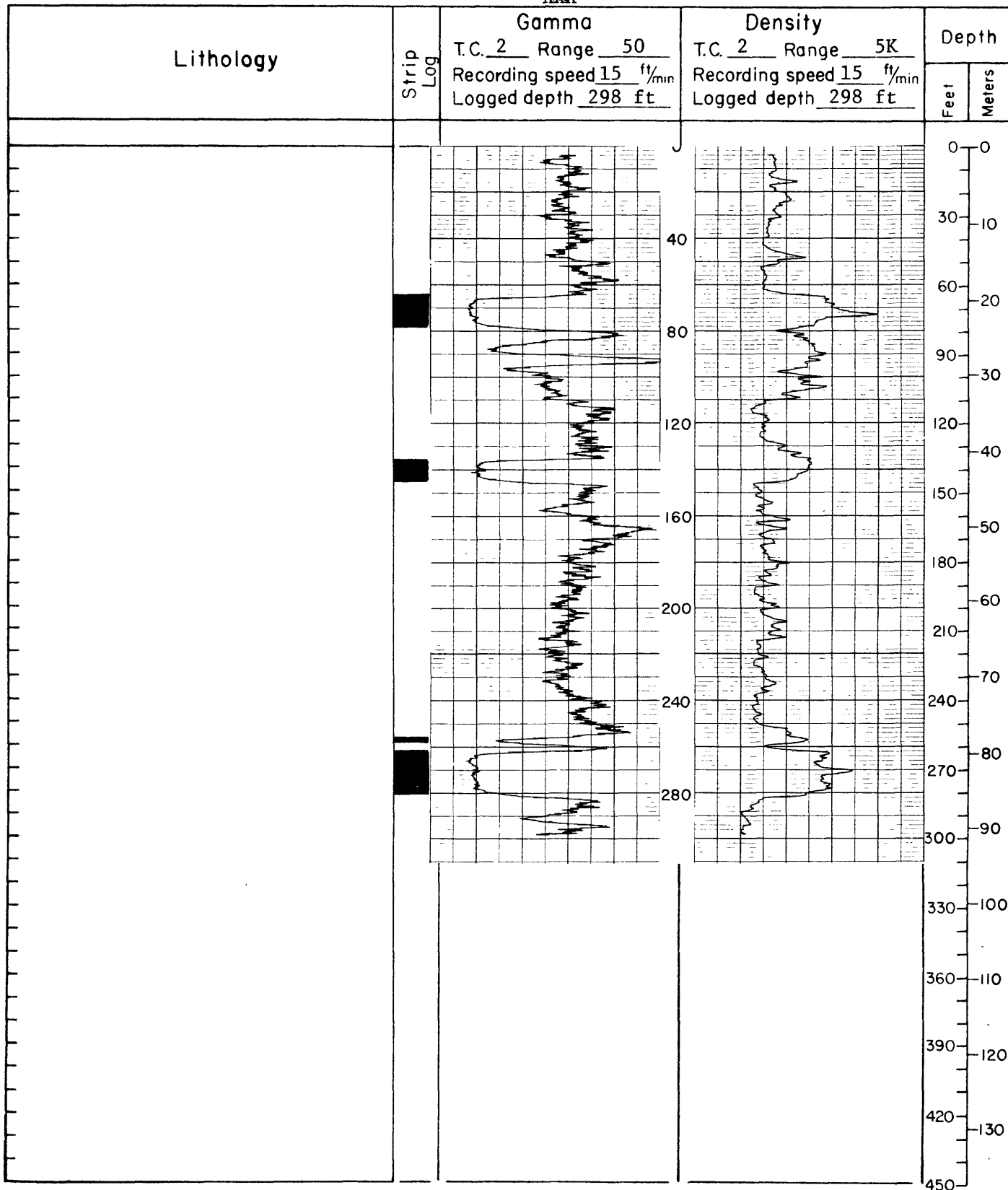
Hole no: US-77113 Map: Sayle Hall Date: 8/17/78 State: Montana County: Powder River  
 Elev.: 4000 ft Location: T. 8 <sup>N</sup>/<sub>S</sub>, R. 46 <sup>E</sup>/<sub>W</sub> Sec. 35, Tract BBBD Drilled depth: 300 ft  
 Measured: 500 ft <sup>FNL</sup>/<sub>FWL</sub> 540 ft ~~FWL~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist: <sup>Yes</sup>  
~~XXX~~

Recorded by: J. JENSEN



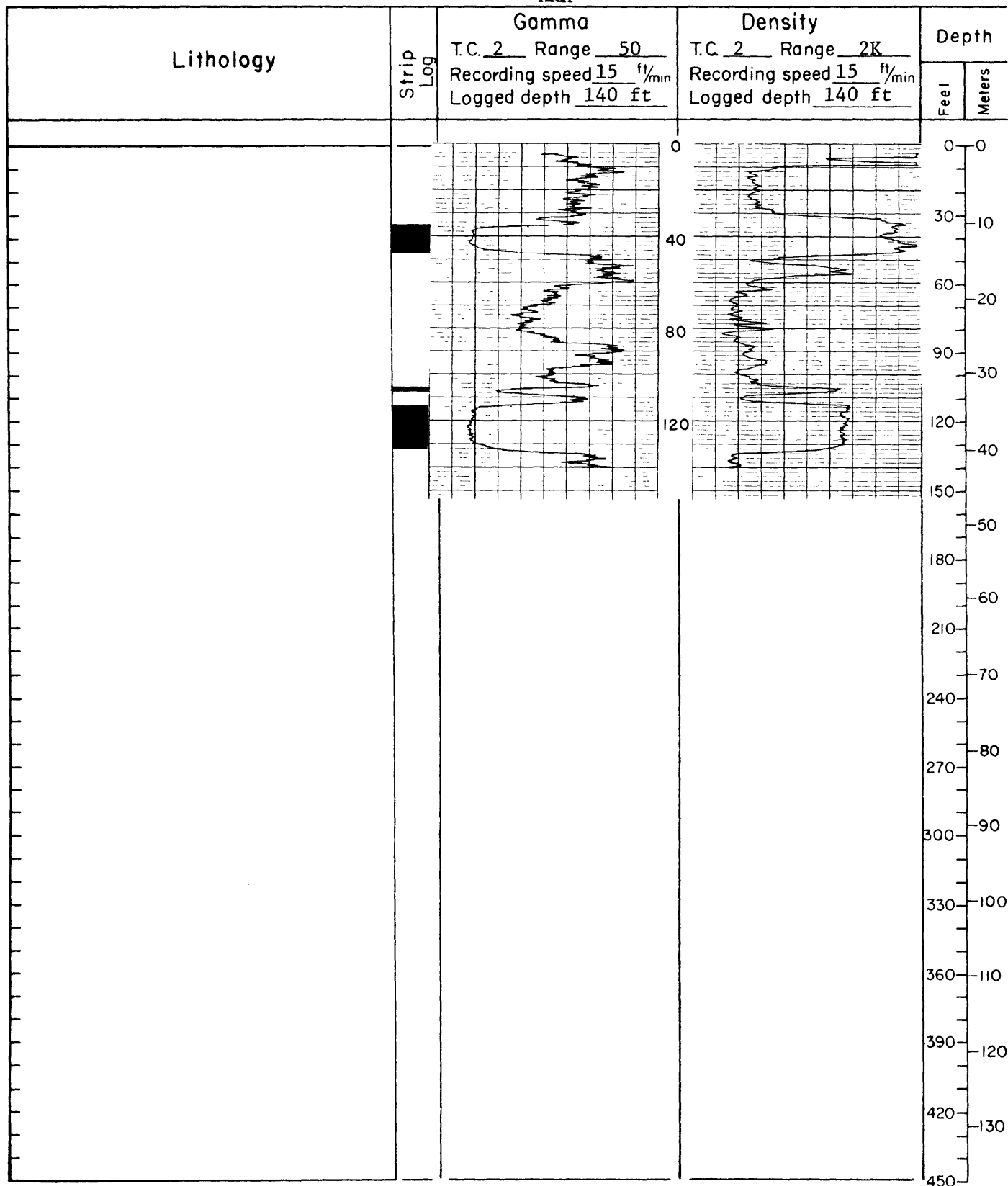
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Hole no: US-77114 Map: Sayle Hall Date: 8/18/77 State: Montana County: Powder River  
 Elev.: 3900 ft Location: T. 8 S, R. 46 E, Sec. 23, Tract CAD Drilled depth: 140 ft  
 Measured: 1510 ft ~~FSL~~, 2310 ft ~~FWL~~ Hole size: 4 2/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist: <sup>Yes</sup>~~NO~~ Recorded by: J. JENSEN



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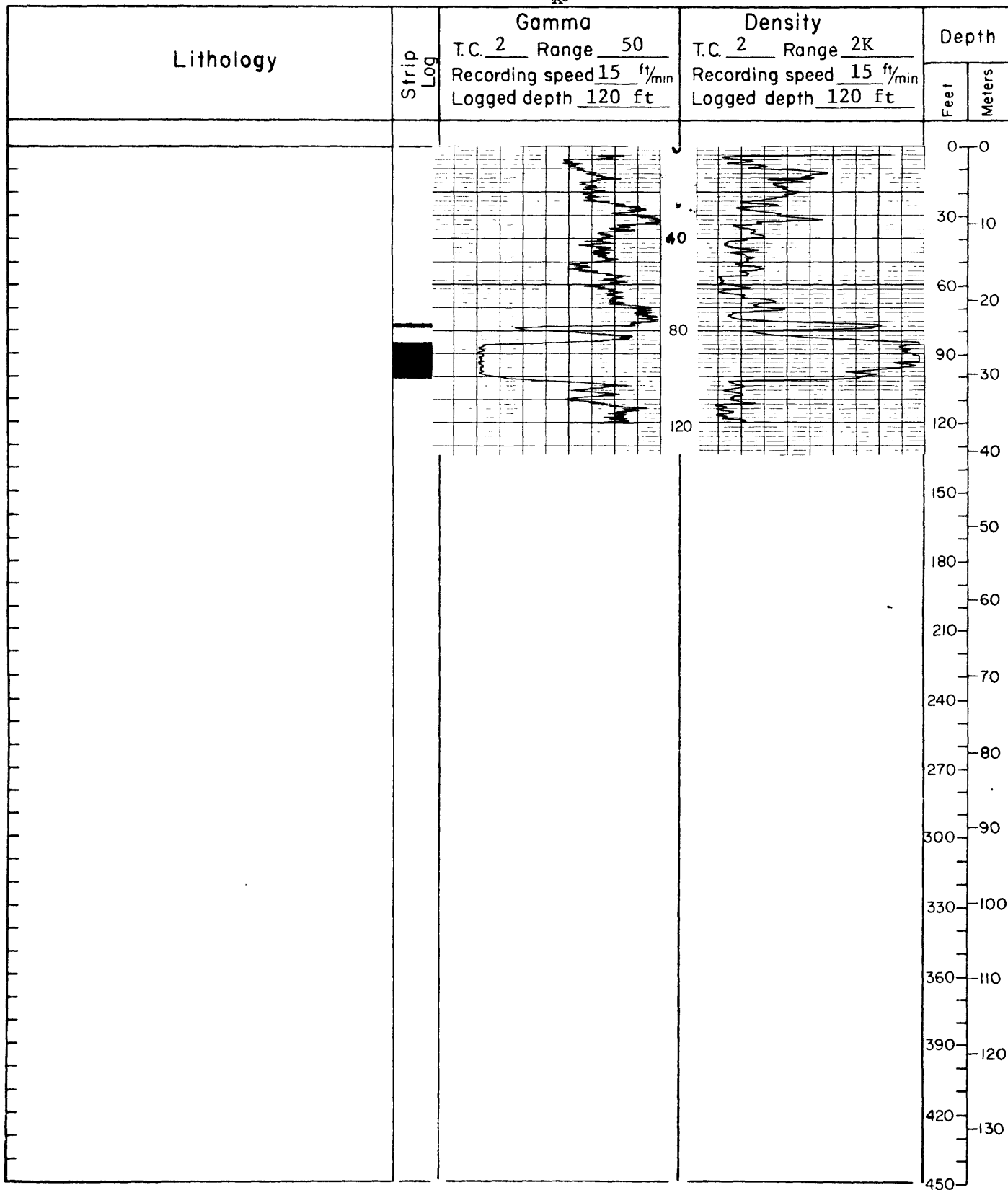
Hole no: US-77115 Map: Sayle Hall Date: 8/18/75 State: Montana County: Powder River  
 Elev.: 3890 ft Location: T. 8 S, R. 46 E, Sec. 22, Tract CCDA Drilled depth: 120 ft  
 Measured: 400 ft ~~FSL~~ 1050 ft ~~FWL~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup><sub>No</sub>

Recorded by: J. JENSEN



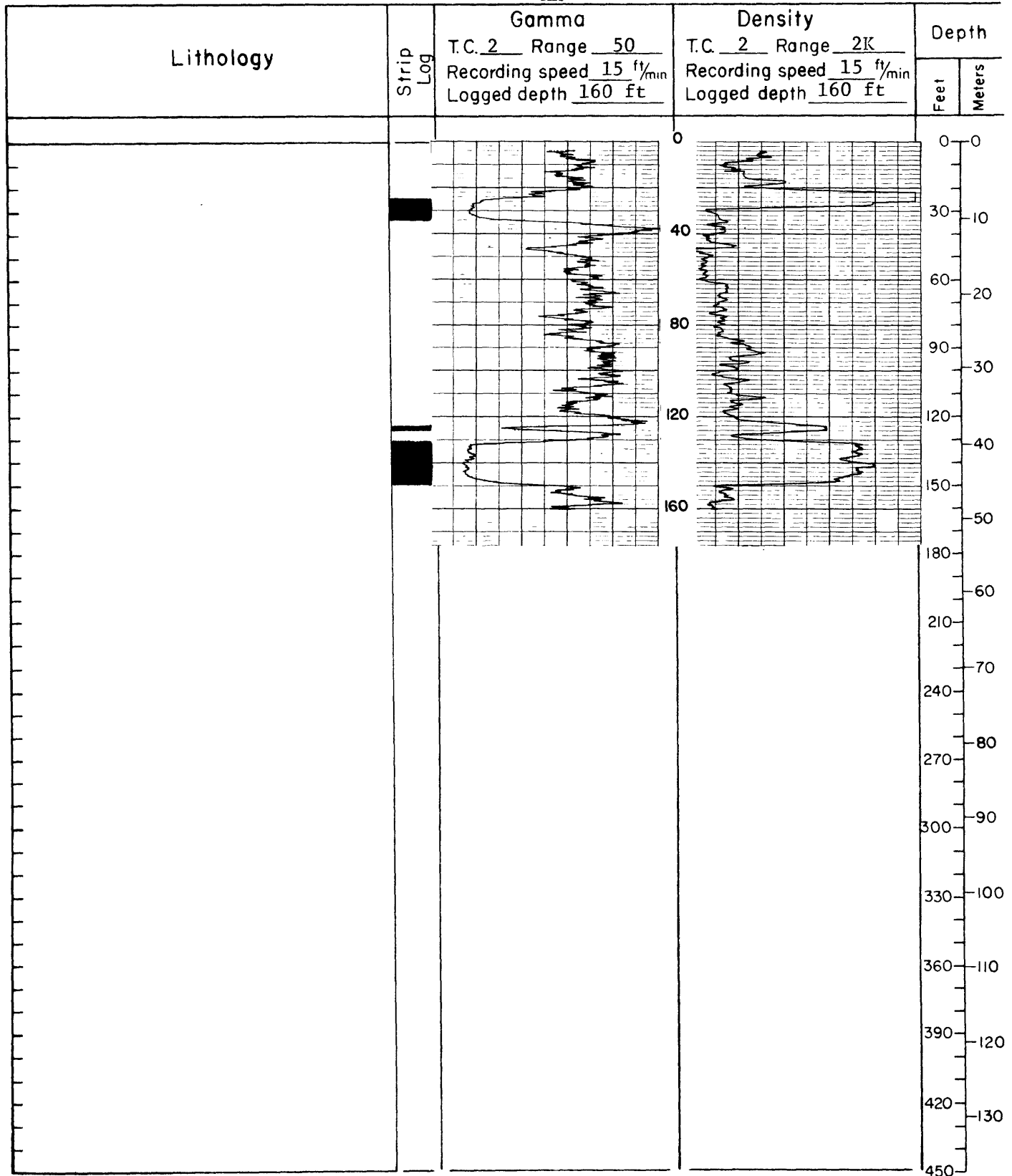
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Hole no: US-77116 Map: Reanus Cone Date: 8/18/77 State: Montana County: Powder River  
 Elev.: 3928 ft Location: T. 8 <sup>N</sup> S, R. 46 <sup>E</sup> W, Sec. 14, Tract CBCD Drilled depth: 160 ft  
 Measured: 1340 ft <sup>FSL</sup> 500 ft <sup>FWL</sup> Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN



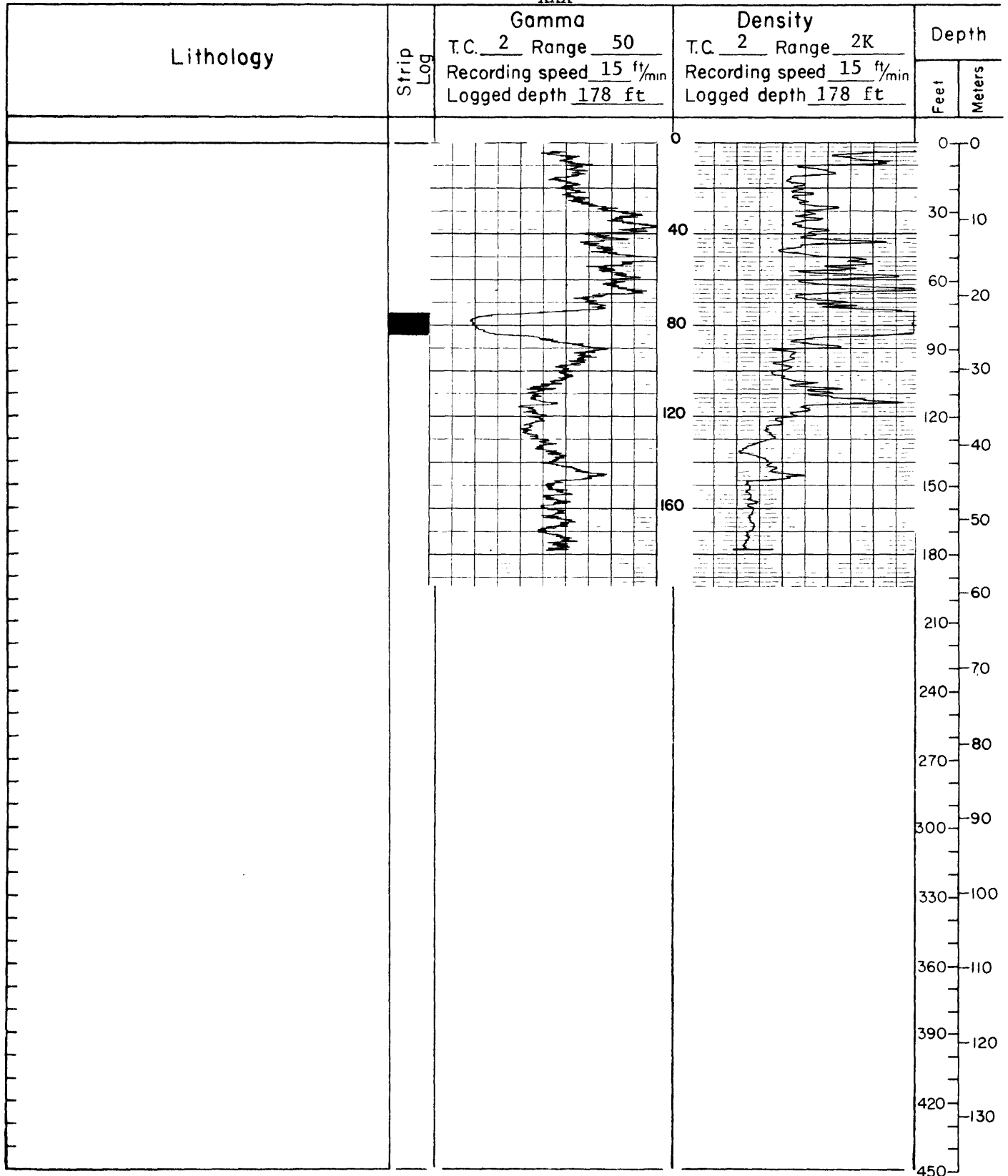
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Hole no: US-77117 Map: Sayle Hall Date: 8/18/77 State: Montana County: Powder River  
 Elev.: 3824 ft Location: T. 8 <sup>N</sup> S, R. 46 <sup>E</sup> W, Sec. 29, Tract CCDA Drilled depth: 180 ft  
 Measured: 500 ft <sup>FSL</sup> 1150 ft <sup>FWL</sup> Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist: <sup>Yes</sup> ~~XXX~~ Recorded by: J. JENSEN



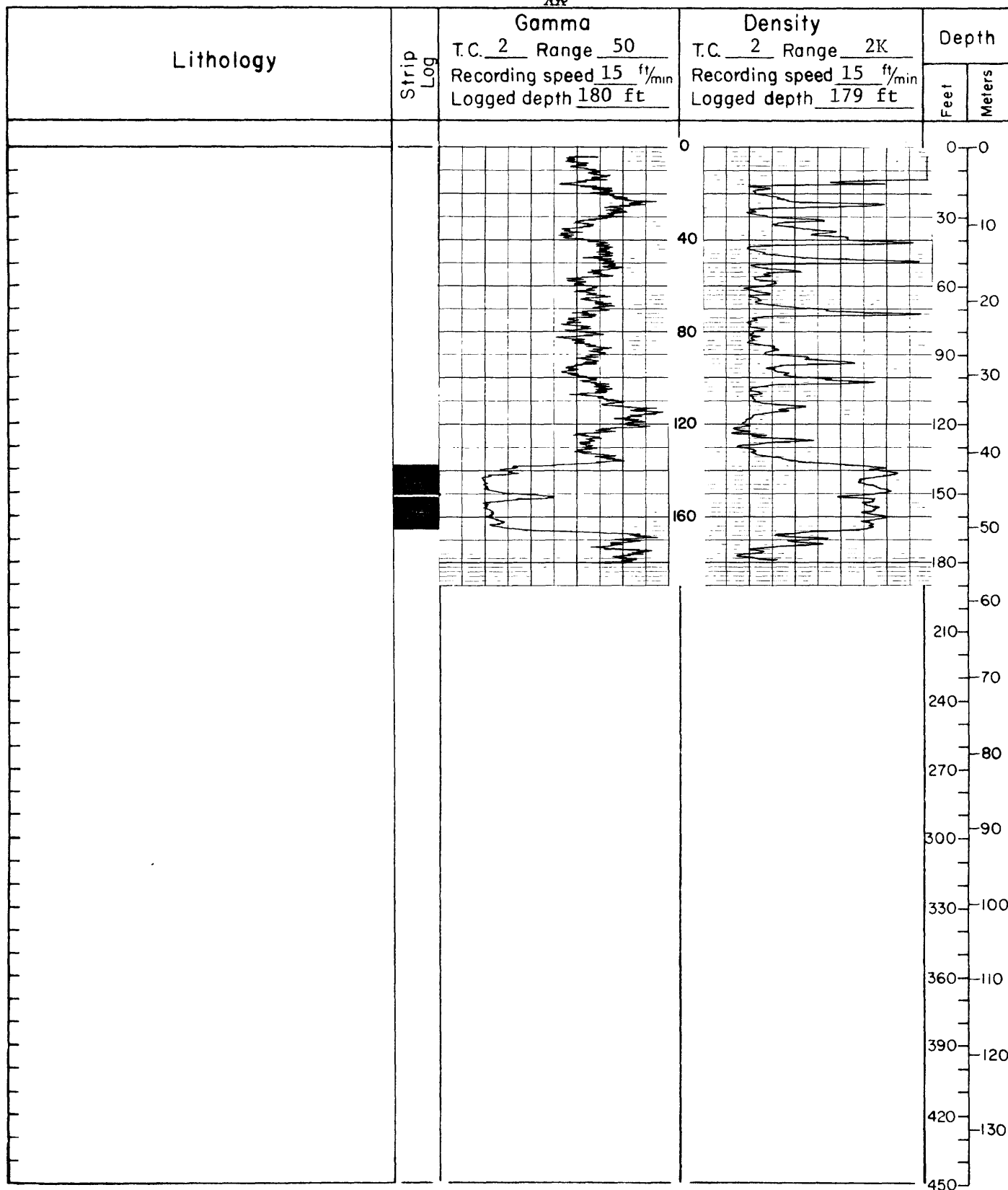
**MONTANA BUREAU OF MINES AND GEOLOGY**  
**Montana College of Mineral Science and Technology**

Hole no: US-77118 Map: Leslie Creek Date 8/23/77 State: Montana County: Powder River  
 Elev.: 3573 ft Location: T. 3 ~~XX~~ S, R. 49 ~~W~~ E, Sec. 22, Tract CADA Drilled depth: 180 ft  
 Measured: 1700 ft ~~XXX~~ FSL, 2415 ft ~~XXX~~ FWL Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~XX~~ Recorded by: J. JENSEN





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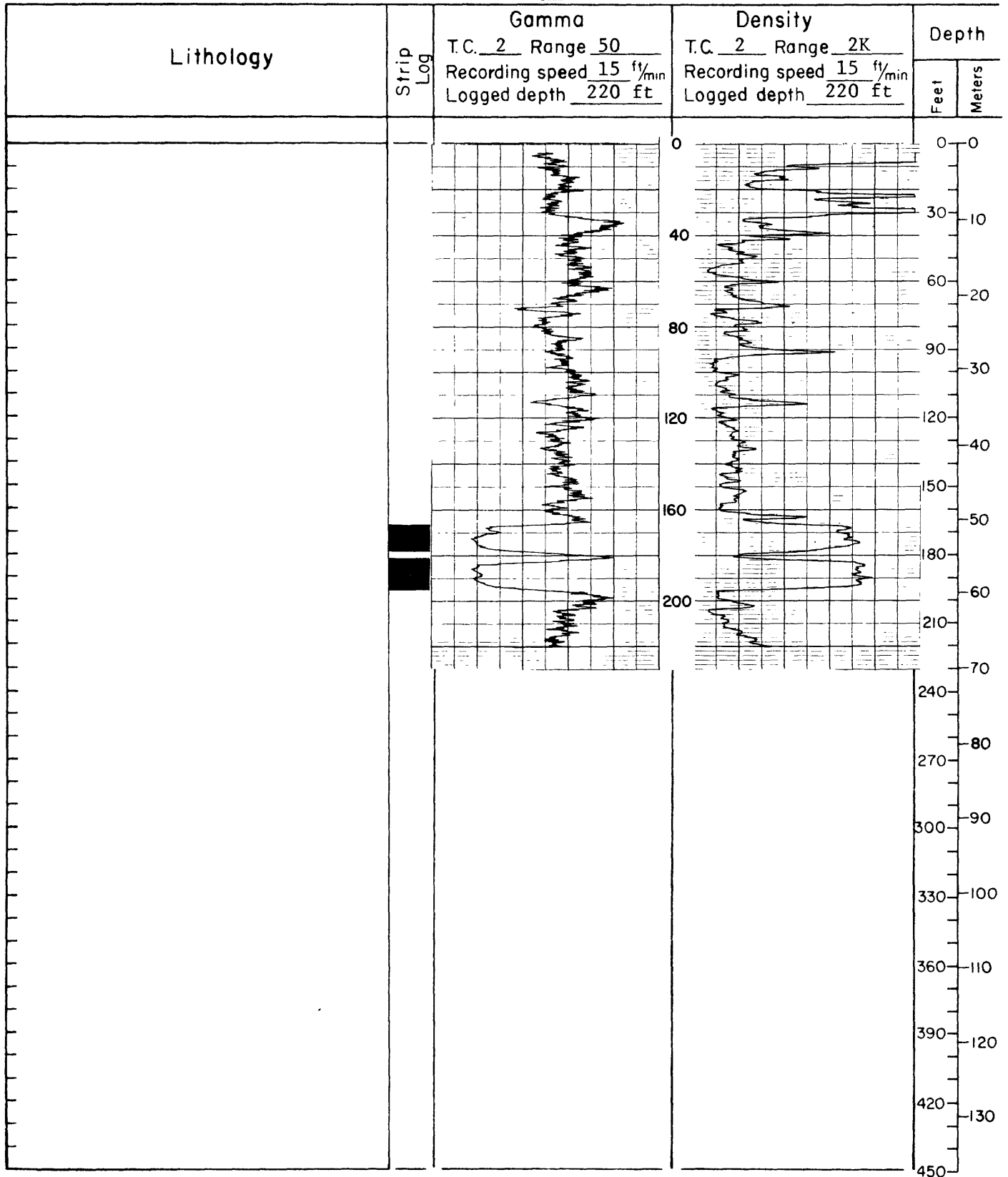
Hole no: US-77119 Map: Leslie Creek Date 8/23/77 State: Montana County: Powder River  
 Elev.: 3591 ft Location: T. 3 S, R. 49 E, Sec. 28, Tract BBA Drilled depth: 220 ft  
 Measured: 330 ft ~~FNL~~ 800 ft ~~FWL~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~No~~

Recorded by: J. JENSEN



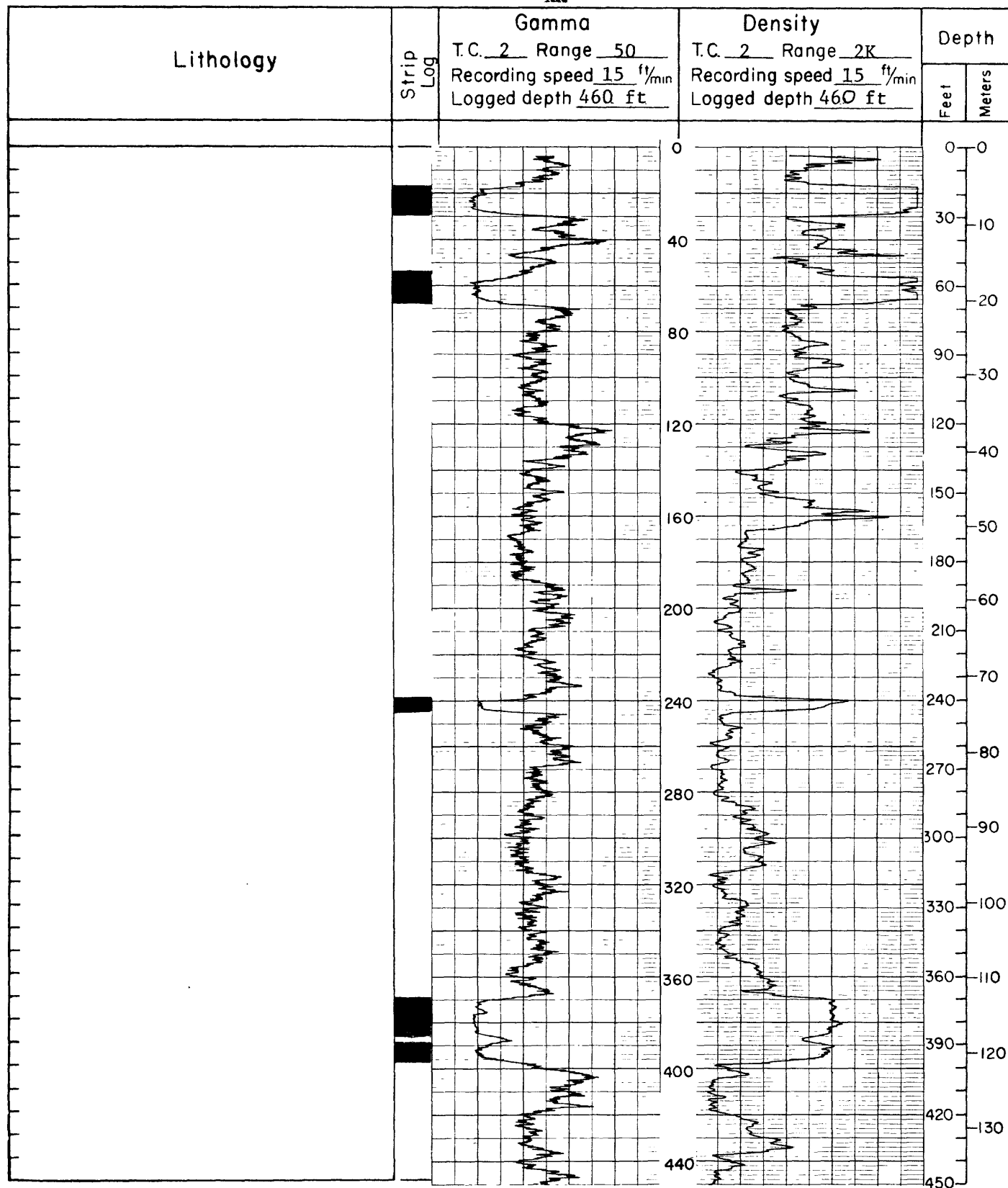
**MONTANA BUREAU OF MINES AND GEOLOGY**  
**Montana College of Mineral Science and Technology**

Hole no: US-77120 Map: Leslie Creek Date 8/23/77 State: Montana County: Powder River  
 Elev.: 3495 ft Location: T. 4 <sup>N</sup><sub>S</sub>, R. 49 <sup>E</sup><sub>W</sub>, Sec. 4, Tract ABDB Drilled depth: 460 ft  
 Measured: 800 ft <sup>FNL</sup><sub>Fsk</sub>, 1910 ft <sup>FEL</sup><sub>FWX</sub> Hole size: 4 3/4 in, Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_


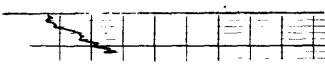
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup><sub>No</sub> Recorded by: J. JENSEN



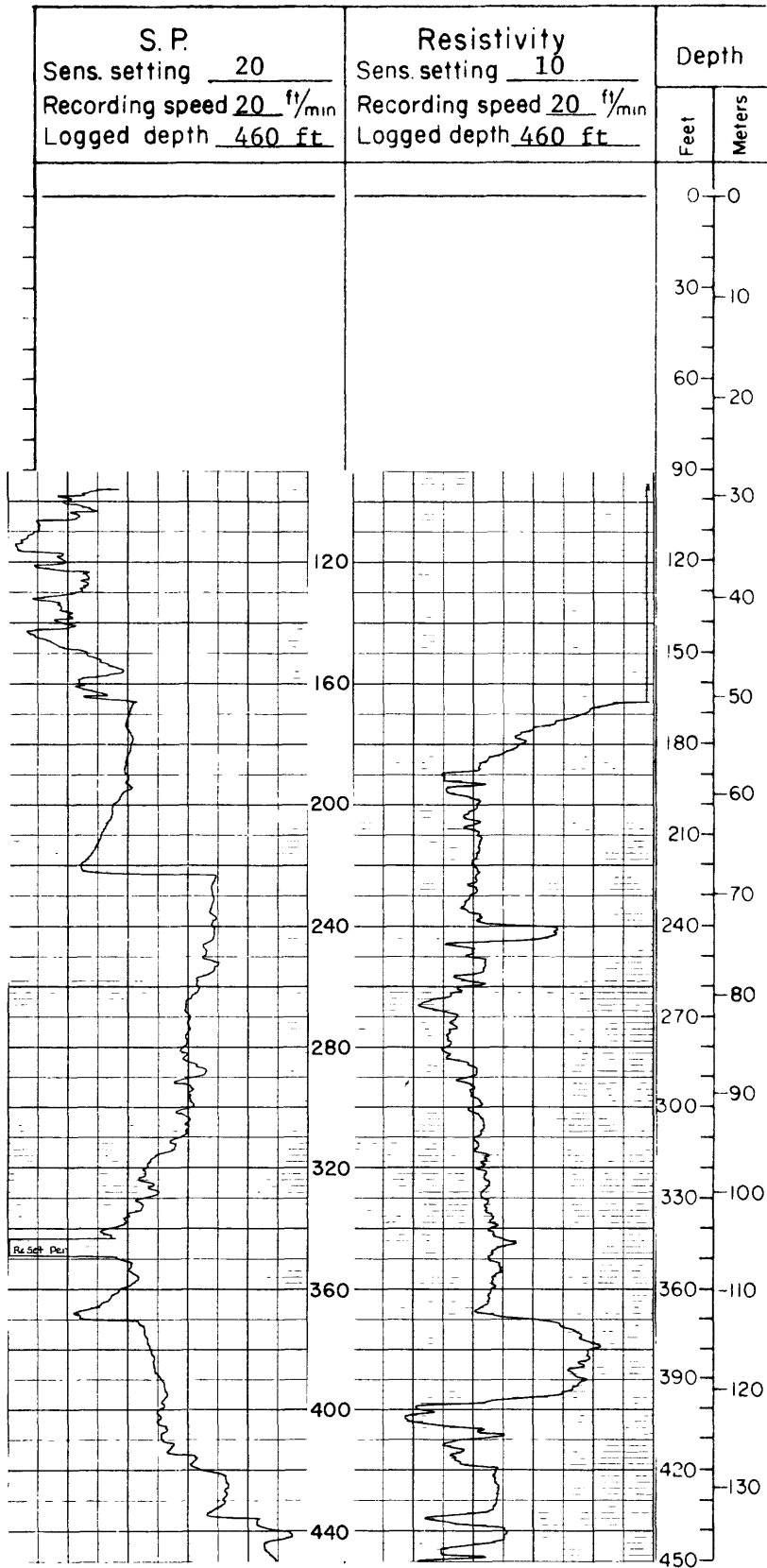
Hole number (continued)

US - 77120

Lithology	Strip Log	Gamma	Density	Depth	
		T.C. <u>2</u> Range <u>50</u> Recording speed <u>15</u> ft/min Logged depth <u>460</u> ft	T.C. <u>2</u> Range <u>2K</u> Recording speed <u>15</u> ft/min Logged depth <u>460</u> ft	Feet	Meters
				450	
				480	140
				510	150
				540	160
				570	170
				600	180
				630	190
				660	200
				690	210
				720	220
				750	230
				780	240
				810	250
				840	260
				870	270
				900	

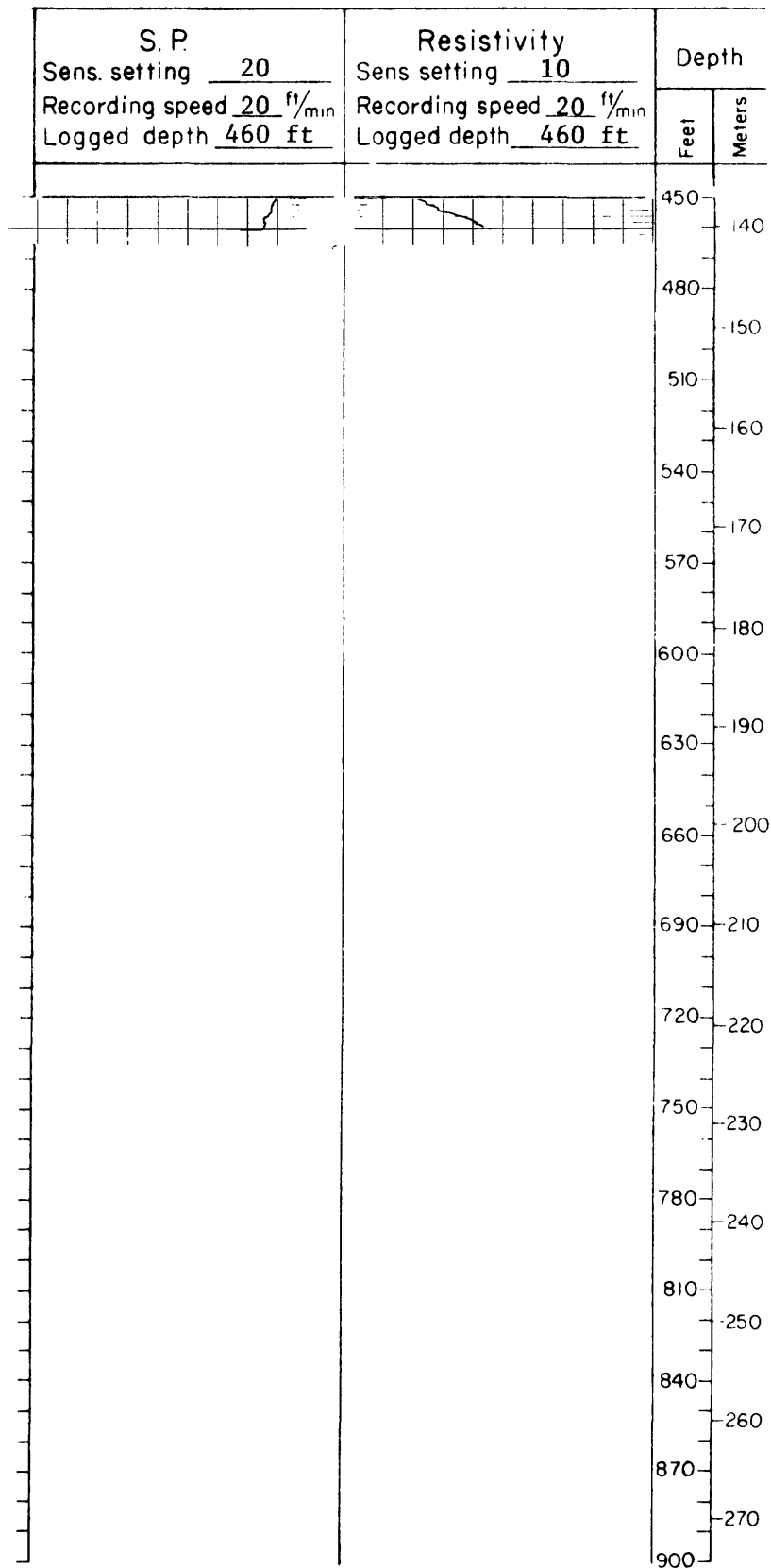
# Hole number (continued)

US-77120



Hole number (continued)

US - 77120



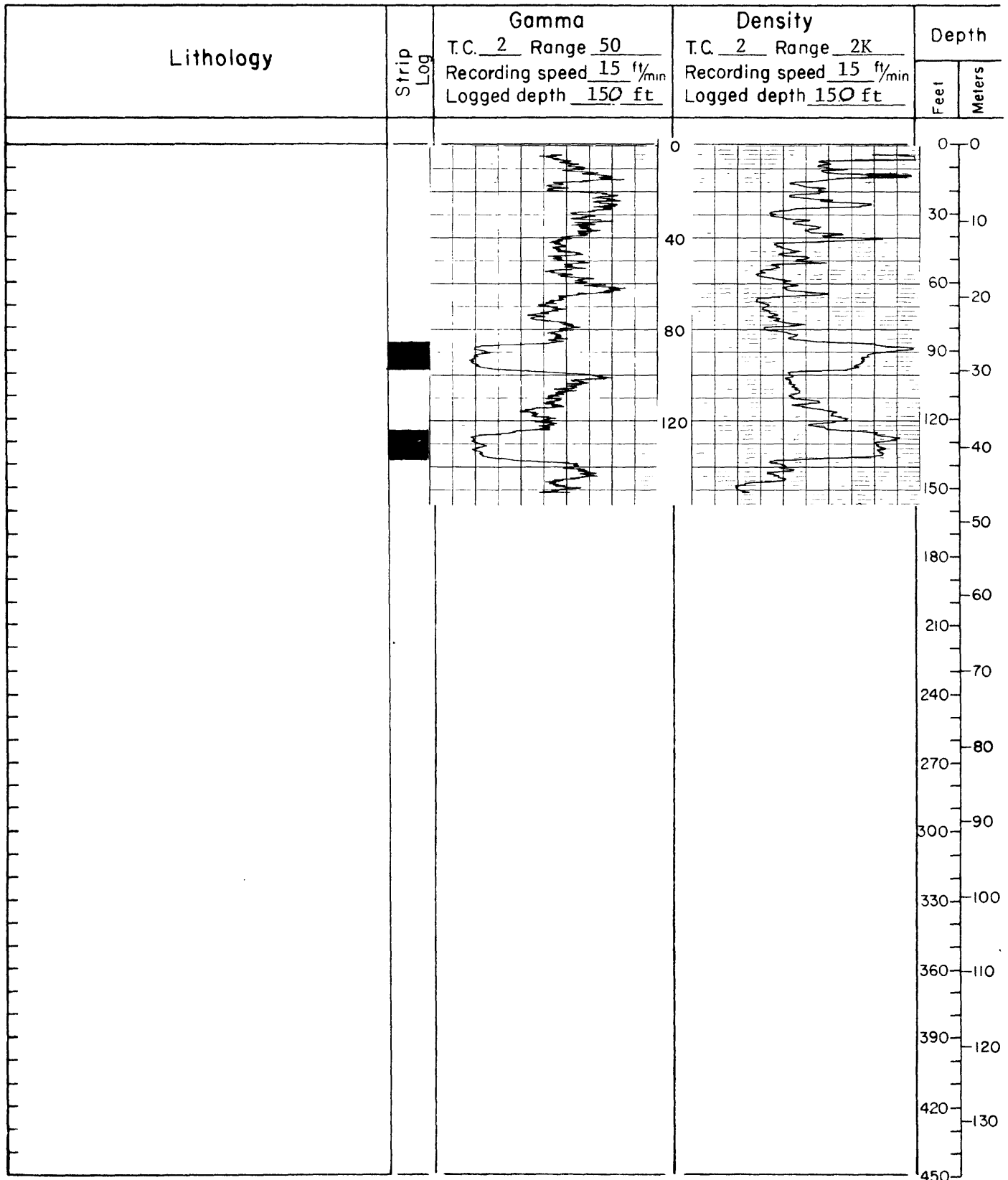
**MONTANA BUREAU OF MINES AND GEOLOGY**  
**Montana College of Mineral Science and Technology**

Hole no: US-77121 Map: Leslie Creek Date 8/24/77 State: Montana County: Powder River  
 Elev.: 3542 ft Location: T. 3 <sup>N</sup>~~S~~, R. 49 <sup>E</sup>~~W~~, Sec. 32, Tract AAAA Drilled depth: 150 ft  
 Measured: 10 ft <sup>FNL</sup>~~FSL~~, 50 ft <sup>FEL</sup>~~FLL~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~XX~~ Recorded by: J. JENSEN



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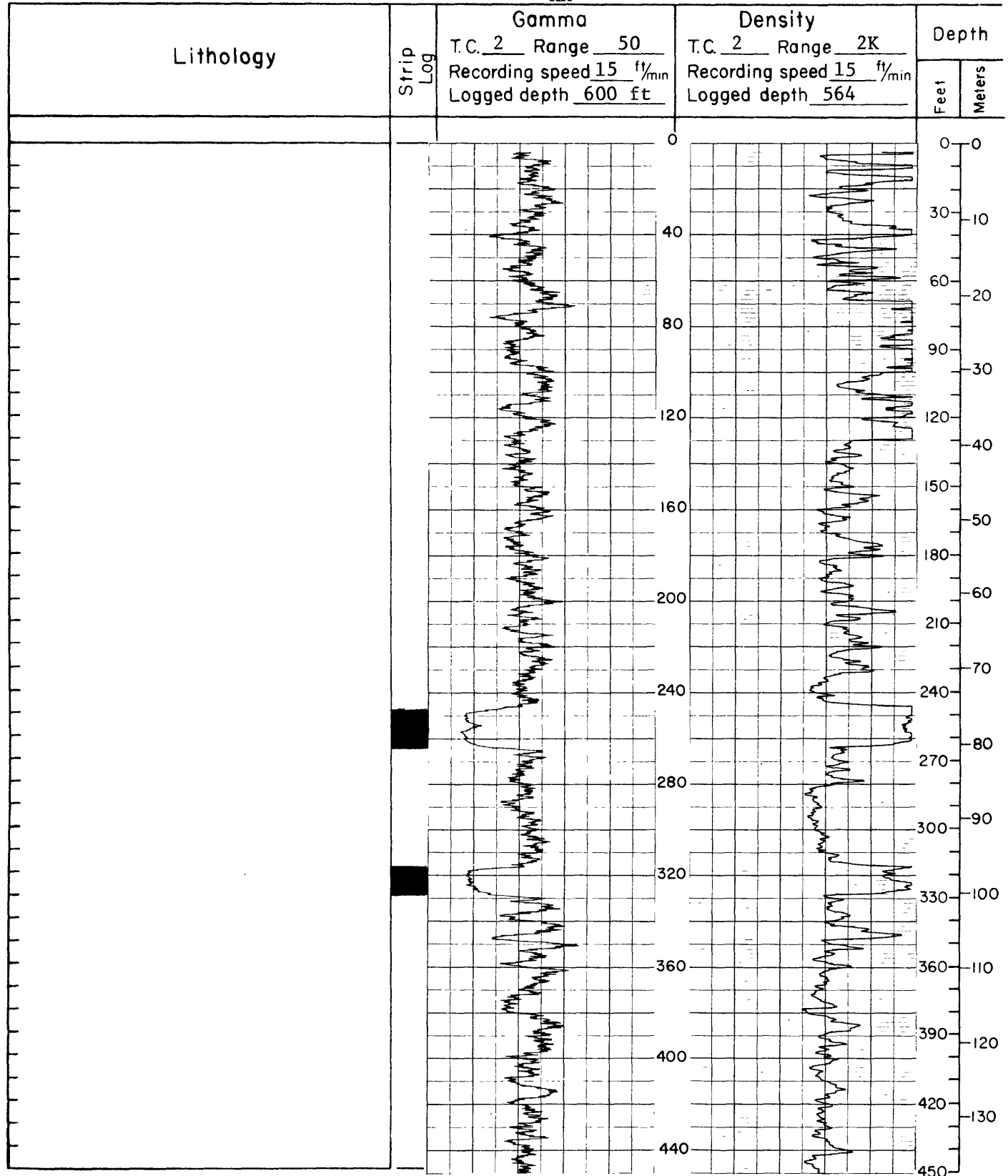
Hole no: US-77122 Map: Leslie Creek Date: 8/24/77 State: Montana County: Powder River  
 Elev.: 3605 ft Location: T. 4 <sup>N</sup><sub>S</sub>, R. 49 <sup>E</sup><sub>W</sub>, Sec. 6, Tract CCAB Drilled depth: 600 ft  
 Measured: 1000 ft ~~FSL~~, 725 ft ~~FWL~~ Hole size: 4 3/4 in Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: Lost circulation at 595 ft.

Recorded by: J. PINCHOCK

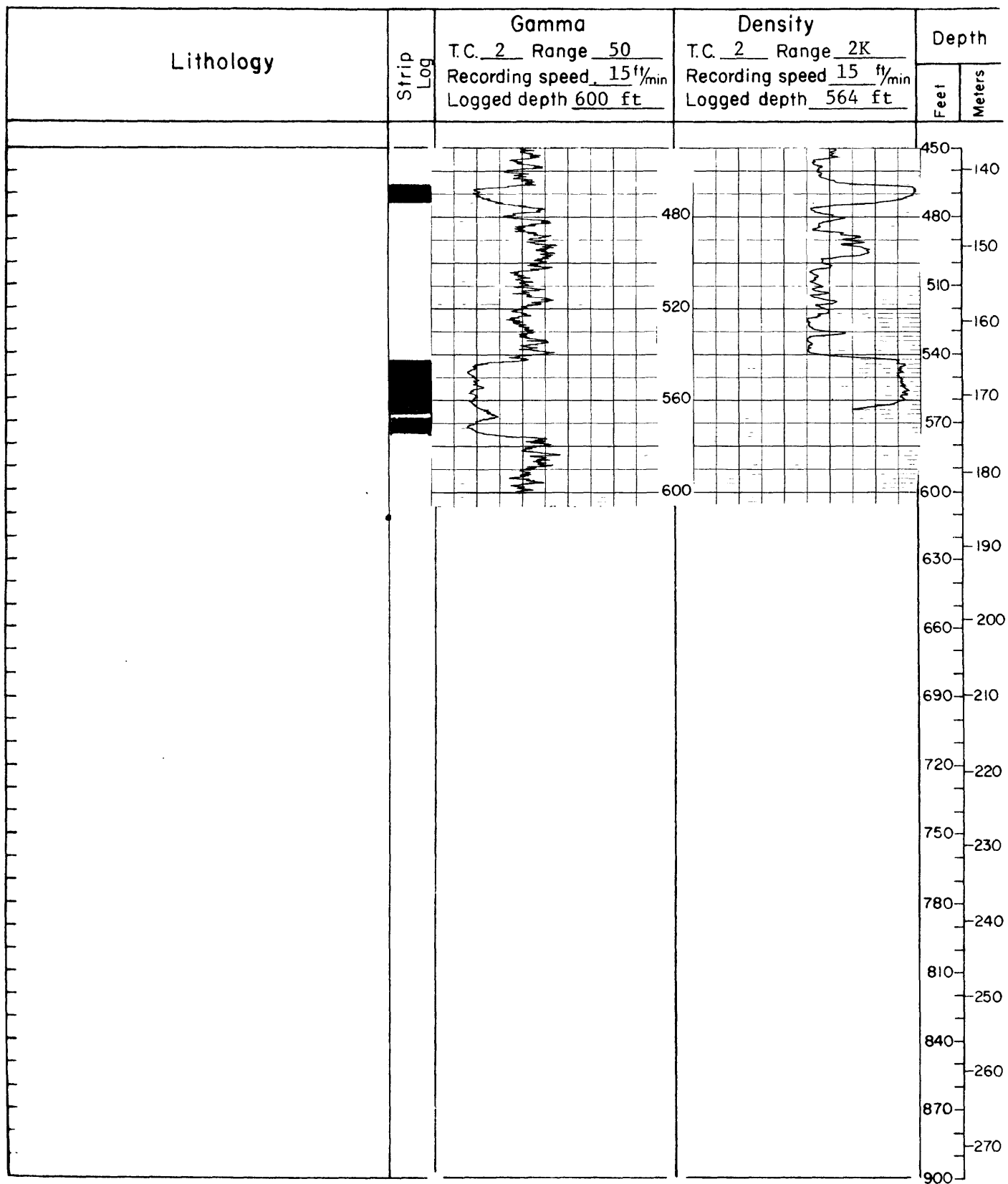
Geologist <sup>Yes</sup>~~No~~

Recorded by: J. JENSEN



Hole number (continued)

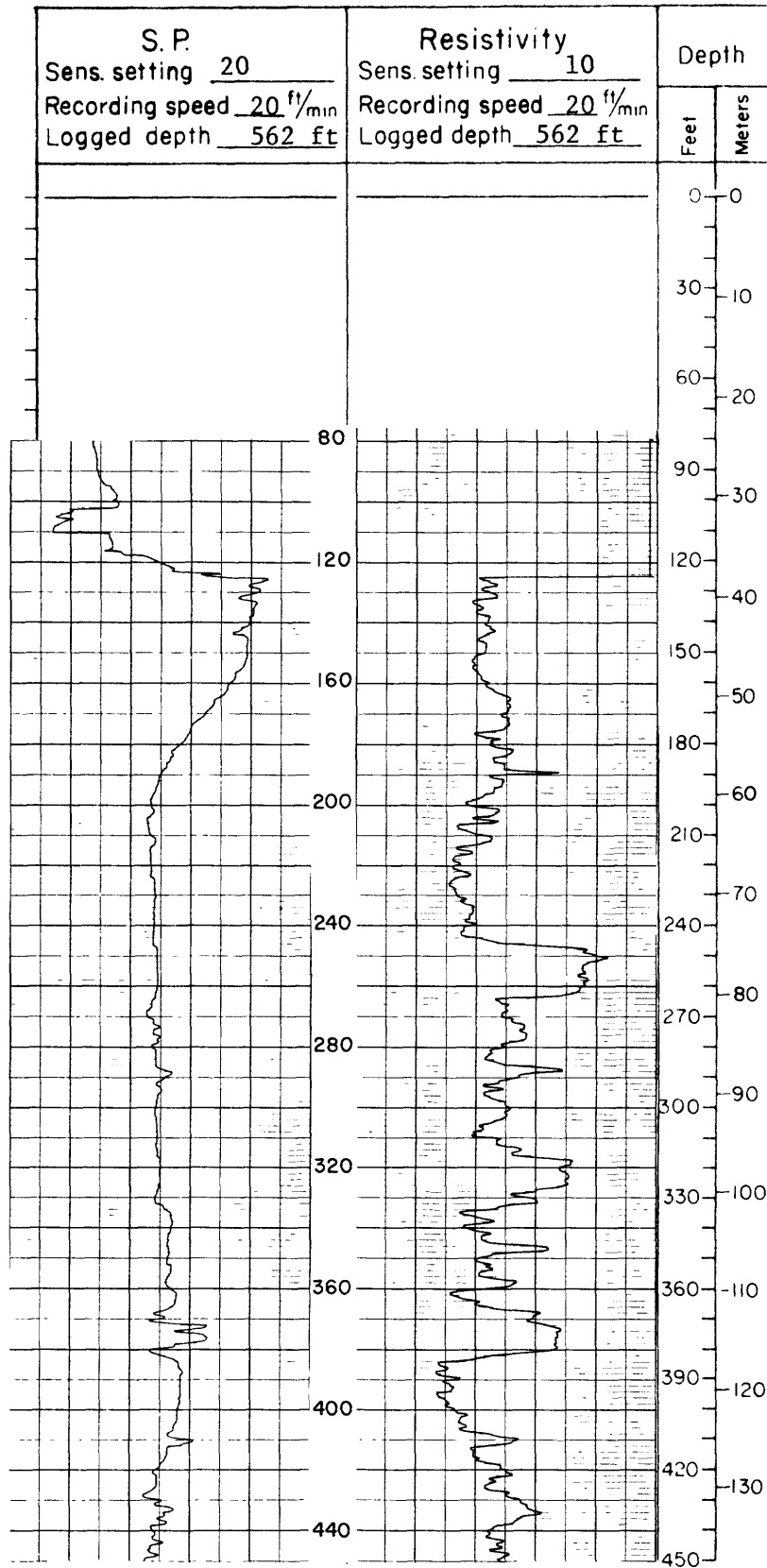
US - 77122





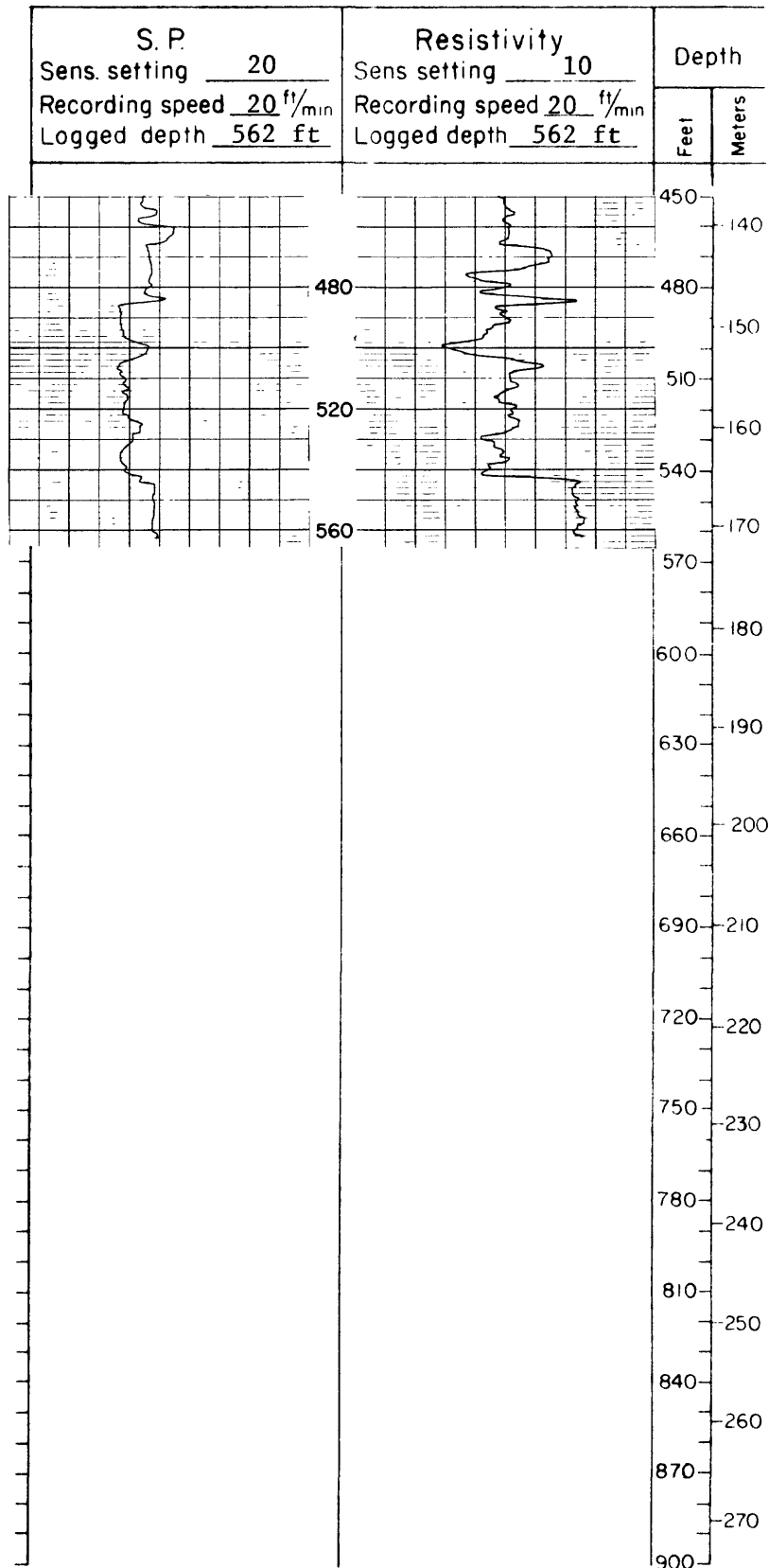
Hole number (continued)

US- 77122



# Hole number (continued)

US -77122



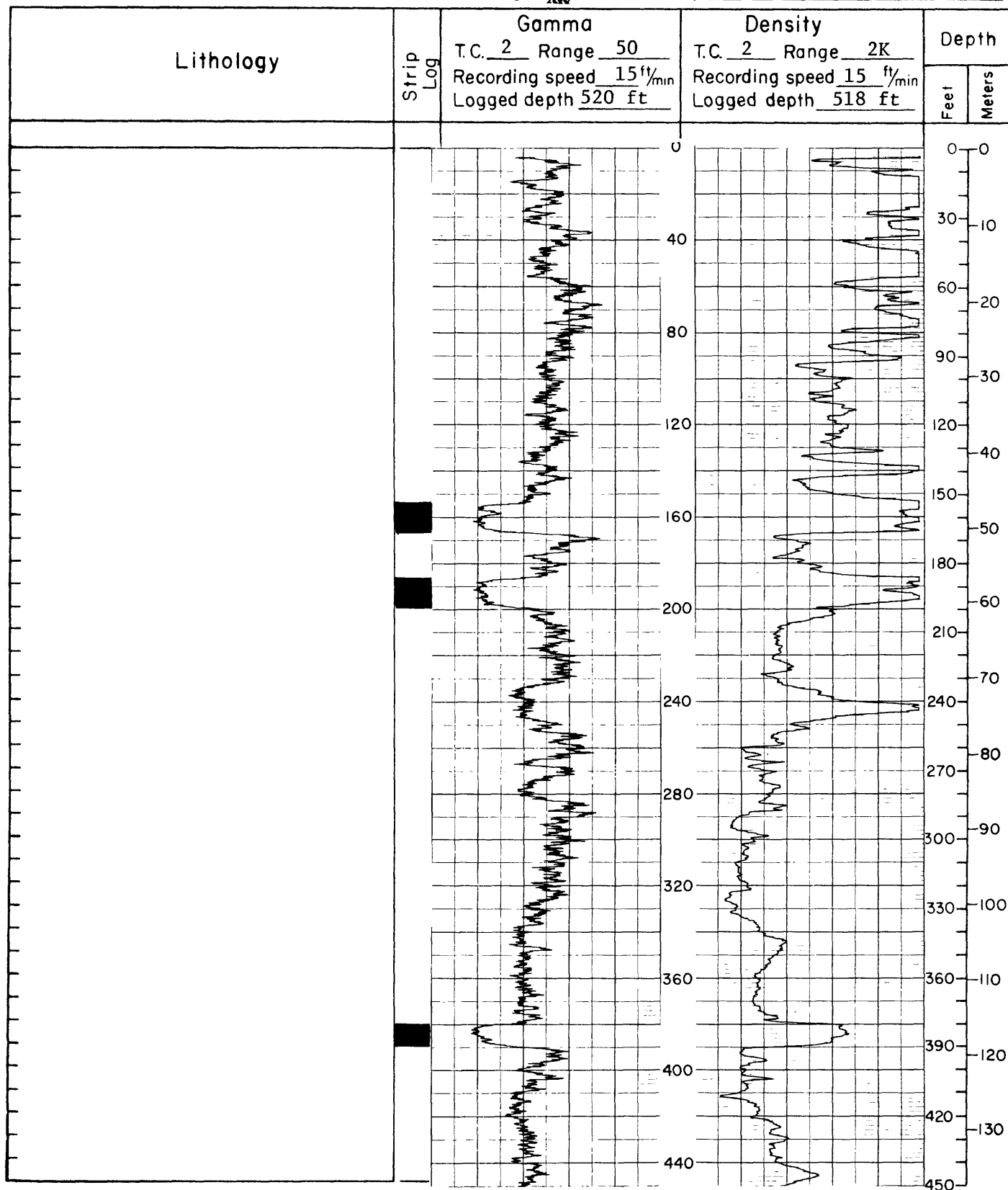
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Hole no: US-77123 Map: Leslie Creek Date 8/25/77 State: Montana County: Powder River  
 Elev.: 3570 ft Location: T. 3 S, R. 49 E, Sec. 30, Tract ADAD Drilled depth: 520 ft  
 Measured: 1900 ft ~~FNL~~ ~~KSL~~, 50 ft ~~FEL~~ ~~POX~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☒ No ☐

Remarks: \_\_\_\_\_

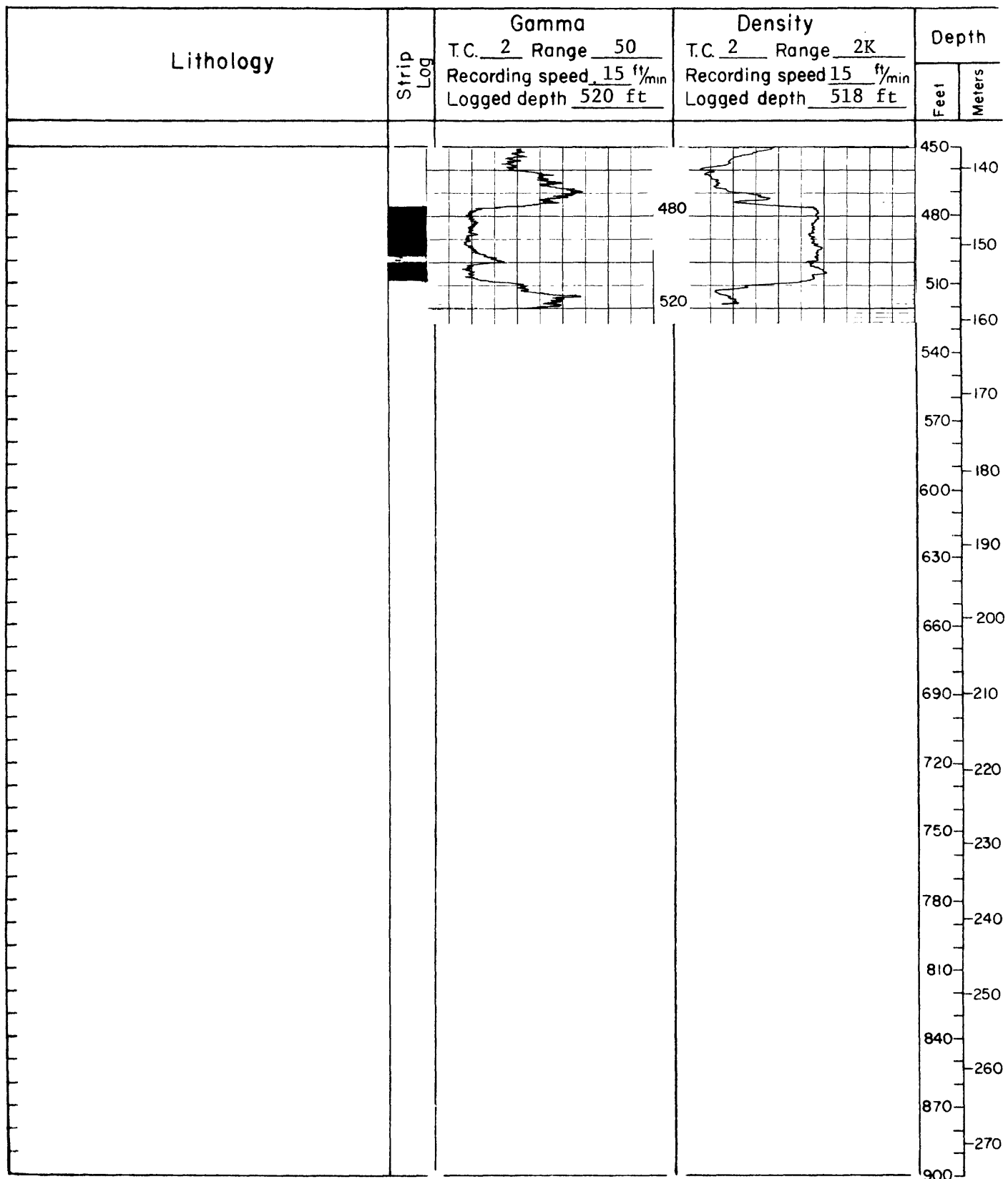
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~XX~~ Recorded by: J. JENSEN



Hole number (continued)

US - 77123



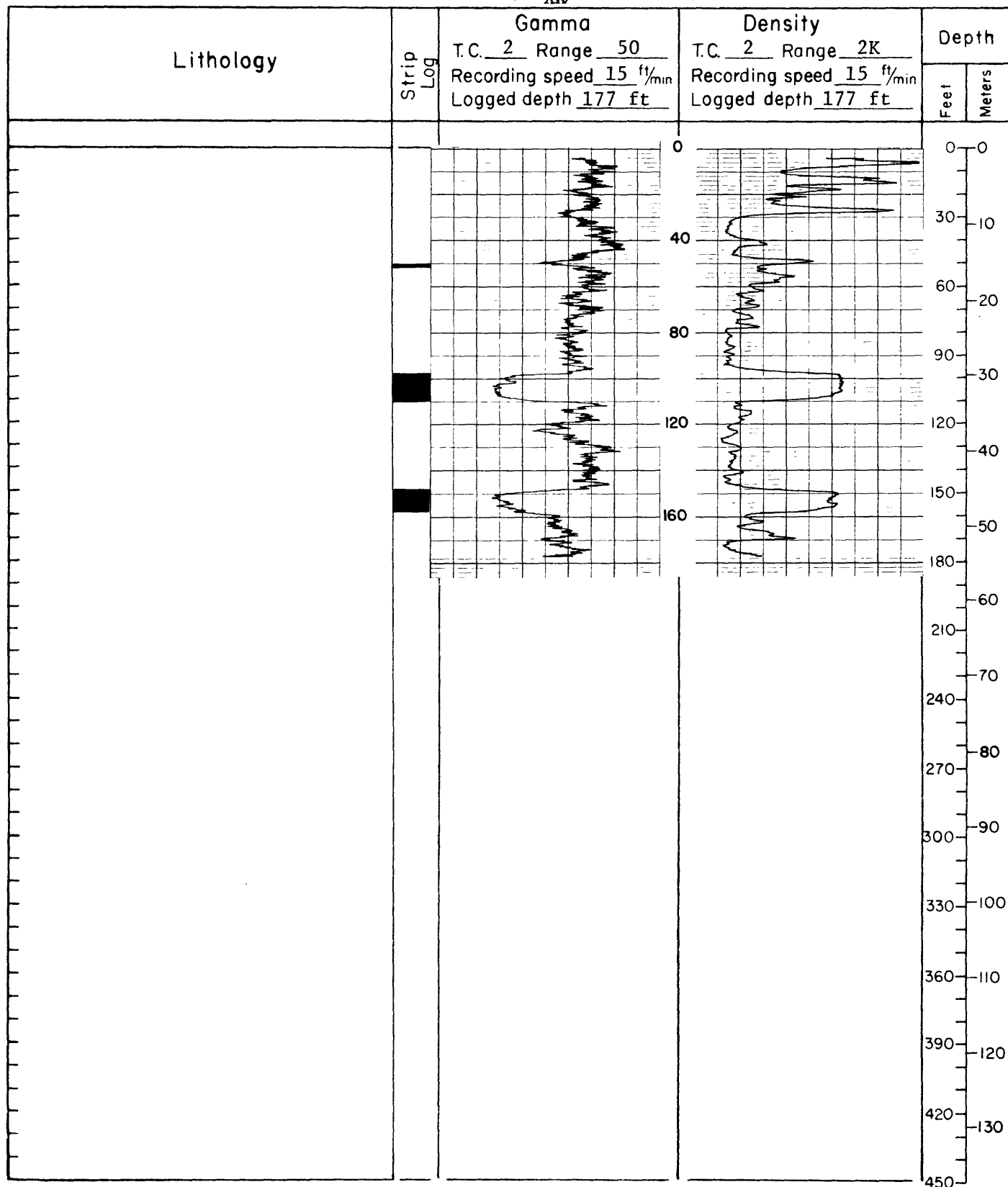
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Hole no: US-77124 Map: Leslie Creek Date 8/24/77 State: Montana County: Powder River  
 Elev.: 3520 ft Location: T. 4 S, R. 49 E, Sec. 8, Tract ABBA Drilled depth: 180 ft  
 Measured: 10 ft <sup>FNL</sup><sub>FSL</sub>, 2000 ft <sup>FEL</sup><sub>FVK</sub> Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

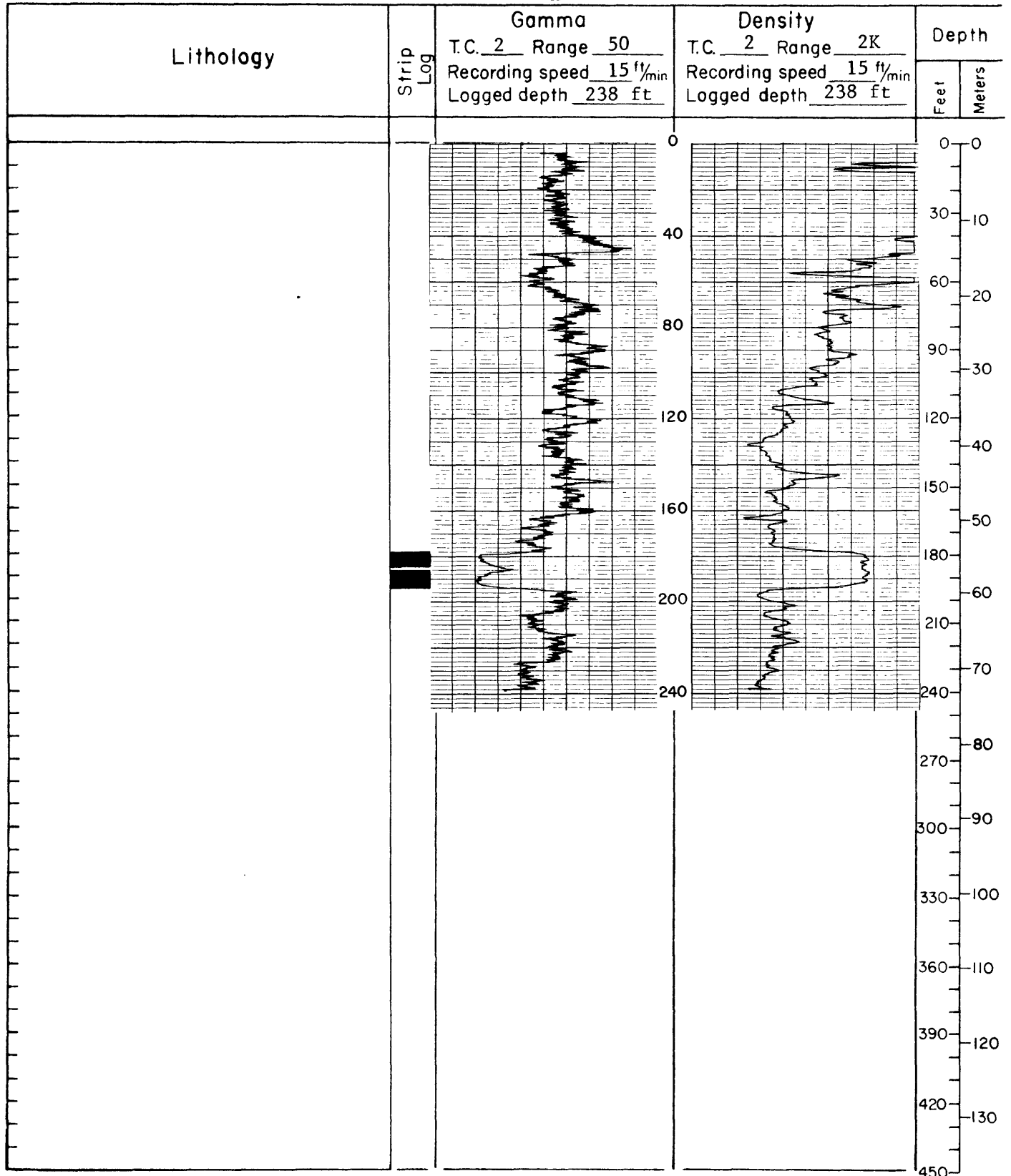
Geologist <sup>Yes</sup><sub>No</sub> Recorded by: J. JENSEN



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Hole no: US-77125 Map: Epsie Date: 8/25/78 State: Montana County: Powder River  
 Elev.: 3580 ft Location: T. 4 <sup>N</sup><sub>S</sub>, R. 48 <sup>E</sup><sub>W</sub> Sec. 24, Tract BABB Drilled depth: 240 ft  
 Measured: 50 ft <sup>FNL</sup><sub>FWL</sub>, 1580 ft <sup>FNL</sup><sub>FWL</sub> Hole size: 4 3/4 in. Air ☒ Water ☒ Cored: Yes ☐ No ☒  
 Remarks: Lost circulation at 200 ft. Lower coal appears burned.

Recorded by: J. PINCHOCK Geologist <sup>Yes</sup><sub>No</sub> Recorded by: J. JENSEN



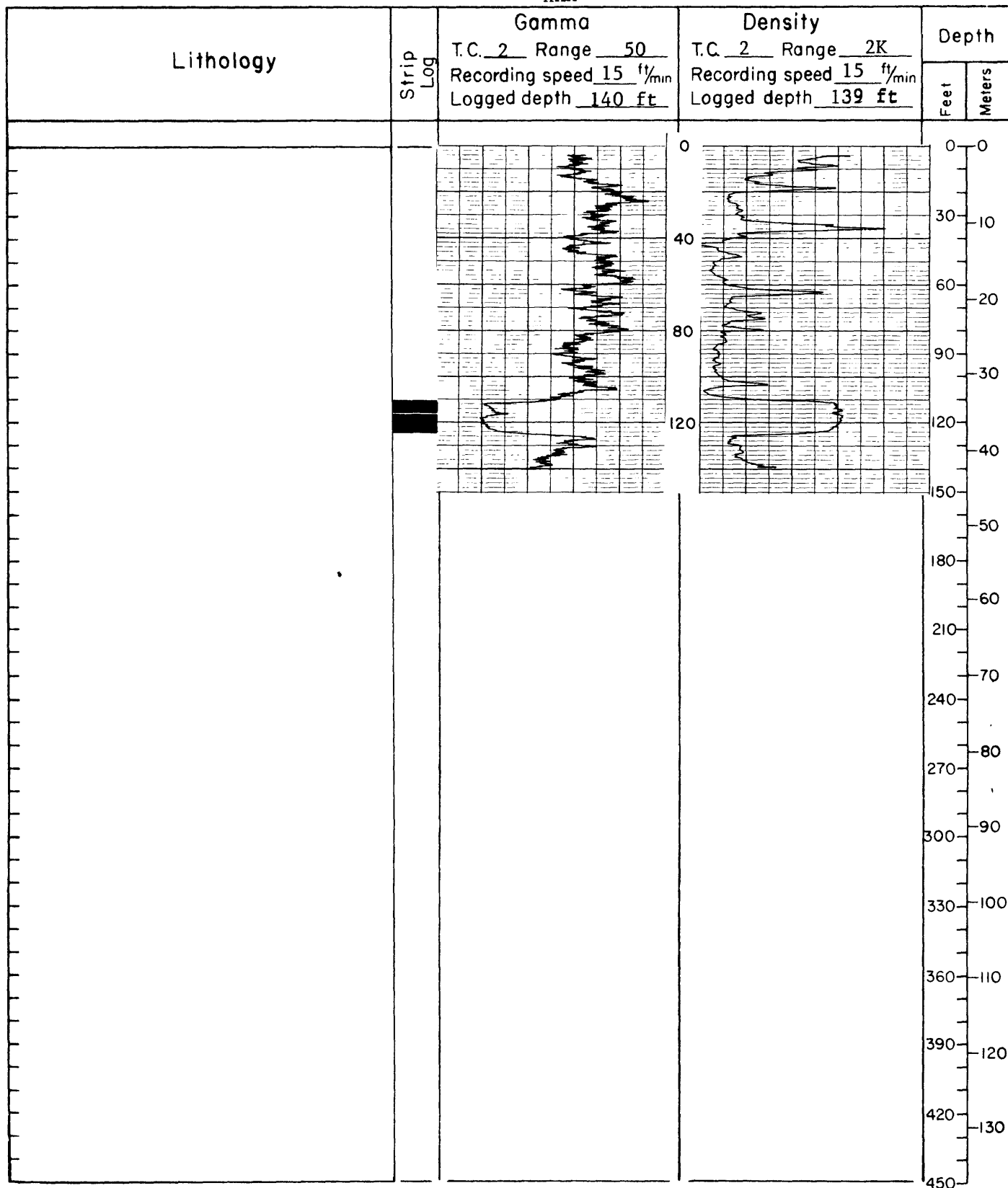
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Hole no: US-77126 Map: Epsie Date: 8/25/77 State: Montana County: Powder River  
 Elev.: 3529 ft Location: T. 4 ~~XX~~ S, R. 49 ~~XX~~ E, Sec. 8, Tract CCBC Drilled depth: 140 ft  
 Measured: 935 ft ~~XXX~~ FSL, 50 ft ~~XXX~~ FWL Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN



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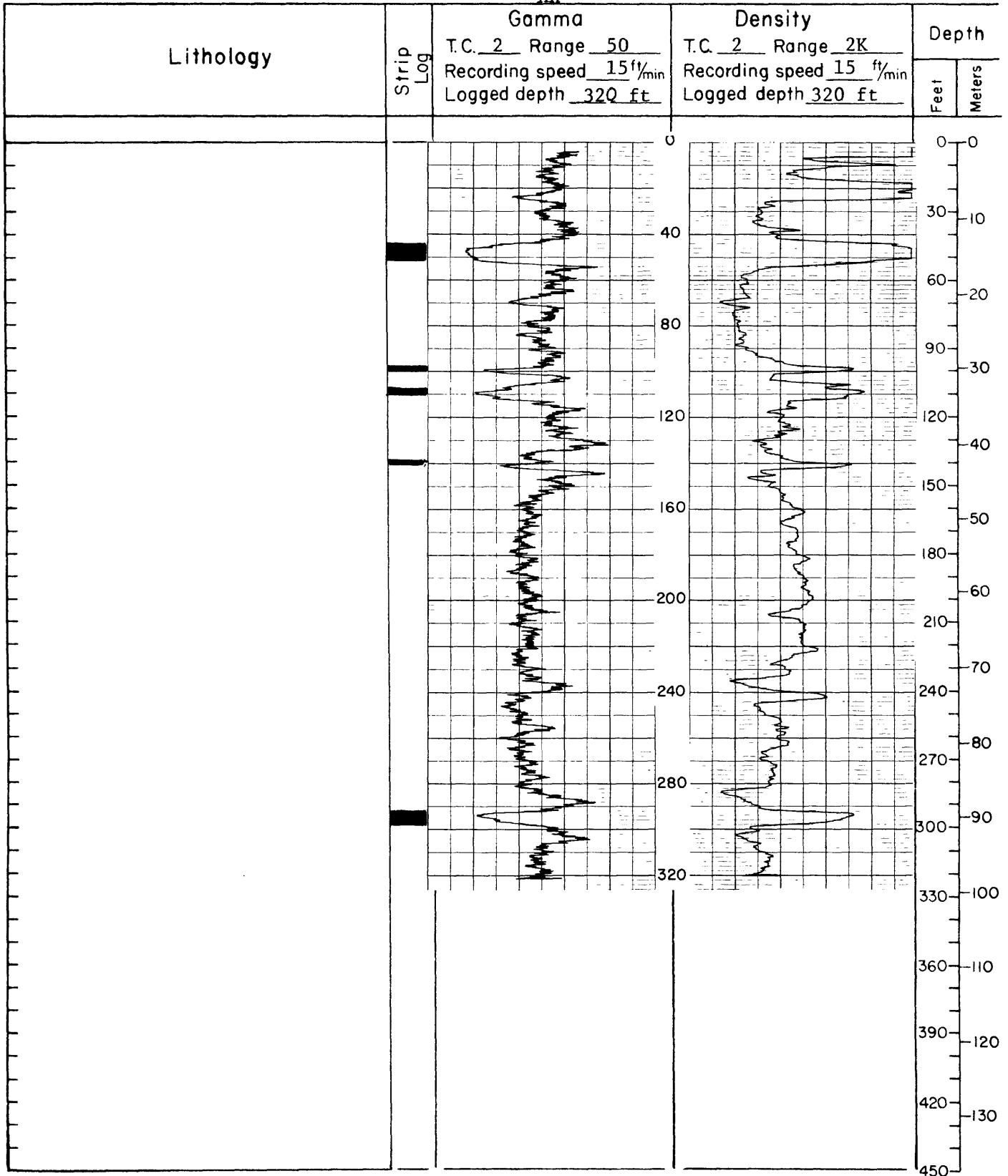
Hole no: US-77127 Map: Epsie Date 8/25/77 State: Montana County: Powder River  
 Elev.: 3460 ft Location: T. 4 S., R. 49 E., Sec. 17, Tract CADB Drilled depth: 320 ft  
 Measured: 1900 ft ~~FSL~~, 2000 ft ~~FWL~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~

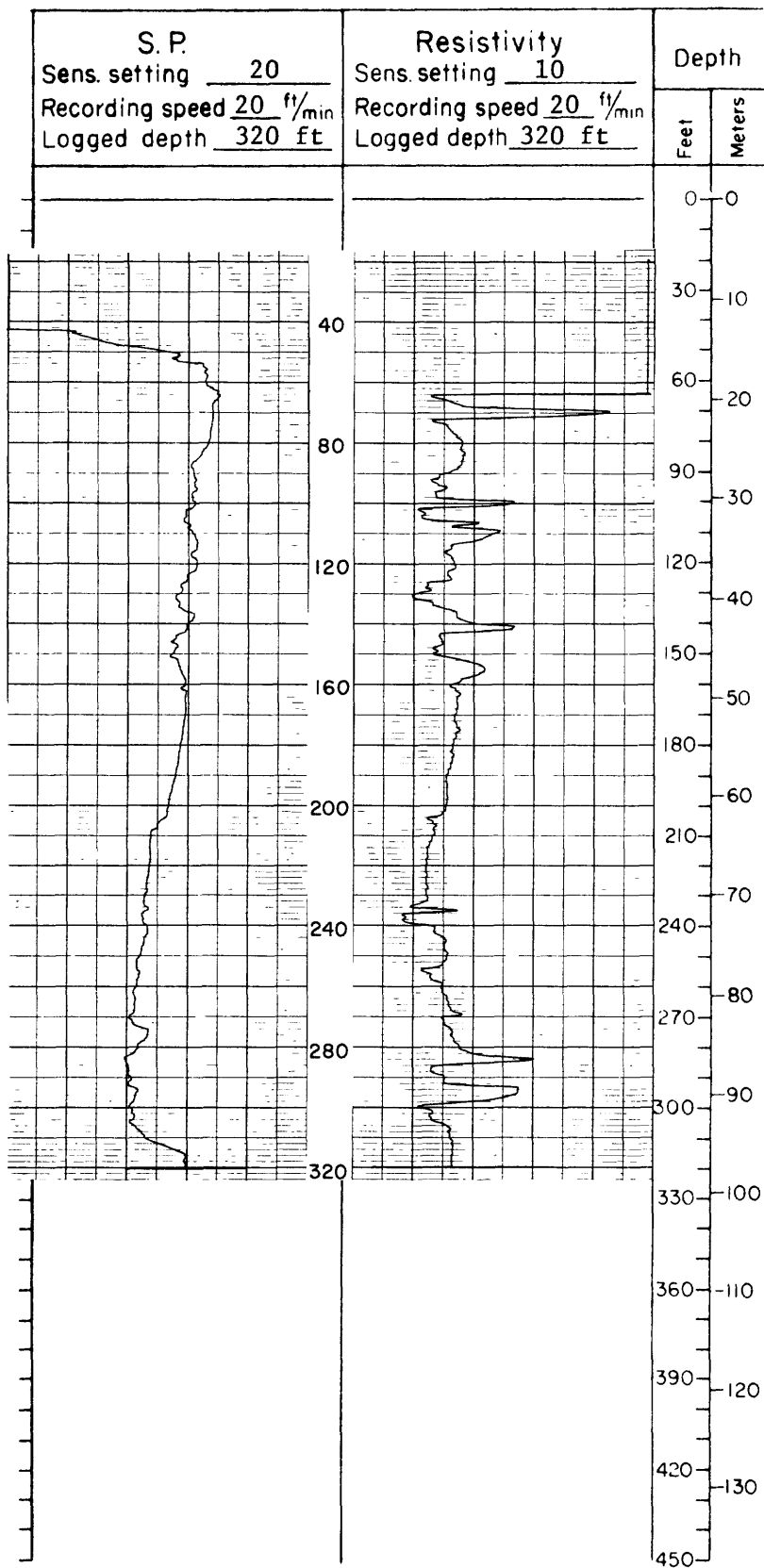
Recorded by: J. JENSEN





# Hole number (continued)

US - 77127



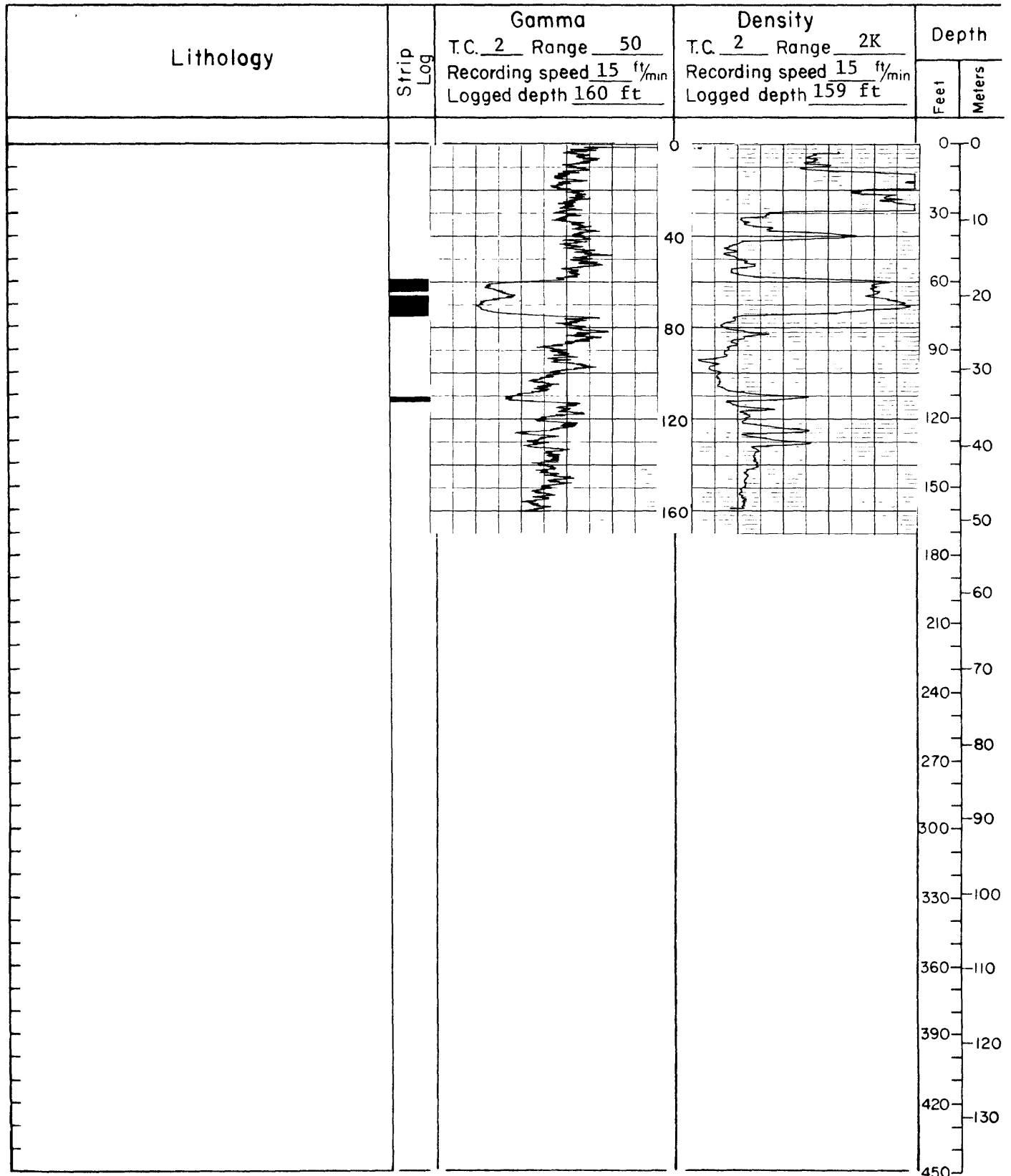
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Hole no: US-77128 Map: Epsie Date 8/25/77 State Montana County: Powder River  
 Elev.: 3480 ft Location: T. 4 <sup>N</sup>~~S~~, R. 49 <sup>E</sup>~~W~~, Sec. 18, Tract DCCA Drilled depth: 160 ft  
 Measured: 520 ft ~~KWK~~ <sup>FSL</sup>, 2225 ft ~~KWK~~ <sup>FEL</sup> Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN



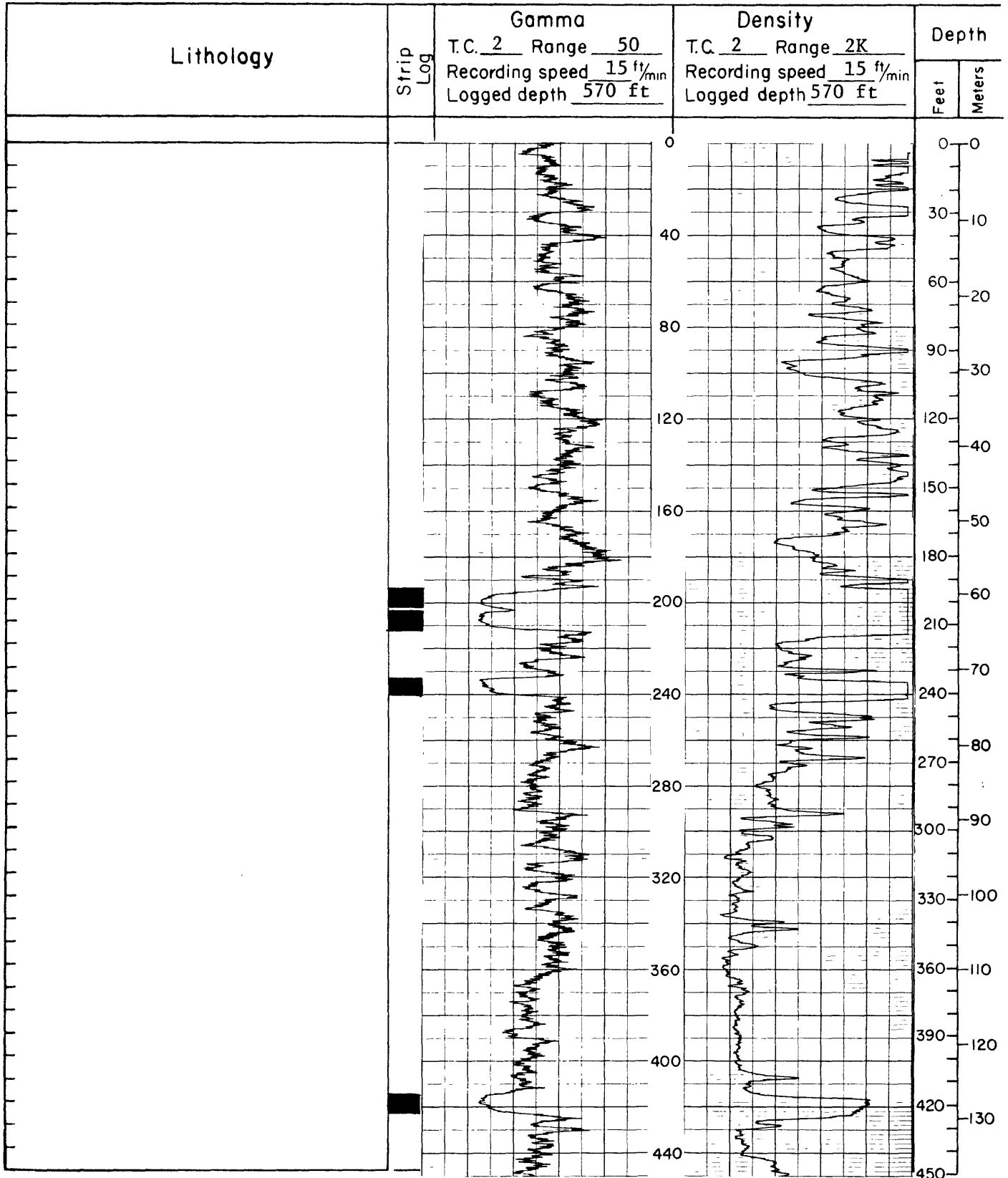
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Hole no: US-77129 Map: Samuelson Ranch Date: 8/27/77 State: Montana County: Powder River  
 Elev.: 3585 ft Location: T. 3 S., R. 48 E., Sec. 34, Tract ACD Drilled depth: 570 ft  
 Measured: 2300 ft <sup>FNL</sup> ~~XXX~~, 1650 ft <sup>FEL</sup> ~~XXX~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

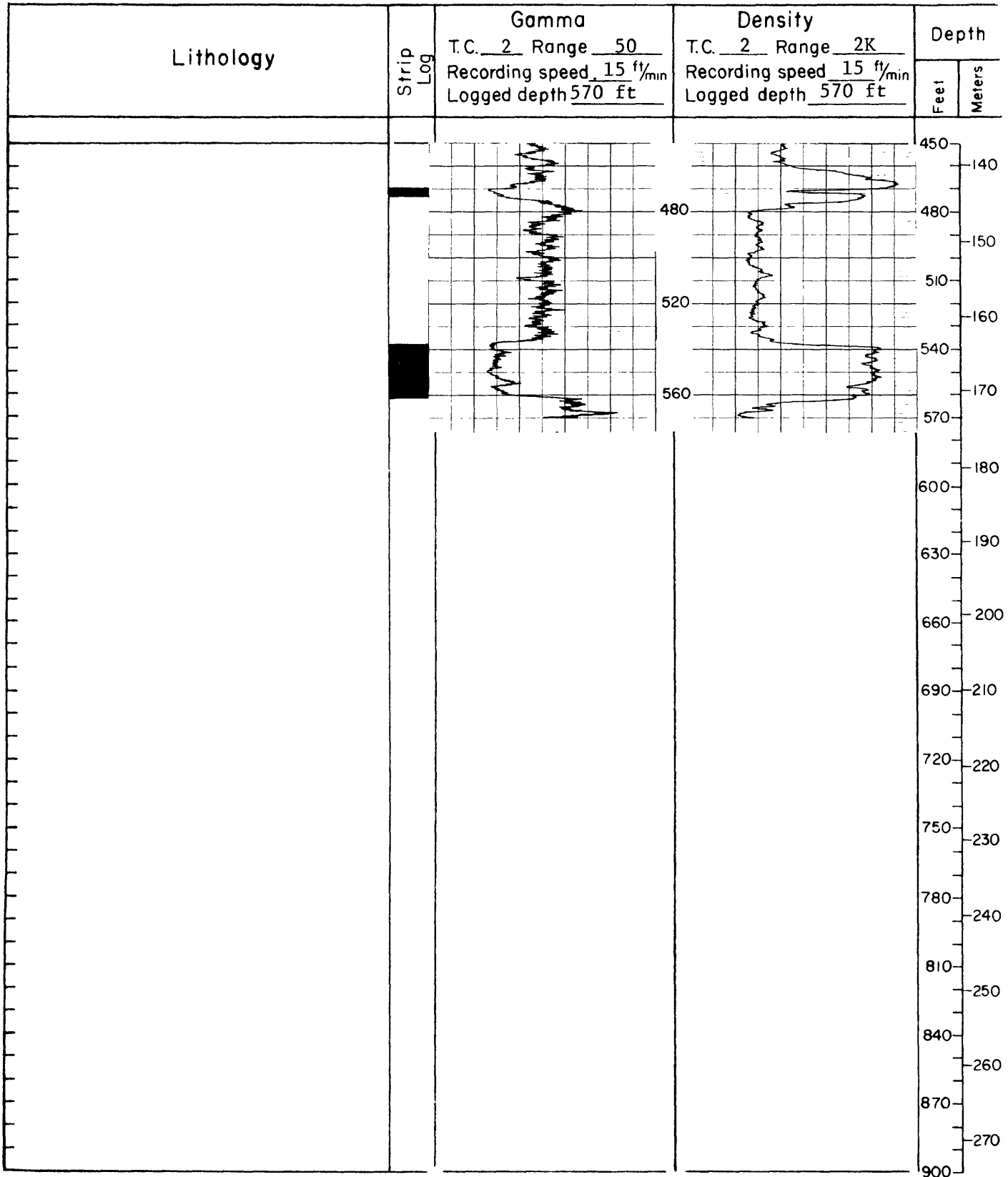
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN



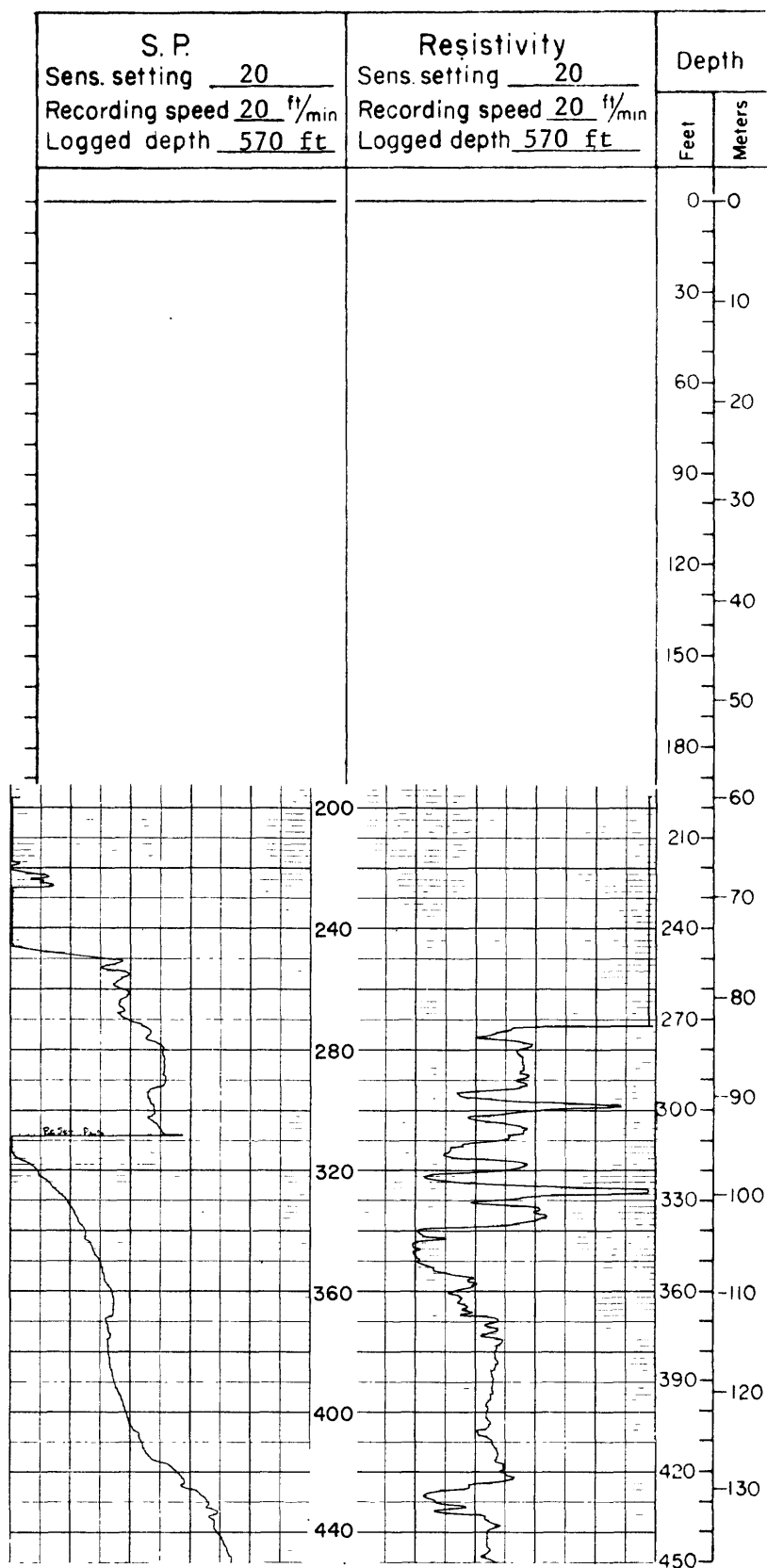
Hole number (continued)

US - 77129



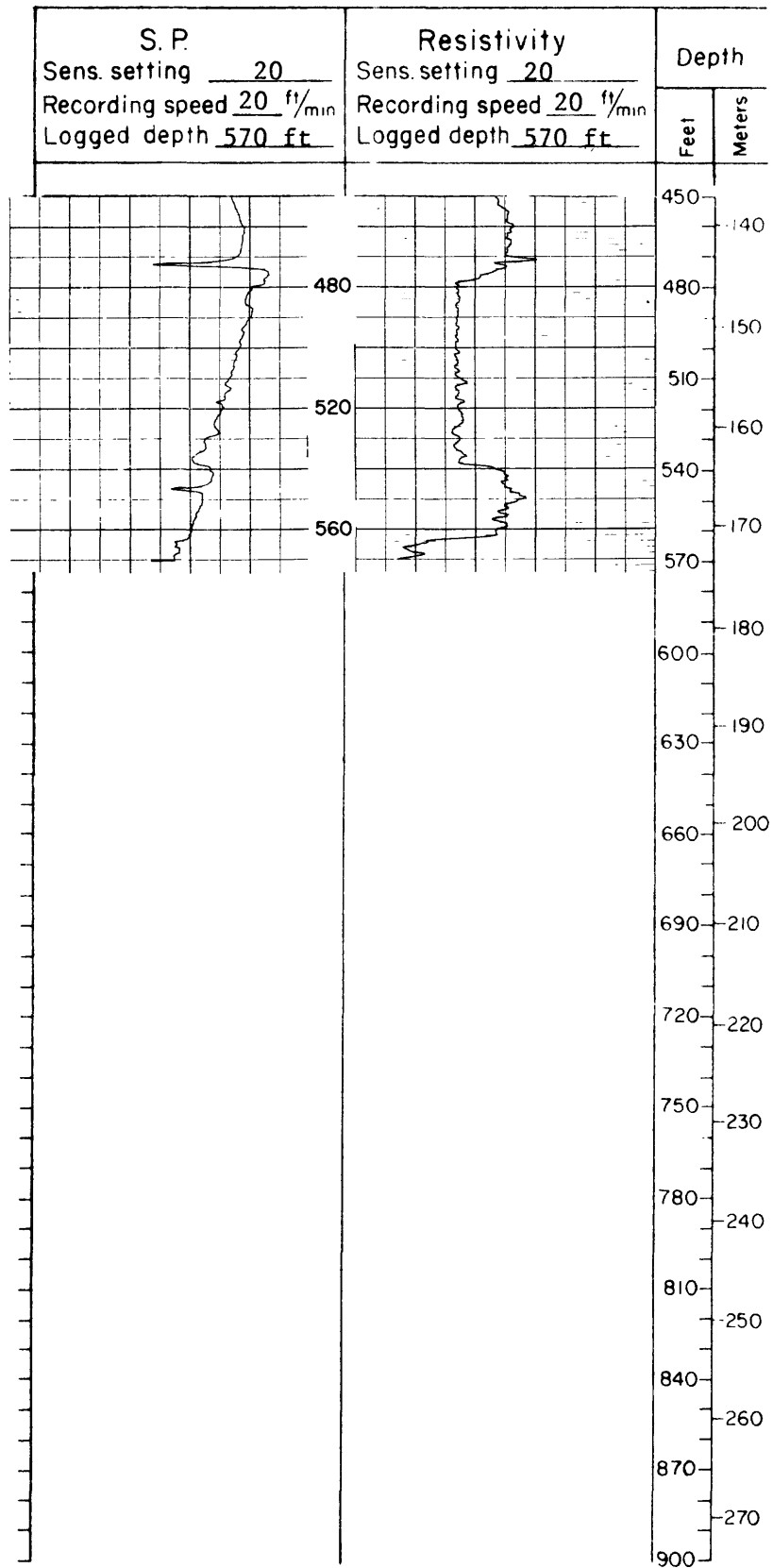
# Hole number (continued)

US- 77129



Hole number (continued)

US - 77129



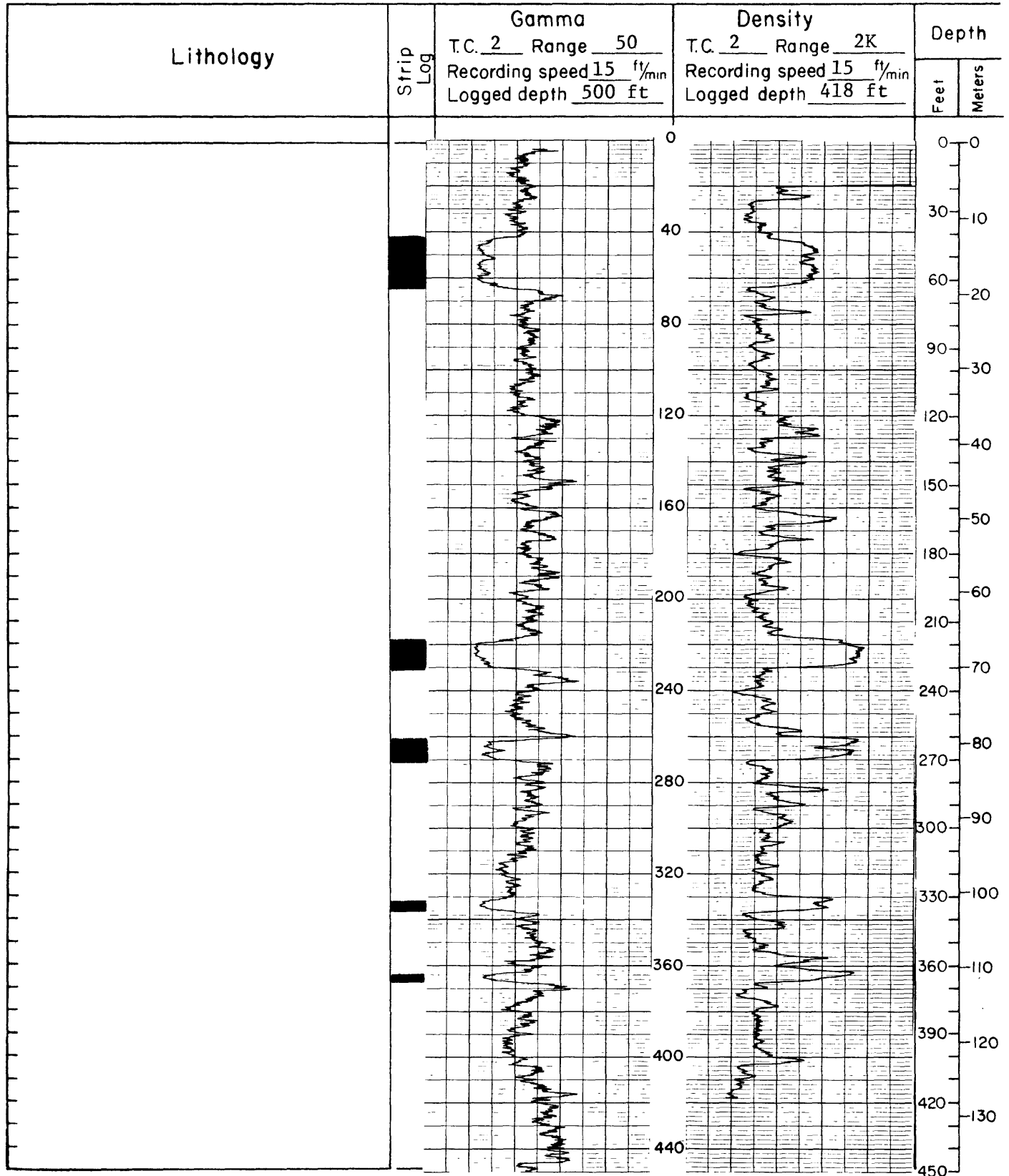
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Hole no: US-77130 Map: Samuelson Ranch Date 8/27/77 State: Montana County: Powder River  
 Elev.: 3377 ft Location: T. 3 S. R. 48 E. Sec. 22, Tract CBBC Drilled depth: 500 ft  
 Measured: 2000 ft ~~XXX~~ FSL, 100 ft ~~XXX~~ FWL Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

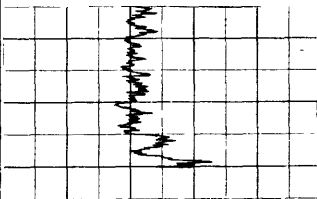
Recorded by: E. WOODS

Geologist ~~Yes~~ No Recorded by: J. JENSEN



Hole number (continued)

US - 77130

Lithology	Strip Log	Gamma	Density	Depth	
		T.C. <u>2</u> Range <u>50</u> Recording speed <u>15</u> ft/min Logged depth <u>500</u> ft	T.C. _____ Range _____ Recording speed _____ ft/min Logged depth _____	Feet	Meters
				450	
				140	
				480	
				150	
				510	
				160	
				540	
				170	
				570	
				180	
				600	
				190	
				630	
				200	
				660	
				210	
				690	
				220	
				720	
				230	
				750	
				240	
				780	
				250	
				810	
				260	
				840	
				270	
				870	
				900	



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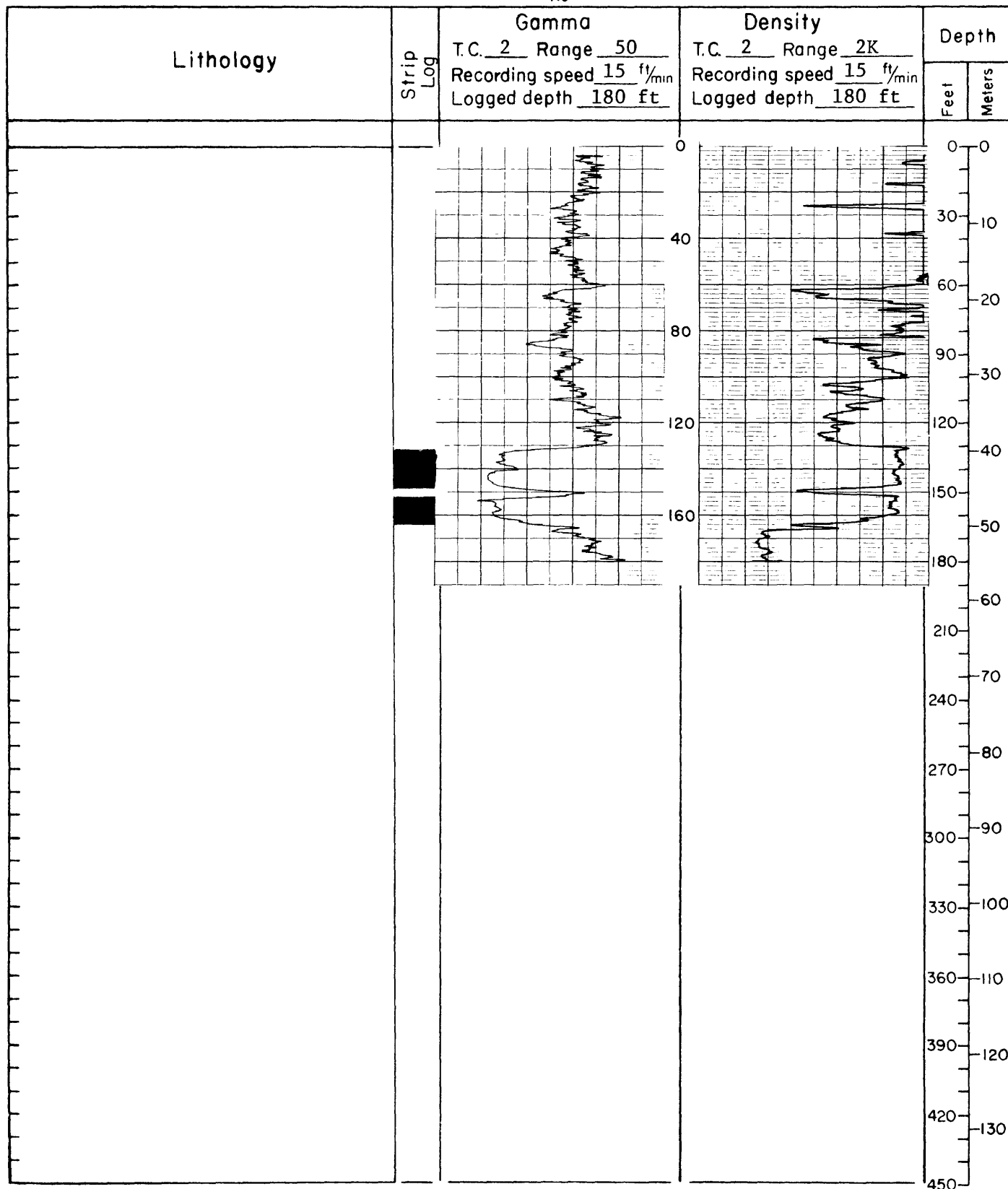
Hole no: US-77131 Map: Samuelson Ranch Date 8/27/77 State: Montana County: Powder River  
 Elev: 3459 ft Location: T. 3 <sup>N</sup><sub>S</sub>, R. 48 <sup>E</sup><sub>W</sub>, Sec. 22, Tract DDAA Drilled depth: 180 ft  
 Measured: 1040 ft ~~KXX~~ FSL, 55 ft ~~KXX~~ FEL ~~KXX~~ Hole size: 4 3/4 in Air ☒ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: F. WOODS

Geologist ~~KXX~~  
No

Recorded by: J. JENSEN



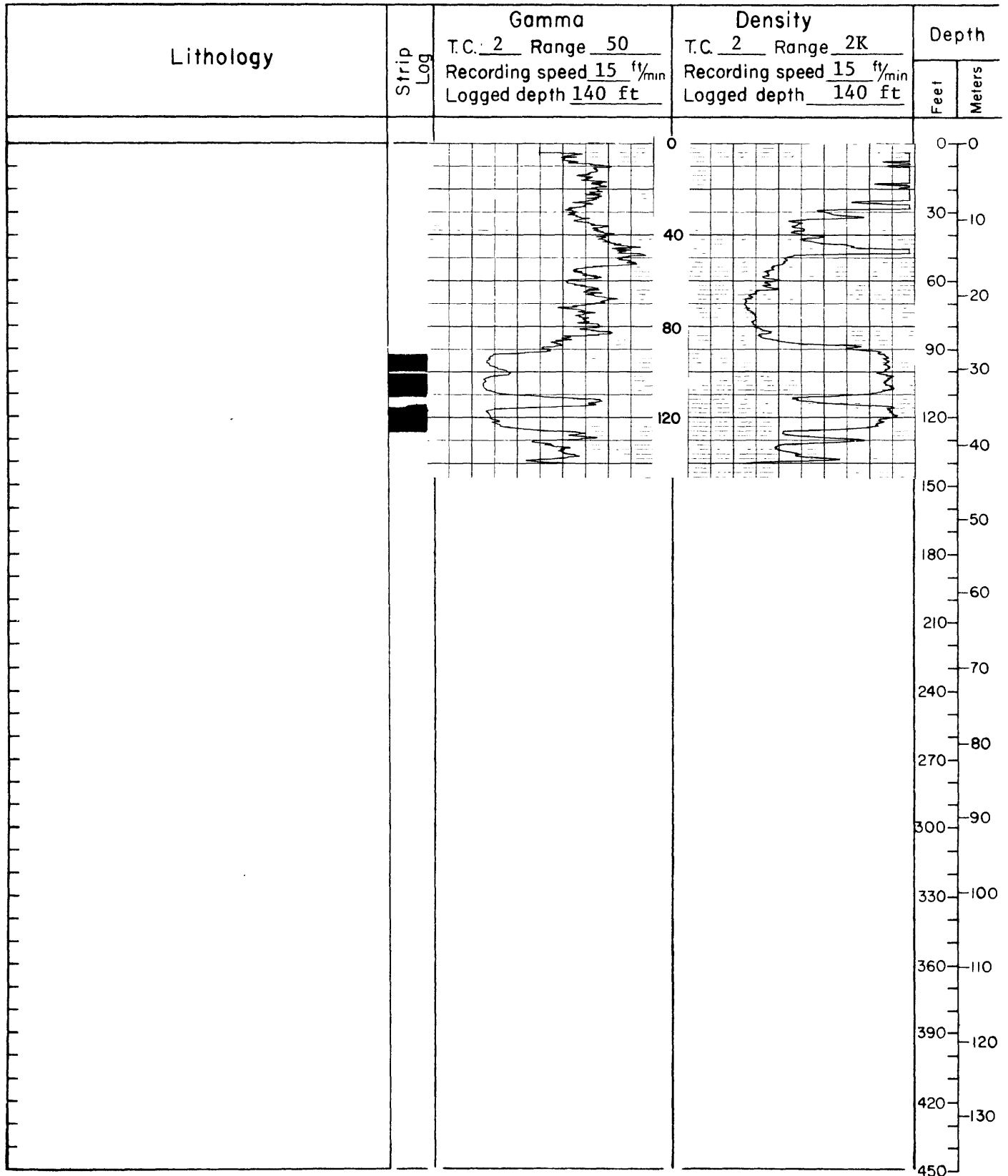
**MONTANA BUREAU OF MINES AND GEOLOGY**  
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Hole no: US-77132 Map: Samuelson Ranch Date 8/27/77 State: Montana County: Powder River  
 Elev.: 3420 ft Location: T. 3 N, R. 48 E, Sec. 28, Tract ADCD Drilled depth: 140 ft  
 Measured: 2700 ft ~~FSL~~ 750 ft ~~FEL~~ KWK Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☒ No ☐

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN



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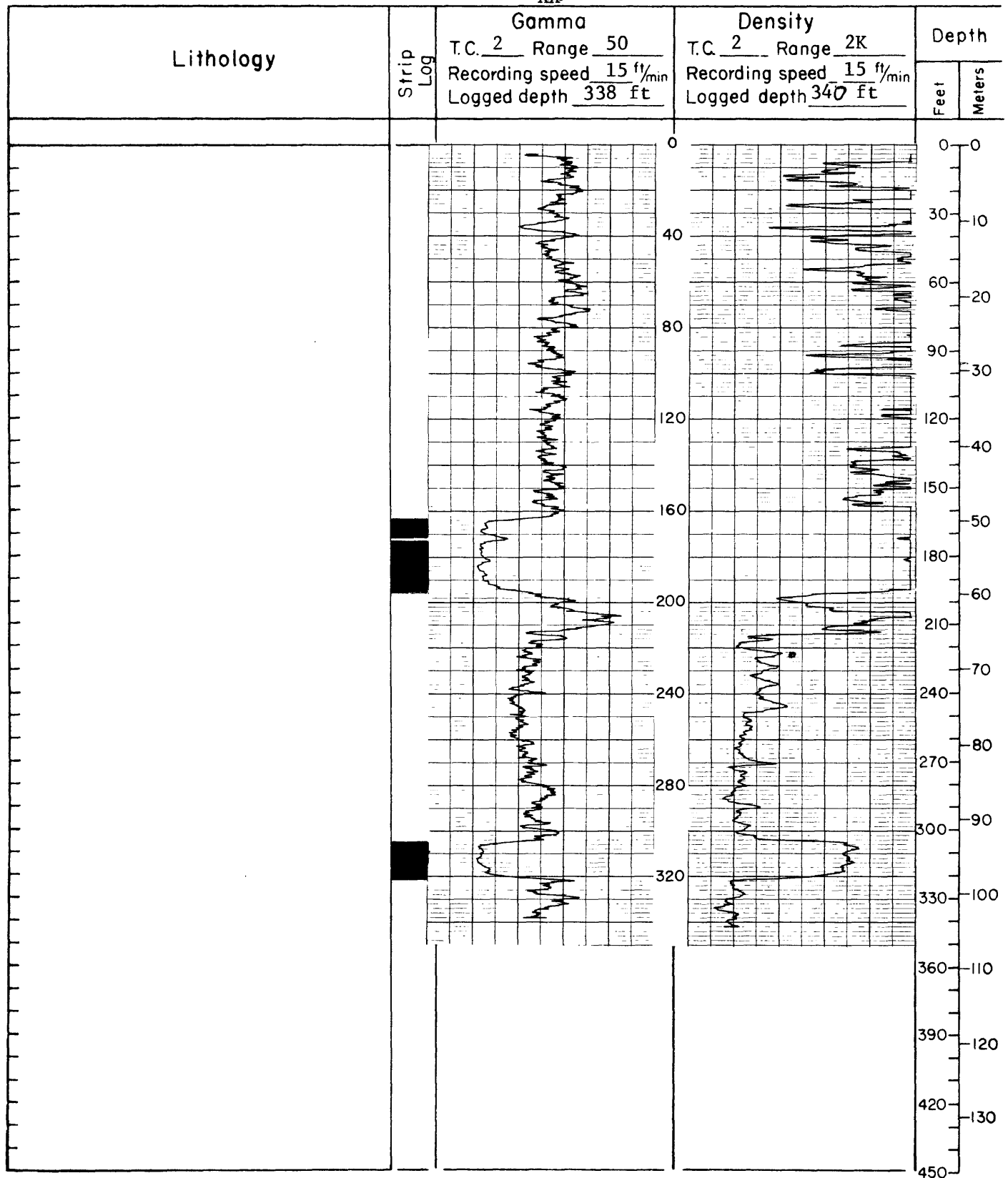
Hole no: US-77133 Map: Samuelson Ranch Date: 8/28/77 State: Montana County: Powder River  
 Elev.: 3501 ft Location: T. 3 <sup>N</sup><sub>S</sub>, R. 48 <sup>E</sup><sub>W</sub> Sec. 4, Tract CBBB Drilled depth: 340 ft  
 Measured: 2800 ft <sup>FNL</sup>~~XXX~~, 30 ft <sup>FWL</sup>~~XXX~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist: <sup>Yes</sup>~~No~~

Recorded by: J. JENSEN



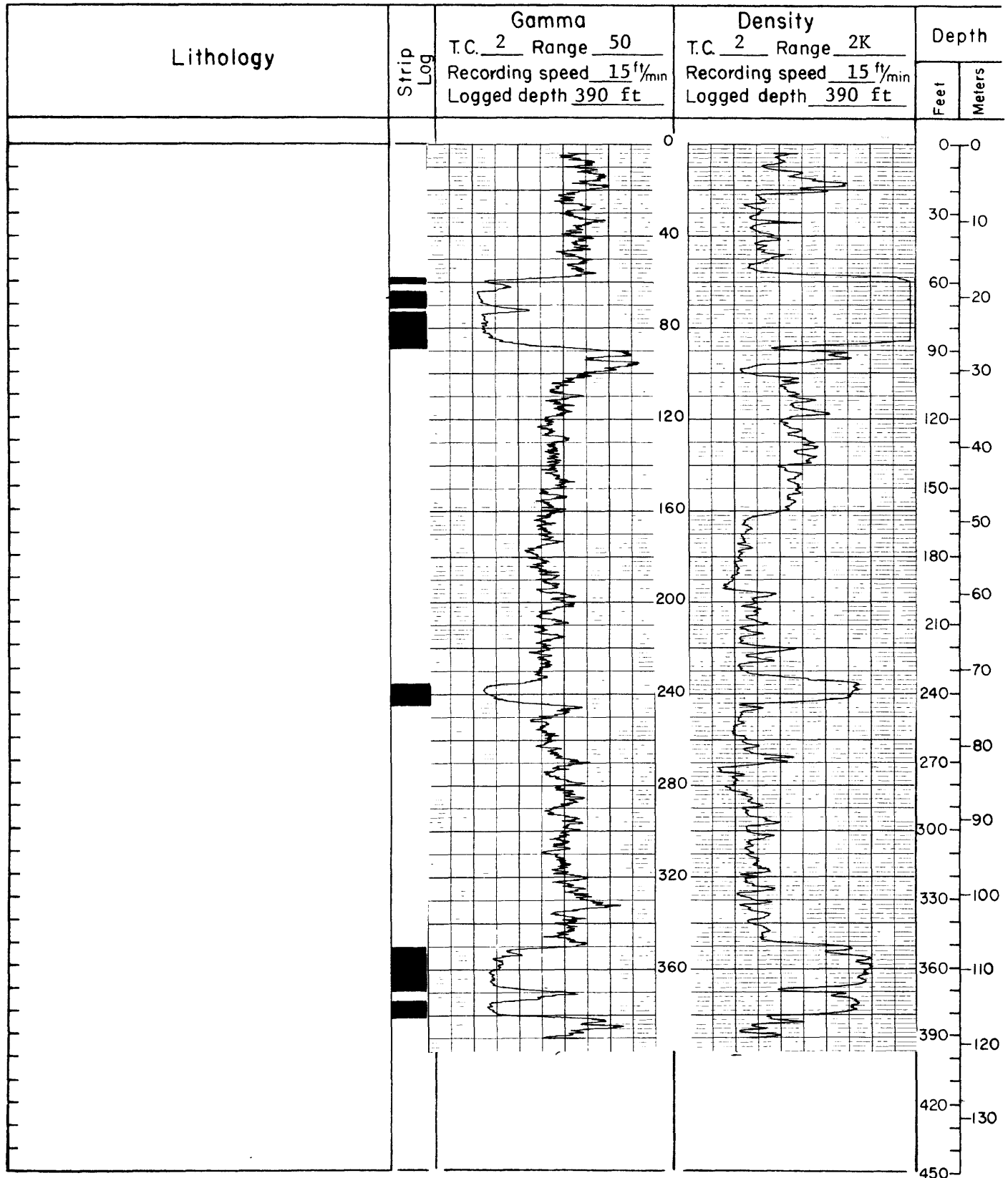
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Hole no: US-77134 Map: Leslie Creek Date 8/28/77 State: Montana County: Powder River  
 Elev.: 3460 ft Location: T. 3 <sup>N</sup><sub>S</sub>, R. 49 <sup>E</sup><sub>W</sub>, Sec. 8, Tract DCBB Drilled depth: 400 ft  
 Measured: 1050 ft ~~XXX~~ <sup>FEL</sup> 2400 ft ~~XXX~~ Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

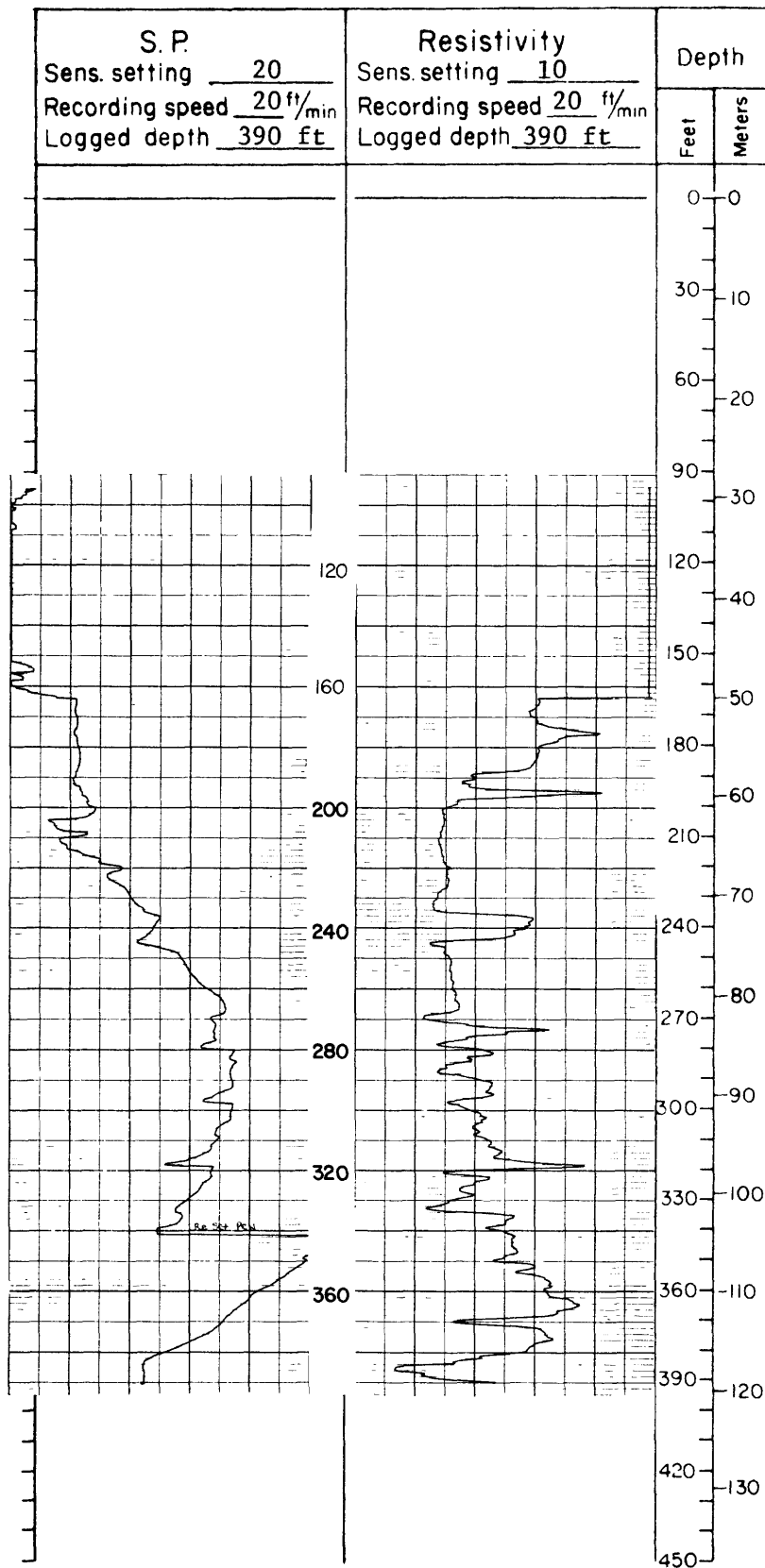
Recorded by: E. WOODS

Geologist ~~XXX~~ <sup>No</sup> Recorded by: J. JENSEN



# Hole number (continued)

US-77134



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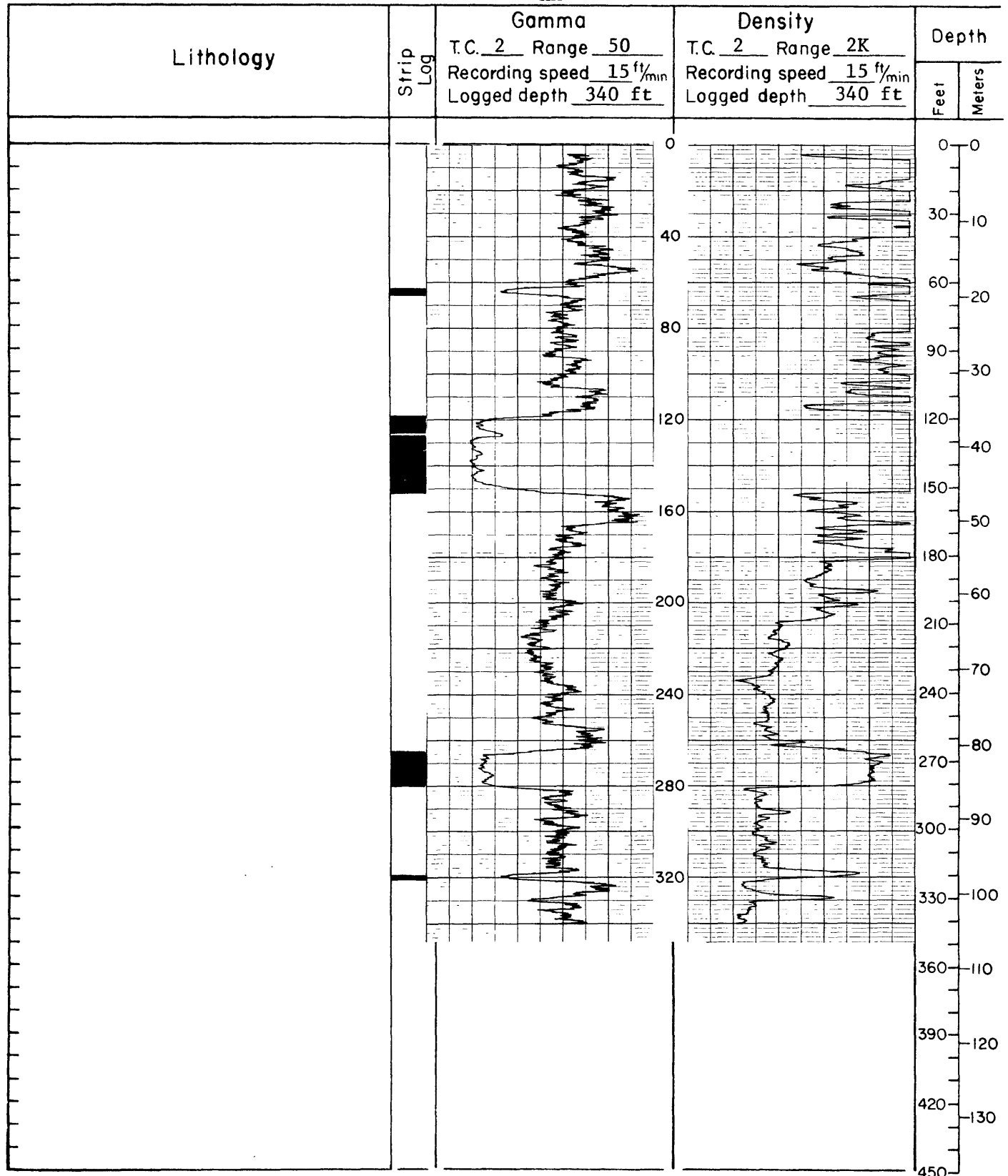
Hole no: US-77135 Map: Elk Ridge Date 8/28/77 State: Montana County: Powder River  
 Elev.: 3490 ft Location: T. 2 <sup>N</sup>~~S~~, R. 48 <sup>E</sup>~~W~~, Sec. 29, Tract ADAC Drilled depth: 340 ft  
 Measured: 1810 ft <sup>FNL</sup>~~RSL~~ 600 ft <sup>FEL</sup>~~RSL~~ Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

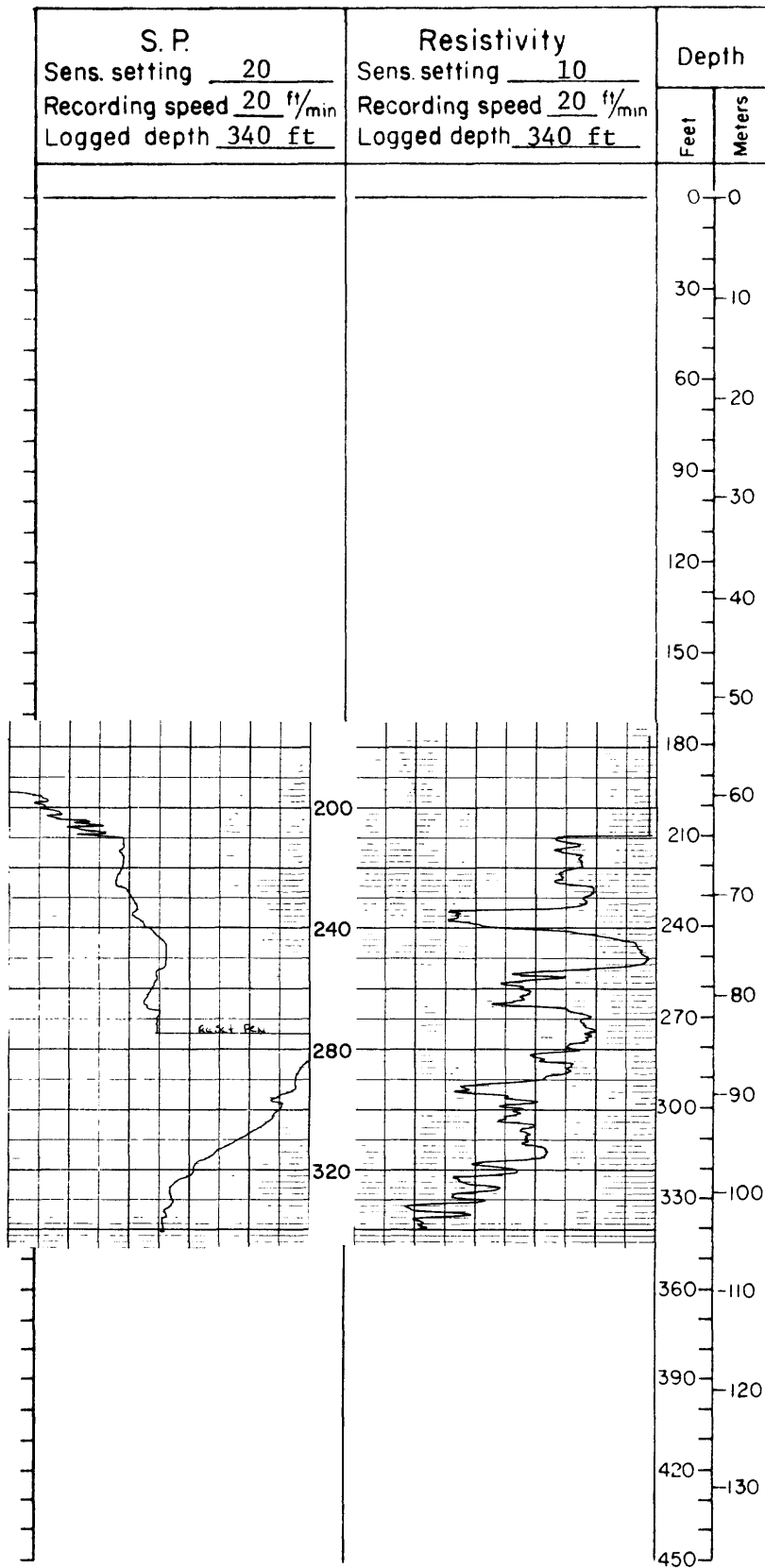
Geologist: <sup>Yes</sup>~~No~~

Recorded by: J. JENSEN



# Hole number (continued)

US - 77135



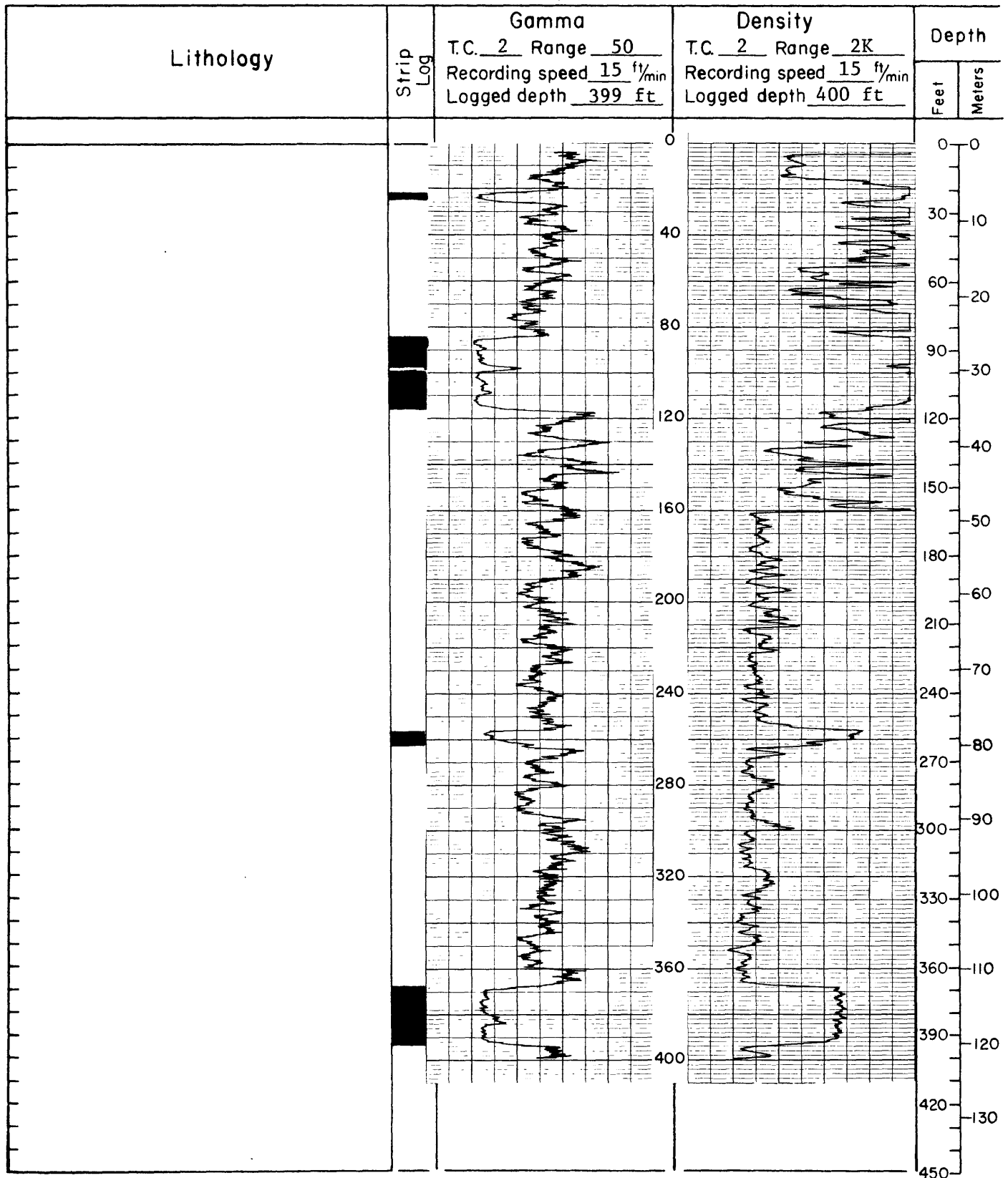
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Hole no: US-77136 Map: Leslie Creek Date: 8/28/77 State: Montana County: Powder River  
 Elev.: 3540 ft Location: T. 3 S, R. 49 E, Sec. 2, Tract DADB Drilled depth: 400 ft  
 Measured: 1850 ft ~~PMX~~ 600 ft ~~FSL~~ FEL ~~FW~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~XX~~ Recorded by: J. JENSEN





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Hole no: US-77137 Map: Box Elder Creek Date: 8/28/77 State: Montana County: Powder River  
 Elev.: 3619 ft Location: T. 2 S, R. 49 W, Sec. 14, Tract ABBD Drilled depth: 100 ft  
 Measured: 490 ft <sup>FNL</sup> ~~FSK~~, 2100 ft <sup>FEL</sup> ~~FNL~~ Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒  
 Remarks: No logs.

Recorded by: E. WOODS Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN

Lithology	Strip Log	Gamma	Density	Depth	
		T.C. _____ Range _____ Recording speed _____ ft/min Logged depth _____	T.C. _____ Range _____ Recording speed _____ ft/min Logged depth _____	Feet	Meters
Clinker				0	0
				30	10
				60	20
				90	30
				120	40
				150	50
				180	60
				210	70
				240	80
				270	90
				300	100
				330	110
				360	120
				390	130
				420	
				450	

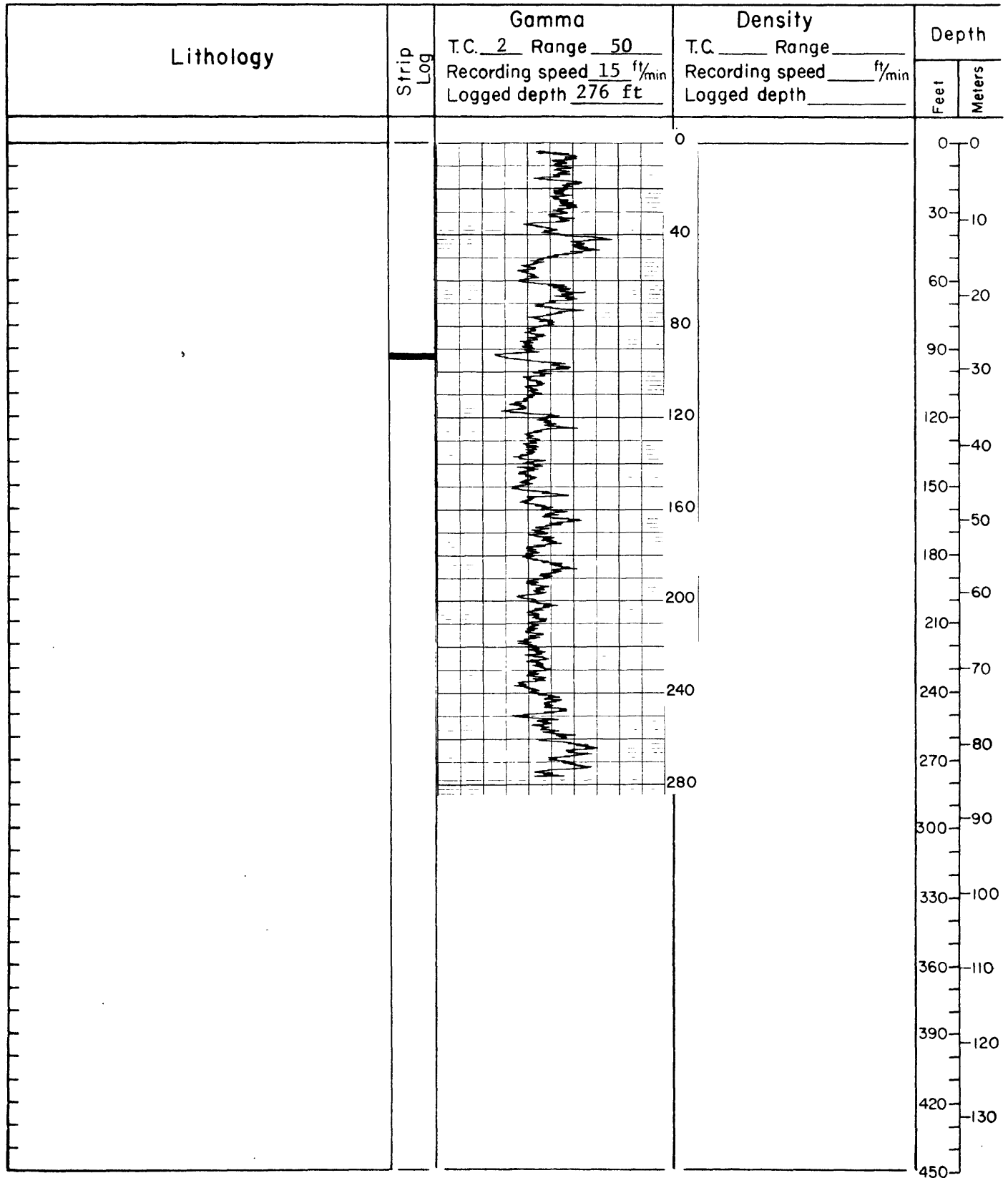
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Hole no: US-77138 Map: Hendrickson Coulee Date: 8/30/77 State: Montana County: Dawson  
 Elev.: 2589 ft Location: T. 14 N. 8, R. 52 E. 7, Sec. 6, Tract DDDD Drilled depth: 280 ft  
 Measured: 30 ft ~~FSL~~ 50 ft ~~FEL~~ ~~50 ft~~ Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~No~~ Recorded by: J. JENSEN



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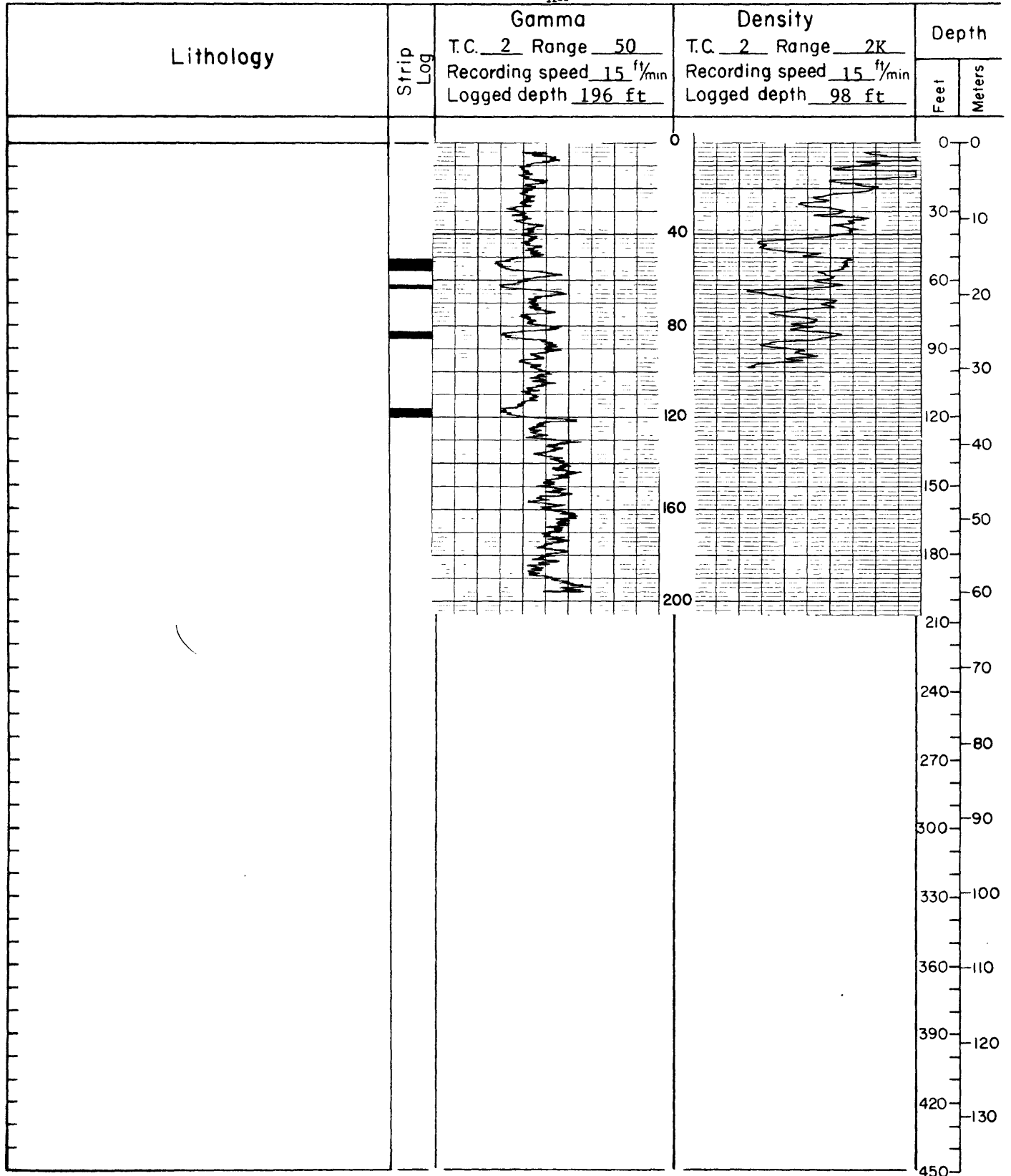
Hole no: US-77139 Map: Fallon NE Date: 8/30/78 State: Montana County: Dawson  
 Elev.: 2497 ft Location: T. 14 S, R. 52 E, Sec. 10, Tract ABBB Drilled depth: 200 ft  
 Measured: 50 ft ~~FSL~~ 2620 ft ~~FSL~~ <sup>FEL</sup> Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~No~~

Recorded by: J. JENSEN

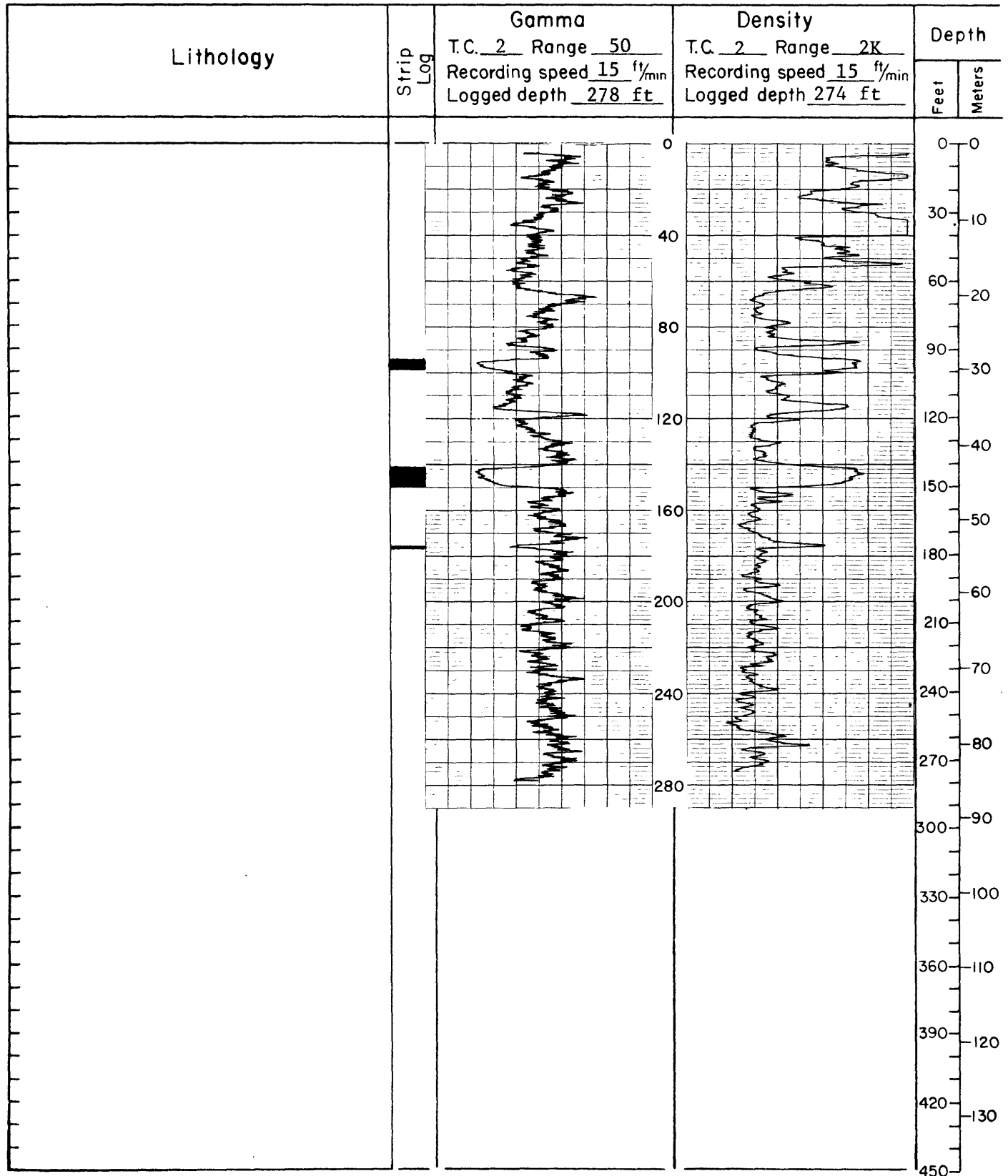


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Hole no: US-77140 Map: Fallon NE Date 8/30/77 State: Montana County: Dawson  
 Elev.: 2516 ft Location: T. 14 N. R. 52 E. Sec. 22, Tract AAAB Drilled depth: 280 ft  
 Measured: 50 ft FNL 600 ft FEL 600 ft Hole size: 4 3/4 in. Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK Geologist <sup>Yes</sup> ~~No~~ Recorded by: J. JENSEN



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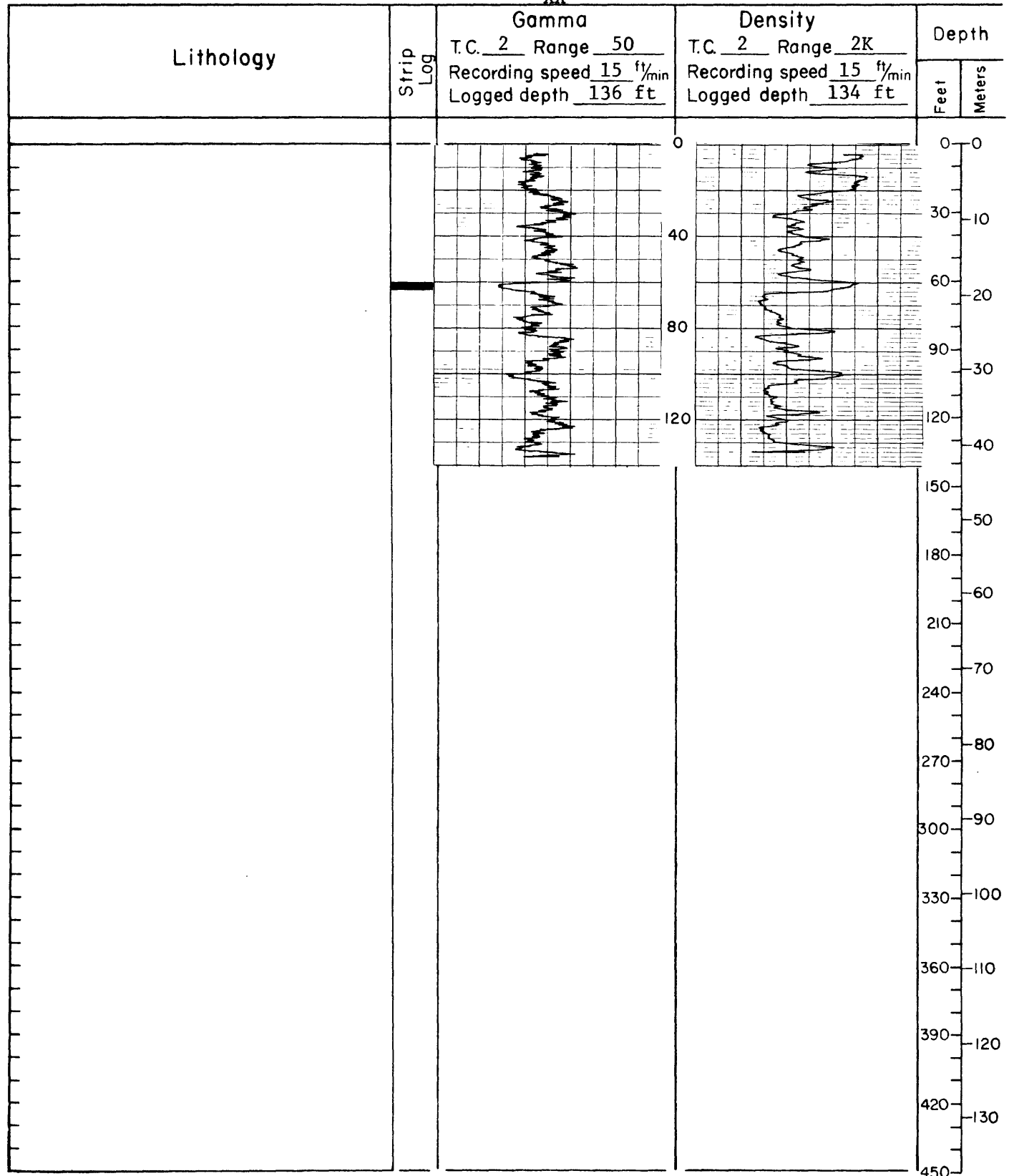
Hole no: US-77141 Map: Hendrickson Coulee Date: 9/7/77 State: Montana County: Dawson  
 Elev.: 2521 ft Location: T. 14 N. 52 E. 8 W., Sec. 8, Tract AABB Drilled depth: 140 ft  
 Measured: 50 ft FNL 1020 ft FEL 500 ft Hole size 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

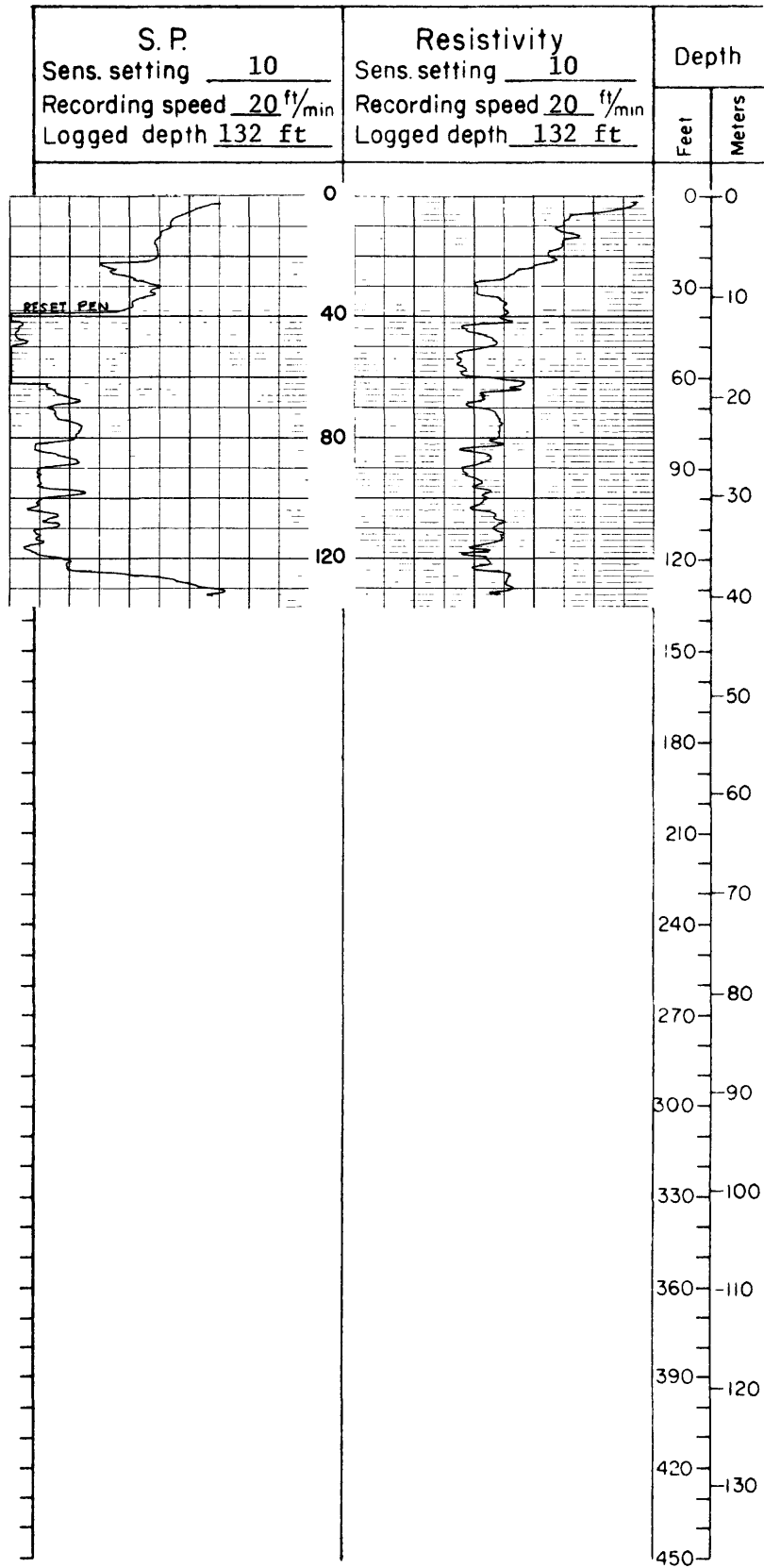
Geologist <sup>Yes</sup> ~~XX~~

Recorded by: J. JENSEN



Hole number (continued)

US - 77141



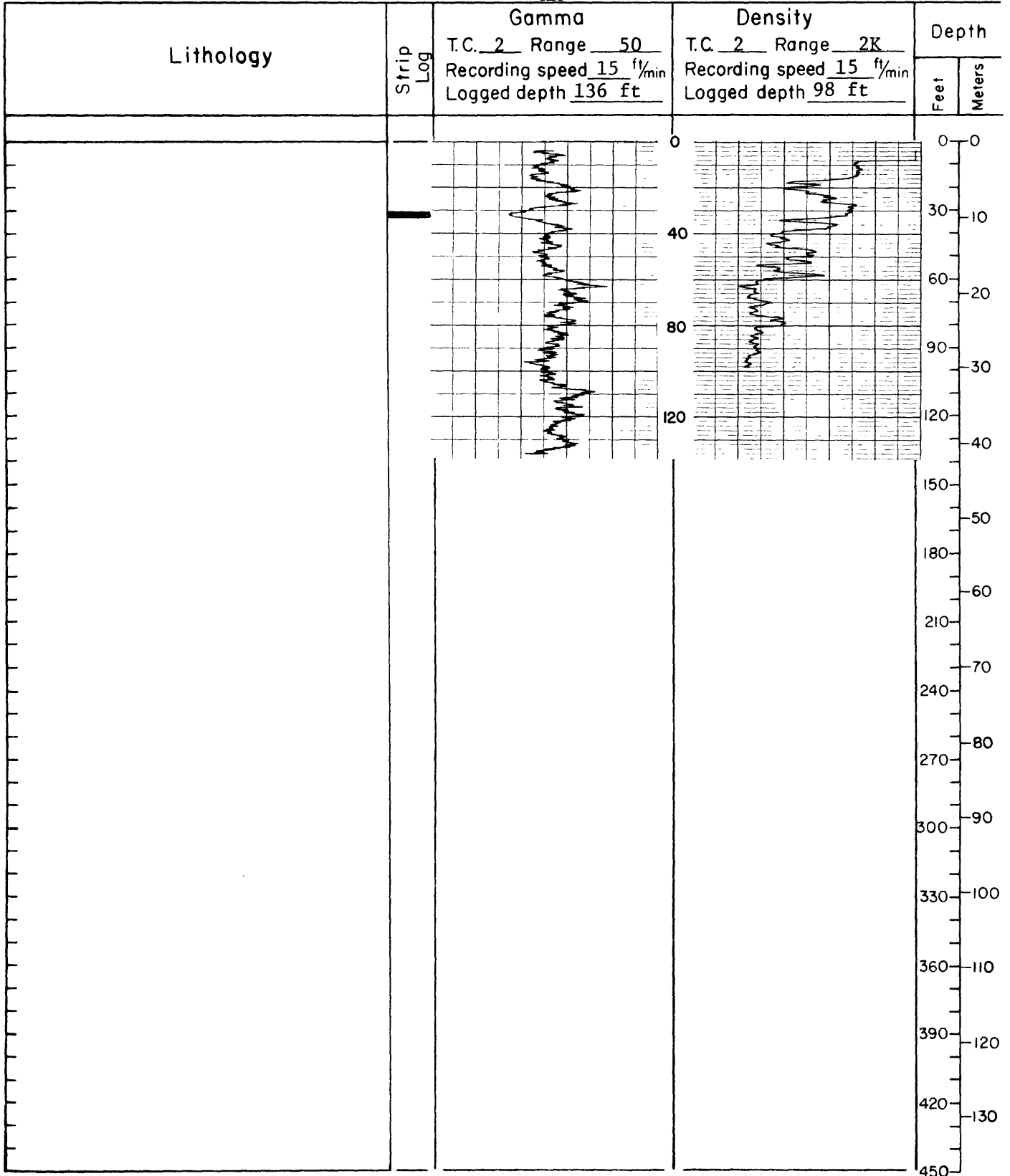
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**Montana College of Mineral Science and Technology**

Hole no: US-77142 Map: Marsh Date 9/7/77 State: Montana County: Dawson  
 Elev.: 2530 ft Location: T. 14 N. 8, R. 53 E. XX Sec. 22, Tract CDDC Drilled depth: 140 ft  
 Measured: 30 ft ~~FSL~~ 3215 ft ~~FEL~~ ~~XXX~~ Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~XX~~ Recorded by: J. JENSEN



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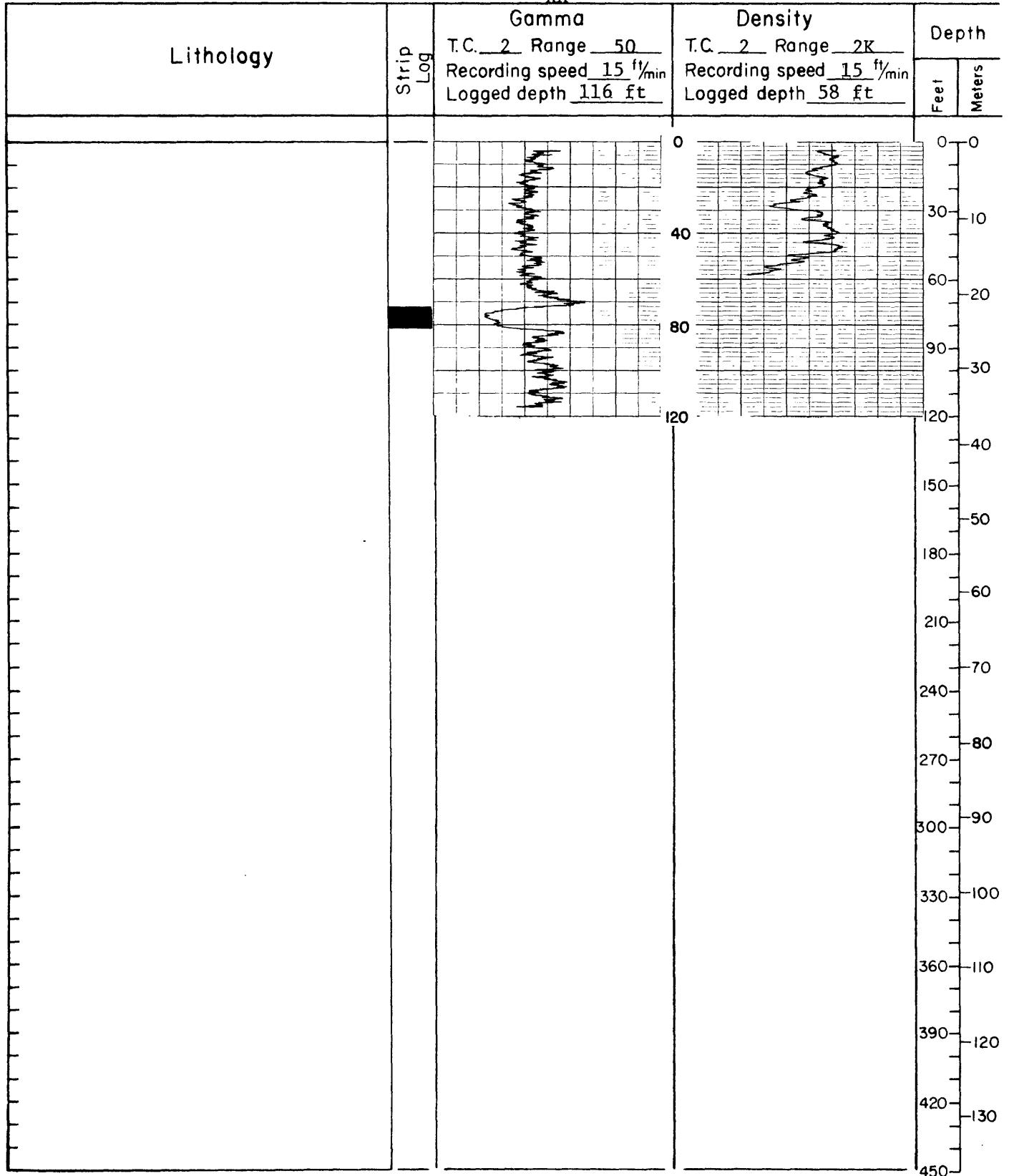
Hole no: US-77143 Map: Marsh Date: 9/7/77 State: Montana County: Dawson  
 Elev.: 2555 ft Location: T. 14 N. R. 53 E. Sec. 10, Tract BAAA Drilled depth: 120 ft  
 Measured: 10 ft ~~FNL~~ 2750 ft ~~FEL~~ ~~Fwx~~ Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>  
~~No~~

Recorded by: J. JENSEN





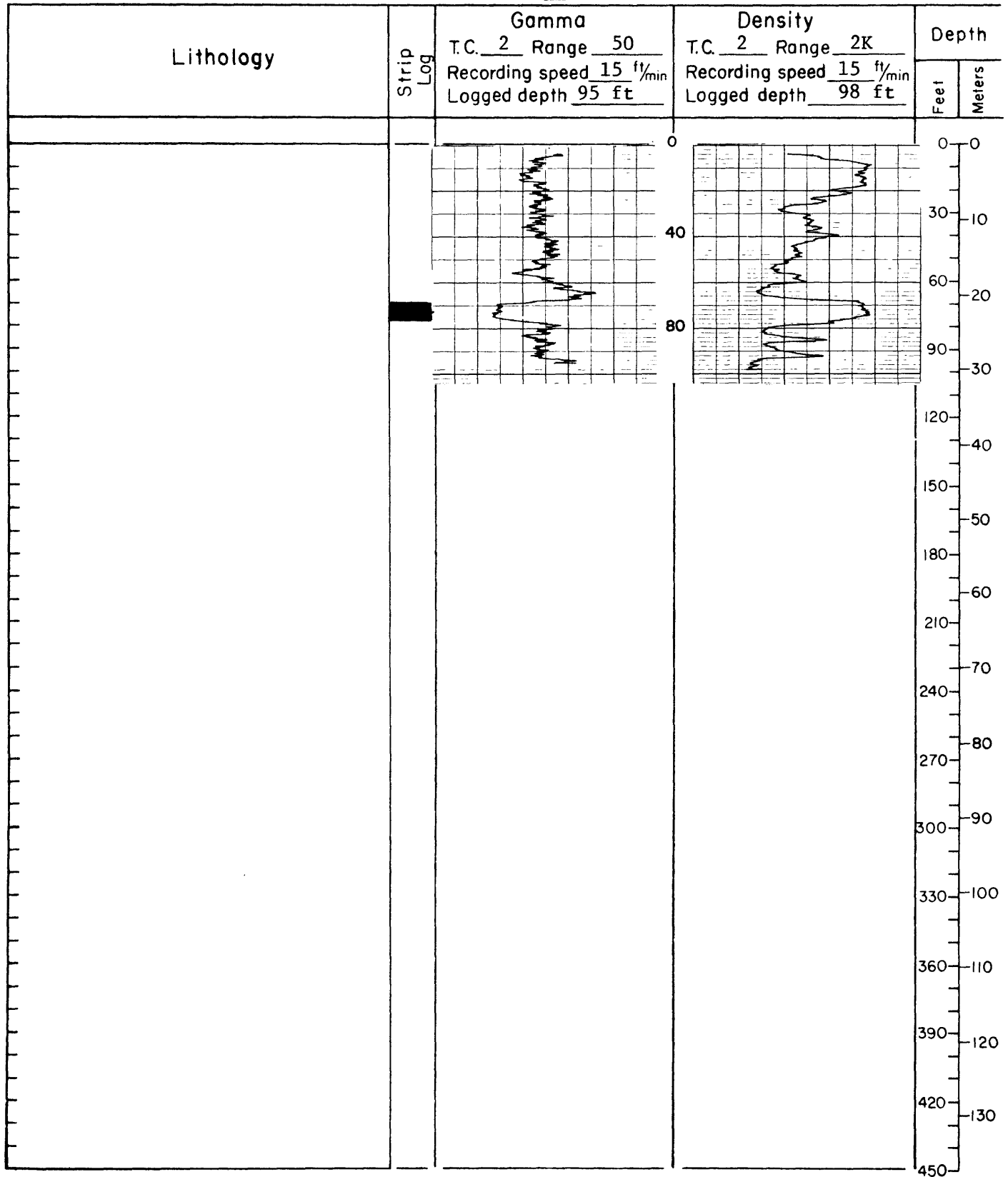
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Hole no: US-77144 Map: Marsh Date: 9/10/77 State: Montana County: Dawson  
 Elev.: 2518 ft Location: T. 14 N. 3 R. 53 E. 1 Sec. 12, Tract CDDD Drilled depth: 100 ft  
 Measured: 25 ft ~~FSL~~ 2500 ft ~~FWL~~ Hole size: 4 3/4 in. Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

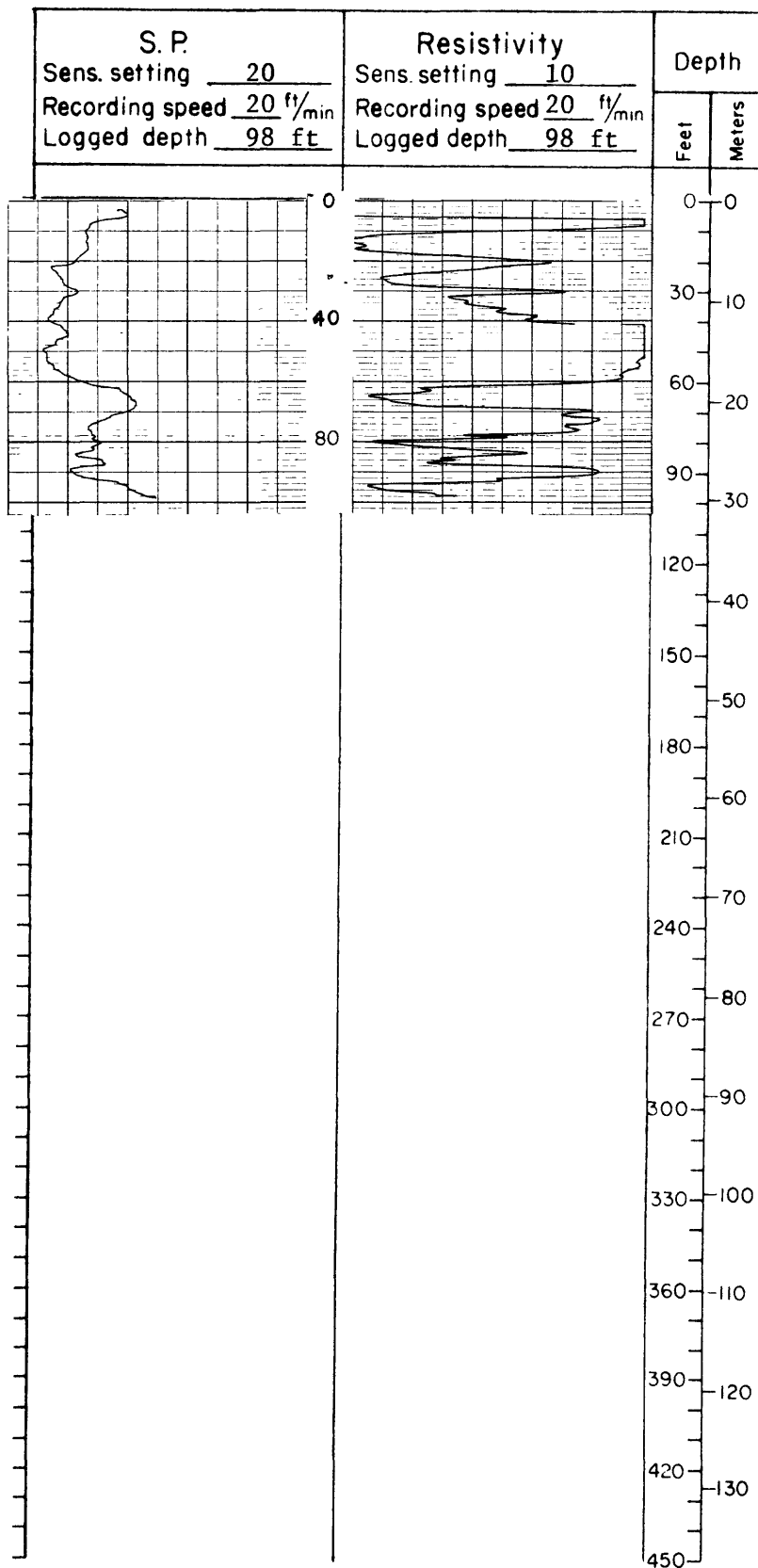
Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup> ~~XX~~ Recorded by: J. JENSEN



Hole number (continued)

US - 77144



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**Montana College of Mineral Science and Technology**

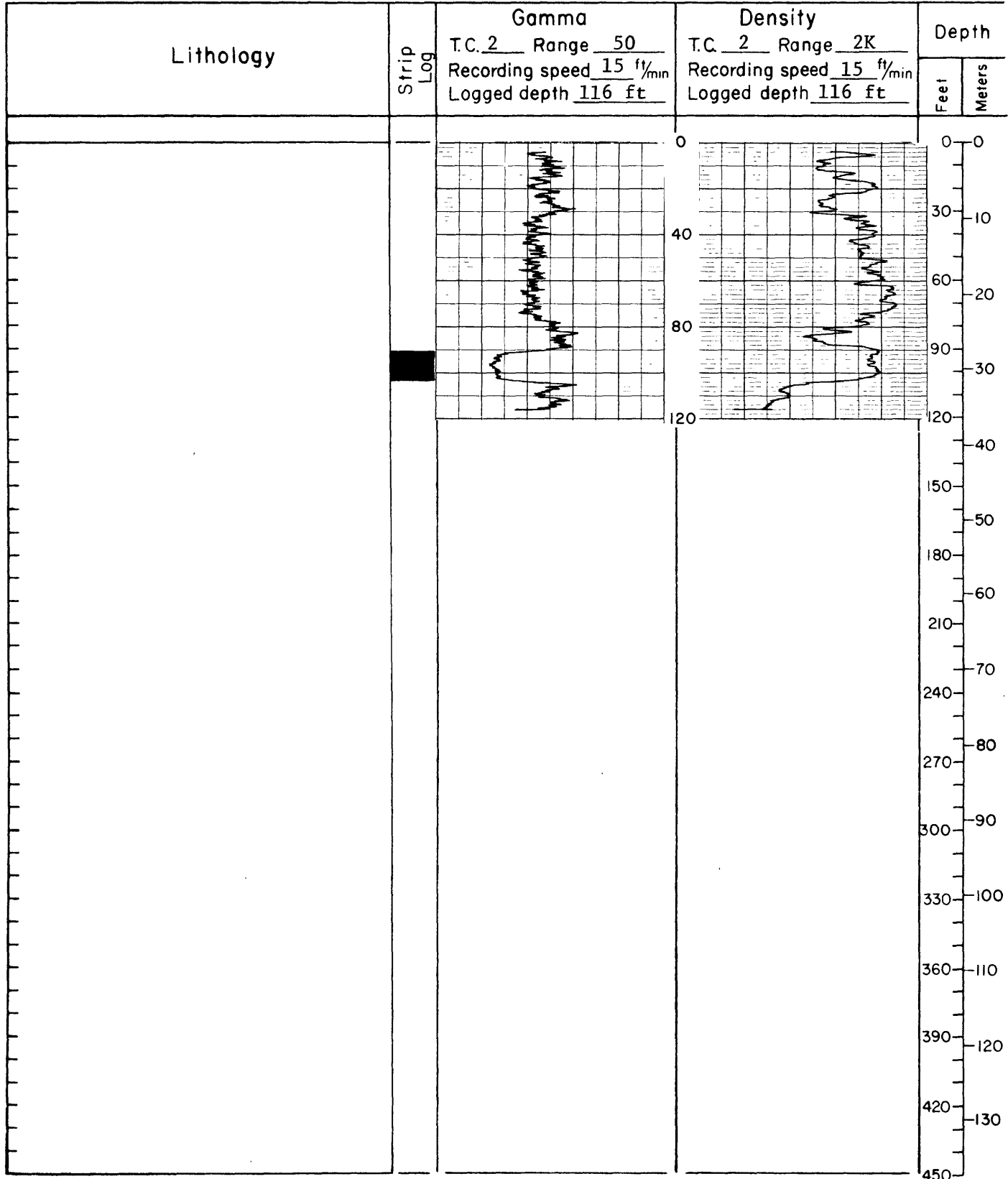
Hole no: US-77145 Map: Pleasant View Date: 9/10/77 State: Montana County: Dawson  
 Elev.: 2560 ft Location: T. 15 N. 8, R. 54 E. W, Sec. 30, Tract BABA Drilled depth: 120 ft  
 Measured: 50 ft FNL 1675 ft FWL Hole size: 4 3/4 in Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

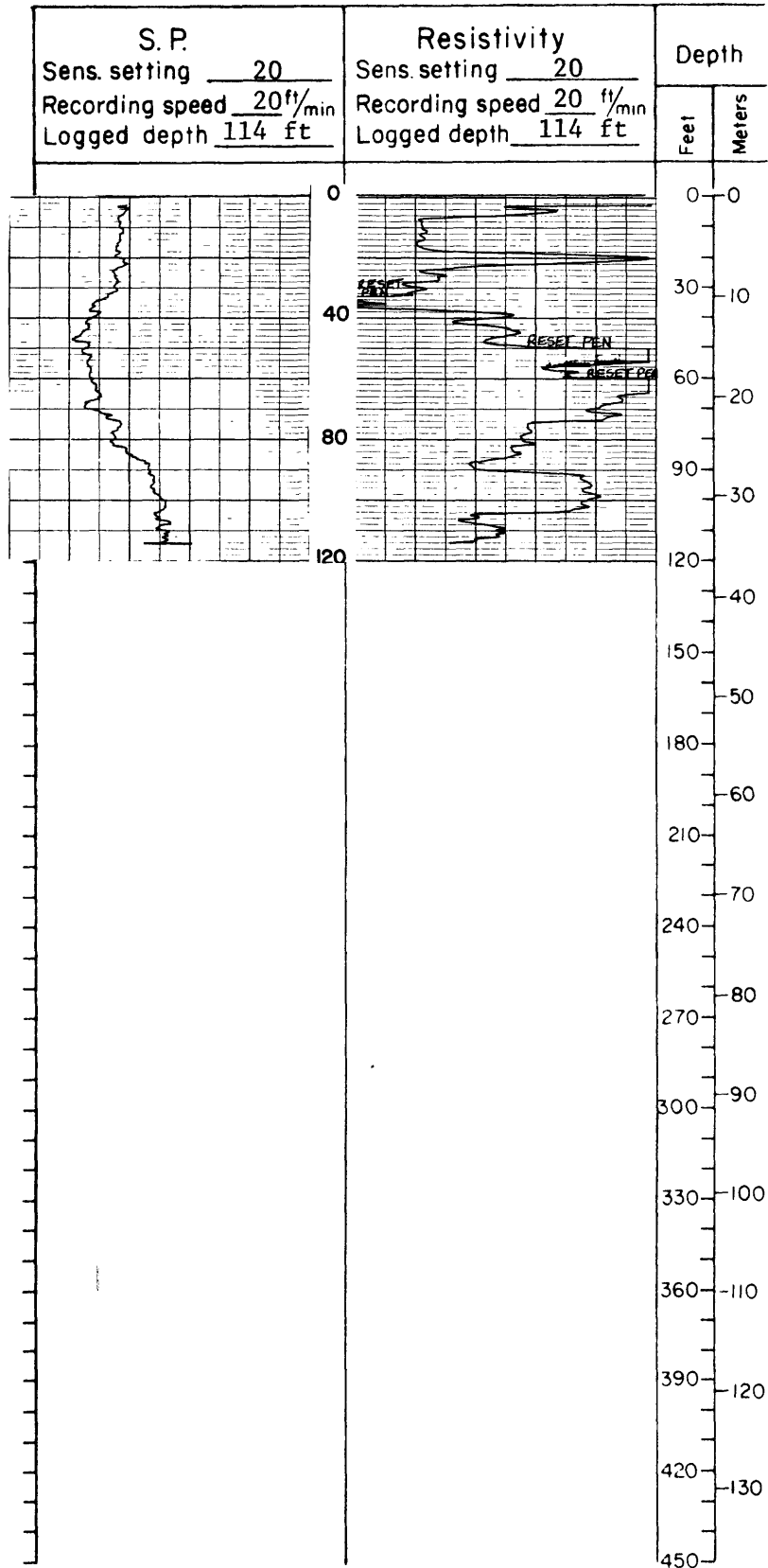
Geologist <sup>Yes</sup>~~No~~

Recorded by: J. JENSEN



# Hole number (continued)

US - 77145



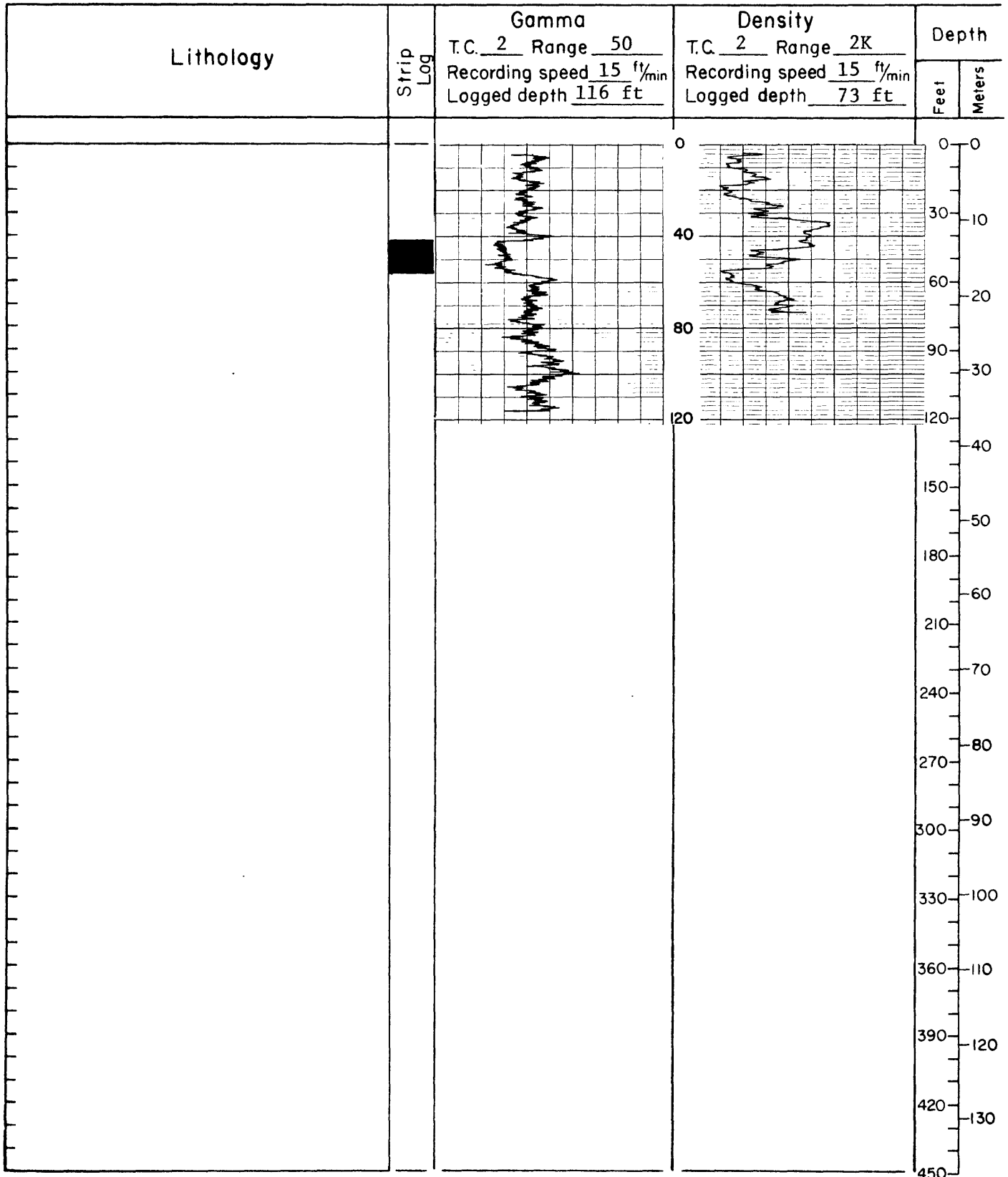
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Hole no: US-77146 Map: Pleasant View Date: 9/10/77 State: Montana County: Dawson  
 Elev.: 2521 ft Location: T. 15 <sup>N</sup><sub>S</sub>, R. 54 <sup>E</sup><sub>W</sub>, Sec. 20, Tract CDDD Drilled depth: 120 ft  
 Measured: 15 ft ~~FSL~~ 2670 ft ~~FEL~~ ~~FWX~~ Hole size: 4 3/4 in Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK

Geologist <sup>Yes</sup>~~X~~<sub>No</sub> Recorded by: J. JENSEN

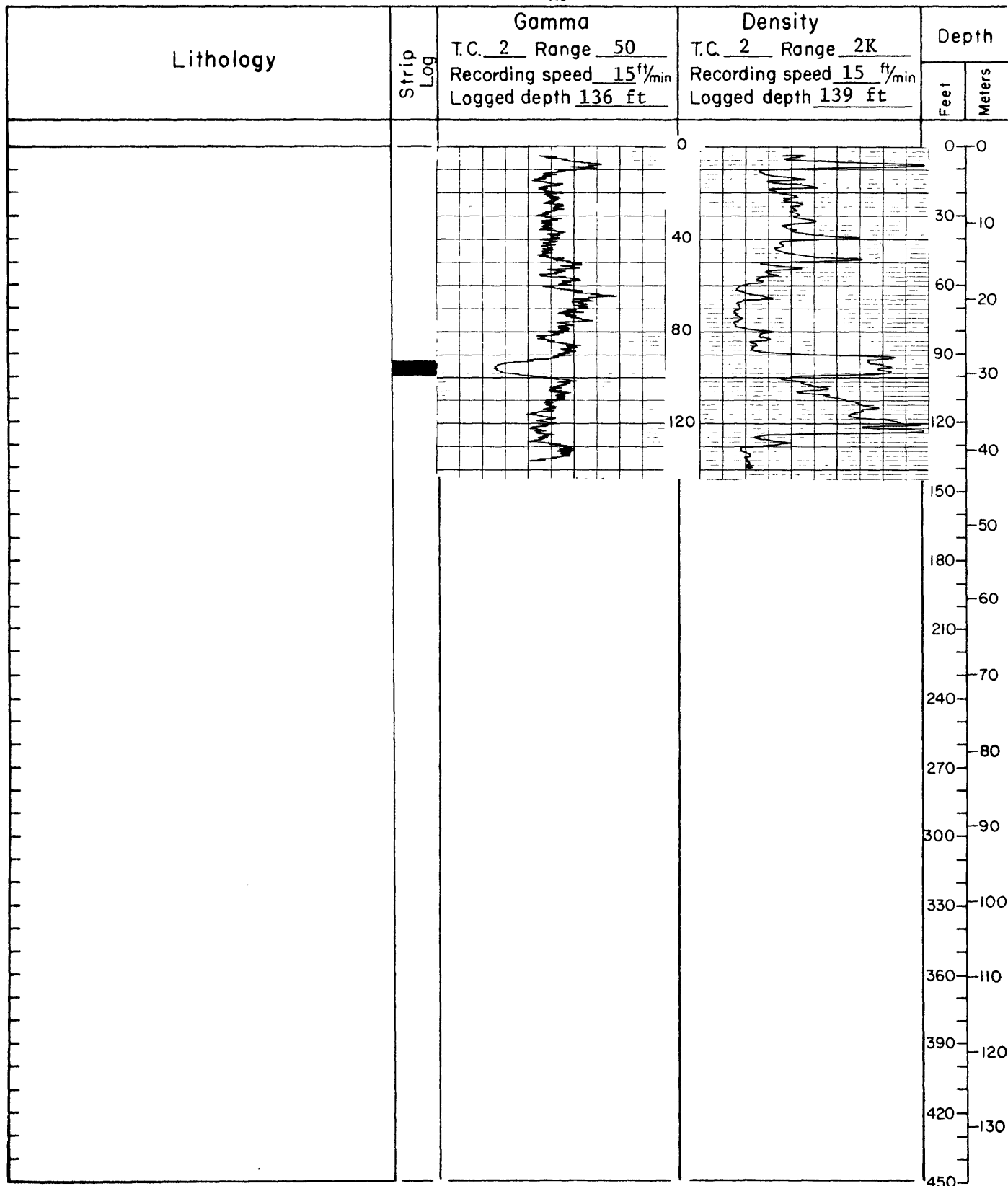


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Hole no: US-77147 Map: Marsh Date 9/10/77 State: Montana County: Dawson  
 Elev.: 2440 ft Location: T. 14 <sup>N.</sup><sub>S.</sub>, R. 54 <sup>E.</sup><sub>W.</sub> Sec. 20, Tract CBBC Drilled depth: 140 ft  
 Measured: 2180 ft <sup>FSL</sup><sub>FWL</sub>, 150 ft <sup>FSL</sup><sub>FWL</sub> Hole size: 4 3/4 in Air ☒ Water ☐ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK Geologist ☒ Recorded by: J. JENSEN

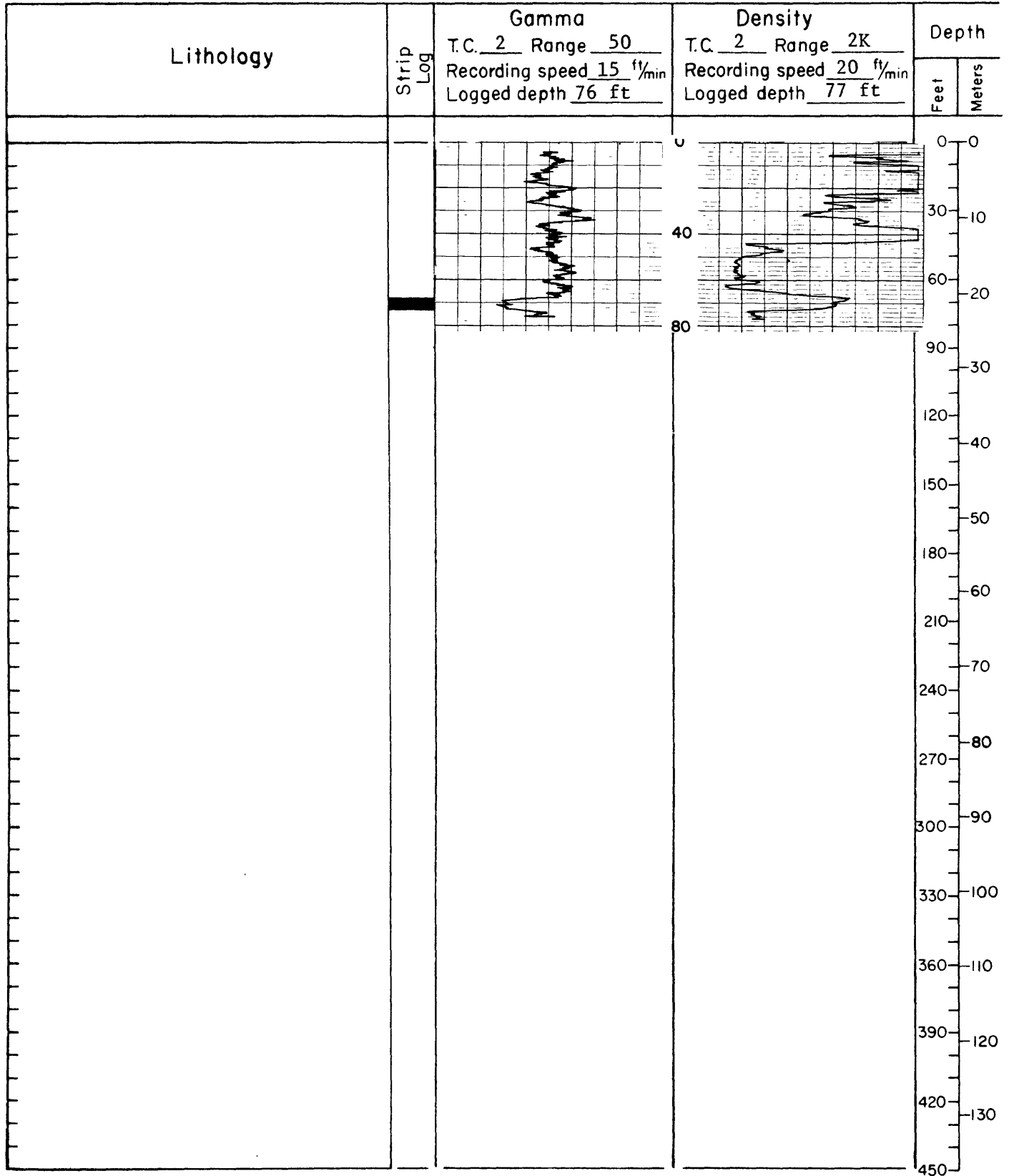


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Hole no: US-77148 Map: Marsh Date 9/11/77 State: Montana County: Dawson  
 Elev.: 2439 ft Location: T. 14 N. S. R. 53 W. Sec. 24, Tract BAAA Drilled depth: 80 ft  
 Measured: 70 ft FNL 2630 ft FWL 2630 ft Hole size: 4 3/4 in Air ☐ Water ☒ Cored: Yes ☐ No ☒

Remarks: \_\_\_\_\_

Recorded by: J. PINCHOCK Geologist Yes Recorded by: J. JENSEN



## References

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