

UPPER CRETACEOUS OUTCROP SECTION  
PUTAH CREEK, YOLO-SOLANO COUNTY LINE, CALIFORNIA  
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Bakersfield, California

A thick section of Cretaceous and Jurassic sediments is well exposed for a considerable distance along the west side of the Sacramento Valley. These beds strike somewhat west of north and dip steeply to the east. The Cretaceous sequence particularly has been subjected to intensive mapping and study by numerous workers, as it was realized early that essentially none of this section was exposed on the east side of the valley, and that many potentially gas-productive beds could be present in the outcrop on the west side. One of the best exposed sections is along Putah Creek which for some distance forms the boundary between Yolo and Solano Counties.

The earliest and one of the most important publications on this area was by J. M. Kirby in 1943 ("Upper Cretaceous Stratigraphy of the West Side of the Sacramento Valley South of Willows, Glenn County, California," Bull. AAPG, Vol. 27). From his mapping of the Upper Cretaceous "Chico Series" from Putah Creek on the south (T8N) to Logan Creek on the north (T19N) MDB&M, he divided the section into six formations: the Forbes, Gulnda, Funks, Sites, Yolo, and Venado, in descending order. At that time, he and others thought that the County Line conglomerate underlying the Venado was the base of the Upper Cretaceous and was Cenomanian in age. Later work showed the fossils to be reworked and the Venado to be Turonian. At Putah Creek the uppermost formation, the Forbes (of the Campanian stage) is in unconformable contact with the Middle-Lower Eocene Capay formation. Among five sections measured, Putah Creek is the thickest and most important.

In 1945, P. P. Goukoff published a paper on "Stratigraphic Relations of Upper Cretaceous in the Great Valley, California" in AAPG Bulletin, Vol. 29, No. 7. He assigned his foraminiferal stages and zones to Kirby's units, the Forbes being F'-1 and the Venado H Zone. In correlating his zones to Kirby's units in Cache Creek to the north and east, Goukoff concluded that Kirby had mis-mapped the Funks, mistaking it for a basal shale in the Forbes formation, later referred to as the Dobbins G-1 Shale and Early Campanian stage.

Toward resolving the surface correlation problems from Putah Creek to Rumsey Hills, Shell Oil Co. conducted extensive surface sampling for foraminifera. It was difficult to get good samples along Putah Creek, so in 1951 a diamond core hole program was developed to get better samples and coverage. Thirty overlapping diamond core holes were drilled through 15,500 stratigraphic feet of section (see Figure 1). Shell carefully described, sampled, and preserved these cores, and we are fortunate to have this unique reference suite of cores for display at the Repository.

The Forbes formation, the stratigraphically uppermost part of the Cretaceous Putah Creek Section, is truncated, and carries Goudkoff's F'-1, nertic facies foraminifera with the index species Marginulina curvisepa (jonesi). In spite of this at least one paleontologist considers the fauna to be Goudkoff's E zone.

The Sacramento shale of the subsurface has been correlated to the uppermost Forbes at Putah Creek. This is probably valid as the Sacramento spans G, E, and part of F-1 zone. In any event, the Putah Creek Cretaceous is stratigraphically below the Winters sand.

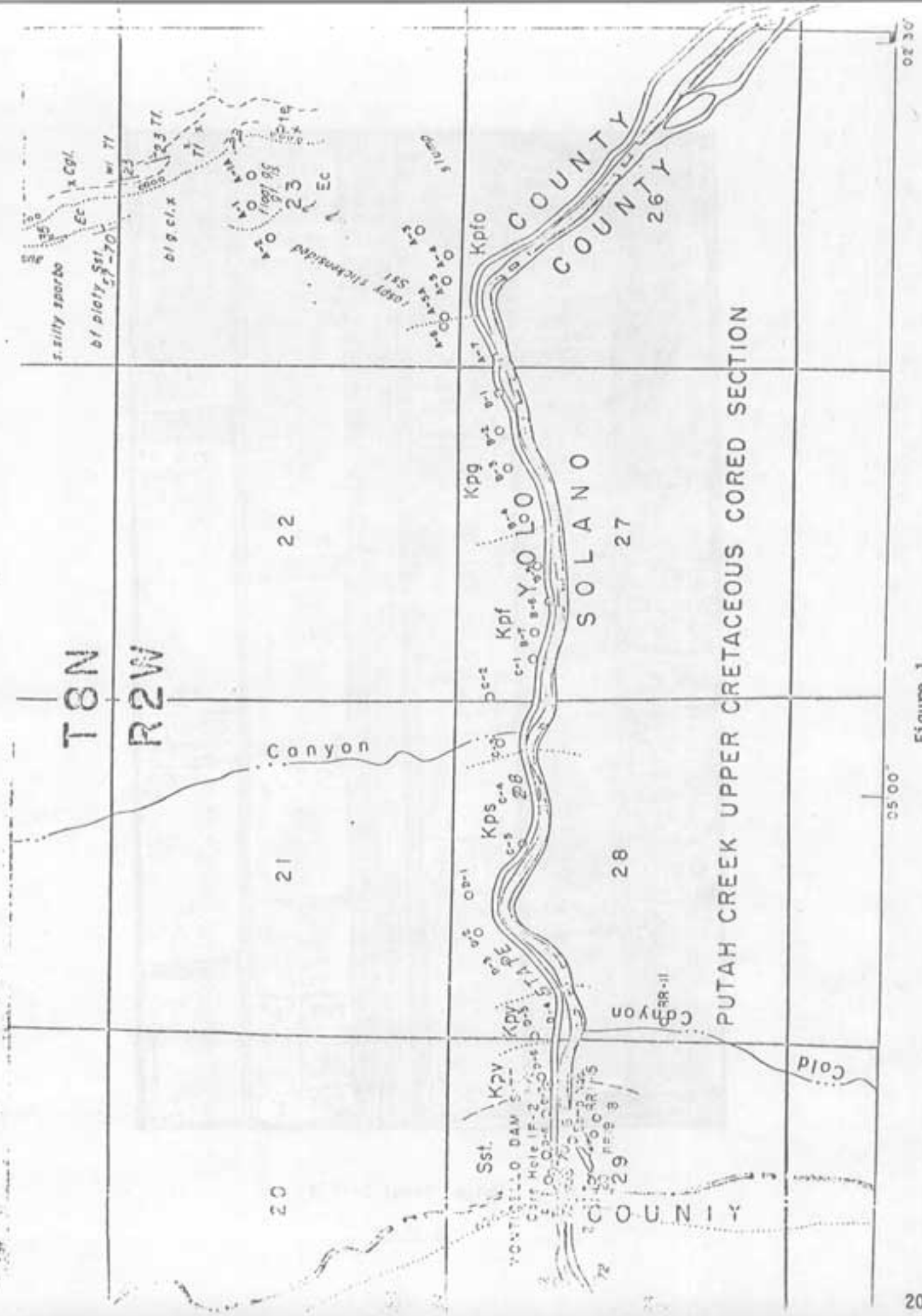
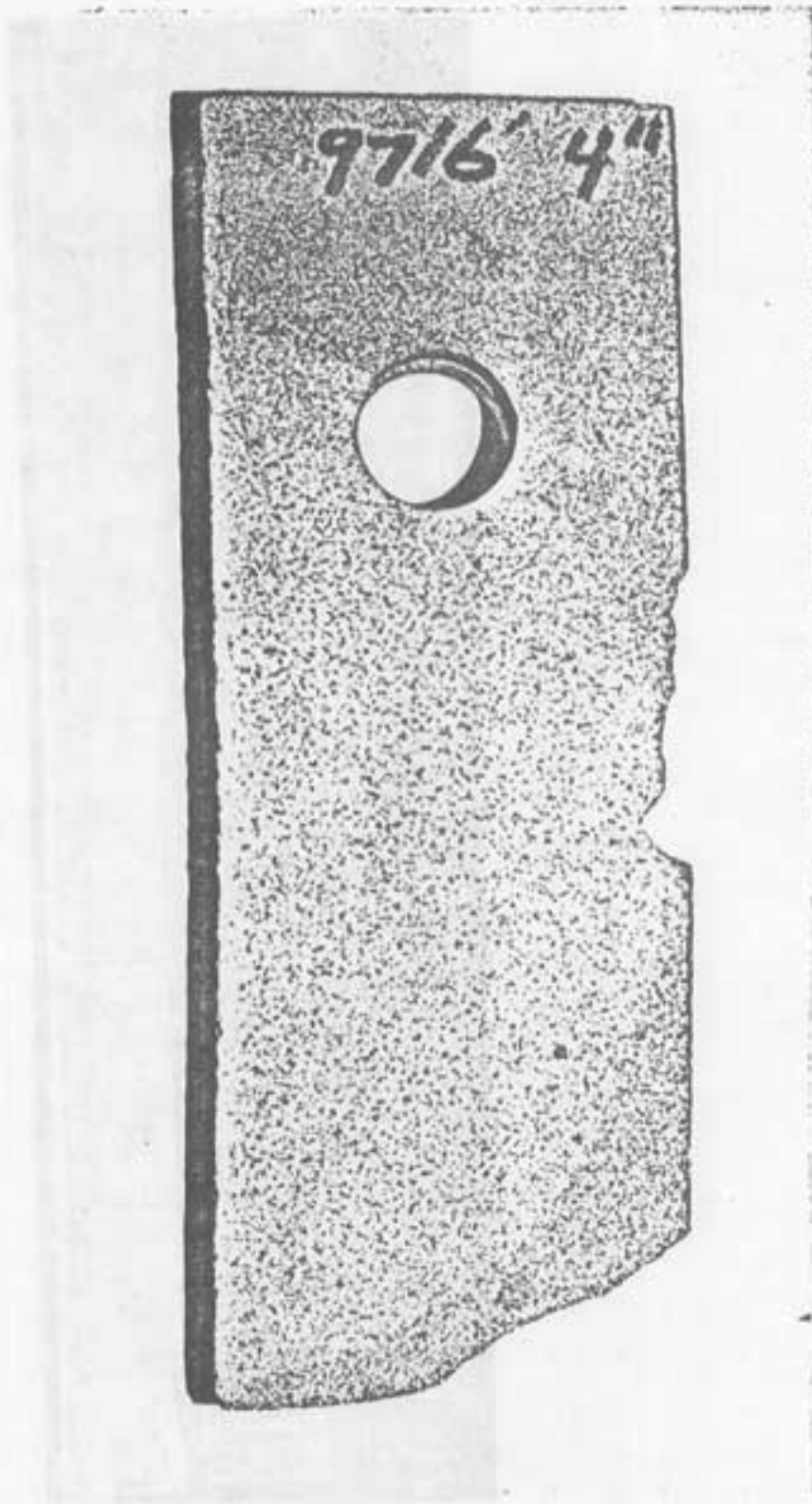


Figure 1



Union "Sonol Sec" 3

10-1S/5E



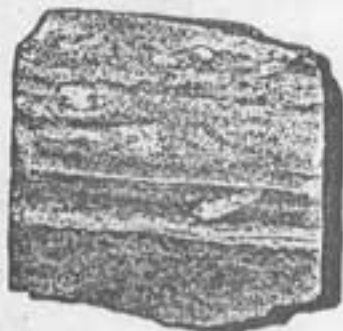
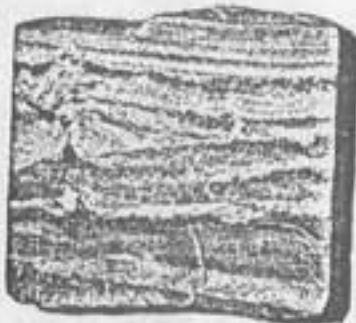
Union "Sonol Sec" 3

10-1S/5E



Union "Sono1 Sec" 4

10-15/5E



Union "Sonol Sec" 4

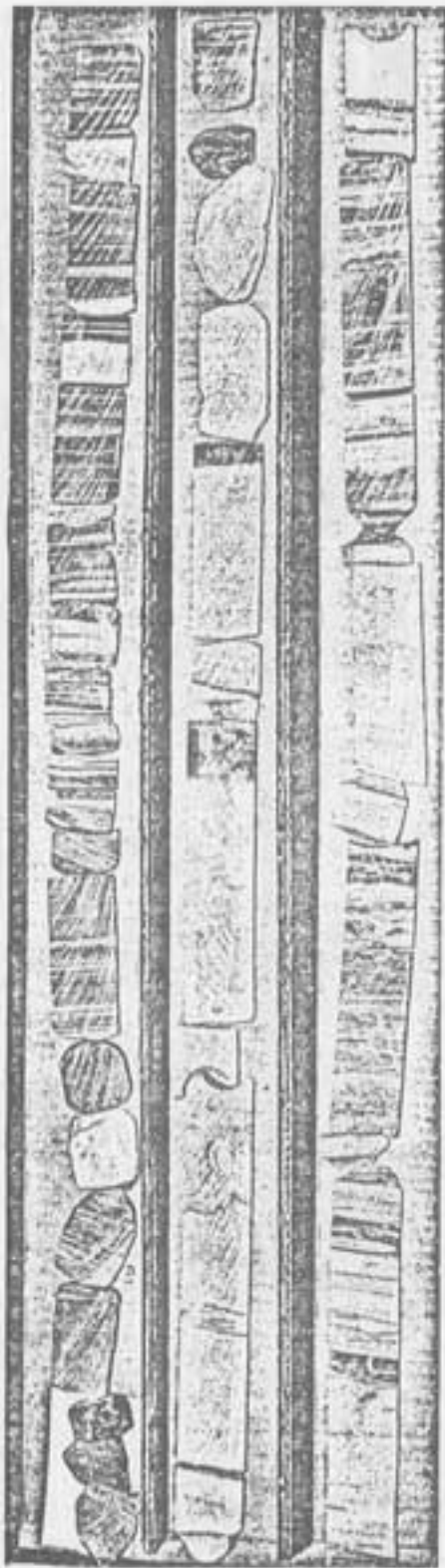
10-15/5E



Union "Sono1 Sec" 5

15-15/5E





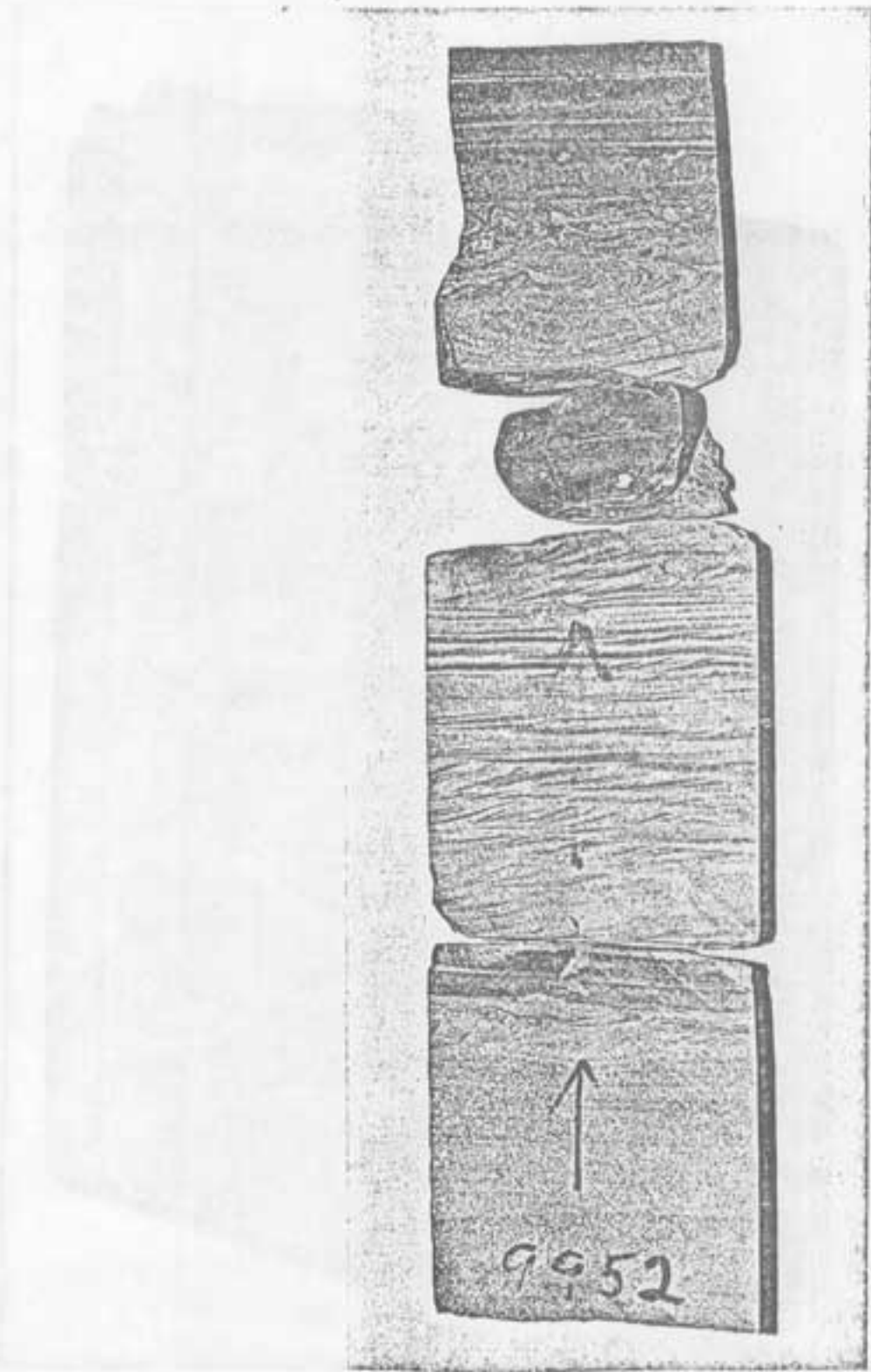
Union "Sono1 Sec" 6

4-1S/5E



Union "Sonol Sec" 6

4-1S/5E



Union "Sonol Sec" 6

4-1S/5E



Union "Sono1 Sec" 6

Depth: 9954'

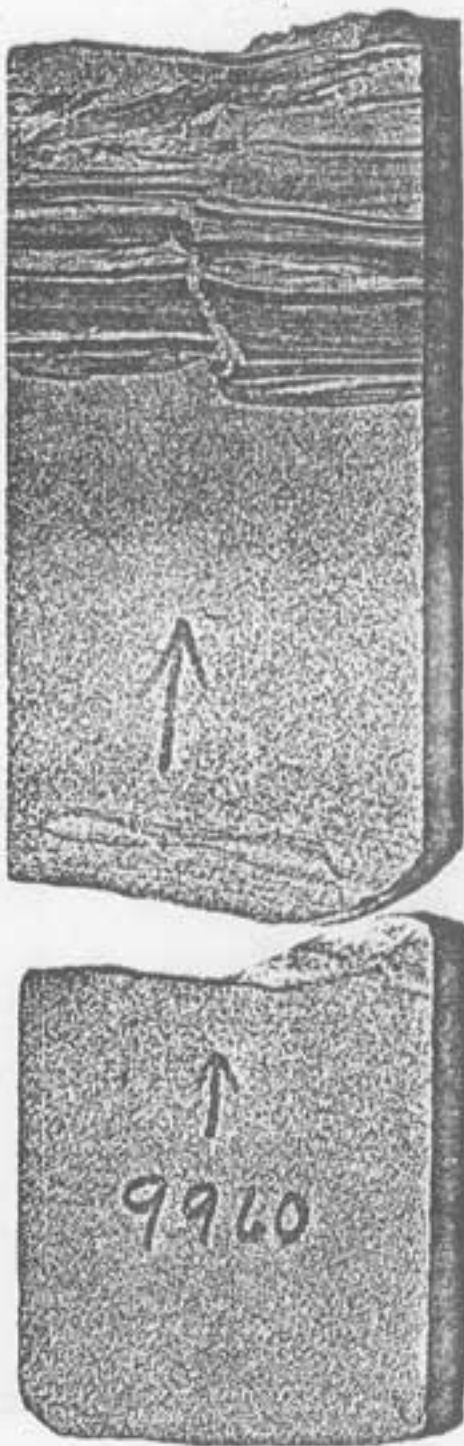
Slabbed surface



Union "Sonol Sec" 6

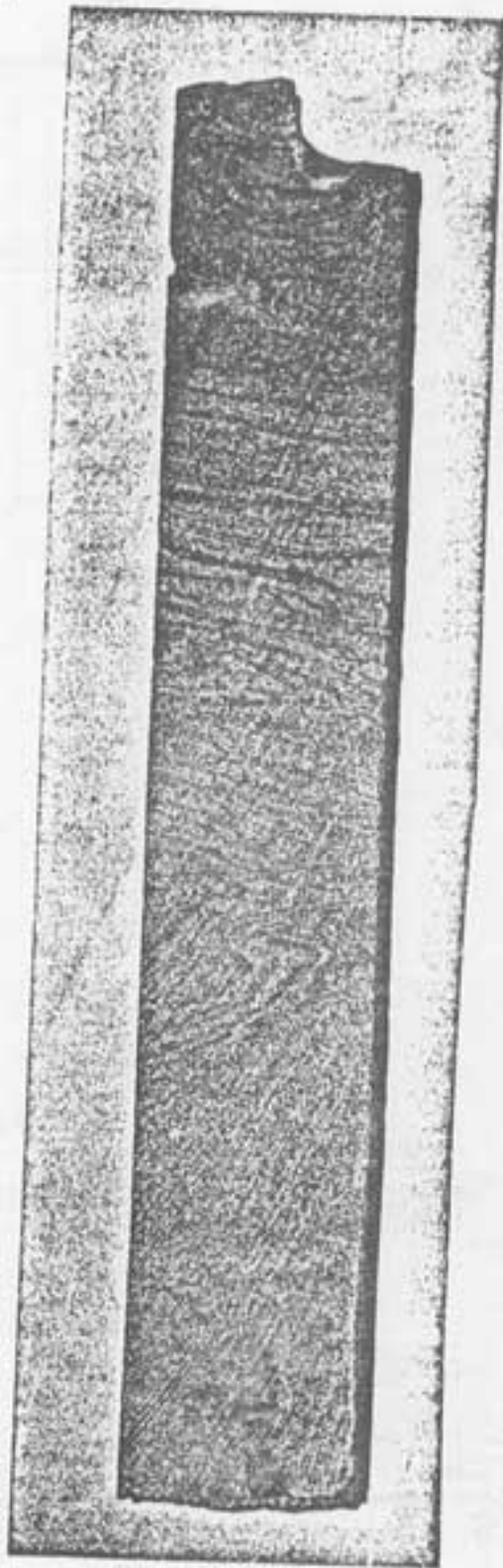
Depth: 9954

reverse side



Union "Sonol Sec" 6

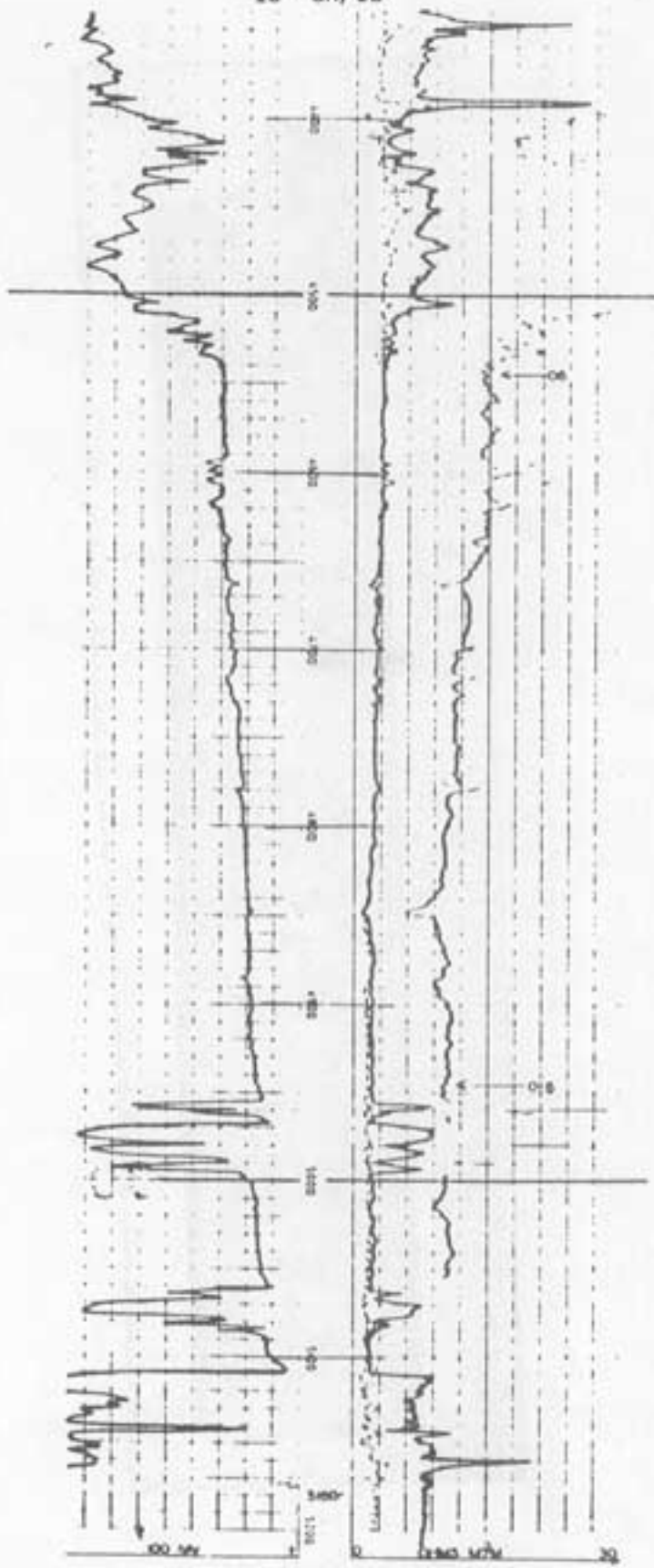
4-15/5E



Union "Sono1 Sec" 6

9837

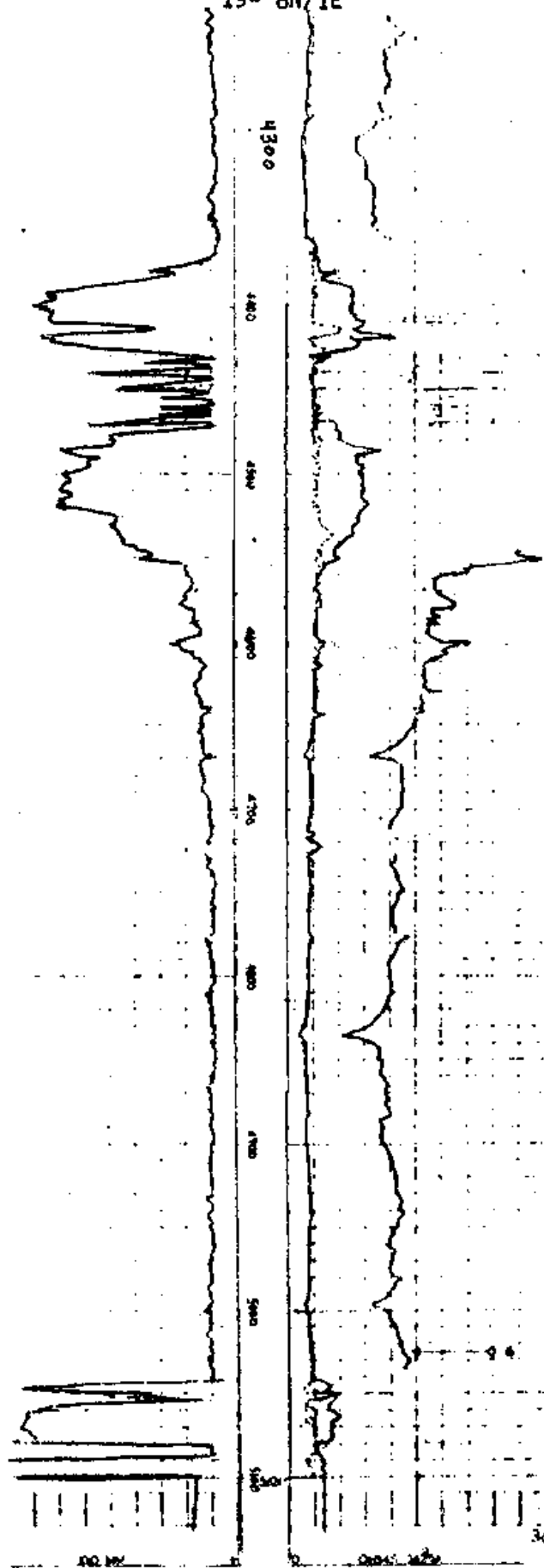
Shell Oil Co.  
Winters Unit 3-1  
18- 8N/1E



SHELL OIL CO. INC.  
WINTERS AREA  
WINTERS UNIT 3-1



Shell Oil Co.  
Szekeres 1  
19- 8N/1E



Getty Oil Co.  
Deland & Ferris No. 3  
33 - 9N/3E

Run 1  
↕  
Run 2

5500

5600

5700

5800

TD 6721

35

to fluctuate in severity

Conductivity

30 ohms

Note: hole  
directionally  
drilled.  
5645 dd = 5429 TVD  
deviation angle: 40°30'

5645  
rec. 21'  
5666



GETTY OIL COMPANY

Deland & Ferris #3

740'N & 190'E from SW corner Sec. 33-9N/3E

Todhunters Lake Field, Yolo County

- Cored 5645'-5666': Recovered 21' (5645 dd = 5429 tvd)  
(Conventional 4 3/8" core)  
hole deviation: 40°30'

CORE DESCRIPTION

Depth

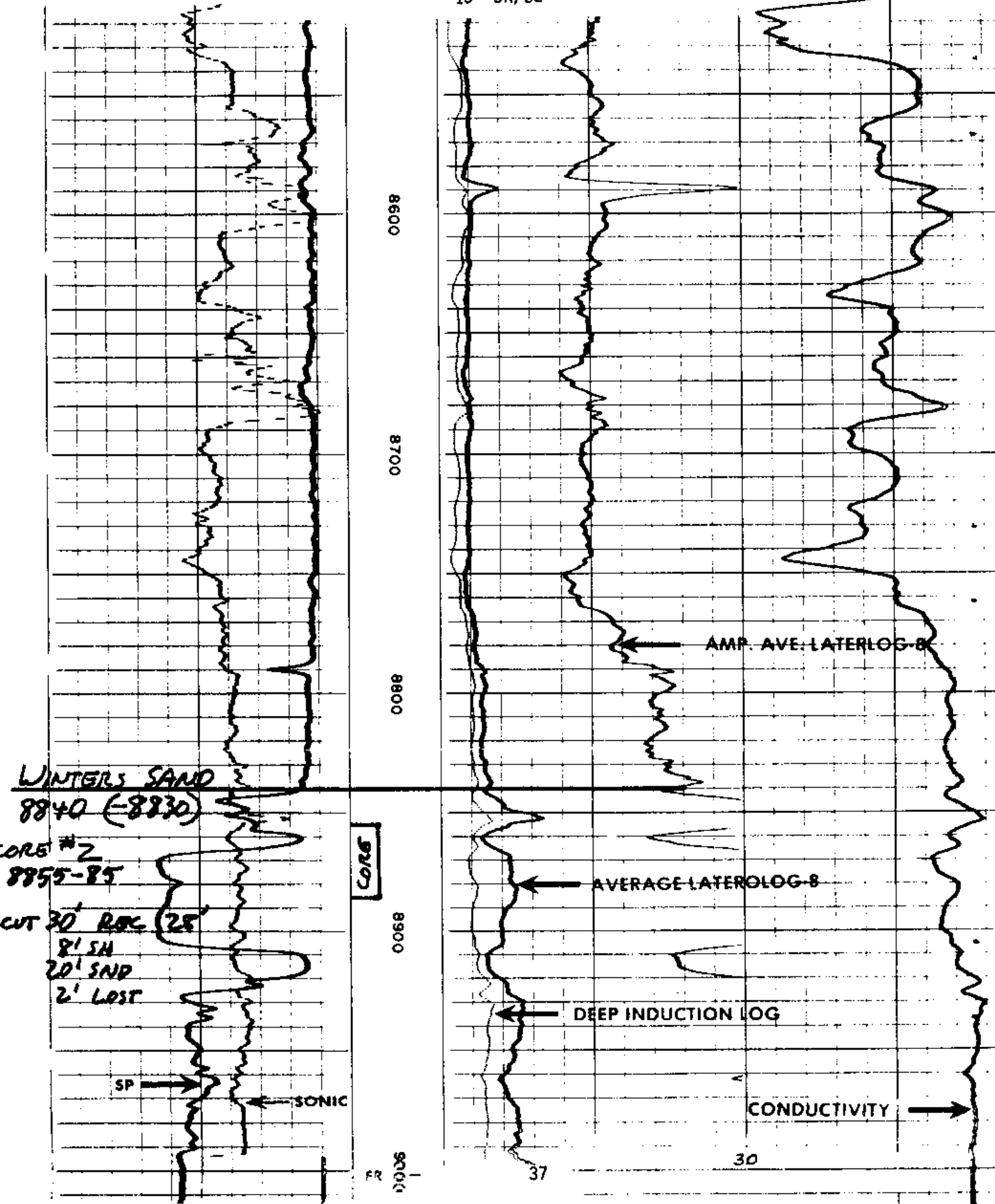
5645'-5662'

Sandstone, light gray to gray-white, fine to very fine grained, well sorted, subangular, predominantly quartz with occasional feldspathic inclusions and minor kaolinitic fragments. Good megascopic porosity. Loosely consolidated upper 10' with frequent siltstone laminae ranging in thickness from paper-thin up to 1 cm. Sand to silt ratio approximately 80-20. Occasional dark gray to black carbonaceous lamination. Becoming more indurated and consolidated in lower 7' with increased frequency of siltstone laminae. (Note: this lower segment of the core could not be displaced from the core barrel on location and was later recovered in the lab).

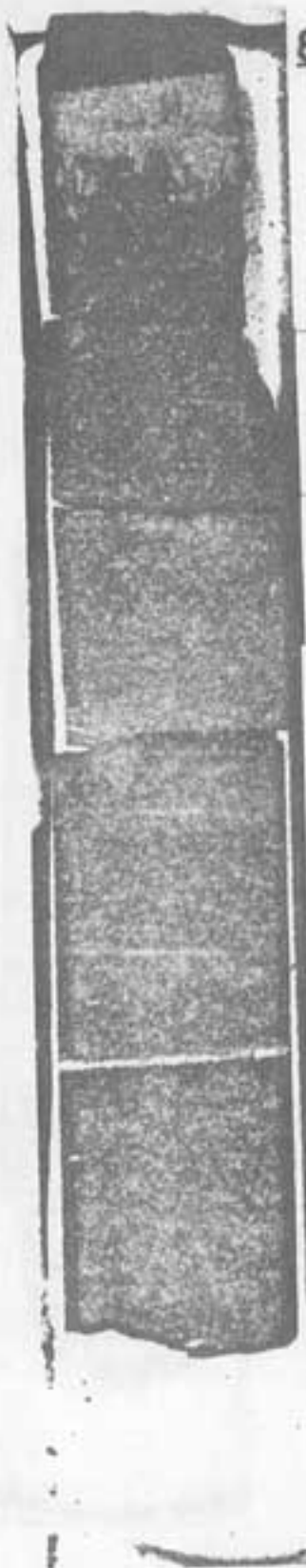
5662'-5666'

Siltstone, gray, finely arenaceous, hard, well indurated with anastomosing carbonaceous streaks, grading downward into slightly sandy gray shale at the base. Observable bedding planes 35°-45°.

Cities Service Oil Co.  
 Nixon Community No. 1  
 15- 5N/3E



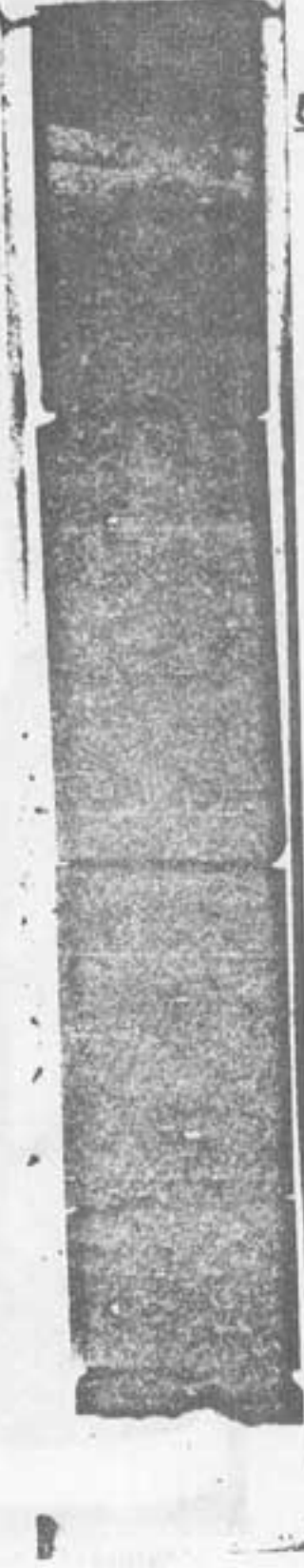
C.S.O.  
Nixon Community No. 1  
Solano Co, Cal.  
Sec.15-5N-3E



8855



58



57

58

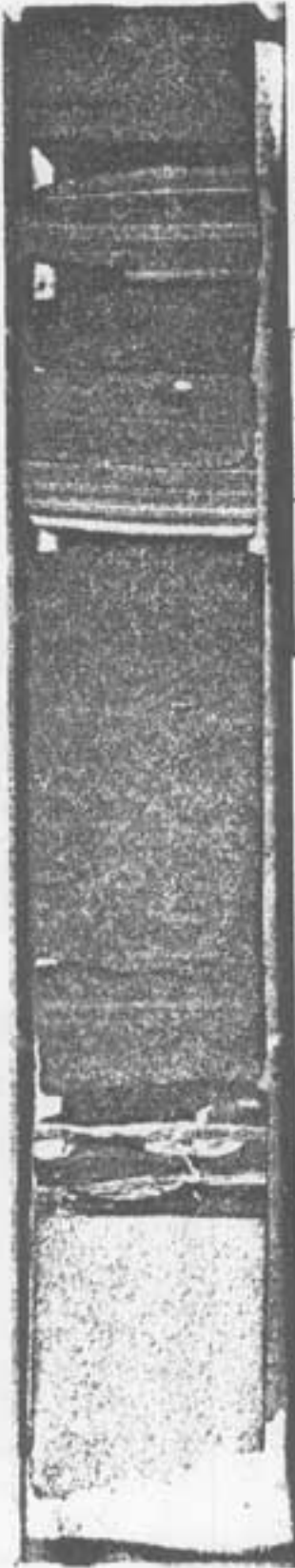
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60



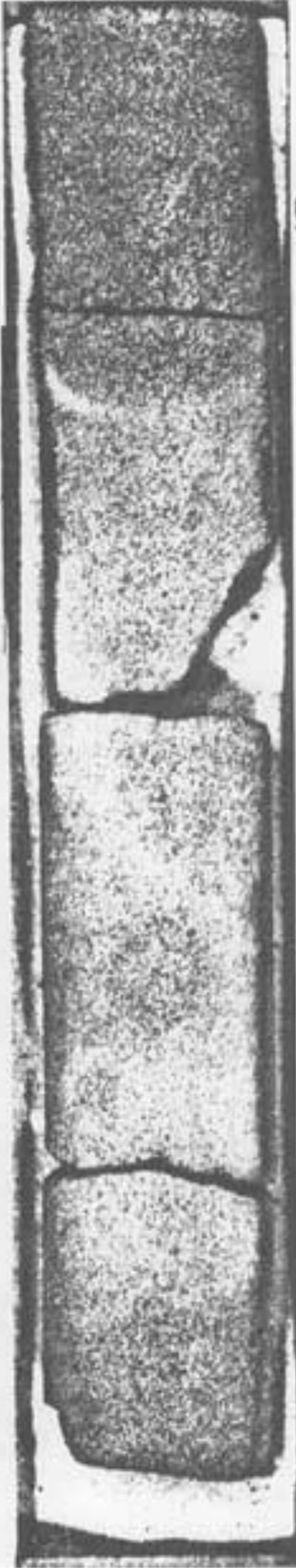
Winters s.s.

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Solano Co, Cal.  
Sec.15-5N-3E



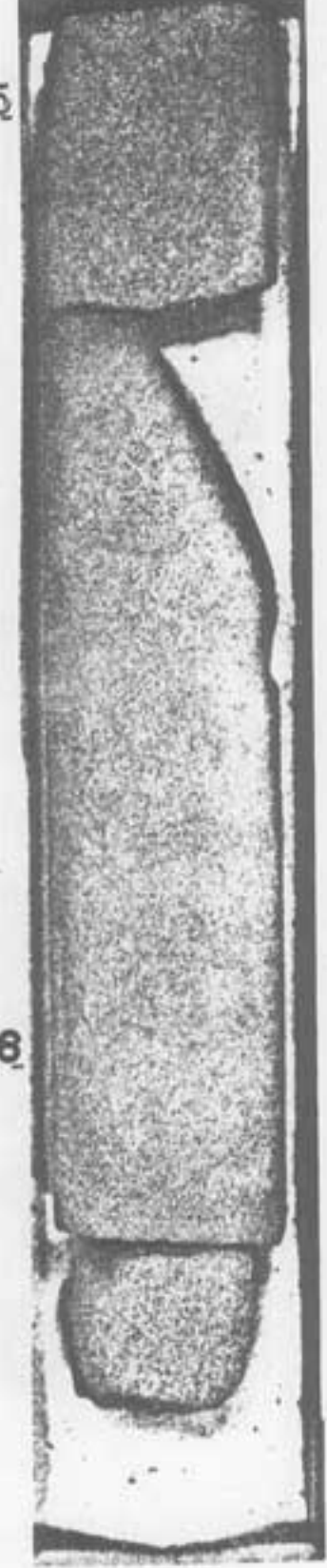
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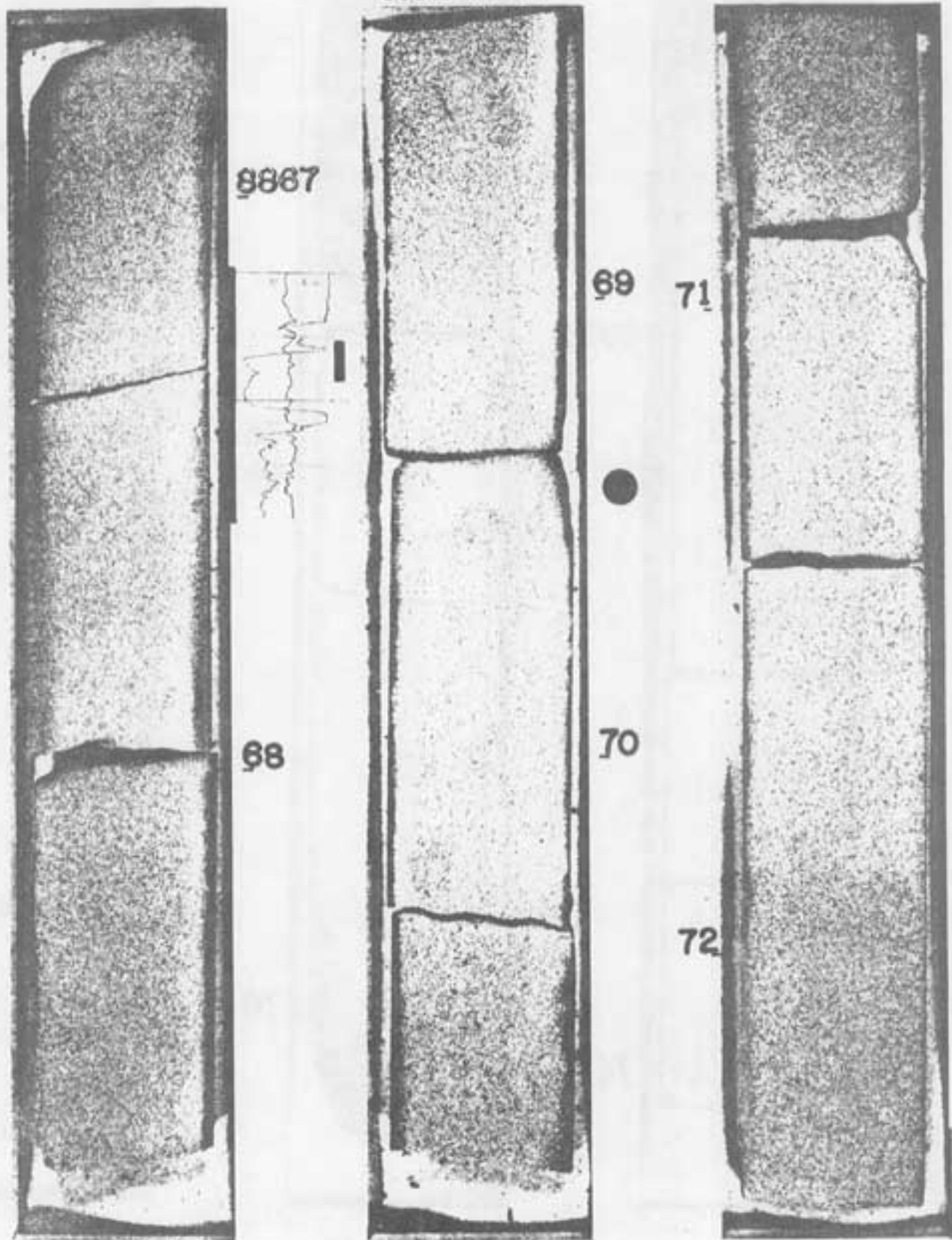


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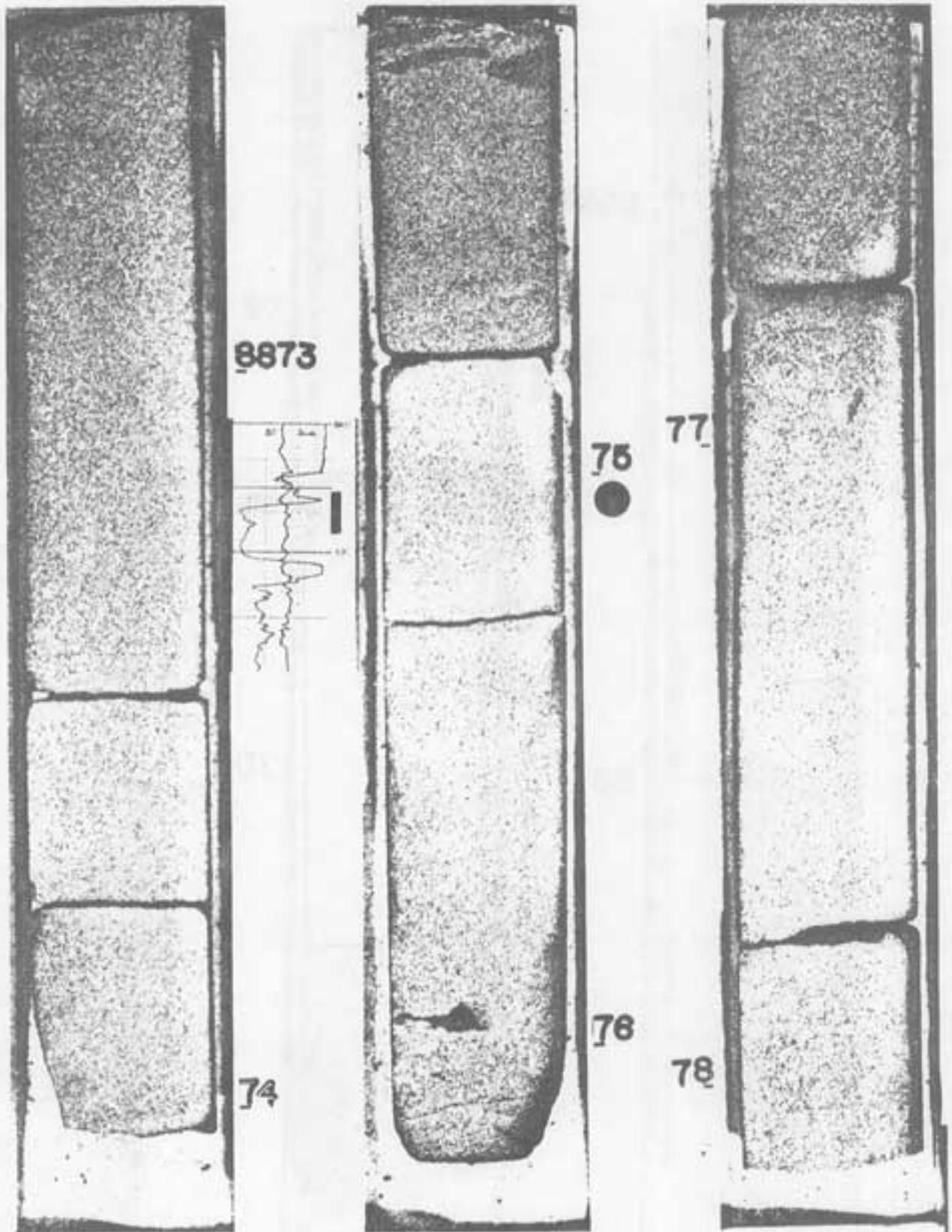
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