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DESCRIPTION AND PRELIMINARY INTERPRETATION OF
CORE CL-80-1, CLEAR LAKE, LAKE COUNTY, CALIFORNIA

by

John D. Sims, Michael J. Rymer, and James A. Perkins

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ABSTRACT

Coring operations were conducted in the west basin of Clear Lake during July and August 1980 to produce a regional Quaternary reference section. A 177-m-long core (CL-80-1) was taken, which also augments and extends a previous study of eight shorter cores collected from Clear Lake in 1973. Core CL-80-1 was continuously cored in 7.5 m of water, and 66.5 percent recovery was achieved. The sediments are composed primarily of clayey and silty sapropelic mud similar to those presently being deposited in the lake, and are interbedded with local coarse sand and gravel deposits and thin volcanic ash beds. Coring was terminated when coarse rounded gravel and cobbles of Franciscan assemblage lithology were encountered. The location of core CL-80-1 is between two other core sites of the 1973 series of cores, one of which (CL-73-4) is 115 m long and contains a well-defined, uninterrupted pollen and physical stratigraphic record from the present to about 130,000 years ago. Paleomagnetic and preliminary pollen analyses of core CL-80-1 are complete and comparison of these results with those of core CL-73-4 suggest that the new core represents a record from the present to about 175,000 years ago.

INTRODUCTION

Clear Lake is located about 120 km north of San Francisco and lies in a fault-bounded, seismically active intermontane valley north of the Geysers geothermal field (fig. 1). Two cores 177.0 and 168.8 m long were taken in the lake in July and August 1980 for multidisciplinary studies to determine the stratigraphic, tectonic, and paleoclimatic history of the Clear Lake basin. The objectives of these studies are (1) to determine the stratigraphic characteristics useful for developing a reference section for correlation with other late Quaternary continental and marine deposits and (2) to characterize the late Quaternary paleoclimatic record and tectonic framework of the area. This report is concerned with the detailed description and results of preliminary analyses of the longer core (CL-80-1). Detailed description and preliminary analysis of the 168.8-m-long core, CL-80-2, is the subject of a separate report.

The Clear Lake basin has an area of about 1,370 km², and the relief of the basin ranges from approximately 400 to 1,475 m. West of the Clear Lake basin the Mayacmas Mountains are the drainage divide that separate Clear Lake from the Russian River, which flows to the Pacific Ocean 50-80 km to the west. Elevations in the Mayacmas Mountains vary between 600 and 1,440 m, whereas ridges north of the basin have maximum elevations generally above 1,200 m. The peaks of Mt. Konocti are adjacent to the lake basin on the south and reach elevations of 1310 m.

Clear Lake is in an area dominated by Jurassic and Cretaceous rocks of the Franciscan assemblage and the Great Valley sequence. These units are predominant to the east, north, and west of the lake, where Quaternary alluvium-filled valleys are also locally present (fig. 2). Rocks of the Pliocene and Pleistocene Clear Lake volcanic field are the dominant lithologies southeast of the lake, and Quaternary alluvium and Pleistocene lacustrine rocks are dominant south of the lake (fig. 2).

Northwest-trending faults of the Coast Ranges are the prominent structural features of this seismically active region (Jenkins and Strand, 1963; Hearn and others, 1976b; McLaughlin, in press; Coffman and von Hake, 1973). Local northwest-trending faults are subparallel to the San Andreas fault zone and are typically contacts between Mesozoic units and younger deposits in the Clear Lake area (Anderson, 1936; Brice, 1953; Swe and Dickinson, 1970; R. J. McLaughlin, oral commun., 1981). Similar northwest fault trends are imprinted on rocks of the overlying Clear Lake volcanic field and other Cenozoic deposits (Hearn and others, 1976b; Rymer, 1981). The major north-northwest- and northwest-trending faults that cut rocks of the Clear Lake volcanic field are active (Donnelly and others, 1976; Hearn and others, in press). Late Cenozoic faults are also inferred to control local shoreline orientation in the Oaks and Highlands Arms of Clear Lake, as well as the location of the main basin of Clear Lake (Sims and Rymer, 1974, 1975; Hearn and others, 1976a). Downdropping along these faults maintained the lake basin and allowed the accumulation and preservation of a thick section of Quaternary sediment.

Clear Lake is the largest natural freshwater lake wholly within the State of California. The lake has an area of 160 km², an elevation of 404 m, an average depth of about 6 m, and a maximum depth of 13 m. Clear Lake is drained by Cache Creek, which flows to the east from the south end of the Highlands Arm (fig. 1). The lake is not stratified, and on calm summer days the bottom becomes depleted in oxygen.

Prior to the current coring operations eight cores, ranging in length from 13.9 to 115.2 m, were taken in Clear Lake in 1973 (fig. 1, table 1). Analyses

of these cores yielded a continuous lithostratigraphic and biostratigraphic record from which a history of volcanic activity, sedimentation, tectonism, and paleoclimate was reconstructed (Sims and Rymer, 1974, 1975; Sims, 1976; Casteel and others, 1977; Sims and others, in press; Sims and White, in press; Adam and others, in press). The longest of these cores, CL-73-4 (table 1), allowed the determination of the major part of this history and paleoclimatic interpretations from the present to about 130,000 years ago (Sims and others, in press; Adam and others, in press).

Analysis of the earlier cores shows that sedimentation in Clear Lake has varied significantly from the sapropelic mud that is presently being deposited. Throughout the late Pleistocene and Holocene Kelsey Creek was a

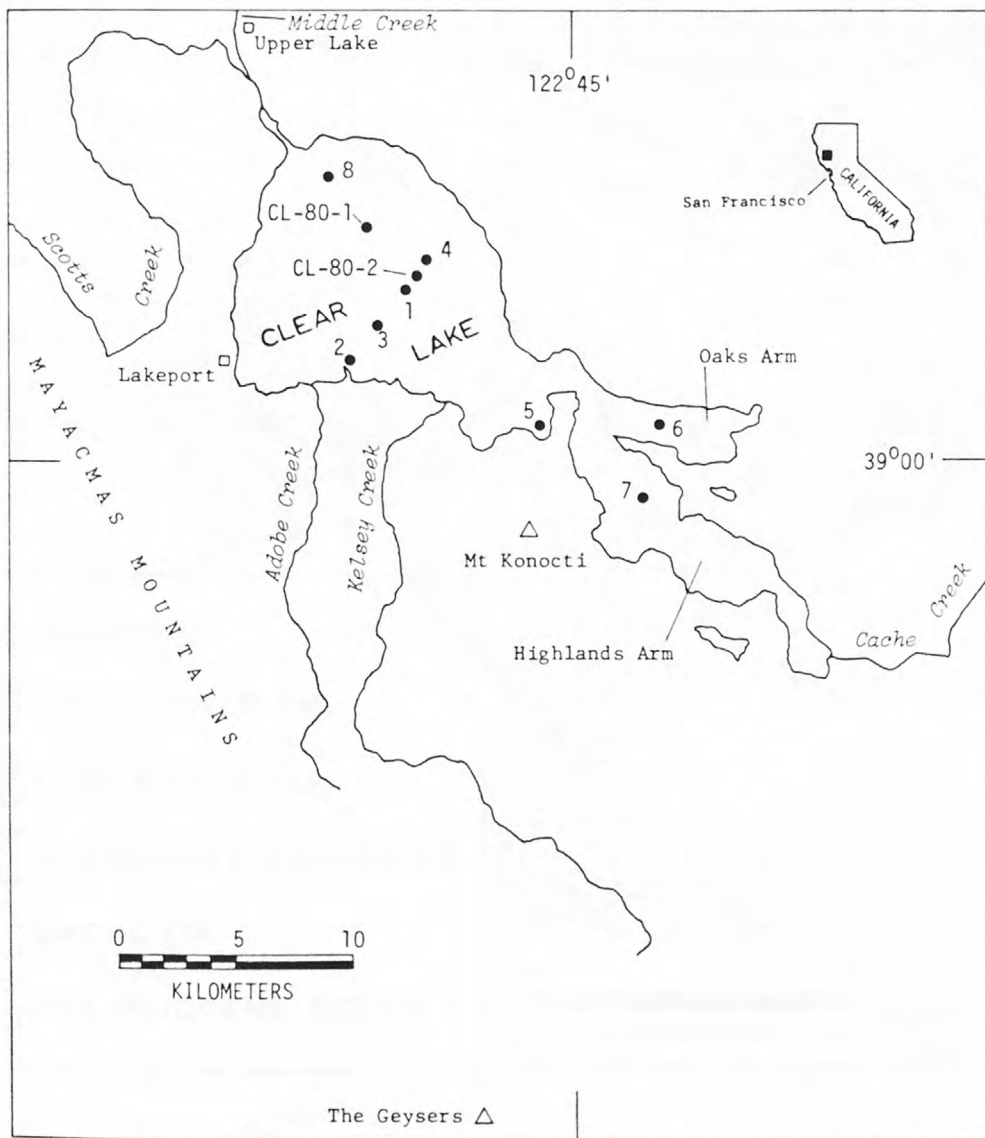


Figure 1. Map showing location of core CL-80-1 in Clear Lake, California. Core sites with single-digit numbers are from the 1973 Clear Lake coring program (Sims, 1976) and have prefixes CL-73. Core CL-80-2 is the subject of a separate report. See table 1 for lengths and recovery rates of the various cores (modified from Sims, 1976).

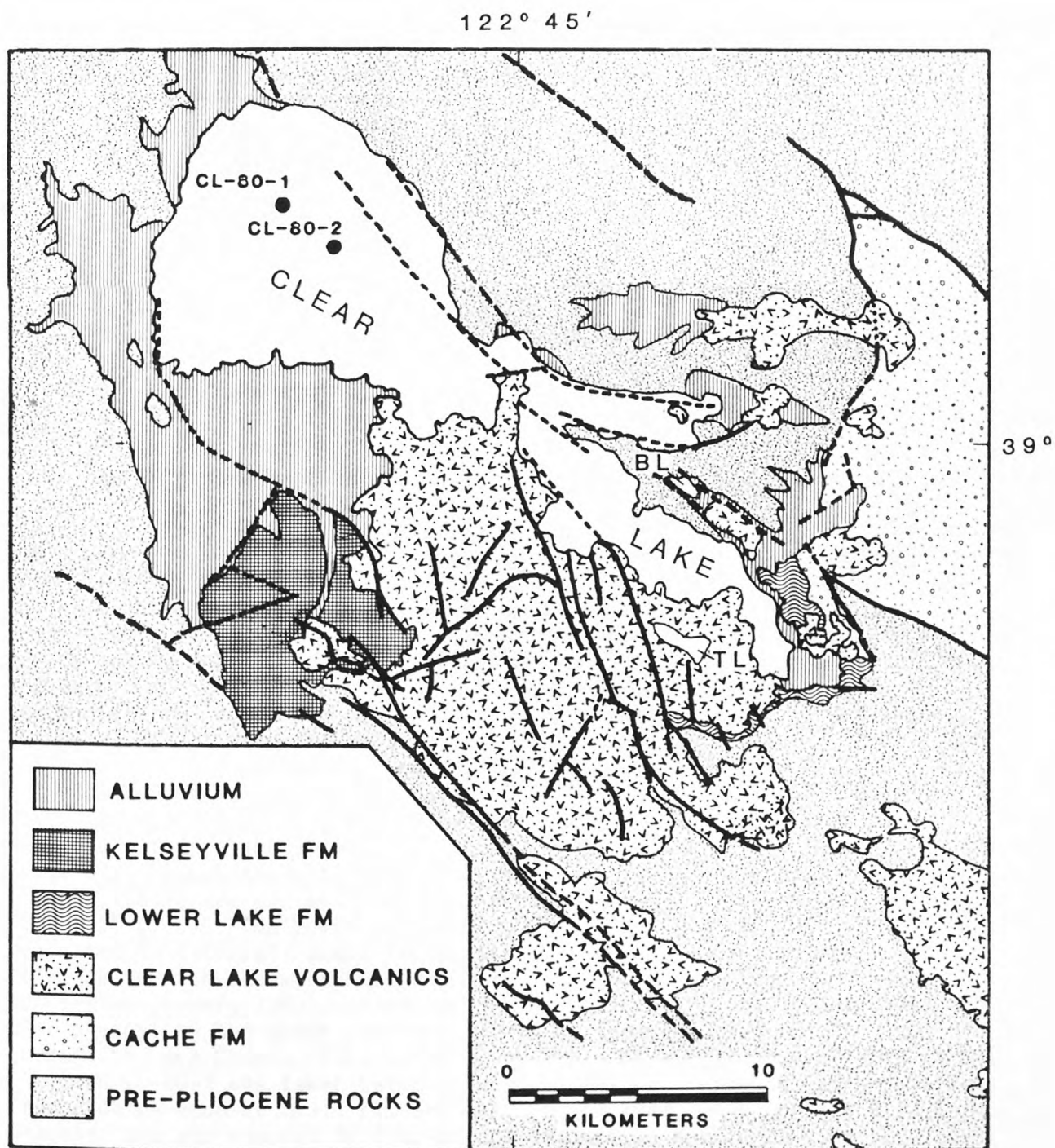


Figure 2. Geologic map of the Clear Lake area (modified from Hearn and others, 1976b; Sims and Rymer, 1975; Rymer, 1981). Abbreviations BL and TL refer to Borax Lake and Thurston Lake, respectively.

Table 1. Total length, recovery percent, number of ash beds, and estimated maximum age for cores from Clear Lake, Calif. (modified from Sims, 1976).

Core No.	Water Depth (meters)	Core length (meters)	Recovery (percent)	Number of ash beds	Estimated age of core bottom (yr)
80-1	7.5	177.0	66.7	54	175,000
80-2	8.0	168.8	75.0	1/	1/
73-1	8.8	52.6	35.0	6	40,000
73-2	4.3	13.9	88.0	0	10,000-15,000
73-3	8.4	69.0	96.0	43	36,000
73-4	8.4	115.2	92.0	56	130,000
73-5	7.6	22.6	94.0	7	28,000
73-6	12.2	21.6	99.0	8	36,000
73-7	12.8	27.4	94.9	26	40,000
73-8	5.2	20.5	99.6	5	24,000

1/ Data unavailable at this writing. Core CL-80-2 is the subject of a separate report.

major source of sediment influx to the lake. Kelsey Creek carried coarse clastic debris into the lake to form a delta-like wedge-shaped mass of sediments (Sims, 1976). These coarse deltaic sediments extend northward from the mouth of Kelsey and Adobe Creeks into the lake, and were deposited between 40,000 and 10,000 years ago (Sims, 1976). Following the deposition of this coarse clastic wedge sedimentation of sapropelic mud characteristic of present-day open-lake conditions resumed. Similarly, but to a lesser extent, creeks in the Upper Lake area have periodically brought sand and gravel into the lake. The two arms of the lake contain abundant peat beds that accumulated in water <2 m deep. Peat deposition terminated in the arms about 10,000 years ago when the water depth abruptly increased to >2 m and sediment dominated by sapropelic mud began accumulating (Sims, 1976).

Pleistocene lacustrine deposits older than those in cores from Clear Lake taken in 1973 and 1980 (Sims, 1976; Sims and Rymer, 1981) are found in isolated outcrops and in water wells dug in alluviated valleys near the lake. These older deposits, referred to as the Lower Lake and Kelseyville Formations (Rymer, 1981), are present near the south end of the Highlands Arm and in Big Valley (fig. 2). The Lower Lake and Kelseyville Formations were presumably deposited in different subbasins of the same lake, and are possibly correlative with sediment beneath Clear Lake but deeper than cores have penetrated (Rymer, 1981). Pleistocene and Holocene lacustrine deposits are also present in the Upper Lake area north of the main basin of the lake (report to Lake County Flood Control and Water Conservation District, 1978).

Core CL-80-1 was taken using rotary, wireline, continuous-coring methods from a barge-mounted drill rig anchored in the lake. The core is 6 cm in diameter and was removed in 3.05-m-long segments. Recovered core segments were transported to a field laboratory where they were sampled shortly after receipt. Each segment was first split lengthwise, and the two core halves were photographed on black-and-white and color film. An 8-mm-thick slice was then removed from one of the segment halves and X-ray radiographed. After the radiograph was developed and examined to determine the extent of sediment disruption and the amount of debris included in the top of the core segment, the radiographed slice and one of the segment halves were cut up for individual subsamples. The remaining core half was sampled for paleomagnetic

analysis and sealed in a 6-mil polyethylene bag as an archive sample. A full description of the methods of sampling, laboratory procedures, and a catalog of the samples taken is summarized in Rymer and others (1981).

RESULTS

The overall recovery rate for core CL-80-1 is 66.5 percent. The poorest recovery occurs in the upper 37 m, between 52 and 74 m, and in the lowest 9 m of the core (fig. 3). The recovered intervals are listed in table 2.

Sediments in core CL-80-1 consist of dark-olive-gray clayey to silty sapropelic mud interbedded with dark-olive-gray clayey silt, sand, and minor gravel. The sediments are un laminated in the upper 19 m and variably laminated for the rest of the core. Coarse sand and gravel were encountered locally during coring operations and were the cause of poor recovery from 151.8 to 159.3 m and below 168.3 m. Below 168.3 m the sand and gravel became increasingly coarse and coring was terminated at a depth of 177.0 m (table 3), when a cobble of Franciscan assemblage lithology measuring 4.5 cm in diameter was encountered. Ash beds are a common adjunct to the sediments in Clear Lake. Fifty-four ash beds are identified in core CL-80-1 with the uppermost identified ash bed occurring at 39.3 m. Ash beds are most common below 92 m in the core (table 4).

Volumetric samples were taken at about 2 m intervals for analysis of bulk density, water content, and organic and inorganic carbon content. Cylindrical samples were taken using a piston-type sampler with a calibrated volume of 1.7 cm³ (Beaver and others, 1976). The samples were weighed, dried at 105°C for 8 hr, and ashed at 550°C and 950°C for 4 hr each for the respective analyses.

Sample density increases with depth in core CL-80-1 from about 1.3 to 2.0 gm cm⁻³ in the upper 90 m of the core. Below 90 m, however, density values

Table 2. Recovered intervals from Clear Lake core CL-80-1. Depth intervals not represented by an entry are missing sections or intervals that were not cored.

Recovered interval (cm)		Recovered interval (cm)	
Top	Bottom	Top	Bottom
0	170	6538	6731
305	419	6843	6864
610	887	7452	7722
914	1171	7757	7978
1219	1320	8062	8595
1827	1900	8672	8851
1920	2067	8976	9471
2164	2283	9555	9834
2774	2843	9860	10094
3033	3162	10165	10411
3642	3752	10470	10636
3795	3946	10775	11571
4100	4254	11643	12026
4404	4499	12177	12866
4709	4899	12908	15192
5014	5214	15377	15409
5319	5376	15530	15646
5624	5659	15834	16039
5928	6144	16139	16865
6233	6363		

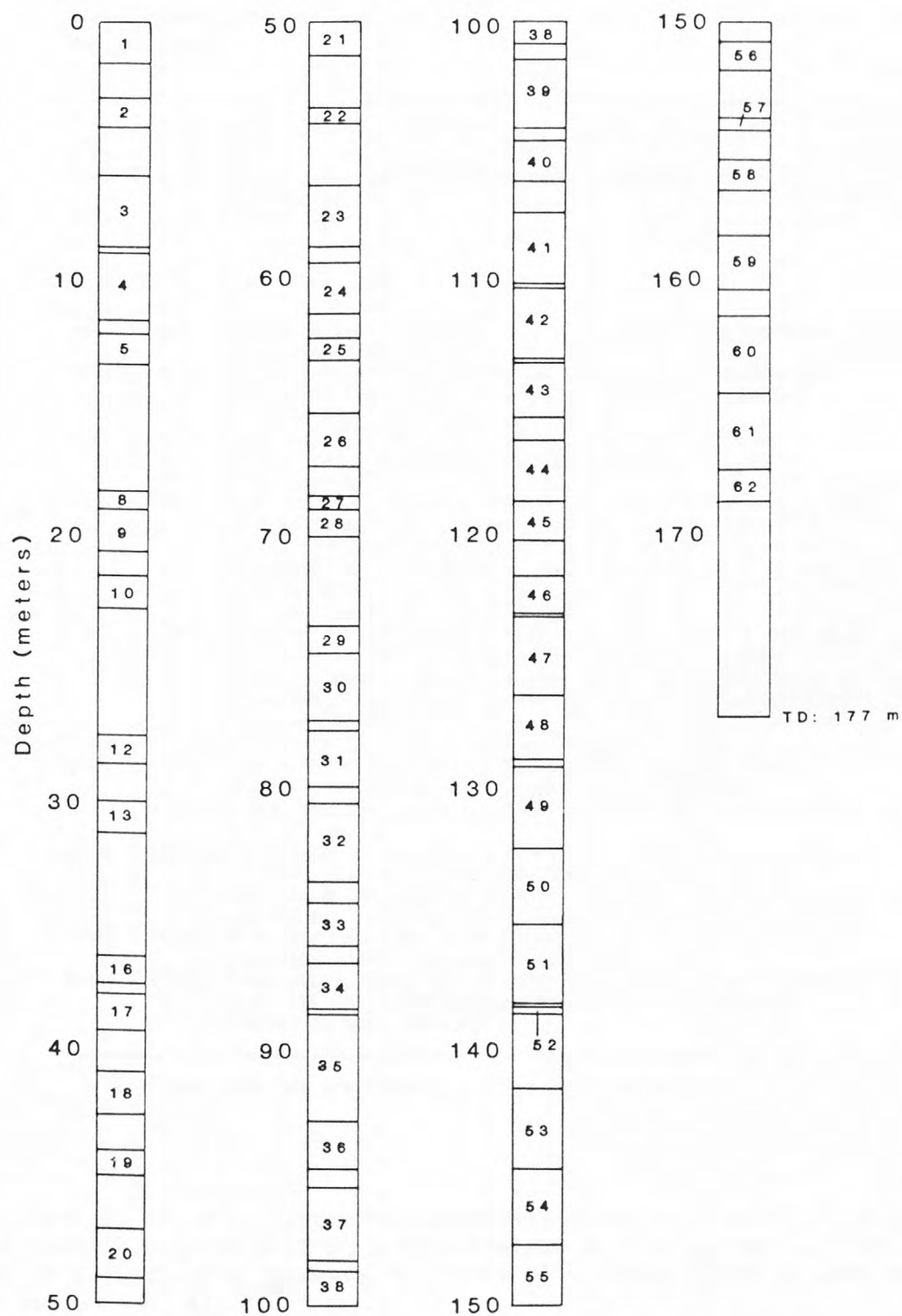


Figure 3. Recovered intervals for core CL-80-1. Numbered sections represent recovered intervals and correspond to segment numbers in the detailed graphic log (Appendix). Unnumbered sections represent intervals of no recovery. Total recovery for the core is 66.5 percent.

Table 3. Summary of lithology of Clear Lake core CL-80-1.

Depth interval (cm)	Lithology
0 - 1320	Mud, dark-olive-gray (5Y 3/2), faintly laminated.
1320 - 1827	Missing
1827 - 2164	Mud, olive-gray (5Y 4/2) to dark-olive-gray (5Y 3/2), unlaminated.
2164 - 2280	Interbedded silty mud and clayey mud, dark-olive-gray (5Y 3/2) to olive-gray (5Y 4/2) and dark-gray (5Y 4/1).
2280 - 2774	Missing
2774 - 3162	Clay, dark-greenish-gray (5GY 4/1).
3162 - 3642	Missing.
3642 - 5014	Clay with two interbedded ash units, olive-gray (5Y 4/2) to grayish-green (5G 4/1).
5014 - 8062	Clay with minor interbedded mud and ash beds, dark-gray (5GY 4/1), laminated. Hole squeezed shut and constant drilling fluid loss began at 6927 cm.
8062 - 8672	Clay, massive, dark-gray (5Y 4/1) to olive (5Y 4/4), bioturbated. Drilling fluid loss continued throughout this interval.
8672 - 11872	Clay and silty mud with interbedded ash beds, grayish-green (5GY 4/1), massive in upper and lower thirds, laminated in middle third, interlaminae often black (2.5Y 2/0), plant fragments common throughout. Sandy mud recovered in the core at 10135 cm. Coarse sand recovered in drilling fluid but not recovered in core between 10135 and 11872 cm.
11872 - 12908	Mud with interlaminated coarse sand and ash beds, dark-gray (5GY 4/1) to dark-olive-gray (5Y 3/2) and dark-gray (5Y 4/1), generally massive with minor laminated clay interbeds. Coarse sand in returned drilling fluid between 11872 and 12299 cm.
12908 - 13120	Mud, olive (5Y 4/3) to dark-olive-gray (5Y 3/2).
13120 - 15180	Clay with interbedded ash units, dark-gray (5GY 4/1), massive, bioturbated, laminated in middle third.
15180 - 15536	Gravel and sand, dark-greenish-gray (5BG 4/1) to dark-gray 5G 4/1).
15536 - 16139	Silty sandy mud with interbedded coarse sand and gravel and ash beds, dark-greenish-gray (5BG 4/1). Sand flowage in the hole after sampling at about 15800 cm. Origin of sand unknown but suspected to be from between 10135 and 12299 cm.
16139 - 16824	Silty mud, mud, and interbedded ash units, dark-greenish-gray (5BG 4/1), laminated, bioturbated.
16824 - 17700	Sand, pebbly sand, gravel, and cobbly gravel, dark-greenish-gray (5BG 4/1). No recovery except for large pebbles blocked in the core barrel.

1/ Color designations are from Munsell Products (1973).

have no clearcut trend but appear to generally decrease linearly from the value of about 2.0 gm cm^{-3} at 90 m to a minimum of 1.24 gm cm^{-3} at 129.5 m. Density values again increase in a generally linear trend between about 140 and 168 m (fig. 4).

Weight loss on drying at 105°C records water content of the sediment (fig. 5). These values are highest in the upper 10 m of the core where they average about 76 percent. Between 10 and 28 m the water content decreases rapidly to about 56 percent. Below 28 m there is a gradual linear decline in the water content to about 17 percent at 168.5 m. The local extreme variations in water

Table 4. Ash bed depth, thickness, and identification criteria in core CL-80-1.

Ash No.	Depth to Top (cm)	Thickness (cm)	Basis for Identification	Confidence
1	3928	3	R	+
2	4890	7	R	-
3	5365	7	V	+
4	7841	4	R	+
5	7858	5	R	-
6	9276	3	R	+
7	9281	4	R	+
8	9295	1	V	+
9	9777	3	R	-
10	9813	6	R	-
11	9828	2	R	-
12	9929	3	R	-
13	9960	8	V	+
14	10484	3	R	+
15	10818	2	R	+
16	10831	1	R	-
17	10959	2	R	+
18	11063	5	V	+
19	11256	4	R	-
20	12269	6	R	=
21	12371	1.5	V	+
22	12467	2	R	=
23	12486	4	R	-
24	12499	2	R	+
25	12528	4	R	+
26	12621	4	R	-
27	12708	4	R	-
28	12722	2	R	-
29	13022	1	R	+
30	13647	1	V	+
31	13714	1	V	+
32	13804	1	V	+
33	14444	1	V	-
34	14613	10	R	=
35	14800	2	V	+
36	15166	2	V	+
37	15170	4	V	+
38	15176	10	V	+
39	15594	1	V	-
40	15622	1	V	-
41	15928	6	R	+
42	16207	1	V	+
43	16214	1	R	-
44	16220	1	R	-
45	16251	1	V	+
46	16257	0.25	R	-
47	16307	2	R	=
48	16349	0.5	V	+
49	16366	1.5	V	+
50	16405	1	V	+
51	16422	1	V	-
52	16641	0.5	V	-
53	16805	2	V	+
54	16818	7	V	+

Ashes numbered serially from the top of the core.

R = identified on the basis of X-ray radiographic data.

V = identified on visual examination of the cut core.

+ = definite ash bed, identified on texture, color, and megascopic properties.

- = probable ash; used when identifying ashbeds from radiographic properties.

= = possible ash, used when identifying ashbeds from radiographic properties.

content in figure 5 are due to local differences in lithology. Such differences are usually the contrast between silt and clay lamina and the resulting pore volume changes.

Organic and inorganic carbon contents are generally constant throughout the core, ranging from 2 to 12 percent for organic carbon and from a trace to about 4 percent for inorganic carbon (fig. 6). Extreme values are due to

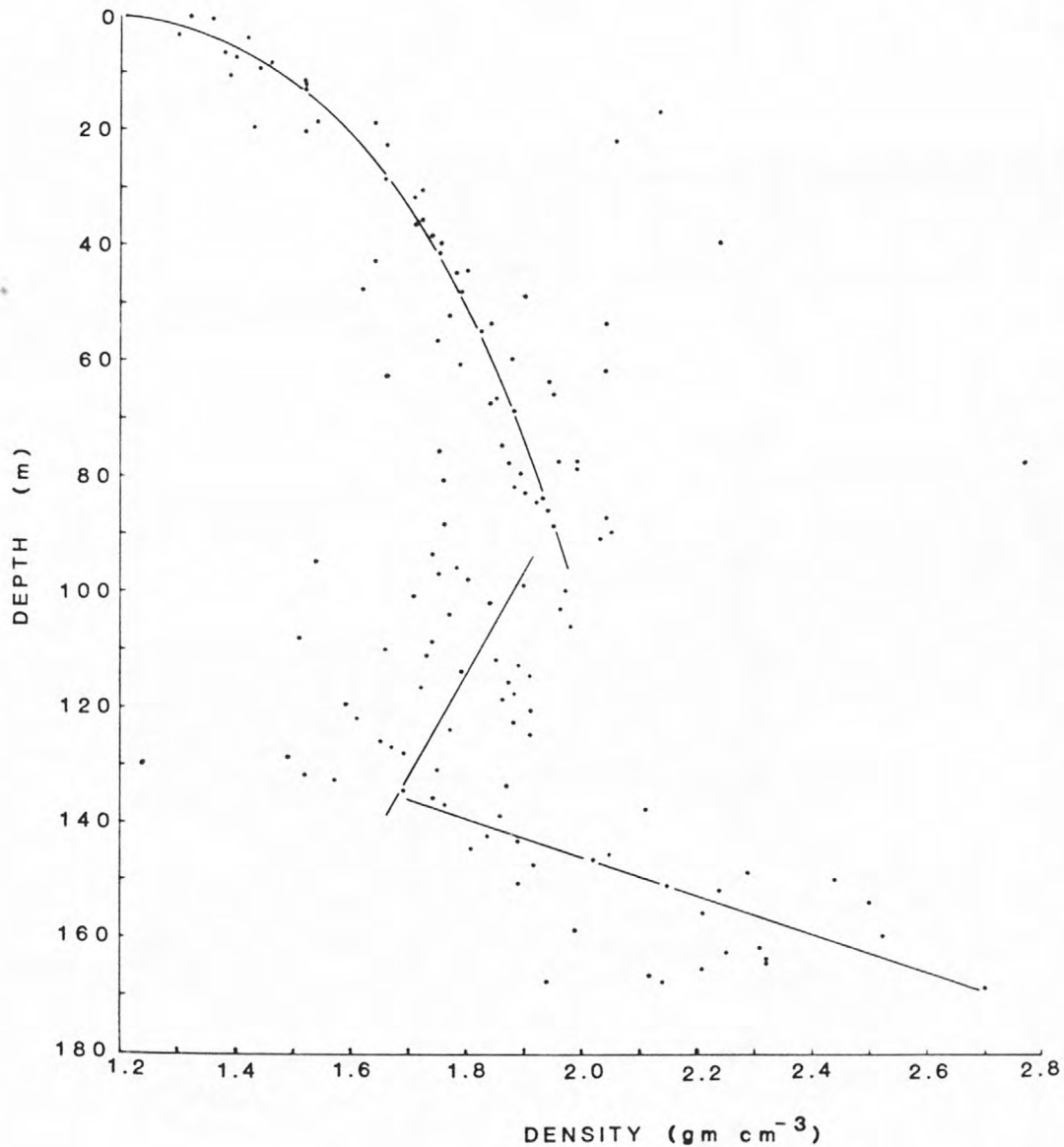


Figure 4. Density versus depth plot for core CL-80-1. Line segments are visual estimates of trends in the data. The curved line segment suggests the trend for the upper 90 m and is defined by the logarithmic function $Y = -91.96 + 262.04 \ln X$. The straight line segment that suggests the trend for the interval between 95 and 135 m is defined by the function $Y = 489.85 - 205.27 X$. The straight line segment that suggests the trend for the interval between 140 and 165 m is defined by the function $Y = 90.19 + 28.95 X$.

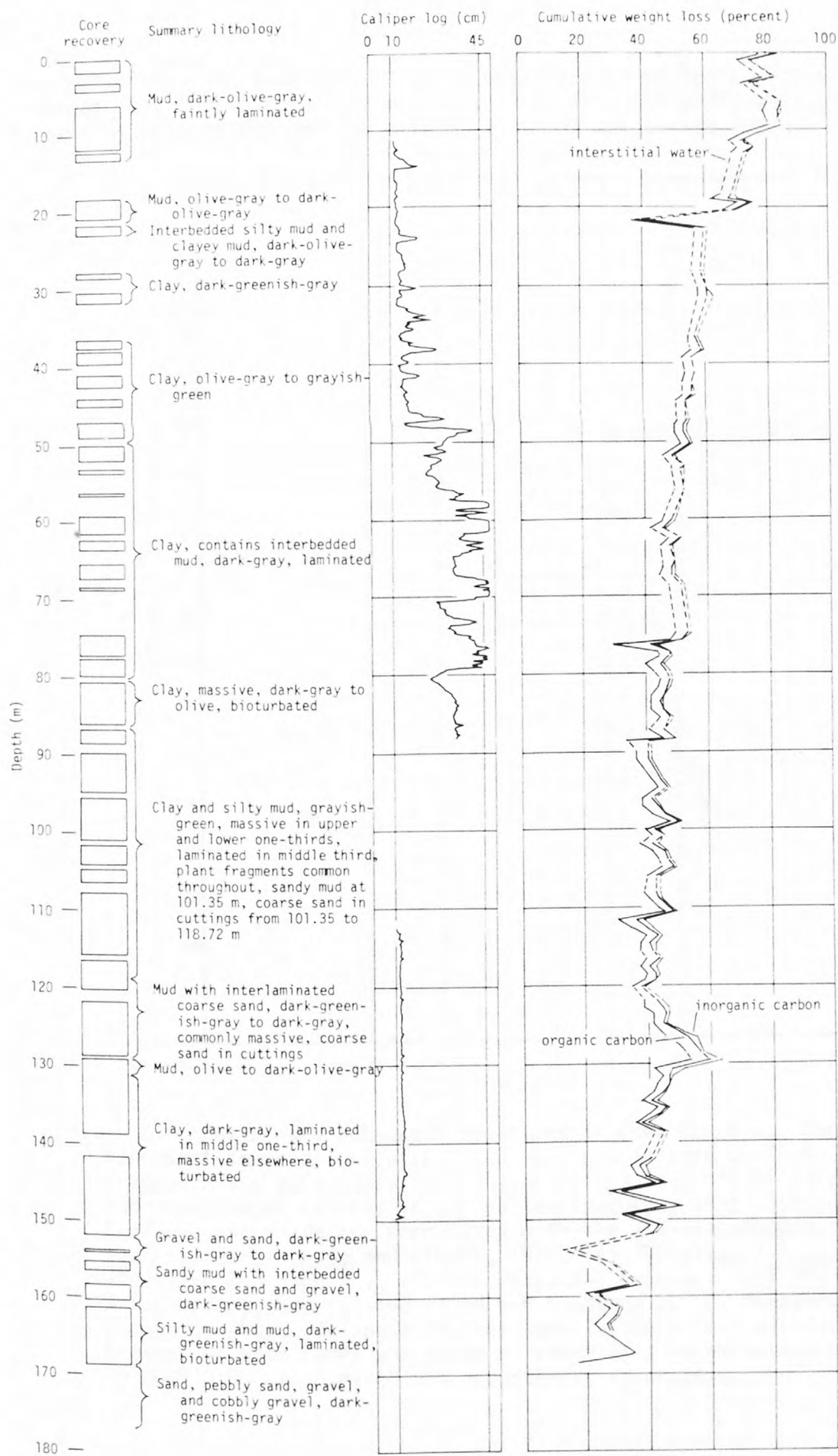


Figure 5. Recovered intervals, summary lithology, caliper log, and plot of weight loss on drying at 105°C and ignition at 550°C and 950°C. Lines are dashed across missing intervals of the core on weight loss plots. Gaps in data from the caliper log are due to uncontrollable caving in the open core hole. The caving occurred in the sections with abundant sand and gravel.

samples taken in localized slightly organic-rich horizons such as at 76.14 m, which is a concentration of ostracod tests in a cemented zone. One series of samples between 125 and 130 m shows a consistently high organic carbon content

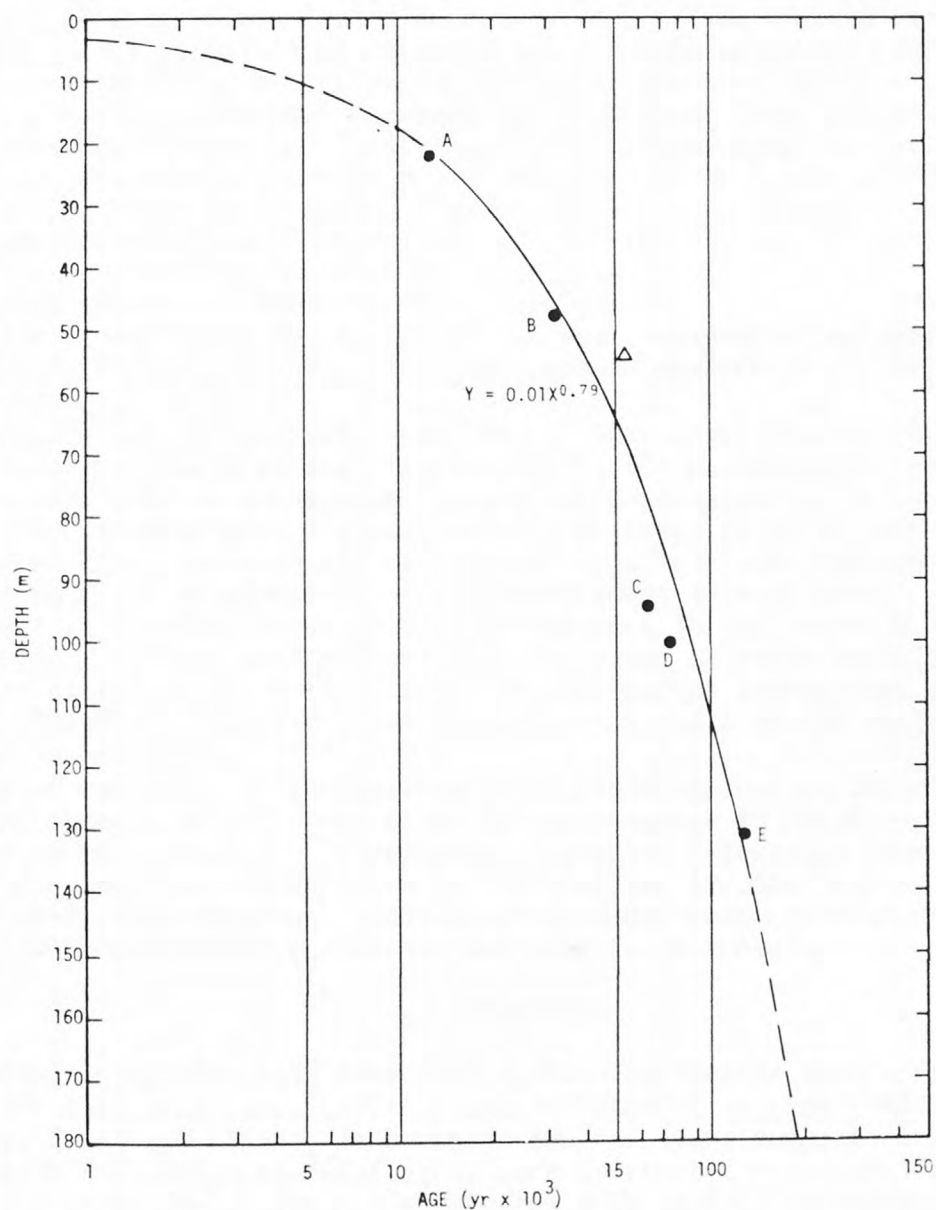


Figure 6. Preliminary age-depth relations in core CL-80-1. The points represent correlations with dated horizons in core CL-73-4. Points A through E are determined from palynological analysis of core CL-80-1 and represent major changes in oak pollen frequency that also occur in core CL-73-4, and which are correlated with the ¹⁸⁰O-stage boundaries in deep-sea cores (Hays and others, 1976) (A) ¹⁸⁰O stage 1-2 boundary, (B) ¹⁸⁰O stage 2-3 boundary, (C) ¹⁸⁰O stage 3-4 boundary, (D) ¹⁸⁰O stage 4-5 boundary, and (E) ¹⁸⁰O stage 5-6 boundary (L. E. Heusser, written commun., 1980). Triangle is from correlation with a distinctive ash bed present in both cores and dated by amino acid racemization ratios at 59,000±13,000 yr B.P. (Blunt and others, in press).

with values ranging between 5 and 7 percent and an inorganic carbon content with values ranging from 2 to 4 percent (fig. 6).

Preliminary analysis of pollen and pores (300 grains counted per sample) by L. E. Heusser suggests changes in the vegetation and climate of the northern California Coast Ranges throughout deposition of core CL-80-1. The pollen data show oscillations between pollen assemblages characteristic of the oak-pine woodland that presently dominates the surrounding Clear Lake drainage basin and pollen assemblages characteristic of Coast Range montane forest, mixed evergreen forest, and coastal pine and cypress forests. Spectra with maximum amounts of oak and pine pollen accompanied by pollen characteristic of chaparral are found in the upper 13 m of the core. A similar pollen assemblage occurs between 126 and 128 m. Between 128 and 140 m in the core, oak pollen is almost entirely absent. This lower interval is much like the interval at the end of the last glaciation (ca 40-25 m) in which the pollen assemblage is dominated by conifer pollen that includes pine, cypress, spruce, fir, western hemlock, Douglas fir, and mountain hemlock (L. E. Heusser, written commun., 1981).

Paleomagnetic analyses were carried out soon after the core was subsampled. Five hundred and fifteen samples for paleomagnetic analysis were taken and analyzed at Woods Hole Oceanographic Institute by J. C. Liddicoat. Samples for paleomagnetic analysis were taken every 25 cm or less of depth in undisturbed core. Only normal paleomagnetic polarity was recorded after alternating field demagnetization and measurement in a cryogenic magnetometer (Liddicoat and others, in press). The remanence in the upper 50 m of the core is weak ($\sim 1 \times 10^6$ emu cm⁻³ or less) but increases at least tenfold in the remainder of the core. A shelf test of back-to-back samples was used to determine magnetic stability, and those passing had a median destructive field of about 300 oersteds.

Secular variation of the paleomagnetic field may not be determined from this core because the core may have spun in response to rotation of the bit and core barrel. However, paleomagnetic polarity determined from inclination is reliable and, when interpreted in light of the 130,000-year record from core CL-73-4, indicates that deposits of no older than mid-Brunhes ($\sim 200,000$ yr B.P.) were penetrated (Liddicoat and others, in press).

DISCUSSION

Preliminary pollen data from core CL-80-1 of Heusser are correlative with the pollen data from core CL-73-4 (Sims and others, in press; Adam and others, in press; Blunt and others, in press). The new study suggests that strata correlative with deep-sea 180 stage 6 were penetrated to a considerable depth by core CL-80-1. The pollen studies also confirm preliminary conclusions drawn from the paleomagnetic analysis and correlations of volcanic ash beds in core CL-80-1 with those in cores CL-73-4 and CL-73-7.

By correlating zones of greater or lesser oak pollen frequency with the deep-sea 180 record preliminary age-depth relationships for core CL-80-1 may be determined (fig. 4), giving a preliminary maximum age for the bottom of the core of 175,000 yr. These correlations have not yet been tested by absolute age dating and should be used only as suggestions. However, the relationship is similar to that determined for core CL-73-4 (Sims and others, in press).

Furthermore, anomalously high water, organic carbon, and inorganic carbon contents are in support of the pollen zone-age correlations. High water and organic carbon contents from 0 to 20.5 m are coincident with pollen zone 1 and high water, organic carbon and inorganic carbon contents from 126.5 to 130.5 m

are coincident with pollen zone 5e. Both of these zones represent growth and deposition during relatively warm, dry periods.

Dark-olive-gray sapropelic mud and clay dominate the section at site CL-80-1. Sand and gravel are important adjuncts to the stratigraphic section at 101-129, 152-161, and 169-177 m (table 3). The interpolated ages of these three periods of coarse clastic sedimentation are about 90,000-122,000, 150,000-160,000, and 170,000-175,000 yr B.P., respectively. The uppermost zone corresponds to the first half of 180 stage 5, which was a period of warm, dry climate. The latter two periods of deposition of coarse clastic material fall in the early part of 180 stage 6.

Sedimentation rates were calculated for cores CL-80-1 and CL-73-4 from pollen zones that are correlated with deep-sea 180 stages (fig. 7). A rate is calculated for stage 6 in core CL-80-1, but this can be treated only as an estimate because the rate was calculated on the preliminary 175,000 yr age for the base of the core. At both core sites the highest sedimentation rate is during stage 1, and, in general, both sites have similar sedimentation trends. Anomalously high sedimentation rates during stage 1 are probably an artifact of a lack of compaction of sediment deposited during this period. The higher sedimentation rates in stages 2 and 3 in core CL-80-1 relative to those in core CL-73-4 are possibly due to the proximity of Middle Creek to core site CL-80-1 (fig. 1).

SUMMARY

Core CL-80-1 is composed primarily of dark-olive-gray clayey to silty sapropelic mud with lesser amounts of clay, silt, sand, pebbly sand, and gravel (table 3, Appendix). Fifty-four ash beds are also present in the core (table 4), but these are thin (3.0 cm average thickness) and comprise only 1.4 percent of the recovered section.

The age of sediment at the bottom of the core is inferred from the preliminary age-depth curve in figure 6 to be approximately 175,000 yr. This inferred age is based on pollen zones from a preliminary palynologic analysis by L. E. Heusser that suggests that the core is younger than the deep-sea 180 stage 6-7 boundary at 195,000 yr (Shackleton and Opdyke, 1973). Furthermore, anomalously high water, organic carbon, and inorganic carbon contents of core samples are in agreement with the pollen zone-age correlations, giving credence to the age-depth interpretations.

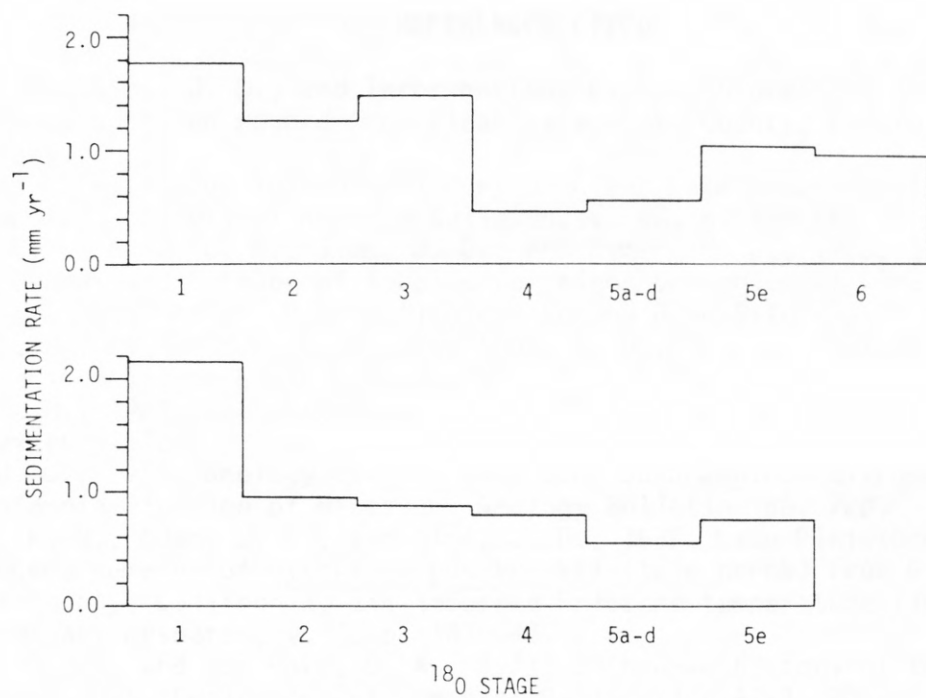


Figure 7. Preliminary sedimentation rates in cores CL-80-1 and CL-73-4 calculated for individual pollen zones, which are correlated with deep-sea ¹⁸O stages.

REFERENCES CITED

- Adam, D. P., Sims, J. D., and Throckmorton, C. K., in press, A 130,000-year continuous pollen record from Clear Lake, Lake County, California: Geology.
- Anderson, C. A., 1936, Volcanic history of Clear Lake area, California: Geological society of America Bulletin, v. 47, p. 629-664.
- Beaver, C. K. Adam, D. P., Sims, J. D., and Rymer, M. J., 1976, Sampling procedures and catalog of samples for eight boreholes at Clear Lake, Lake County, California: U.S. Geological Survey Open-File Report 76-157, 14p.
- Blunt, D. J., Kvenvolden, K. A., and Sims, J. D., in press, Amino acid dating of sediments from Clear Lake, California: Geology.
- Bouma, A. H., 1963, Sedimentology of some flysch deposits: Amsterdam, Elsevier, 168p.
- Brice, J. C., 1953, Geology of the Lower Lake Quadrangle, California: California Division of Mines and Geology Bulletin 166, 72p.
- Casteel, R. W., Adam, D. P., and Sims, J. D., 1977, Late Pleistocene and Holocene remains of Hysterocarpus traskii (tule perch) from Clear Lake, Lake County, California, and inferred Holocene temperature fluctuations: * Quaternary Research, v. 7, p. 133-143.
- Coffman, J. L., and von Hake, C. A., 1973, Earthquake history of the United States: U.S. Department of Commerce Publication 41-1, 208p.
- Donnelly, J. M., McLaughlin, R. D., Goff, F. E., and Hearn, B. C. Jr., 1976, Active faulting in the Geysers-Clear Lake area, northern California [abs.]: Geological Society of America Abstracts with Programs, v. 8, p. 369-370.
- Donnelly-Nolan, J. M., Hearn, B. C., Jr., Curtis, G. H., and Drake, R. E., in press, Geochronology and evolution of the Clear Lake Volcanics, in McLaughlin, R. J., and Donnelly-Nolan, J. M., Research in the Geysers-Clear Lake geothermal area: U.S. Geological Survey Professional Paper 1141.
- Hays, J. D., Imbrie, John, and Shackleton, N. J., 1976, Variations in the Earth's orbit: pacemaker of the Ice Ages: Science, v. 194, p. 1121-1132.
- Hearn, B. C., Jr., Donnelly, J. M., and Goff, F. E., 1976a, Geology and geochronology of the Clear Lake Volcanics, California: United Nations symposium on the development and use of geothermal resources, 2nd, v. 1, p. 423-428.
- _____, 1976b, Preliminary geologic map and cross sections of the Clear Lake volcanic field, Lake County, California: U.S. Geological Survey Open-File Report 76-751.
- Hearn, B. C., Jr., Donnelly-Nolan, J. M., and Goff, F. E., in press, The Clear Lake Volcanics: Tectonic setting and magma sources, in McLaughlin, R. J., and Donnelly-Nolan, J. M., eds., Research in the Geysers-Clear Lake geothermal area: U.S. Geological Survey Professional Paper 1141.
- Heusser, L. E., and Sims, J. D., 1981, Palynology of core CL-80-1, Clear Lake, California [abs.]: Geological Society of America Abstracts with Programs, v. 13, p. 61.
- Jenkins, O. P., and Strand, R. G., 1963, Geologic map of California: Ukiah sheet: California Division of Mines and Geology, scale 1:250,000.
- Lake County Flood Control and Water Conservation District, 1978, Upper Lake ground water investigation: unpublished report to Lake County Flood Control and Water Conservation District, 39p.
- Liddicoat, J. C., Sims, J. D., and Bridge, W. D., 1981, Paleomagnetism of a 177-m-long core from Clear Lake, California [abs.]: Geological

- Society of America Abstracts with Programs, v. 13, p. 67.
- McLaughlin, R. J., in press, Tectonic setting of pre-Tertiary rocks and its relation to geothermal resources in the Geysers Clear Lake area, in McLaughlin, R. J., and Donnelly-Nolan, J. M., eds., Research in the Geysers-Clear Lake geothermal area: U.S. Geological Survey Professional Paper 1141.
- Munsell Products, 1973, Munsell soil color charts: Kolmorgen Corp., Baltimore.
- Rymer, M. J., 1981, Stratigraphic revision of the Cache Formation (Pliocene and Pleistocene), Lake County, California: U.S. Geological Survey Bulletin 1502-C, 35p.
- Rymer, M. J., Sims, J. D., Hedel, C. W., Bridge, W. D., Makdisi, R. S., and Mannshardt, G. A., 1981, Sample catalog for core CL-80-1, Clear Lake, California: U.S. Geological Survey Open-File Report 81-245, 53p.
- Shackleton, N. J., and Opdyke, N. D., 1973, Oxygen isotope and paleomagnetic stratigraphy of equatorial Pacific core V28-238: oxygen isotope temperatures and ice volumes on a 10⁵ year and 10⁶ year scale: Quaternary Research, v. 3, p. 39-55.
- Sims, J. D., 1976, Paleolimnology of Clear Lake, California, U.S.A., in Horie, Shoji, ed., Paleolimnology of Lake Biwa and the Japanese Pleistocene: Kyoto, Japan, Kyoto University, v. 4, p. 658-702.
- Sims, J. D., and Rymer, M. J., 1974, Gaseous springs in Clear Lake, California, and the structural control of the lake basin [abs.]: Geological Society of America Abstracts with Programs, v. 6, p. 254.
- 1975, Map of gaseous springs and associated faults, Clear Lake, California: U.S. Geological Survey Miscellaneous Field Investigations Map MF-721.
- 1981, Deep coring of Quaternary sediment in Clear Lake, California [abs.]: Geological Society of America Abstracts with Programs, v. 13, p. 106.
- Sims, J. D., and White, D. E., in press, Mercury in the sediments of Clear Lake, in McLaughlin, R. J., and Donnelly-Nolan, J. M., eds., Research in the Geysers-Clear Lake Geothermal Area: U.S. Geological Survey Professional Paper 1141.
- Sims, J. D., Adam, D. P., and Rymer, M. J., in press, Late Pleistocene stratigraphy and palynology of Clear Lake, Lake County, California, in McLaughlin, R. J., and Donnelly-Nolan, J. M., eds., Research in the Geysers-Clear Lake geothermal area: U.S. Geological Survey Professional Paper 1141.
- Swe, Win, and Dickinson, W. R., 1970, Sedimentation and thrusting of Late Mesozoic rocks in the Coast Ranges near Clear Lake, California: Geological Society of America Bulletin, v. 81, p. 165-188.

APPENDIX

GRAPHIC NOTATIONS USED IN CORE DESCRIPTIONS

Core descriptions of 1-m-long parts of each segment are shown on individual sheets. Graphic notations used in the core descriptions and radiographic interpretations are modified from Bouma (1962). The conventions and symbols used follow:

Lithology

The lithologic descriptions are given in words rather than symbols such as used by Bouma (1962), because so few lithologic variants occur. The letter "V" denotes the presence of vivianite. Symbols marked by "*" are also used to describe features cited in the Radiographic column (see below).

Bedding Plane Type*

- Sharp flat contact
- Distinct flat contact
- Transition (range of transition <0.5 cm)
- Gradual transition (range of transition 0.5-1.0 cm)
- Hardly visible gradual transition (range of transition >1.0 cm)
- ~ Undulating contact, gradations as above
- Irregular contact, gradations as above

Structure

- · · Graded bedding*
- ~ Load cast*
- Y Cross bedding*
- Interval in which structure occurs*
- () Indistinct structure (a modifier to a structure symbol)*

Layer Properties

Parallel lamination (<0.5 cm thick)*:

- |2 Coarse laminae predominate
- 2| Fine laminae predominate
- 2 Coarse and fine laminae in about equal frequency

Disturbed parallel lamination (coarse and fine modifiers above apply):

 Slightly disturbed

 Strongly disturbed

 Parallel wavy lamination*:

(Predominating thickness and degree of disturbance as noted above)

 Lenticular wavy Lamination*:

(Predominating thickness and degree of disturbance as noted above)

 Interval in which a property occurs*:

() Indistinct property*:

(()) Very indistinct property*:

Color

Color designations are taken from the Munsell Soil Color Chart (Munsell Products, 1973). The conventions used in depicting the relationships between different colors in a segment are as follows:

$\frac{10Y\ 5/4}{5YR\ 2/3}$ Distinct color break between two units.

Fossils

 Fish scale*

 Fish bone*

 Gastropod*

 Clam*

 Wood fragment oriented parallel to bedding plane

 Wood fragment not oriented parallel to bedding plane

 Plant fragment oriented parallel to bedding plane

 Plant fragment not oriented parallel to bedding plane

 Leaf or leaf fragment

Photograph Number

Numbers in this column refer to the index number assigned serially to both the color and black-and-white photos taken of the cut surface of the core segment. Example: 1-1 refers to segment one, photo one. There are four photos for each meter of core. Each photo covers approximately 30 cm of segment length with 2 to 3 cm of overlap with adjacent photos. These photos

may be examined, and copies may be made at the requestor's expense by contacting:

John D. Sims
Branch of Earthquake Tectonics and Risk Analysis
U.S. Geological Survey, MS-77
345 Middlefield Road
Menlo Park, CA 94025.

Radiographic

This column contains supplementary information derived from the analysis of X-ray radiographs of 8-mm-thick slices of each core segment. The radiographs are negative images so that high film density means high X-ray transparency of the material and the contrary for low film density. The notations used in this column are a combination of those marked by "*" under the headings Bedding Plane Type, Structure, Layer Properties, and Fossils, plus some additional symbols not shown under these headings, which include:

GRANULE: An X-ray opaque body <1 mm in diameter.

* GRANULE CLUSTER: an irregularly to regularly shaped mass or cluster of granules.

PEBBLE: A large (>3 mm diameter) X-ray opaque body.

MOTTILING: Irregularly shaped areas of low X-ray film density of unknown origin.

BIOTURBATION: Disruption of the sediment caused by the activities of animals (foraging, living, burrowing, nesting etc.). The degree of sediment disturbance is also generally noted (slight, moderate, heavy).

Δδ: A difference in emulsion density on the radiograph between stratigraphic subunits owing to ease of transmission of the X-rays to the film. The transmission characteristics of the sediments are due to compositional, grain size, or other physiochemical variations in the deposits. This symbol is accompanied by a plus (+) or minus (-) sign to indicate the direction of the density change. Plus indicates change from less dense to more dense emulsion, and minus indicates the reverse.

FRACTURED: Physical breaking of the indicated portion of the segment or radiographed slice. Most such breaks occurred when preparing the slice of the core segment for radiography.

UXO: Unidentified X-ray Opaque object. Estimates of the origin of the object are commonly suggested.

GAS BUBBLES: Circular to irregular areas of low sediment density caused by expanding gas trapped in the sediment. Most common in the more water-saturated and less-cohesive sediments.

DEBRIS: Material that has been scraped from the core hole wall, caved in and fallen down the hole, or that fell from the core barrel during retrieval of the previous segment.

GAP: A minor portion of a segment that is missing.

VEINLETS: X-ray opaque structures that have the form of delicate veinlets.

X-ray radiographs were made on 11 x 17 in (28 x 43 cm) Kodak AA Industrial X-ray film. Each sheet of film accommodates four pieces of a core segment each up to 40 cm long. Two sheets of X-ray film are required for a 3.05-m-long segment of core. The boundaries between pieces of a segment and between the two sheets of film where required is noted in the radiographic

column as below:

$\frac{I}{II}$	Marks the boundary between individual slices on the radiograph.
$\frac{\text{film 1,IV}}{\text{film 2,I}}$	Marks the boundary between the two films required to radiograph an entire core segment 3.05 m long. Roman numeral refer to the boundary between individual slices of core segment.

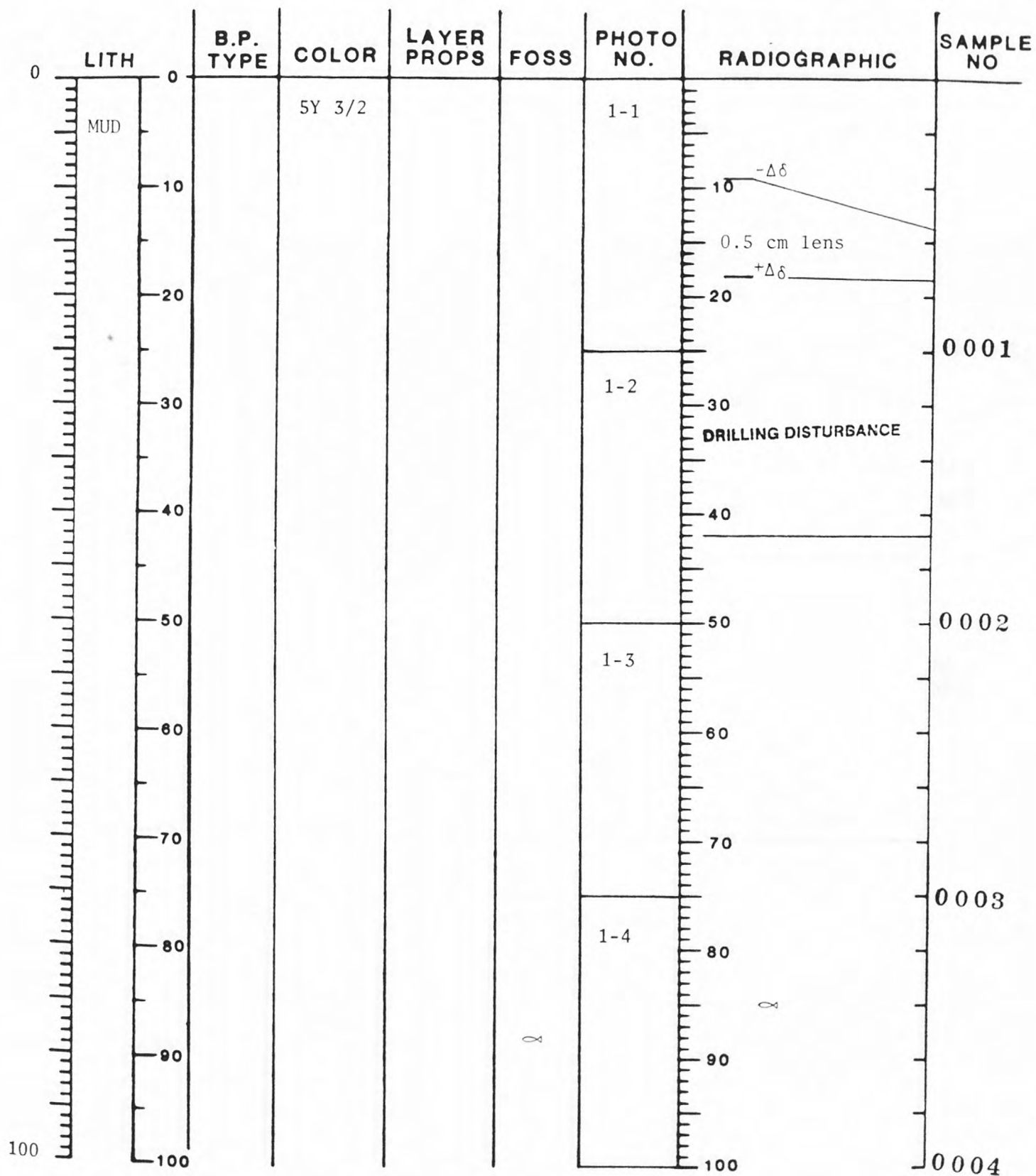
Sample Number

Two types of sample numbers are used to identify samples taken for specific tests, analyses or supplementary data. The specific uses and identities of samples are as follows:

- 1) Four-digit numbers without a letter prefix are used to identify all samples except those taken for paleomagnetic studies. A complete list of all samples and their locations is in Rymer and others (1981). The core description sheets in this paper show the general locations of sample sites but do not identify the sample subsets taken at a specific site.
- 2) Three-digit numbers preceded by an "M" refer to samples taken for paleomagnetic analysis. The sample depths and identifications of these samples are also described in Rymer and others (1981).

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 1 DEPTH 0 to 100 cm

DESCRIBED BY mjr and jds DATES JUL 9 1980 and OCT 29 1980 SHEET 1 of 2



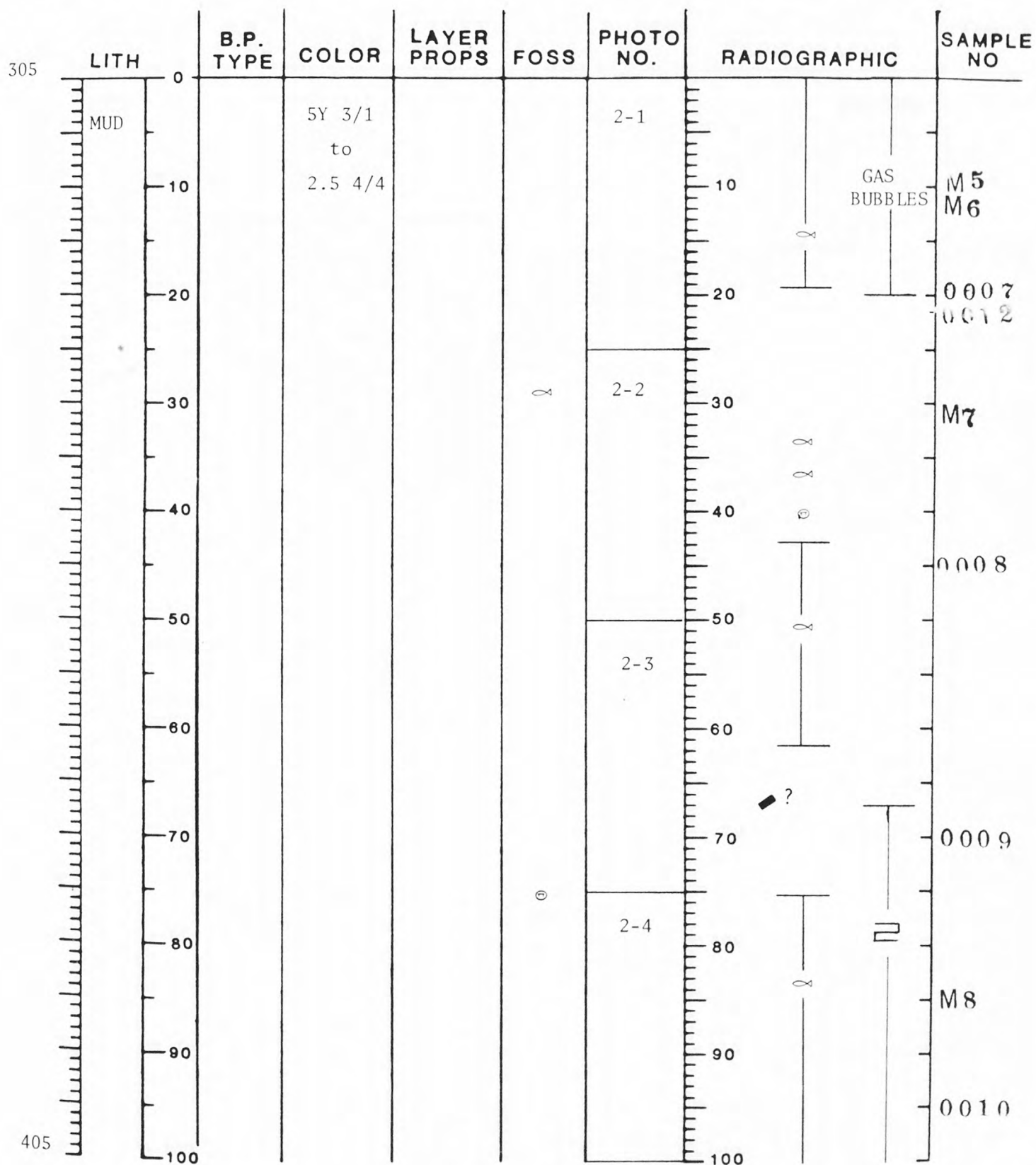
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 1 DEPTH 100 to 170 cm

DESCRIBED BY mjr and jds DATES JUL 9 1980 and OCT 29 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
100	0		5Y 3/2			1-5		
	10							
	20						V	
	30					1-6		0005
	40							M1 M2
	50							
	60					1-7		0006
	70							M3 M4
	80							
	90							
170	100						Film End	
	110							
	120							
	130							
	140							
	150							
	160							
	170							
	180							
	190							
	200							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 2 DEPTH 305 to 405 cm

DESCRIBED BY mjr and jds DATES JUL 10 1980 and OCT 29 1980 SHEET 1 of 2



GRANULES THROUGHOUT

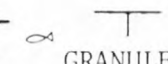
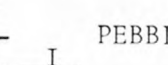
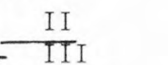
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 2 DEPTH 405 to 419 cm

DESCRIBED BY mjr and jds DATES JUL 10 1980 and OCT 29 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
405	MUD		5Y 3/1				FRACTURED	
			to				GRANULES	M9
			2.5Y 4/4		⊕		110	M10
419							Film End	
							120	
							130	
							140	
							150	
							160	
							170	
							180	
							190	
							200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 3 DEPTH 610 to 710 cm

DESCRIBED BY mjr and jds DATES JUL 11 1980 and OCT 29 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
610	MUD		5Y 3/2			3-1		M11
							10	M12
							20	0013
						3-2		0014
							40	M13
							50	
						3-3		M14
							60	0015
							70	
						3-4		0016
							80	
							90	
710							100	M15

MOTTLING THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 3 DEPTH 710 to 810 cm

DESCRIBED BY mjr and jds DATES JUL 11 1980 and OCT 29 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
710	MUD		5Y 3/2			3-5		
							III IV	
							110	0017
							120	
						3-6		M16
							130	M17
							UXO	
							140	0018
							Film 1, IV Film 2, I	
						3-7		M18
							V	
							160	0019
							170	
						3-8		M19
							I II	
							180	
							190	0020
							200	
810								

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 3 DEPTH 810 to 887 cm

DESCRIBED BY mjr and jds DATES JUL 11 1980 and OCT 29 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
810	0		5Y 3/2			3-9	MOTTILING, GAS BUBBLES	
	10						210	
	20						220 II III	M20 0021
	30					3-10	230	
	40						240	0022
	50						250	
	60						260	M21 M22
	70					3-11	III IV 270	
	80						280 GRANULE BANDS	0023
887							Film End	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 4 DEPTH 915 to 1015 cm

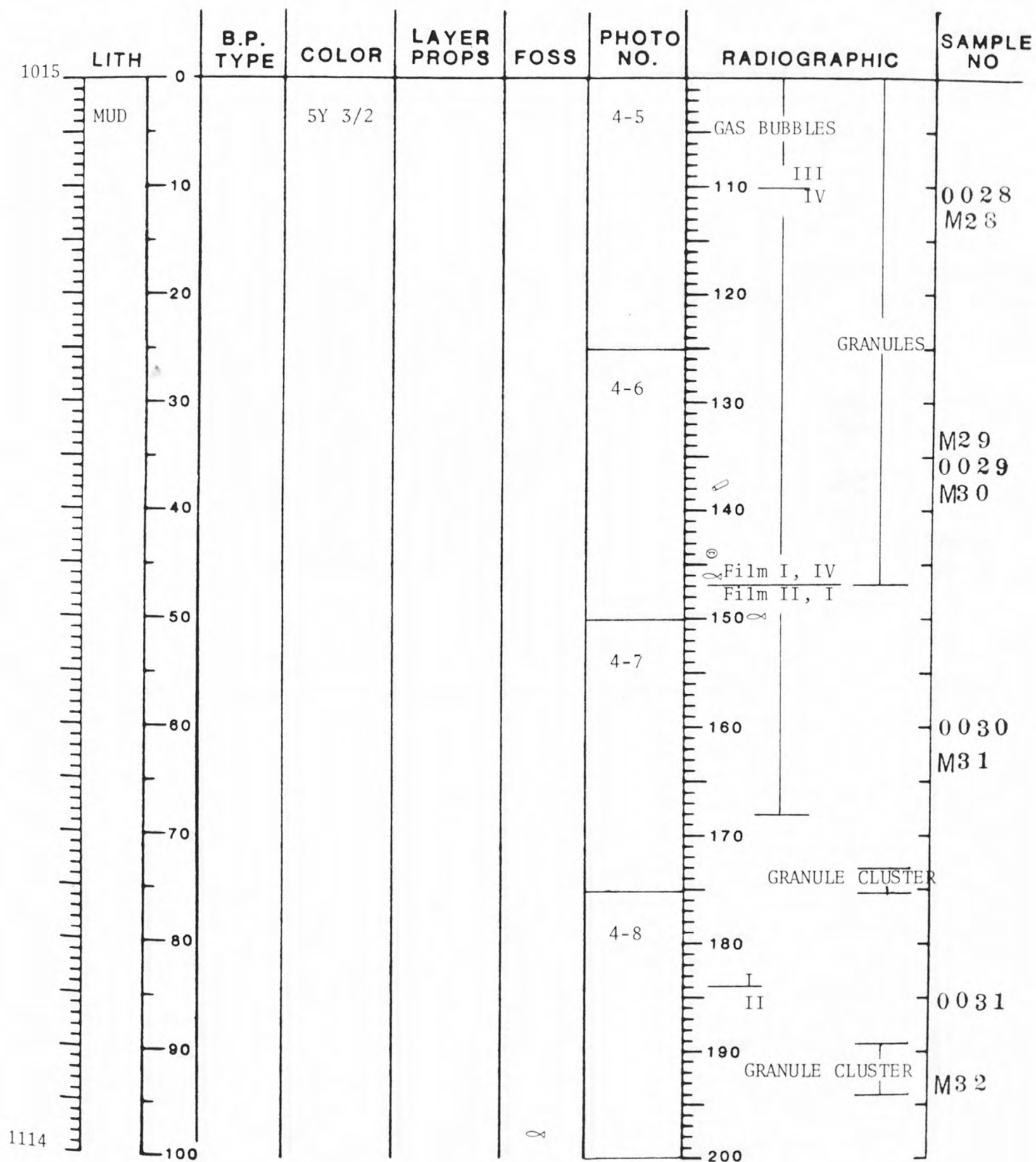
DESCRIBED BY mjr and jds DATES JUL 11 1980 and OCT 29 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
915	0		5Y 3/2			4-1		M23
								M24
	10						10 	0024
	20						20	
	30					4-2		M25
							$\frac{I}{II}$	0025
	40						40	
	50					4-3		
	60						60	M26
							 $\frac{II}{III}$	0026
	70						70	
						4-4	 ?	
	80						80	M27
	90						90	0027
1015	100						100	

NOTE: VERTICAL LINES IN PARTS I-IV ARE ARTIFACTS OF CUTTING AND NOT
DISTURBANCE IN THE CORE. GRANULES AND GAS BUBBLES THROUGHOUT.

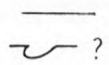
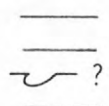
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 4 DEPTH 1015 to 1114 cm

DESCRIBED BY mjr and jds DATES JUL 11 1980 and OCT 29 1980 SHEET 2 of 3



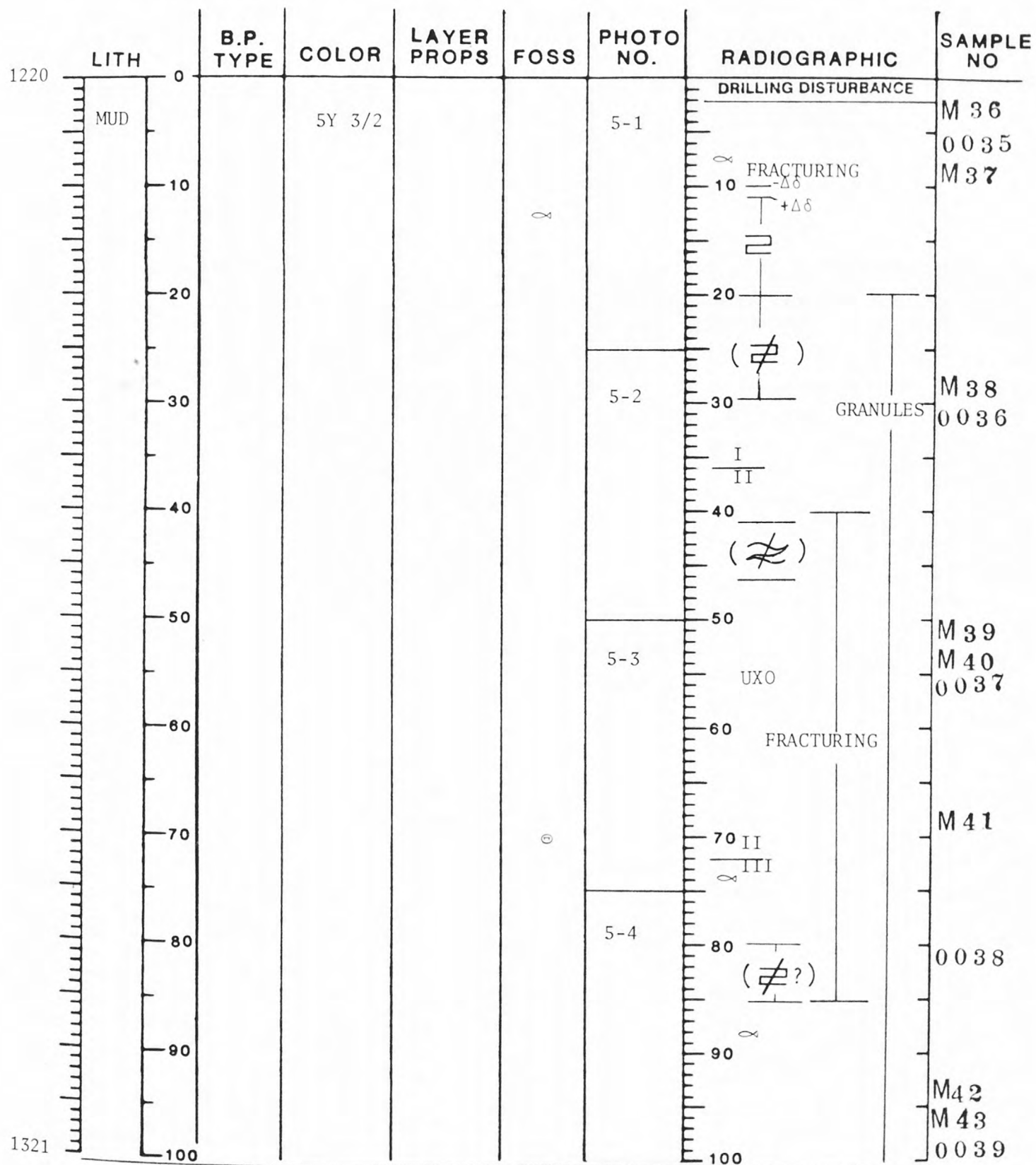
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 4 DEPTH 1114 to 1171 cm

DESCRIBED BY mjr and jds DATES JUL 12 1980 and OCT 29 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
1114	0							
	MUD		5Y 3/2			4-9		
	10						210 	0032
	20						220 	M33
	30					4-10	230 	
	40						240 	0033
	50						V	M34
								M35
						4-11	250	
1171							End Film 2	0034
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 5 DEPTH 1220 to 1321 cm

DESCRIBED BY mjr and jds DATES JUL 14 1980 and OCT 29 1980 SHEET 1 of 1



LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT ⁶ DEPTH _____ to _____ cm

DESCRIBED BY mjr and jds DATES JUL 14 1980 and OCT 29 1980 SHEET 1 of 2

LITH	0	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
DEBRIS	0		5Y 3/2			6-1		
	10							
	20							
	30					6-2		
	40							
	50					6-3		
	60							
	70							
	80					6-4		
	90							
	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 6 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 14 1980 and OCT 29 1980 SHEET 2 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 DEBRIS		5Y 3/2			6-5	DEBRIS	
10						110	
20						120	
30					6-6	130	
40						140	
50					6-7	150	
60						160	
70						170	
80						180	
90						190	
100						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 7 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 14 1980 and OCT 29 1980 SHEET 1 of 1

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
10							
20							
30							
40							
50							
60							
70							
80							
90							
100							

NO SAMPLE
RECOVERED

DESCRIBED BY mjr and jds DATES JUL 14 1980 and OCT 29 1980 SHEET 1 of 1

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
1827	0							
	MUD		5Y 4/2			8-1	DRILLING DISTURBANCE	M44
	10							M45
	20						GRANULE CLUSTER	0040
	30					8-2		0041
	40			(Z)			FRACTURING	M46
	50					8-3		0042
	60							M47
	70						Film End	M48
	80							
	90							
1900	100							

19 cm OF HIGH WATER CONTENT DEBRIS PRESENT AT TOP OF SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 9 DEPTH _____ to _____ cm

DESCRIBED BY mjr and jds DATES JUL 15 1980 and OCT 29 1980 SHEET 1 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 DEBRIS		5Y 3/2			9-1		
10						10	
20						DRILLING DISTURBANCE or DEBRIS	
30					9-2	30 I II	
40						40	
50					9-3	50	
60						60	
70						70 II III	
80					9-4	80	
90						90	
100						DRILLING DISTURBANCE	
						100	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 9 DEPTH 1920 to 1982 cm

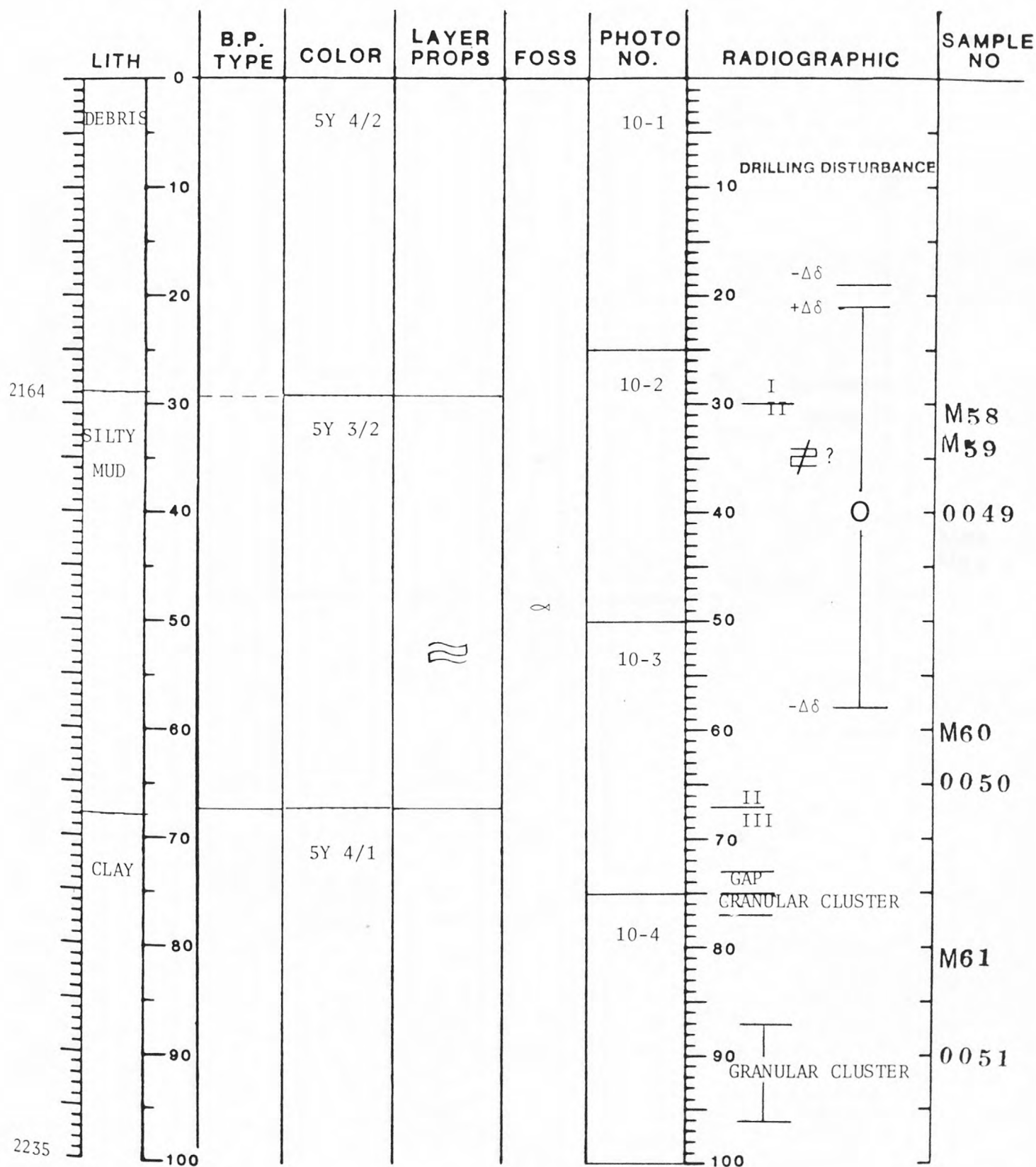
DESCRIBED BY mjr and jds DATES JUL 15 1980 and OCT 29 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
1920	0							
	DEBRIS		5Y 3/2			9-5		
							110 $\frac{III}{IV}$	
							120	
						9-6	130	
							140	M49
	MUD		5Y 3/2				Film 1, IV Film 2, I	M50
						9-7	150	
							160	0043
							GAS BUBBLES	M51
							170	
						9-8	180 $\frac{V}{I}$ II	0044
							190	
1982	100						200	M52 M53

40

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 10 DEPTH 2164 to 2235 cm

DESCRIBED BY mjr and jds DATES JUL 16 1980 and OCT 29 1980 SHEET 1 of 2



*VIVIANITE

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 10 DEPTH 2235 to 2283 cm

DESCRIBED BY mjr and jds DATES JUL 16 1980 and OCT 29 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
2235	0		5Y 4/1			10-5	III — IV	
	10						110	
	20						120	
	30					10-6	∞	
	40				—		130	
							140	
					∞		Film End	
2283	50						150	
	60						160	
	70						170	
	80						180	
	90						190	
	100						200	

M62
0052

0053
M63
M64

VIVIANITE
VEINS

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 11 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 16 1980 and OCT 29 1980 SHEET 1 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS		5Y 4/1			11-1	DEBRIS	
10							
20							
30					11-2		
40							
50					11-3		
60			VERTICAL WAVY STRIPES				
70							
80					11-4		
90							
100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 11 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 16 1980 and OCT 29 1980 SHEET 2 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 DEBRIS		5Y 4/1	VERTICAL WAVY STRIPES		11-5	DEBRIS	
10						110	
20						120	
30					11-6	130	
40						140	
50						150	
60						160	
70						170	
80						180	
90						190	
100						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 12 DEPTH 2774 to 2843 cm

DESCRIBED BY mjr and jds DATES JUL 16 1960 and OCT 29 1960 SHEET 1 of 1

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS					12-1	DEBRIS	
10						10	
2774							
CLAY		5GY 4/1					
20						20	
30					12-2	I 30 II	8054
						FRACTURED	
40						40	
50					12-3	II III	0055
						60	M65005
60						70	
						GRANULES	
70							M66
					12-4	80	0056
80							M67
2843							
90						90	
100						100	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 13 DEPTH 3033 to 3104 cm

DESCRIBED BY mjr and jds DATES JUL 17 1980 and OCT 29 1980 SHEET 1 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
3033	0							
	DEBRIS		5GY 4/1			13-1		
	10						DEBRIS	
	20							
	30					13-2	I II	
	CLAY							M68 M69
	40							
	50					13-3	II 50 III	0059
	60						GRANULE CLUSTER	
	70							M70
							(#?)	0064
	80					13-4		0060 0065
	90						Film 1, III Film 2, I	0066
								M71 M72
								0067
3104	100							0061

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 13 DEPTH 3104 to 3162 cm

DESCRIBED BY mjr and jds DATES JUL 17 1980 and OCT 29 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
3104	CLAY		5GY 4/1			13-5		
							110 (Z?)	0068
							V	0069
							120	M
							I	0062
							II	0070
						13-6		
							130	0071
							140	
							150	M
						13-7		0063
							∞	M
							Film End	
3162							160	
							170	
							180	
							190	
							200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 14 DEPTH _____ to _____ cm

DESCRIBED BY mjr and jds DATES JUL 17 1980 and OCT 29 1980 SHEET 1 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0		5GY 4/1					
DEBRIS							
10						10	
20						20	
30						30	
40						40	
50						50	
60						60	
70						70	
80						80	
90						90	
100						100	

DRILLING DISTURBANCE

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 14 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 17 1980 and OCT 29 1980 SHEET 2 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0		5GY 4/1					
DEBRIS							
10						110	
20						120	
30						130	
40						DRILLING DISTURBANCE 140	
50						150	
60						160	
70						170	
80						180	
90						190	
100						200	

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LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 15 DEPTH _____ to _____ cm

DESCRIBED BY mjr and jds DATES _____ and _____ SHEET 1 of 1

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
10							
20							
30							
40							
50							
60							
70							
80							
90							
100							

NO SAMPLE
RECOVERED

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT ¹⁶ DEPTH ³⁶⁴² to ³⁶⁹⁵ cm

DESCRIBED BY mjr and jds DATES JUL 17 1980 and OCT 30 1980 SHEET 1 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
3642	0		5G 4/1				DEBRIS	
	10						10	
	20						20	
	CLAY						DRILLING DISTURBANCE	
	30						I II	
	40						40	
	50						50	M76 M77
							GRANULE CLUSTER	0072
	60						60	
							II III	0078
	70						70	
	V							M78 M79
	80						80	0073 0074
							GRANULE CLUSTER	
	90						90	M80 0079
							BIOTURBATION	
3695	100						100	
							Film 1, III Film 2, I	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 16 DEPTH 3695 to 3752 cm

DESCRIBED BY mjr and jds DATES JUL 17 1990 and OCT 30 1990 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
3695	0							
	CLAY							0075
	10						110	
	V							0080
	20						I 120 II	
								0081
								M81
	30						130	0076
								0083
	V							
	40						140	
	50						150	
								M82
								M83
3752							End Film 2	0077
	60						160	
	70						170	
	80						180	
	90						190	
	100						200	

GRANULE CLUSTERS AND BIOTURBATION THROUGHOUT.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 17 DEPTH 3795 to 3895 cm

DESCRIBED BY mjr and jds DATES JUL 16 1980 and OCT 30 1980 SHEET 1 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
3795	0							
	CLAY		5Y 4/2 to 5GY 4/1			17-1	V	
	10						10	M 84 M 85
	20						20	
	30					17-2	30	0083
	40						I II	M 86
	50						50	
	60					17-3	60	0084
	70						70 II III	M 87 M 88
	80					17-4	80 ☉	0085
	90						V V V	M 89
3895	100						100	M 90

GRANULE CLUSTERS AND BIOTURBATION THROUGHOUT.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 17 DEPTH 3895 to 3946 cm

DESCRIBED BY mjr and jds DATES JUL 16 1980 and OCT 30 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
3895	0							
	CLAY		5Y 4/2 to 5GY 4/1			17-5		0086
	10						110 ^{III} IV	
	20						120	
	30					17-6	V	0087
	40						ASH	
	50						140	M91 M92
3946	50						150 End Film 1	
	60						160	
	70						170	
	80						180	
	90						190	
	100						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 18 DEPTH 4100 to 4171 cm

DESCRIBED BY mjr and jds DATES JUL 16 1960 and OCT 30 1960 SHEET 1 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0		5Y 4/2			18-1	V	
DEBRIS		to					
10		5GY 4/1					
20							
30					18-2		
4100							
CLAY							
40						I II	0098 M94
50						V	0105
60					18-3		0106
70						II III	0099 M95 0107
80					18-4		0108
90							0109 0100 M96
4171							0110
100							

GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 18 DEPTH 4171 to 4254 cm

DESCRIBED BY mjr and jds DATES JUL 16 1960 and OCT 30 1960 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
4171	CLAY		5Y 4/2 to 5GY 4/1			18-5	V ⊙ 110 Film 1, III Film 2, I GRANULE CLUSTER 120	M97 0111 M98
						18-6	130 140 I 150 II	0112 0113 0102 0114 M99
	V					18-7	∞? 160 170 ⊗? ∞ V	0103
						18-8	180 End Film 2	M100 M101
4254							190 200	

GRANULES THROUGHOUT

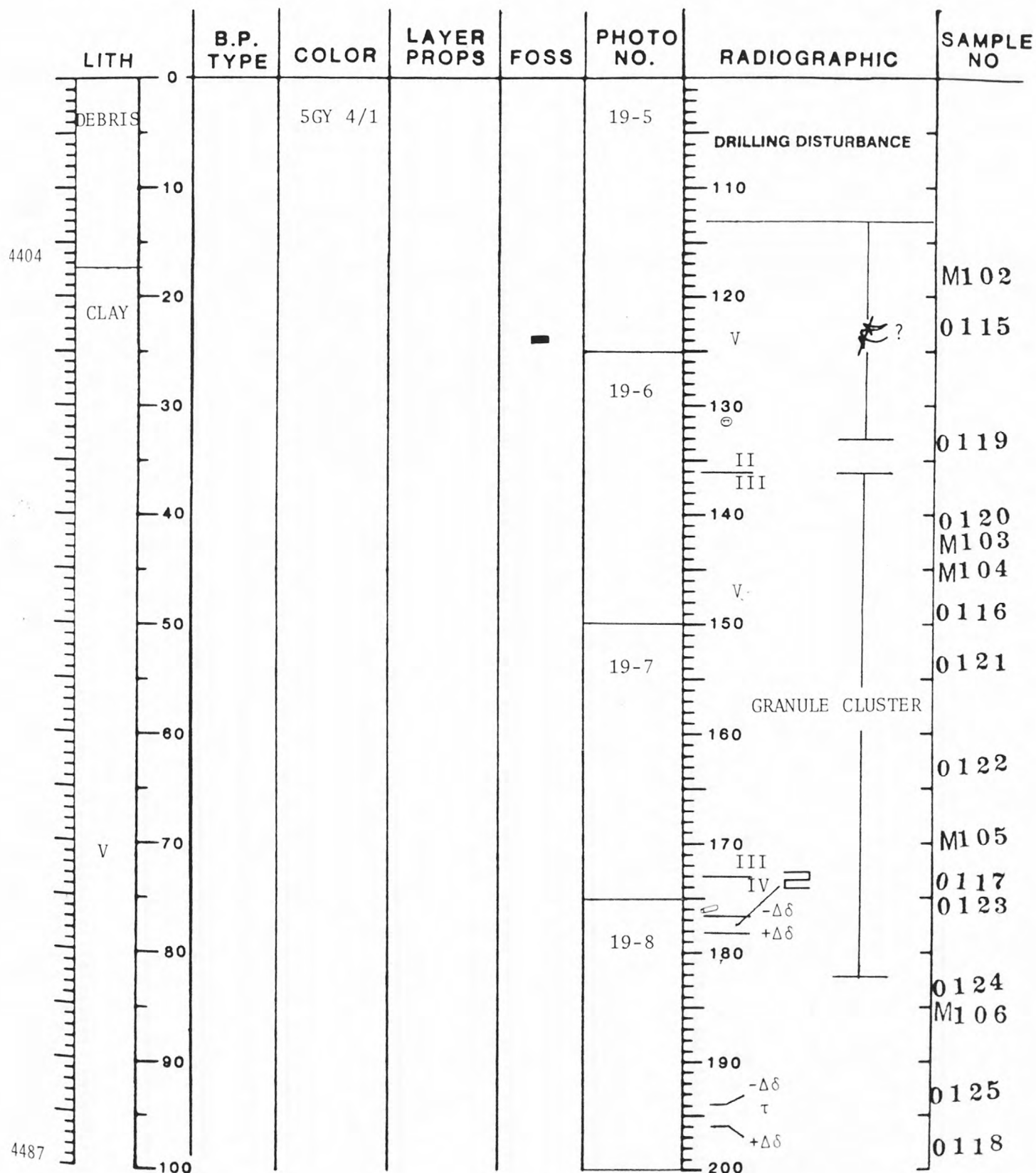
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 19 DEPTH _____ to _____ cm

DESCRIBED BY mjr and jds DATES JUL 19 1980 and OCT 30 1980 SHEET 1 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS		5G 4/1			19-1		
10						10	
20						DRILLING DISTURBANCE	
30					19-2	NO RADIOGRAPH	
40						40	
50						V V	
60					19-3		
70						60 I	
80						70 DEBRIS	
90					19-4		
100		5GY 4/1				80	
						DRILLING DISTURBANCE	
						90	
						I	
						100 II	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 19 DEPTH 4404 to 4487 cm

DESCRIBED BY mjr and jds DATES JUL 19 1960 and OCT 30 1960 SHEET 2 of 3



FROM 110 TO 212 THERE ARE SMALL PLANT FRAGMENTS DISSEMINATED IN THE MUD

Note: CEDAR CHIPS WERE KNOCKED FROM CEILING ONTO SPLIT CORE AT TIME OF PHOTOGRAPHY.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 19 DEPTH 4487 to 4499 cm

DESCRIBED BY mjr and jds DATES JUL 19 1980 and OCT 30 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
4487	0						V	
	MUD		5GY 4/1			19-9		0126
	10						210	107
4499								108
	20						220	
	30						230	
	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 20 DEPTH 4709 to 4780 cm

DESCRIBED BY mjr and jds DATES JUL 21 1990 and OCT 30 1990 SHEET 1 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS		5Y 4/2 to 5GY 4/1			20-1	DRILLING DISTURBANCE	
10							
20							
4709					20-2	GRANULE CLUSTER	
MUD							0136
30						I	0137
						II	M109
40							M110
							0127
50					20-3	+Δδ	0128
60							0138
70						70 II	M111
						III (≠?)	
80					20-4	80	0139
						-Δδ	
						+Δδ	0140
90							0130
						2	M112
4780						100 MASSIVE	0141
100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT ²⁰ DEPTH 4780 to 4880 cm

DESCRIBED BY mjr and jds DATES JUL 21 1990 and OCT 30 1990 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
4780	MUD		5Y 4/2 to 5GY 4/1				III IV	
							MASSIVE	
							110	0142
							120	M113
								M114
							GRANULES & VEINLETS	
							130	0143
							140	0144
							Film 1, IV	0132
							Film 2, I	M115
							150	0145
							160	0146
							≡	
							170	M116
							180 I II	0147
							190	0148
							Δδ	0134
							+Δδ	M117
							+Δδ	
							+Δδ	
4880							200 -Δδ	0149

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 20 DEPTH 4880 to 4899 cm

DESCRIBED BY mjr and jds DATES JUL 21 1980 and OCT 30 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
4880	MUD		5Y 4/2 to 5GY 4/1				MASSIVE — $-\Delta\delta$ — $+\Delta\delta$ MASSIVE 210 — $-\Delta\delta$ ASH? — $+\Delta\delta$	0135 M118 M119
4899							220 End Film 2	
							230	
							240	
							250	
							260	
							270	
							280	
							290	
							300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 21 DEPTH 5014 to 5114 cm

DESCRIBED BY mjr and jds DATES JUL 21 1990 and OCT 30 1990 SHEET 1 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
5014	0		5GY 4/1					
	MUD							
	10						GRANULES	
	20							M120
								M121
	30							
	40							0150
	50							0157
	V						UXO	M122
	60							0158
								0151
	70							0159
	80							M123
								0160
	90							0152
								0161
5114	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 21 DEPTH 5114 to 5214 cm

DESCRIBED BY mjr and jds DATES JUL 21 1990 and OCT 30 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
5114	0		5GY 4/1					
	MUD							M125
								0162
								M126
	10					110		M127
	V						V	0153
	V							0163
	20					120	21	
	V							0164
							Film 1, IV	
	30					130	Film 2, I	
								M128
								0154
	40					140		
	V							
	50					150	V	
								0166
	60					160	I	M129
							II	0155
	70					170		
	V						GRANULES & VEINLETS	
								0160
	80					180		0167
								M130
								M131
	90					190		0156
5214	100					200	End Film 2	

*Note: FROM 65 cm BOTTOM THERE ARE MINOR PLANT FRAGMENTS DISSEMINATED IN THE MUD.

DESCRIBED BY mjr and jds DATES JUL 22 1990 and OCT 30 1990 SHEET 2 of 2

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LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 23 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 30 1980 SHEET 1 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 DEBRIS		5GY 4/1			23-1		
10					Note:	DRILLING DISTURBANCE	
20							
30					23-2	NO RADIOGRAPH	
40							
50					23-3		
60							
70							
80					23-4		
90							
100							

Note: (SLIDES ONLY: PHOTO 23-1 HAS NO LABEL; 23-14 HAS LABEL FOR CORE).

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 23 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 30 1980 SHEET 2 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS		5GY 4/1			23-5		
10						110	
20						120	
30					23-6	DRILLING DISTURBANCE 130	
40						140	
50						NO RADIOGRAPH 150	
60					23-7	160	
70						170	
80					23-8	180	
90						190	
100						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 23 DEPTH 5624 to 5655 cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 30 1980 SHEET 3 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS		5GY 4/1			23-9	DRILLING DISTURBANCE	
10						210	
						NO RADIOGRAPH	
20						220	
30					23-10	230	
40						240	
						DRILLING DISTURBANCE	
50						250	
60					23-11	260	
						I	
						II	
5624						DRILLING DISTURBANCE	0178
MUD						270	0175
							M138
80		5Y 4/2			23-12	280	0179
						GRANULES	
90						290	0180
							M139
5655						300	0176
100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 23 DEPTH 5655 to 5659 cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 30 1980 SHEET 4 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
5655	0							
5659	MUD					23-13	End Film 1	
	10							
	20							
	30							
	40							
	50							
	60							
	70							
	80							
	90							
	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 24 DEPTH 5928 to 6012 cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 1 1980 SHEET 1 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0		5GY 4/1			24-1		
DEBRIS						DRILLING DISTURBANCE	
10							
5928							
MUD		5Y 4/2					
20						I GRANULES	0181
						II	[M138]
30					24-2		[M139]
40							
50					24-3		0182
						II	[M140]
60						III	
70						V	0190
							0183
80					24-4	MASSIVE	M141
							0191
90						III	0192
						IV	M142
6012						GRANULES	0184
100							

Note: FROM PORTION 24 - 68 cm FRACTURING OCCURRED UPON SPLITTING

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 24 DEPTH 6012 to 6112 cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 31 1987 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6012	MUD		5Y 4/2			24-5		
							110 MASSIVE	0193
							120	M143
								M144
								0185
						24-6	Film 1, IV 130 MASSIVE Film 2, I	
							140	0194
								M145
							150	0186
						24-7		
							160	0195
							I II	M146
							170	0196
								0187
						24-8	180	0197
								M147
							190	0198
6112							II 200 III	0188

GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 24 DEPTH 6112 to 6144 cm

DESCRIBED BY mjr and jds DATES JUL 22 1980 and OCT 31 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6112	0							
	MUD		5Y 4/2			24-9	V	
	10						210	M148
								M149
	20						220	
								0189
	30					24-10	230 V	
6144								
							End Film 2	
	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 25 DEPTH 6233 to 6333 cm

DESCRIBED BY mjr and jds DATES JUL 23 1980 and OCT 31 1981 SHEET 1 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6233	0		5GY 4/1					
	MUD							M150
								M151
	10					25-1	10	
							NO RADIOGRAPH	0199
	20							
	30							
						25-2		0204
	40						4cV	M152
								M153
								0200
	50							0205
							V	
	60					25-3	60	0206
							I II	
	70							0207
								0201
	80						MASSIVE	M154
						25-4		M155
	90							
							GRANULES	
							II III	
6333	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 25 DEPTH 6333 to 6363 cm

DESCRIBED BY mjr and jds DATES JUL 23 1980 and OCT 31 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6333	0							0202
	MUD		5GY 4/1					
	10					25-5	110 GRANULES	M156
								M157
	20						120 	
							V	0203
6363	30						130	
	40						140	
	50						150	
	60						160	
	70						170	
	80						180	
	90						190	
	100						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 26 DEPTH 6538 to 6594 cm

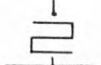
DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 1 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6538	0						
DEBRIS		5GY 4/1			26-1		
	10					10	
						DRILLING DISTURBANCE	
	20					20	
						I	
					26-2	II	
	30					30	
	40					40	
						V	0216
MUD	50					50	M158
						MASSIVE	M159
					26-3		
							0208
	60					60	
						II	
						III	0217
	70					70	
							M160
	80				26-4	80	
							0209
							0218
	90					90	
						III	
						IV	0219
6594	100					100	

VIVIANITE VEINLETS THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 26 DEPTH 6594 to 6694 cm

DESCRIBED BY mir and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6594	0		5GY 4/1			26-5		0220
								0210
	10						110 V	M161
								0221
								M162
	20						120 V	M163
							MASSIVE	
	30					26-6	∞ 130 Film 1, IV V Film 2, I	0211
								0222
	40						140	M164
								0223
	50						150 V	0224
						26-7		0212
	60						160 V	
							V	0225
	70						170	
							PEBBLE ?	0226
	80					26-8	180	0213
								M165
	90						190	0227
6694	100						200	0228

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 26 DEPTH 6694 to 6731 cm

DESCRIBED BY mjr and jds DATES JUL 24 1990 and NOV 3 1990 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
6694	0		5GY 4/1				V	0214
								0229
	10						21C V	M166
								M167
	20						220 MASSIVE	
	30						23C V	0215
6731	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 27 DEPTH 6843 to 6864 cm

DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 1 of 1

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS					27-1		
10							
						NO RADIOGRAPH	
20							
30					27-2		
40							
6843							
MUD		5G 4/1				DRILLING DISTURBANCE	
50							
					27-3		0230
6864							M1 68
80							M1 69
70							
80							
90							
100							

SAMPLE IS FRACTURED --POSSIBLY BECAUSE IT WAS DROPPED AT THE DRILL SITE
GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 28 DEPTH to cm

DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 1 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 DEBRIS		5G 4/1			28-1		
10							
20							
30					28-2	NO RADIOGRAPH	
40							
50					28-3		
60							
70							
80					28-4		
90						DRILLING DISTURBANCE	
100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 28 DEPTH 6995 to 7000 cm

DESCRIBED BY mjr and jds DATES JUL 24 1990 and NOV 3 1990 SHEET 2 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
DEBRIS		5G 4/1			28-5	DRILLING DISTURBANCE I II	
10						110	
20						120	
6995					28-6	MASSIVE	
7000		5GY 4/1				130	0231
MUD							
40						140	
50						150	
60						160	
70						170	
80						180	
90						190	
100						200	

GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 29 DEPTH _____ to _____ cm

DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 1 of 1

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 DEBRIS		5G 4/1			29-1		
10						10 DRILLING DISTURBANCE	
20						20	
30					29-2	30 I II	
40						40	
50					29-3	50	
60						60	
70						70	
80						80	
90						90	
100						100	

FROM 26 TO BOTTOM SAMPLE IS FRACTURED.
AT LOW ANGLES SAMPLE LOOKS CONGLOMERATIC

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 30 DEPTH 7452 to 7552 cm

DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
7452	0						DRILLING DISTURBANCE ?	
	MUD		5G 4/1			30-1		
	10						10	0232
	20						20 I II	
	30					30-2	30 V	0233
	40						40	
	50					30-3	50 V II III	0234
	60						60 ∞ V	M170
	70						70 ∞ ⊙?	M171
	80					30-4	80	0235
	90						90 III IV	
7552	100						100	M172

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 30 DEPTH 7552 to 7652 cm

DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
7552	MUD		5G 4/1			30-5		
								0236
							110 DRILLING DISTURBANCE?	
							120	
								M173
							Film 1, IV	
						30-6	Film 2, I	
							130	0237
							140	
							150	
						30-7		M174
								0238
					ast.		I 160 II	
							170	M175
								M176
						30-8		
							180	0239
							190	
							II III	
							200	M177

GRANULES THROUGHOUT

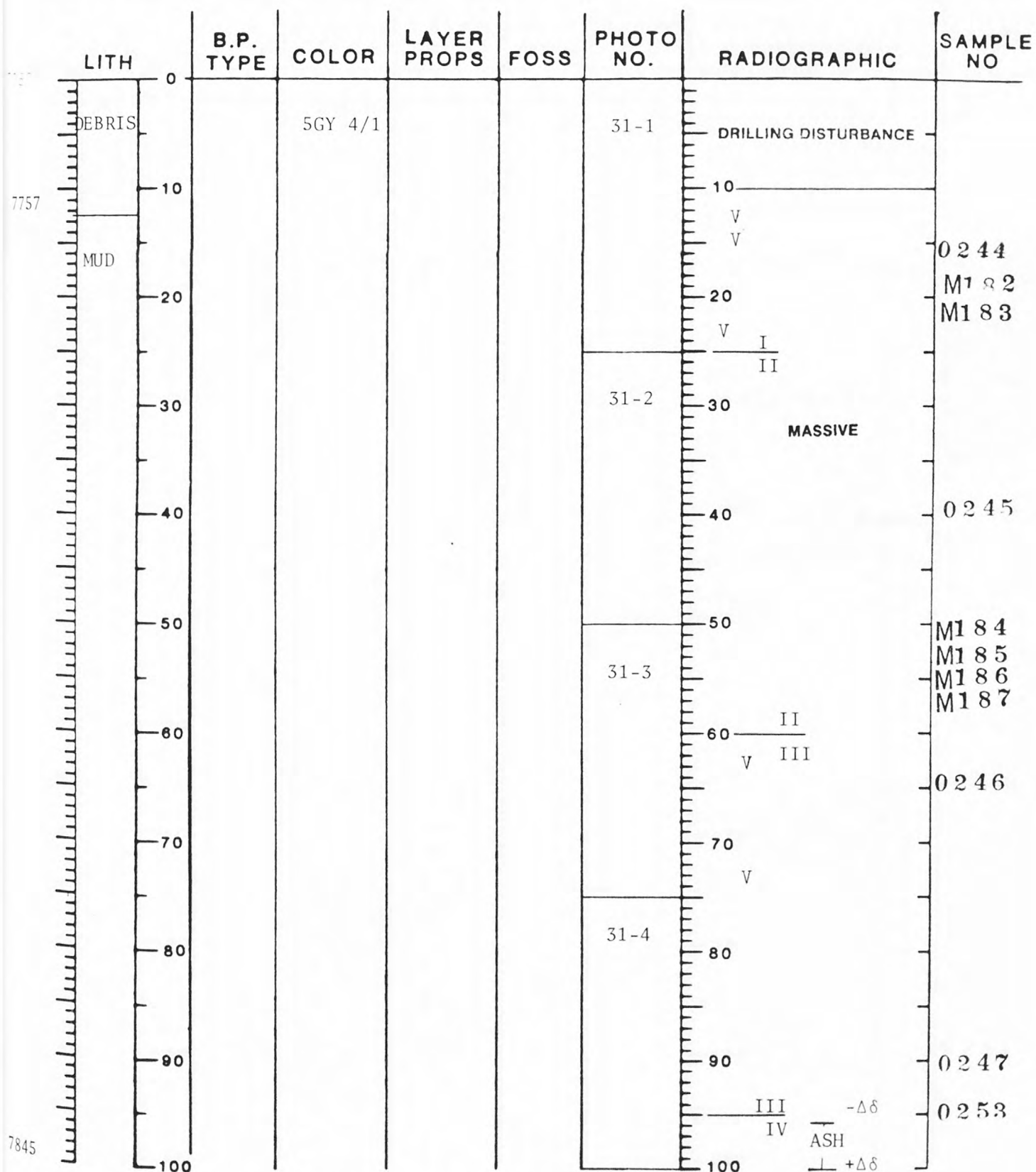
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 30 DEPTH 7652 to 7722 cm

DESCRIBED BY mjr and jds DATES JUL 24 1980 and NOV 3 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
7652	0		5G 4/1			30-9		
	10						210	0240
	20						220	M178
	30					30-10	III IV 230 V	0241
	40						240	
	50						V 250 V	M179 M180 M181
	60					30-11		0242
	70						260 270	
7722	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 31 DEPTH 7757 to 7845 cm

DESCRIBED BY mjr and jds DATES JUL 25 1960 and NOV 3 1960 SHEET 1 of 3



Note: SMALL PLANT FRAGMENTS ARE DISSEMINATED THROUGHOUT THE CORE.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 31 DEPTH 7845 to 7945 cm

DESCRIBED BY mjr and jds DATES JUL 25 1980 and NOV 3 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
7845	0		5GY 4/1			31-5		
	MUD						MASSIVE	
	10					110		
						- $\Delta\delta$		
						ASH?		0248
						+ $\Delta\delta$		
	20					120		
	V							
	30					31-6		M188
							Film 1, IV	M189
							Film 2, I	M190
						130		M191
								M192
								M193
	40					140		
							MASSIVE	0249
	50					150		
						31-7		
	60					160		
								0250
	70					170		
						31-8		
	80					180		
								0251
	90					190		
	100					200		
7945								

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 31 DEPTH 7945 to 7978 cm

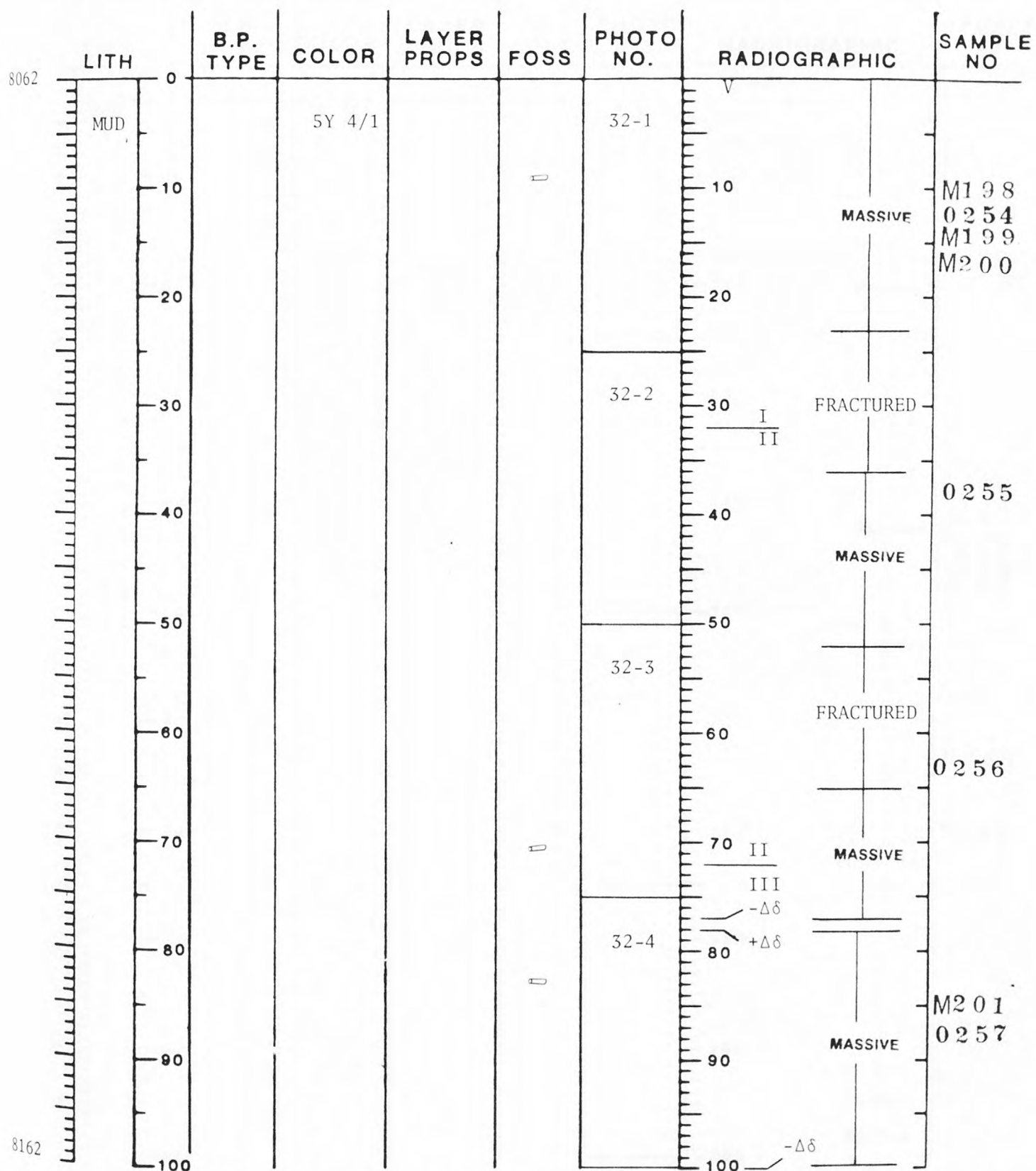
DESCRIBED BY mjr and jds DATES JUL 25 1980 and NOV 3 1990 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
7945	0							
	MUD		5GY 4/1			31-9		
	10						210	M195
								M196
							MASSIVE	M197
	20						220	0252
	30					31-10	230	
7978								
	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

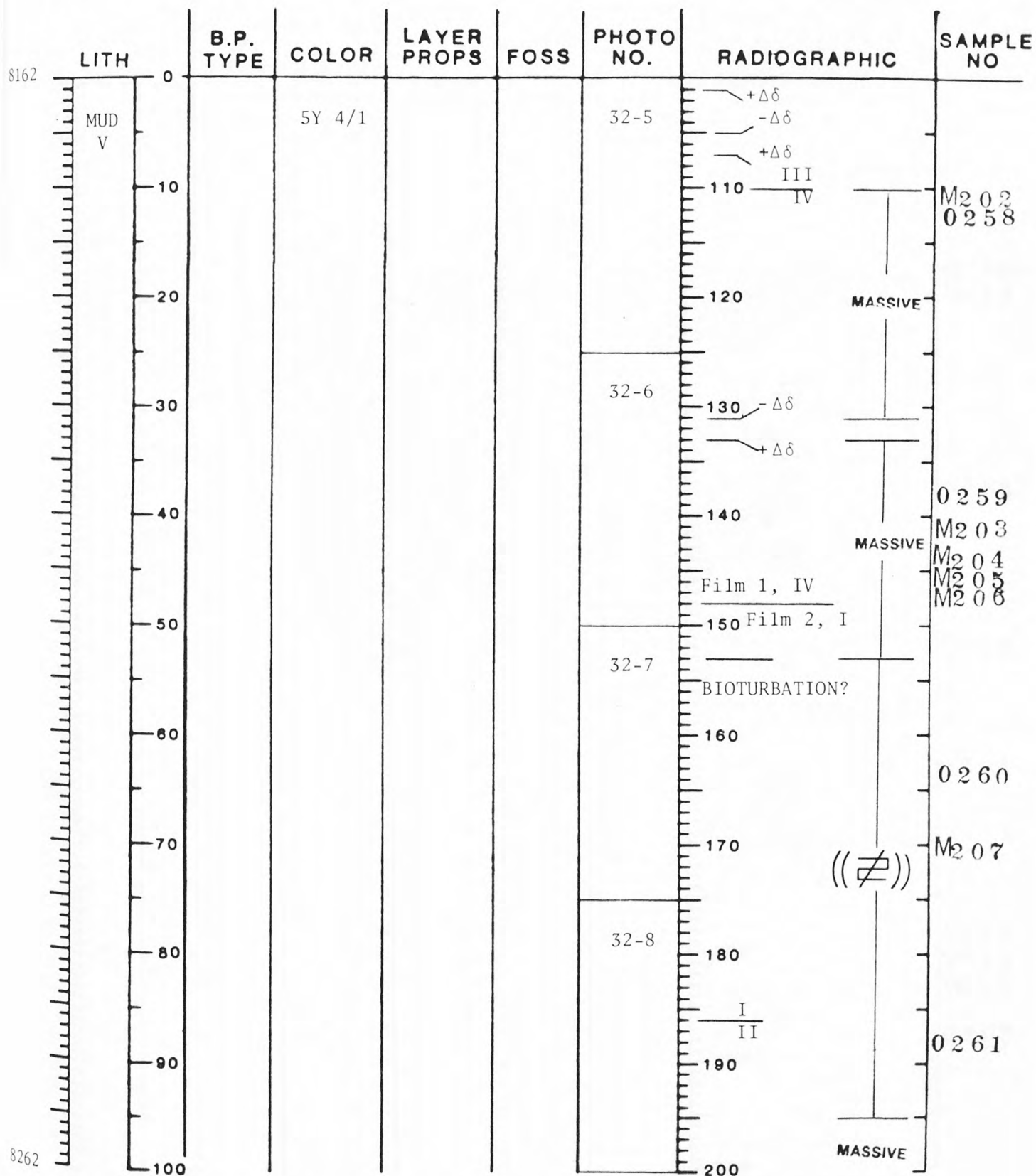
GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 32 DEPTH 8062 to 8162 cm

DESCRIBED BY mjr and jds DATES JUL 25 1980 and NOV 3 1980 SHEET 1 of 3



FROM 0-7 AND 17-66 cm SAMPLE IS FRACTURED WITH DISSEMINATED PLANT FRAGMENTS THROUGHOUT.



INDISTINCT DIFFUSE GRANULE ZONES

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 32 DEPTH 8262 to 8363 cm

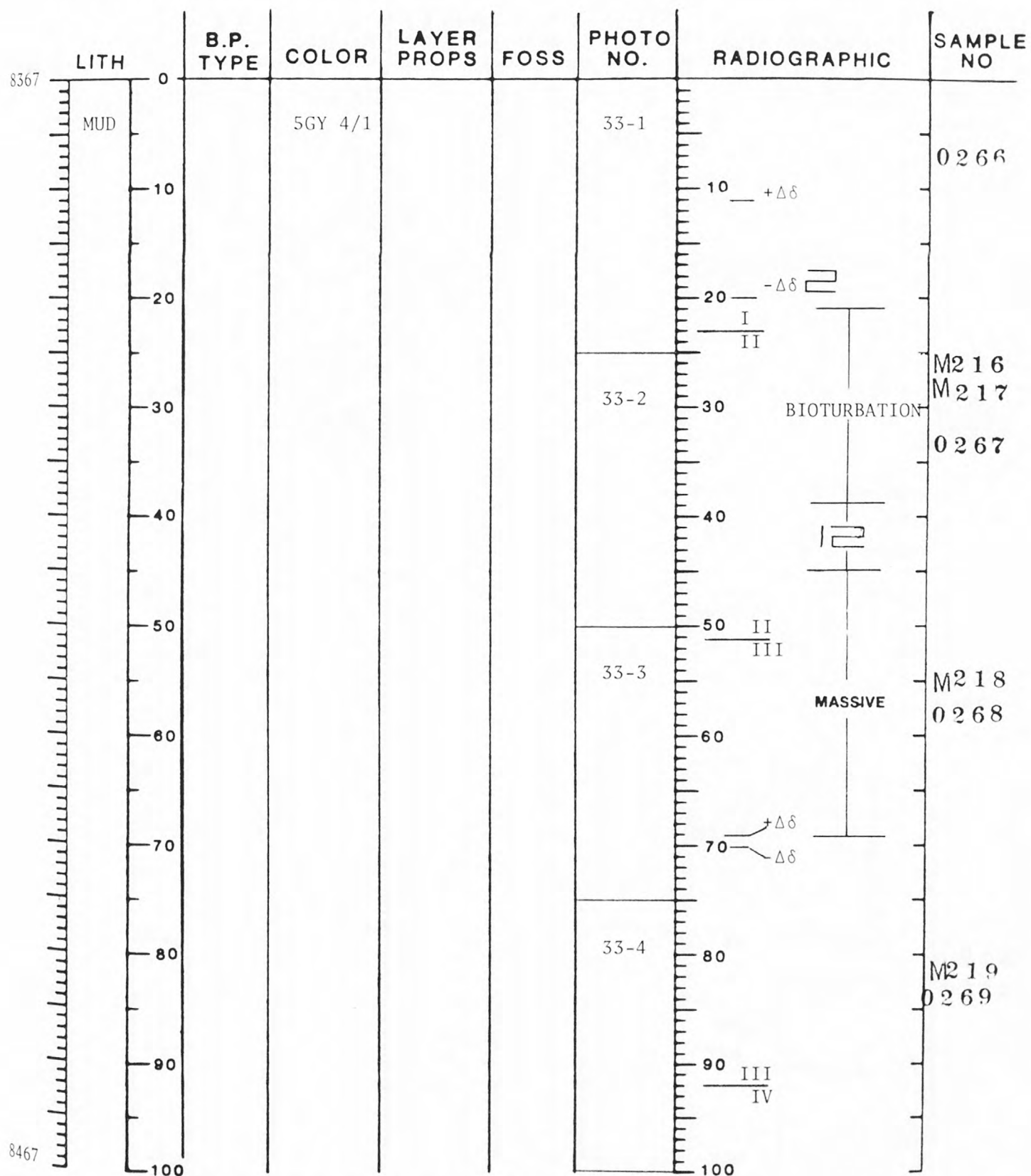
DESCRIBED BY mjr and jds DATES JUL 25 1980 and NOV 3 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
8262	0							
	MUD		5Y 4/4			32-9		
							210	
								M208
								0262
								M209
								M210
	V						220	M211
						32-10		
							230 (2)	
							II	
	V						III	
								0263
							240	
							250	
						32-11		M212
							260	
								0264
							270	
							III	
							IV	
						32-12		M213
							280	M214
	V							M215
								0265
							290	
8363	100						300	

VIVIANITE GRANULES AND VEINLETS THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 33 DEPTH 8367 to 8467 cm

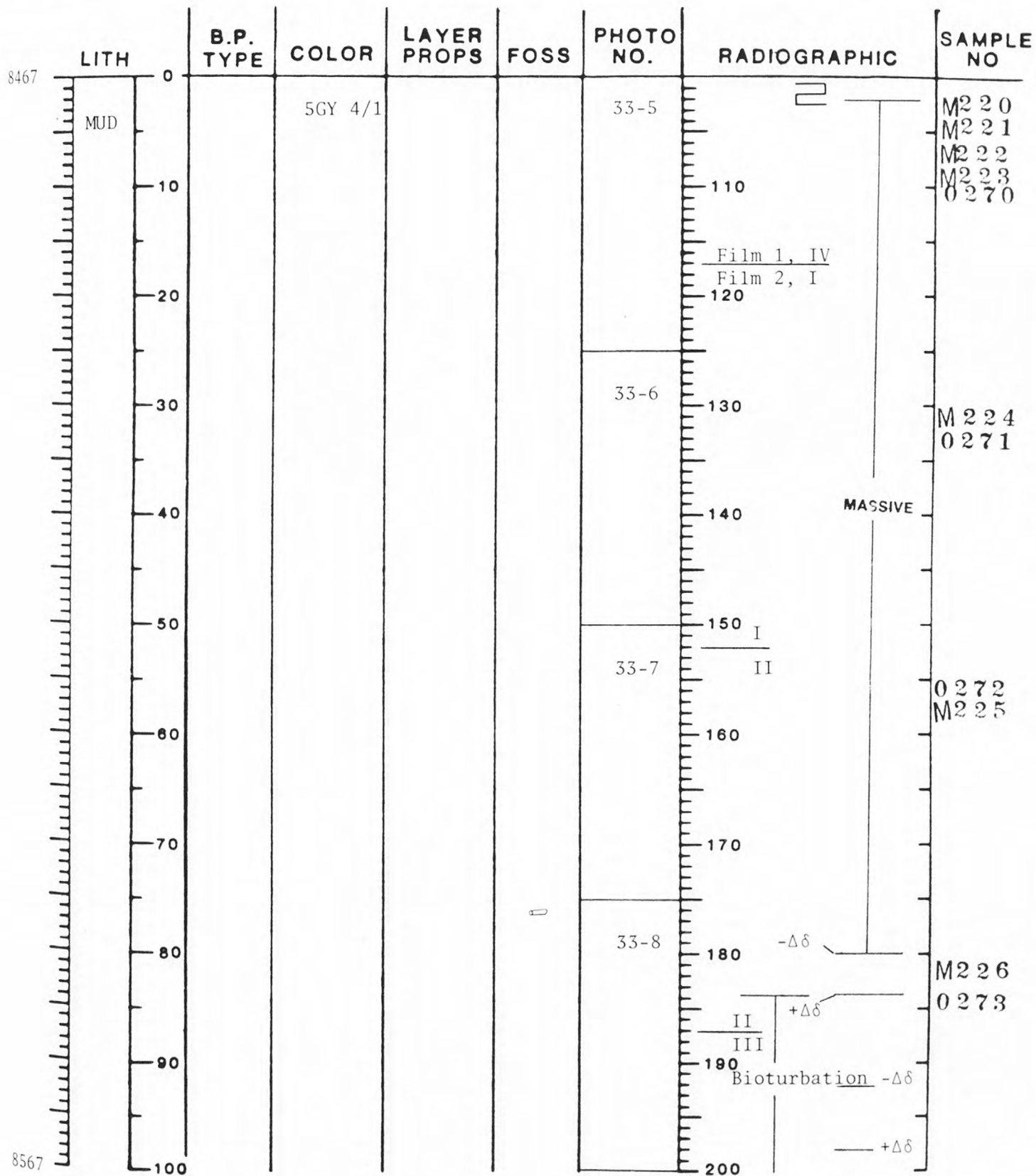
DESCRIBED BY mjr and jds DATES JUL 20 1980 and NOV 3 1980 SHEET 1 of 3



PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT
VIVIANITE GRANULES AND VEINLETS THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 33 DEPTH 8467 to 8567 cm

DESCRIBED BY mjr and jds DATES JUL 20 1980 and NOV 3 1980 SHEET 2 of 3



LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 33 DEPTH 8567 to 8598 cm

DESCRIBED BY mjr and jds DATES JUL 26 1960 and NOV 3 1960 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
8567	0							
	MUD		5GY 4/1					
	10						210	0274
							BIOTURBATION	M227
	20						220	M228
	30						230	
8598							End Film 2	
	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 34 DEPTH 8672 to 8772 cm

DESCRIBED BY mjr and jds DATES JUL 26 1960 and NOV 3 1960 SHEET 1 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
8672	0							
	MUD		5GY 4/1			34-1		0275
	10						10 FRACTURED	0282
	20						20	0284
	30					34-2	30 I II	M229 M230 0276 M231
	40		5GY 3/1				40	0285
	50		5GY 4/1				50	
	60					34-3	V 60 DRILLING DISTURBANCE?	0277 0286 M232
	70						70 II III	0287
	80					34-4	80 V V	0278 M233 M234 0288 M235 M236
	90						90	
8772	100						100	0289

PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 34 DEPTH 8772 to 8851 cm

DESCRIBED BY mjr and jds DATES JUL 26 1980 and NOV 3 1980 SHEET 2 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
8772	0				34-5	III IV ∞?	0279
	10	5GY 4/1				110 V	0290
	20					V	0291
						12 DRILLING DISTURBANCE	0293
	30				34-6	130 V Cluster	M237 0280
	40					140 Film 1, IV Film 2, I	0292
	50				34-7	150	0281
	60					V	M238
	70					160	M239
						MASSIVE	M240
	80	5Y 4/1				170	0282
8851						180	
	90					190	
	100					200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 35 DEPTH 8976 to 9076 cm

DESCRIBED BY mjr and jds DATES JUL 26 1980 and NOV 3 1980 SHEET 1 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
8976	0							
	MUD		5GY 4/1			35-1		0294
	10							M241
								M242
	20							M243
								0295
	30					35-2		
							I II	
	40						MASSIVE	M244
								0296
	50					35-3		
	60							
	70							M245
							II III	0297
	80					35-4		
	90							
9076	100						(Z)	0298
								M246

PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT
VIVIANITE GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 35 DEPTH 9076 to 9176 cm

DESCRIBED BY mjr and jds DATES JUL 26 1980 and NOV 3 1980 SHEET 2 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
9076	0		5GY 4/1			35-5		
	MUD							
	10						110	
							III IV (Z)	
	20						120	
								0299
	30					35-6		
								M247
	40							M248
								M249
	50						140	
							MASSIVE	
	60						150	0300
						35-7	Film 1, IV Film 2, I	
	80						160	
	70						170	
								0301
	80					35-8		M250
							180	
	90						190	
			Lighter 5GY 4/1				I II	
9176	100						200	0302

VIVIANITE GRANULES AND VEINLETS THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 35 DEPTH 9176 to 9276 cm

DESCRIBED BY mjr and jds DATES JUL 26 1980 and NOV 3 1980 SHEET 3 of 4

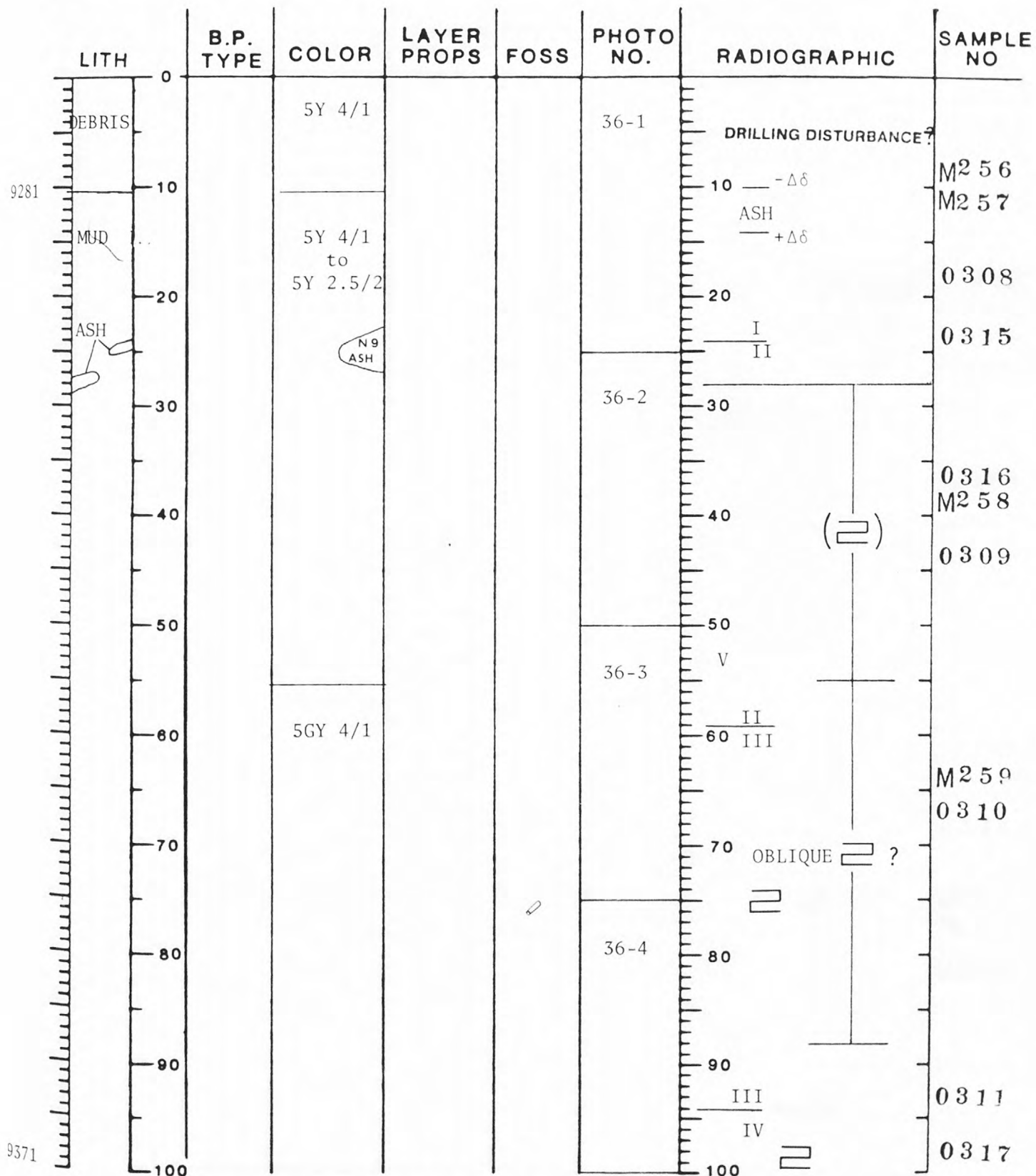
	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
9176	MUD		5GY 4/1			35-9		
							210	M251
							220	
						35-10	230 II III	0303
							240	M252
							250 FRACTURED	0304
						35-11		
							260	
							270 III IV	0305 M253
	SILTY CLAY							M254
						35-12		M255
							280	
							290	
			5Y 2.5/1					0307
			5Y 6/2 5GY 5/1					0306
9276	SOIL?						300 MASSIVE	

DESCRIBED BY mjr and jds DATES JUL 26 1980 and NOV 3 1980 SHEET 4 of 4

Note: THE DEPTH TO THE (9285cm) BOTTOM OF THIS SEGMENT IS GREATER THAN THE DEPTH TO THE TOP OF THE FOLLOWING SEGMENT (9281cm) OWING TH THE EXPANSION OF THIS CORE SEGMENT AFTER RETRIEVAL FROM THE HOLE. BECAUSE NO SAMPLES FALL INTO THIS INTERVAL OF OVERLAP NO ADJUSTMENT IS MADE.

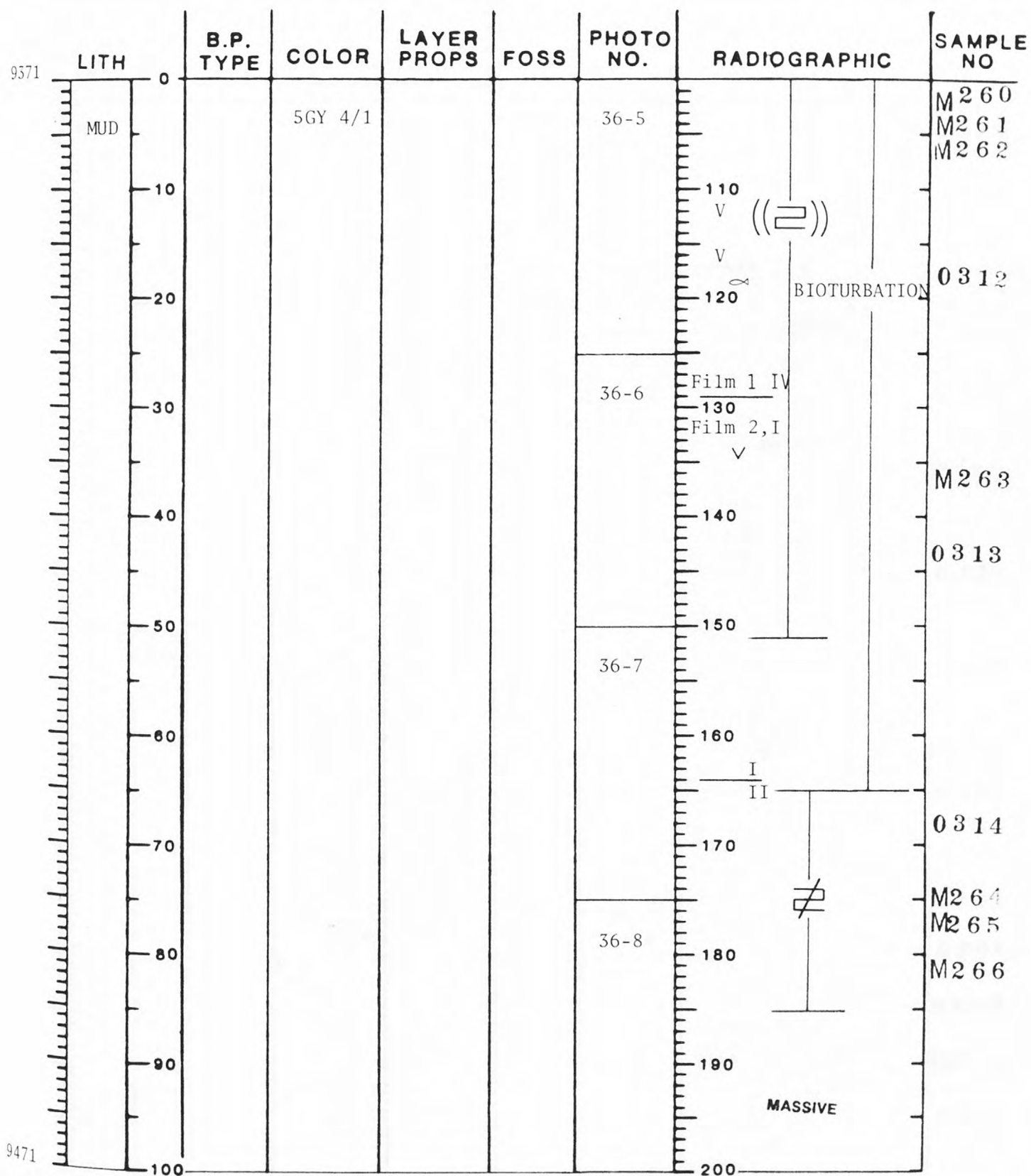
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT ³⁶ DEPTH ⁹²⁸¹ to ⁹³⁷¹ cm

DESCRIBED BY mjr and jds DATES JUL 28 1980 and NOV 3 1980 SHEET 1 of 2



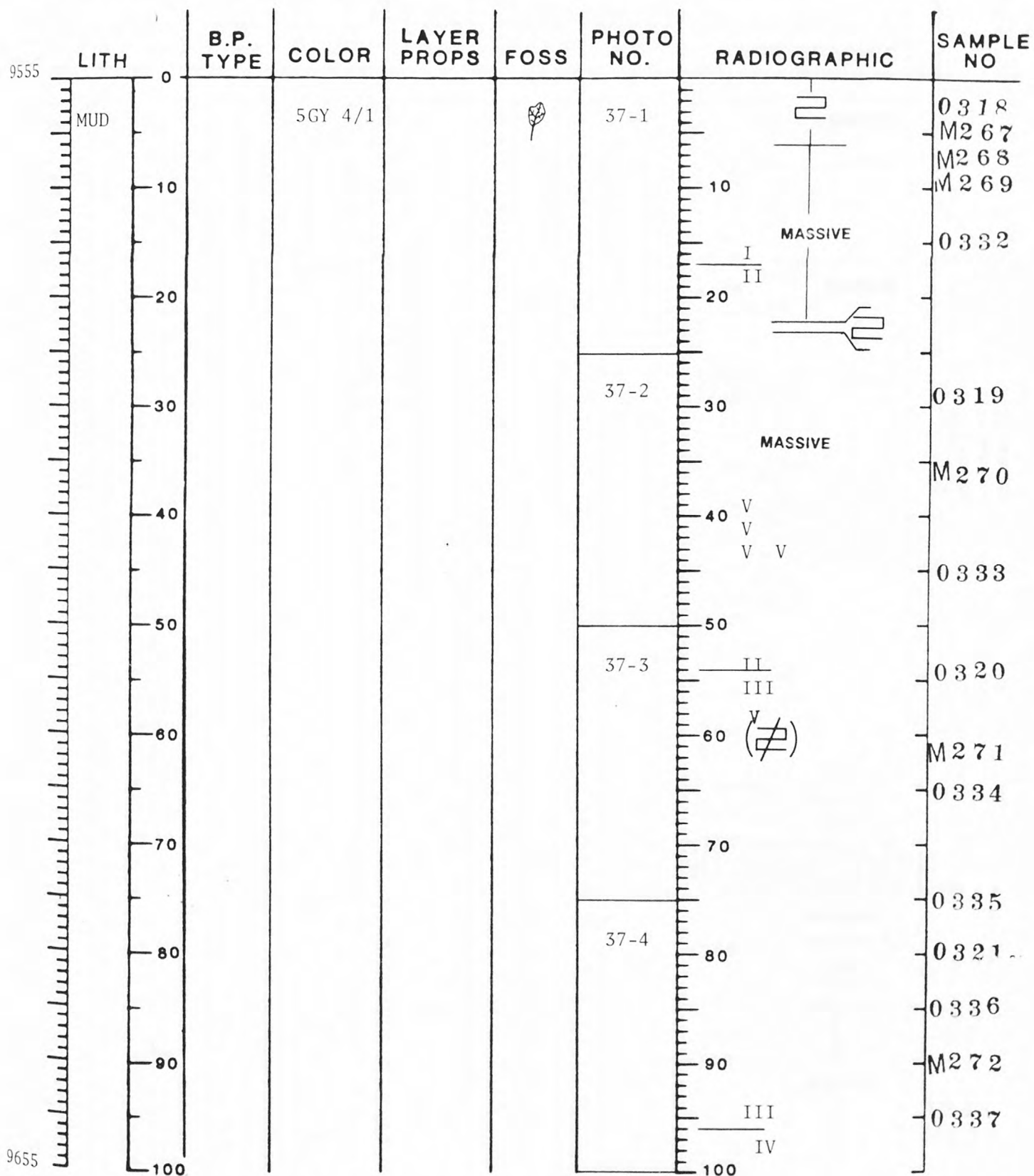
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 36 DEPTH 9371 to 9471 cm

DESCRIBED BY mjr and jds DATES JUL 28 1980 and NOV 3 1980 SHEET 2 of 2



LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 37 DEPTH 9555 to 9655 cm

DESCRIBED BY mjr and jds DATES JUL 28 1980 and NOV 3 1980 SHEET 1 of 3



PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT

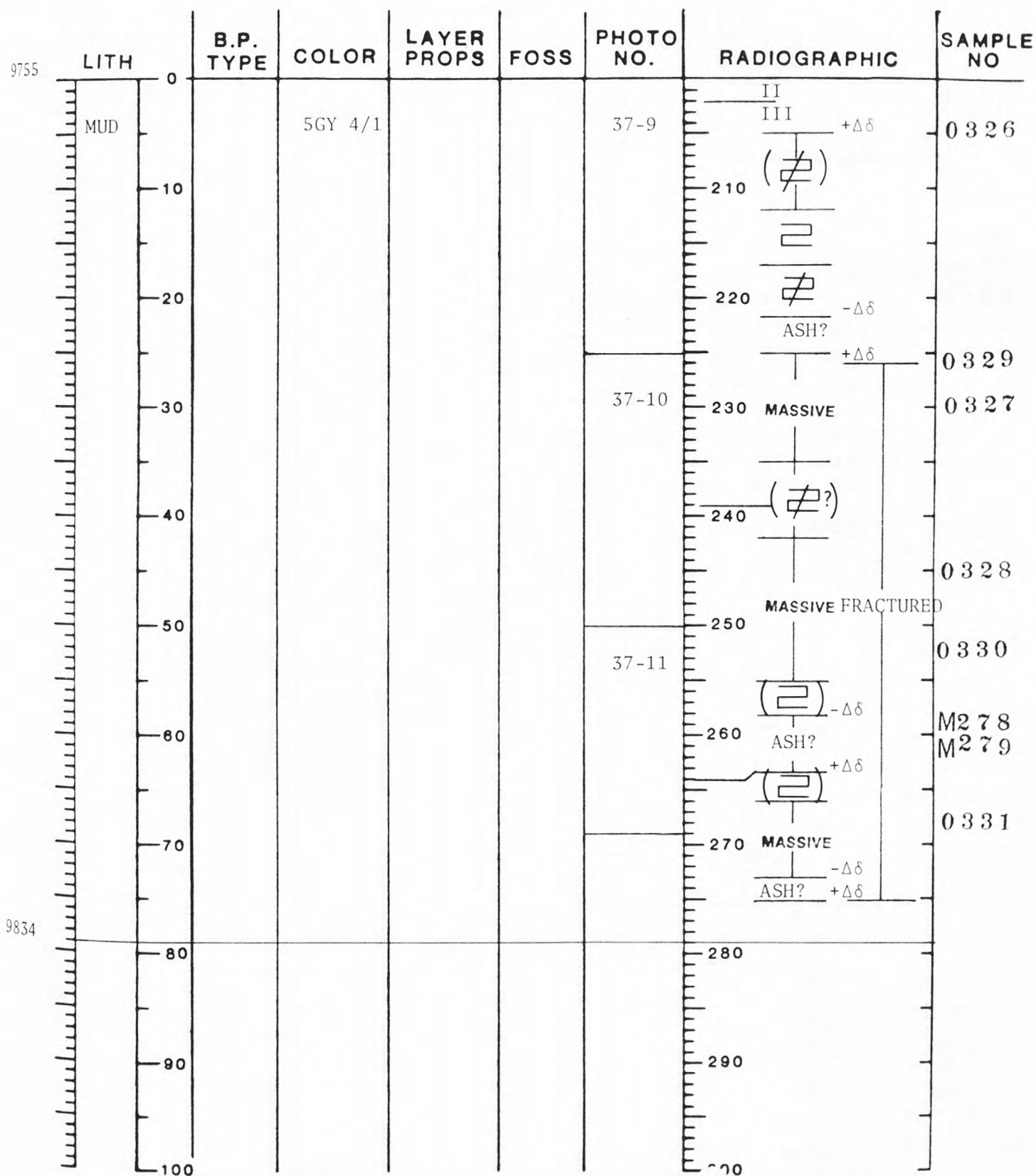
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 37 DEPTH 9655 to 9755 cm

DESCRIBED BY mjr and jds DATES JUL 29 1980 and NOV 3 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
9655	0		5GY 4/1			37-5	MASSIVE	0322
	10					110	$-\Delta\delta$ V $+\Delta\delta$	0338
	20					120	MASSIVE	
	30					37-6	Film 1, IV Film 2, I	0323
						130		M273
	40					140		M274
								M275
								M276
	50					150		0339
	60					37-7		0324
	70					160		
							I II	0340
						170		
							NO RADIOGRAPH	0341
	80					37-8	MASSIVE	0325
						180	$\neq$?	0342
	90					190	MASSIVE	0343
9755	100					200		M277

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 37 DEPTH 9755 to 9834 cm

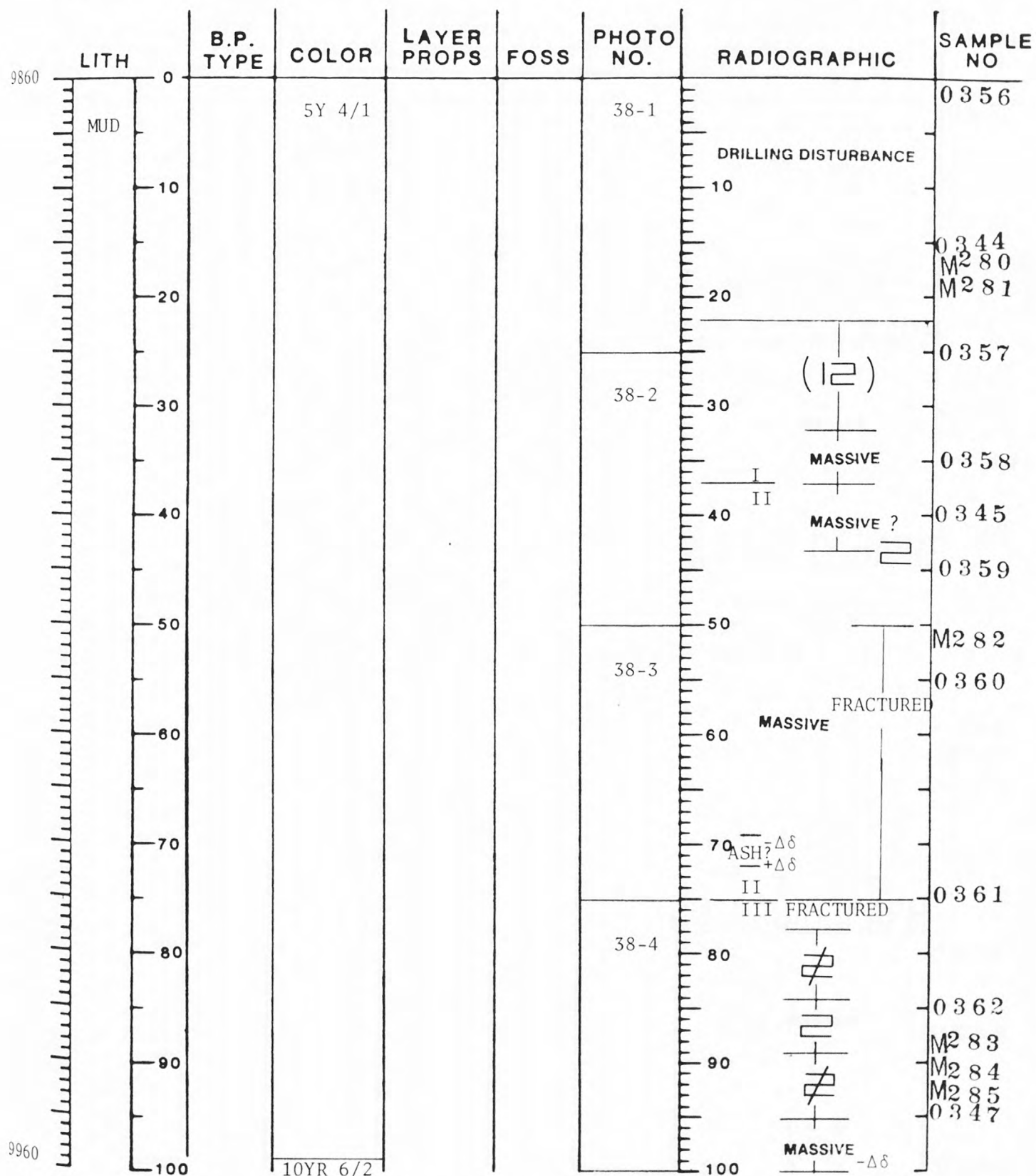
DESCRIBED BY mjr and jds DATES JUL 29 1980 and NOV 3 1980 SHEET 3 of 3



Note: RADIOGRAPH LENGTH IS 7cm LONGER THAN MEASURED CORE LENGTH PROBABLY OWING TO EXTENSIVE FRACTURING IN RADIOGRAPH SLICE.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 38 DEPTH 9860 to 9960 cm

DESCRIBED BY mjr and jds DATES JUL 29 1989 and NOV 3 1989 SHEET 1 of 3



Note: RADIOGRAPH SLICE HAD IRREGULAR THICKNESS RESULTING IN A POOR EXPOSURE
PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT

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LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 38 DEPTH 10060 to 10094 cm

DESCRIBED BY mjr and jds DATES JUL 29 1980 and NOV 3 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10060	0		5Y 4/1			38-9		
	10						210	
							(=)	M289
	20						220	M290
								0352
	30				SEED	38-10	230	
							FRACTURED	0355
10094								
	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 39 DEPTH 10165 to 10265 cm

DESCRIBED BY mjr and jds DATES JUL 29 1980 and NOV 3 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10165	MUD		5G 4/1 to 2.5Y 2/0	(12)		39-1		0380
								0369
							MASSIVE	0381
						39-2	I II	M291 M292 0382 0370
							FRACTURED	0383
						39-3		0384 M293
							MASSIVE	
							II III	0385
						39-4		0386
							FRACTURED	0372 0387
							MASSIVE	0388
10265								

PLANT FRAGMENTS DISSEMINATED THROUGHOUT CORE
10238-10248 interval has been rotated

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 39 DEPTH 10265 to 10365 cm

DESCRIBED BY mjr and ids DATES JUL 29 1960 and NOV 3 1960 SHEET 2 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10265	0						
MUD		5G 4/1 to 2.5Y 2/0	(12)		39-5	MASSIVE	
	10					110	0373
						III IV	
	20					FRACTURED	0389
						120	
						MASSIVE	
	30				39-6	130	0390
						DRILLING DISTURBANCE?	0374
	40					140	M294 M295 0391
						Film 1, IV	M296
	50					150 Film 2, I	M297 M298 0392
					39-7		
	60					160 VIVIANITE GRANULES & VEINLETS	0375
						MASSIVE	
	70					170	0393
							M299
	80				39-8	I 180 II	0394
						MASSIVE	
	90					190	
							M300
	100						M301
10365						200	0395

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 39 DEPTH 10365 to 10411 cm

DESCRIBED BY mjr and jds DATES JUL 29 1980 and NOV 3 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10365	0							
	MUD		5G 4/1 to 2.5Y 2/0	(12)		39-9	NO RADIOGRAPH	0395
	10						MASSIVE	
							210 crs sd lam	0377
	20						III sd IV	0379
	30					39-10	230 COARSE SAND	
	40						240	0378
	50						250	
							MASSIVE	
	60						260	
	70						270	
	80						280	
	90						290	
10411	100						300	

Note: RADIOGRAPH IS 10cm LONGER THAN MEASURED CORE

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 40 DEPTH 10470 to 10570 cm

DESCRIBED BY mjr and jds DATES JUL 30 1980 and NOV 3 1980 SHEET 1 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10470	0						
MUD		5GY 4/1 to 2.5Y 2/0	(12)		40-1	MASSIVE	
	10					10	0306
						-Δδ	0403
						ASH +Δδ	M302
	20	5GY 4/1				20 21	M303
						I	0414
						II	
V	30				40-2	30	0397
						MASSIVE	
						WITH SINGLE THIN (<1mm) LAMINAE 3-4 cm APART	
	40					40	0415
							M304
	50					50	
					40-3		0398
						II	
	60					60 III	0417
V							
	70					70	0418
V							M305
							M306
							M307
	80				40-4	80	0399
	90					90	0419
						III	
						IV	
10570	100					100	0420

PLANT FRAGMENTS ARE DISSEMINATED THROUGHOUT THE CORE

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 40 DEPTH 10570 to 10636 cm

DESCRIBED BY mjr and jds DATES JUL 30 1960 and NOV 3 1960 SHEET 2 of 2

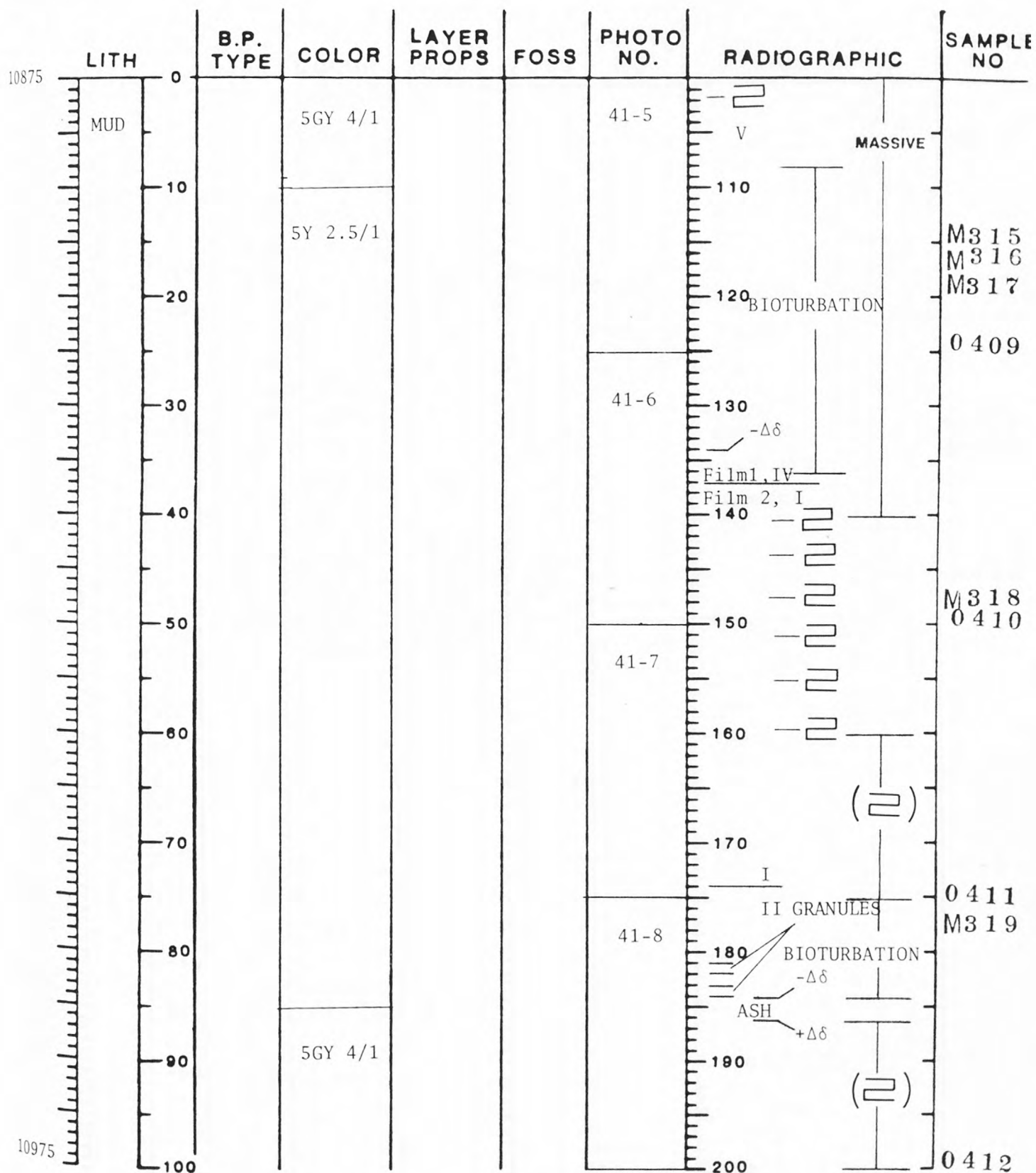
	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10570	0		5GY 4/1			40-5	MASSIVE	0400
							WITH SINGLE THIN LAMINAE 1-3cm APART	M308
	10							0421
	20							0422
	30					40-6	Film 1, IV Film 2, I	0401
						130	- $\Delta\delta$	
							+ $\Delta\delta$	M309
	40					140	21	M310
								0423
	50					150		
						40-7	NO RADIOGRAPH	0402
	60					160	MASSIVE	
10636								
	70					170		
	80					180		
	90					190		
	100					200		

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 41 DEPTH 10775 to 10875 cm

DESCRIBED BY mjr and jds DATES JUL 30 1980 and NOV 4 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10775	0		5GY 4/1			41-1	MASSIVE	0404
	10						VIVIANITE VEINLETS	M311
	20							M312
	30					41-2	I II	0405
	40						(-Δδ)	M313
	50						(+Δδ) -Δδ ASH +Δδ	
	60					41-3	-Δδ ASH? +Δδ II III	0406
	70							M314
	80					41-4		0407
	90						90V	
10875	100						III IV	0408

PLANT FRAGMENTS ARE DISSEMINATED THROUGHOUT THE CORE



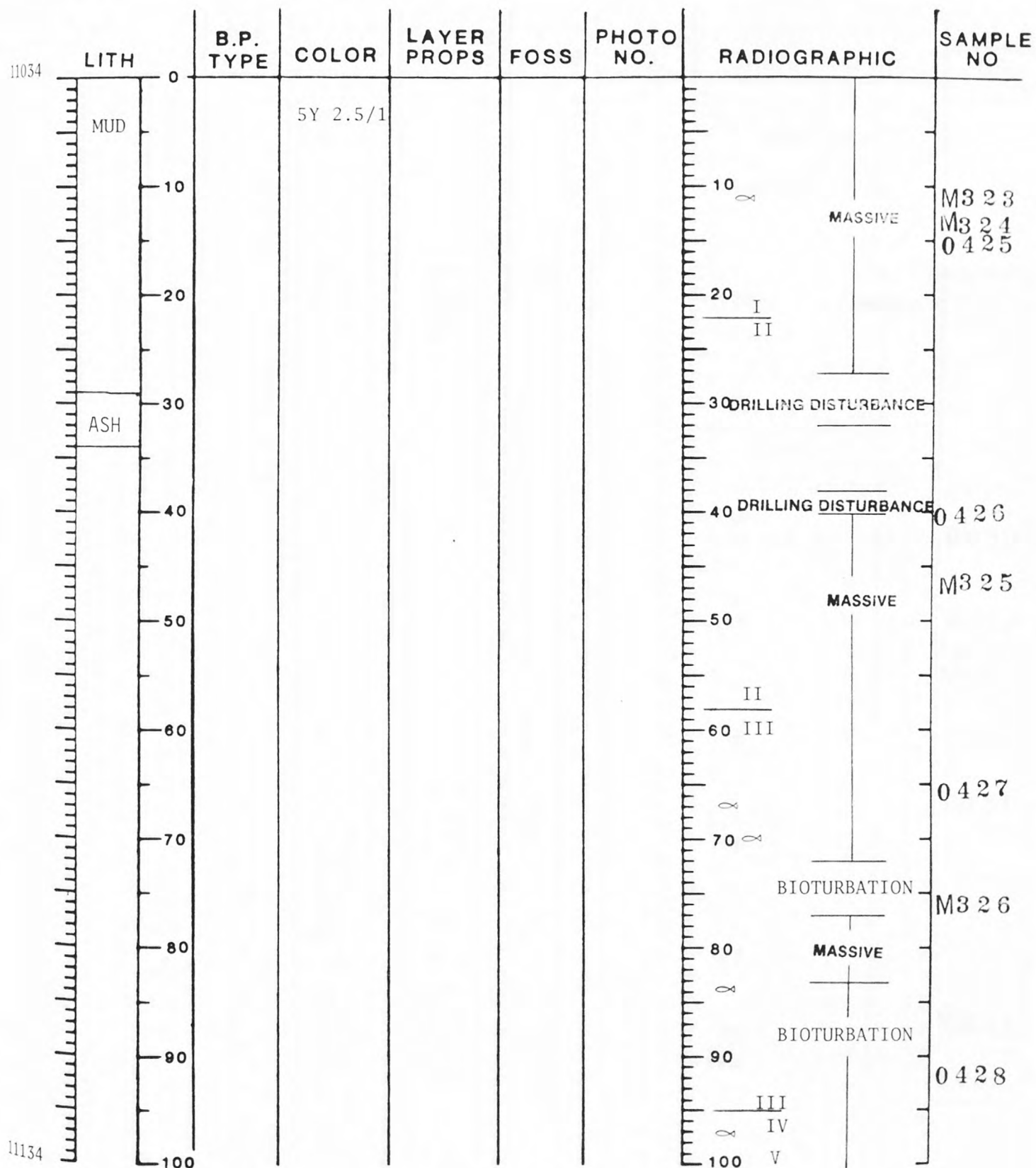
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 41 DEPTH 10975 to 11024 cm

DESCRIBED BY mjr and jds DATES JUL 30 1980 and NOV 4 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
10975	0		5GY 4/1			41-9	(≠)	M3 20
	10						210 II III	
	20						MASSIVE	
	30						(=)	0 413
	40					41-10	230 GRANULES	M3 21
							GRANULES	M3 22
							GRANULES 240	
								0 424
11024	50						250 End Film 2	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 42 DEPTH 11034 to 11134 cm

DESCRIBED BY mjr and jds DATES JUL 30 1980 and NOV 4 1980 SHEET 1 of 3



PLANT FRAGMENTS ARE DISSEMINATED THROUGHOUT THE CORE

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 42 DEPTH 11134 to 11234 cm

DESCRIBED BY mjr and jds DATES JUL 30 1980 and NOV 4 1980 SHEET 2 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11134	0						
MUD		5Y 2.5/1				BIOTURBATION	
	10					110 ∞ ∞	M3 27
	20					120 V	0429
	30					∞	
	40					130 Film 1, IV	
	50					Film 2, I	
	60					140	0430
	70					150	M3 28
	80					160	M3 29
	90					I	M3 30
	100					170 II	0431
						180	
						190	M3 31
						200	0432
11234							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 42 DEPTH 11234 to 11318 cm

DESCRIBED BY mjr and jds DATES JUL 30 1980 and NOV 4 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11234	0						II	
	MUD		5Y 2.5/1				III	
	10						210	
	20						220	0433
							- $\Delta\delta$	M332
							ASH?	
							+ $\Delta\delta$	
	30						230	
							2	
							GRANULES	
	40		5Y 4/1				240 III	0434
							IV	
	50						250	
	60						260	
								M333
	70						270	M334
							(2)	0435
11318	V							
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 43 DEPTH 11339 to 11439 cm

DESCRIBED BY mjr and jds DATES JUL 31 1980 and NOV 4 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11339	0		5GY 4/1	12		43-1		
	10	---						0439
	20							M335
	30					43-2		M336
	40						I II	0440
	50							M337
	60					43-3		0441
	70							M338
	80						II III	M339
	90					43-4		0442
	100							M340

BIOTURBATON AND GRANULES THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 43 DEPTH 11439 to 11539 cm

DESCRIBED BY mjr and jds DATES JUL 31 1980 and NOV 4 1980 SHEET 2 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11439	0		5GY 4/1			43-5		
	MUD						BIOTURBATION	
	10						110	0443
							III IV	
	20							
	30					43-6		M341
	V							
	40							0444
	50						MASSIVE	
	60					43-7	Film 1, IV Film 2, I	M342 M343 0445
	V							
	70							
	80					43-8	BIOTURBATION	
								0446
	90						190 I II	
11539	100							

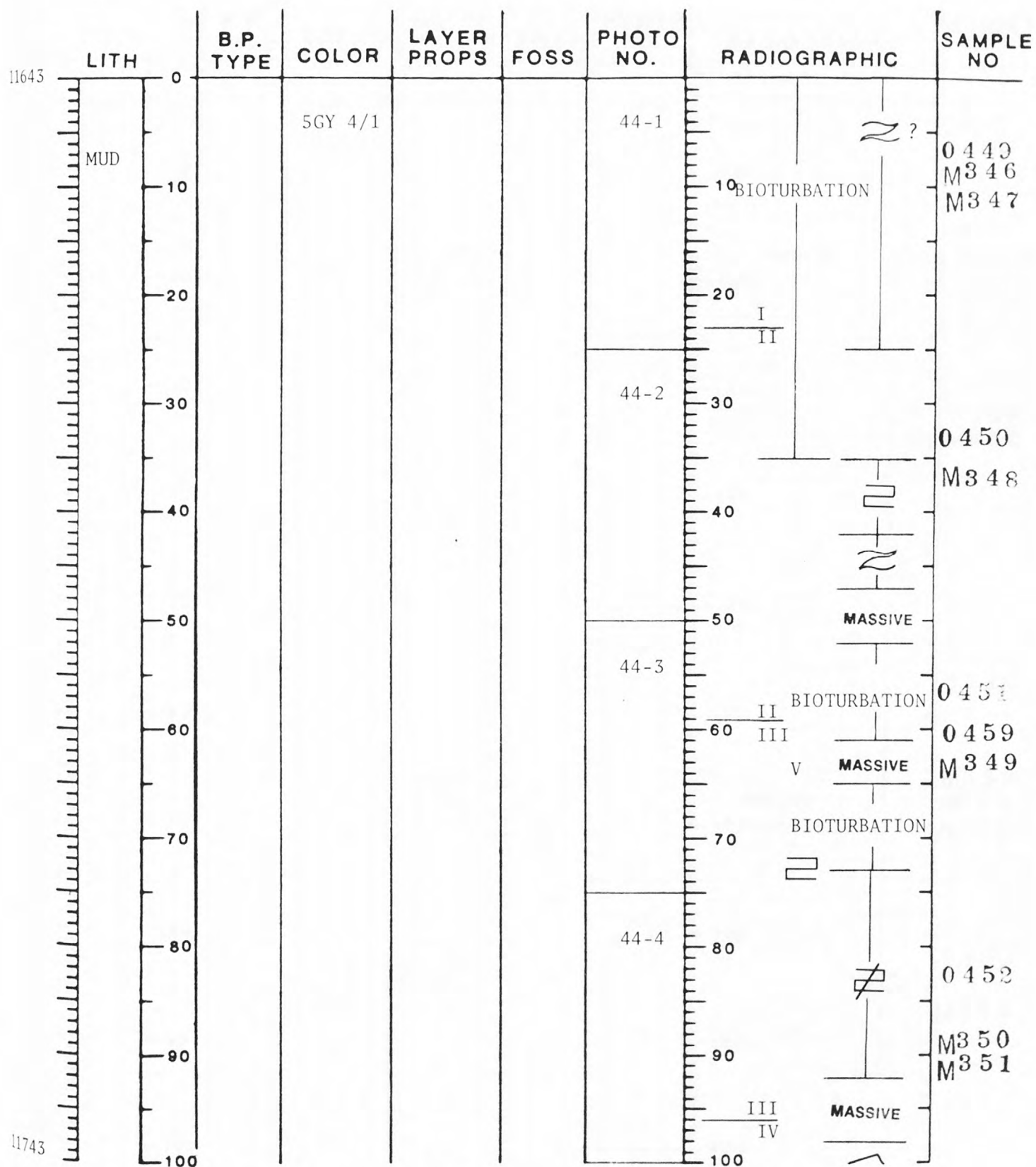
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 43 DEPTH 11559 to 11571 cm

DESCRIBED BY mjr and jds DATES JUL 31 1980 and NOV 4 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11539	0		5GY 4/1			43-9		
	MUD V							0447
	10						210	M344
							BIOTURBATION	M345
	20						220	
	30					43-10	230	
11571							MASSIVE	
							End Film 2	
	40						240	
	50						250	
	60						260	
	70						270	
	80						280	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 44 DEPTH 11643 to 11743 cm

DESCRIBED BY mjr and jds DATES JUL 31 1980 and NOV 4 1980 SHEET 1 of 3



PLANT FRAGMENTS ARE DISSEMINATED THROUGHOUT THE SEGMENT

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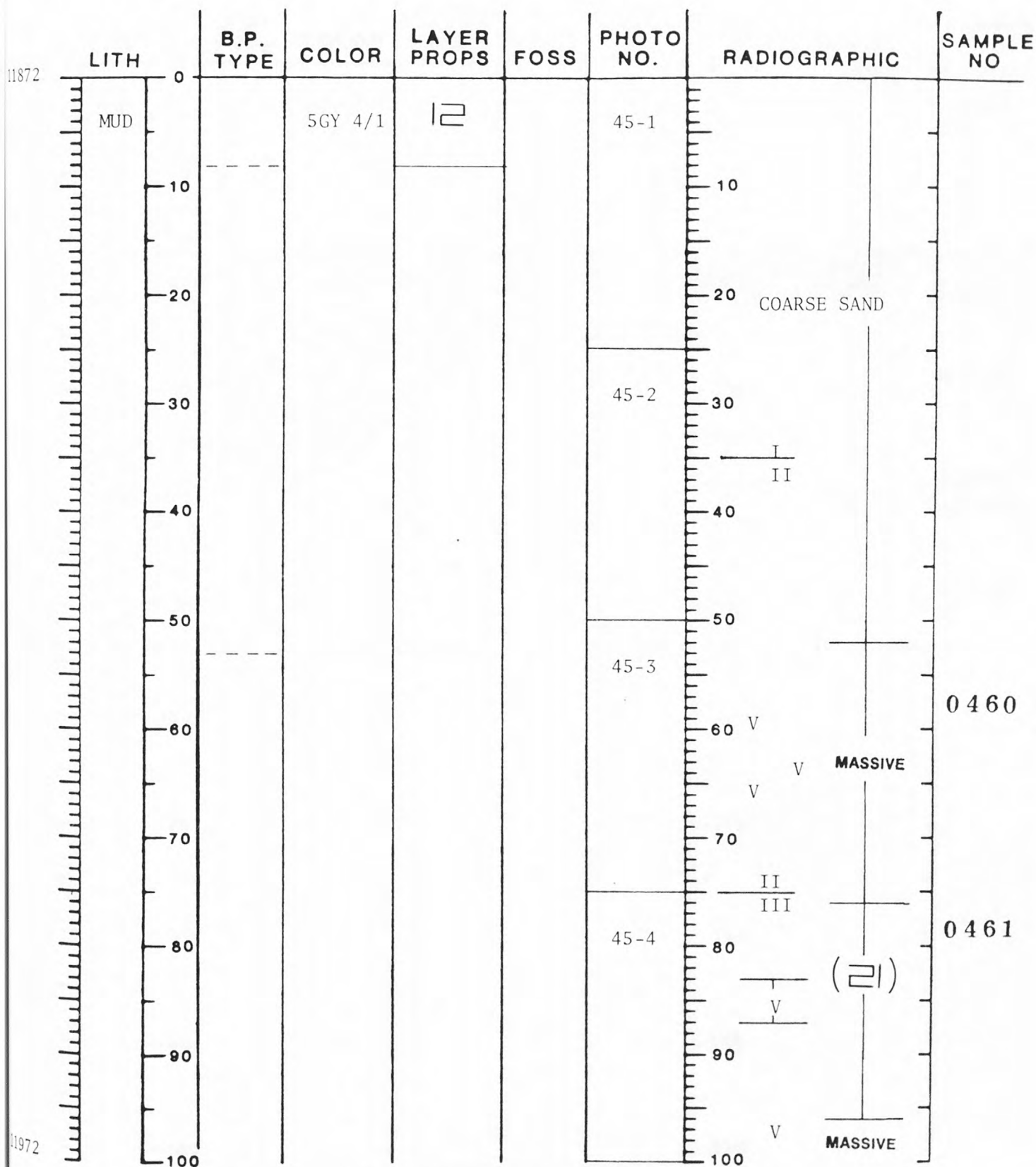
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 44 DEPTH 11843 to 11885 cm

DESCRIBED BY mjr and jds DATES JUL 31 1960 and NOV 4 1960 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11843	0		5GY 4/1			44-9		
	MUD							
	10						210 $\Delta\delta$ III V	0457
	20						V $-\Delta\delta$ 220	M357 M358
	30					44-10	230 $+\Delta\delta$	0458
	40						V 240 V	
11885								
	50						Note: THE DEPTH TO THE BOTTOM OF THIS SEGMENT(11885cm) IS GREATER THAN THE TOP OF THE FOLLOWING SEGMENT(11872cm) OWING TO EXPANSION	
	60						260 OF THIS CORE SEGMENT AFTER RETRIEVAL FROM THE HOLE. BECAUSE NO SAMPLES FALL IN THIS	
	70						270 13cm INTERVAL OF OVERLAP NO ADJUSTMENT OF SAMPLE DEPTHS IS MADE FOR POST-	
	80						280 RETRIEVAL EXPANSION	
	90						290	
	100						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 45 DEPTH 11872 to 11972 cm

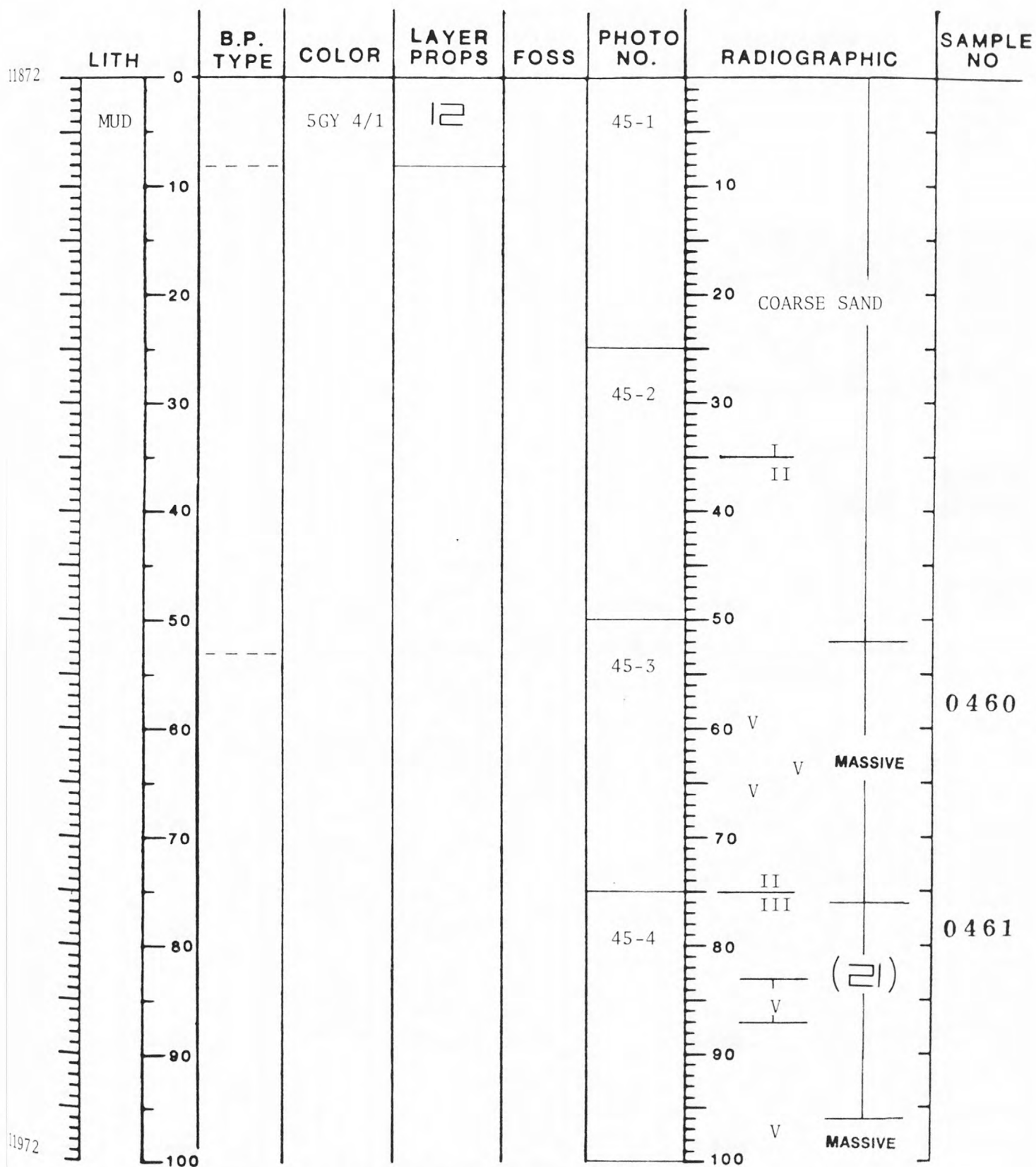
DESCRIBED BY mjr and jds DATES JUL 31 1993 and NOV 4 1999 SHEET 1 of 2



DISSEMINATED PLANT FRAGMENTS ARE PRESENT IN SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 45 DEPTH 11872 to 11972 cm

DESCRIBED BY mjr and jds DATES JUL 31 1969 and NOV 4 1969 SHEET 1 of 2



DISSEMINATED PLANT FRAGMENTS ARE PRESENT IN SEGMENT

DESCRIBED BY mjr and jds DATES JUL 31 1960 and NOV 4 1960 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
11972	0		5GY 4/1			45-5	MASSIVE	M3 59
	10							0462
	20						III IV	M3 60
	30					45-6	(12)	M3 61
	40							0463
	50					45-7	(21)	M3 62
	60						V	M3 63
	70							0464
12022	80						End Film 1	
	90							
	100							

FROM 112 - 124cm SEGMENT IS FRACTURED

DESCRIBED BY mjr and jds DATES JUL 31 1960 and NOV 4 1960 SHEET 1 of 2

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DESCRIBED BY mjr and jds DATES JUL 31 1960 and NOV 4 1960 SHEET 2 of 2

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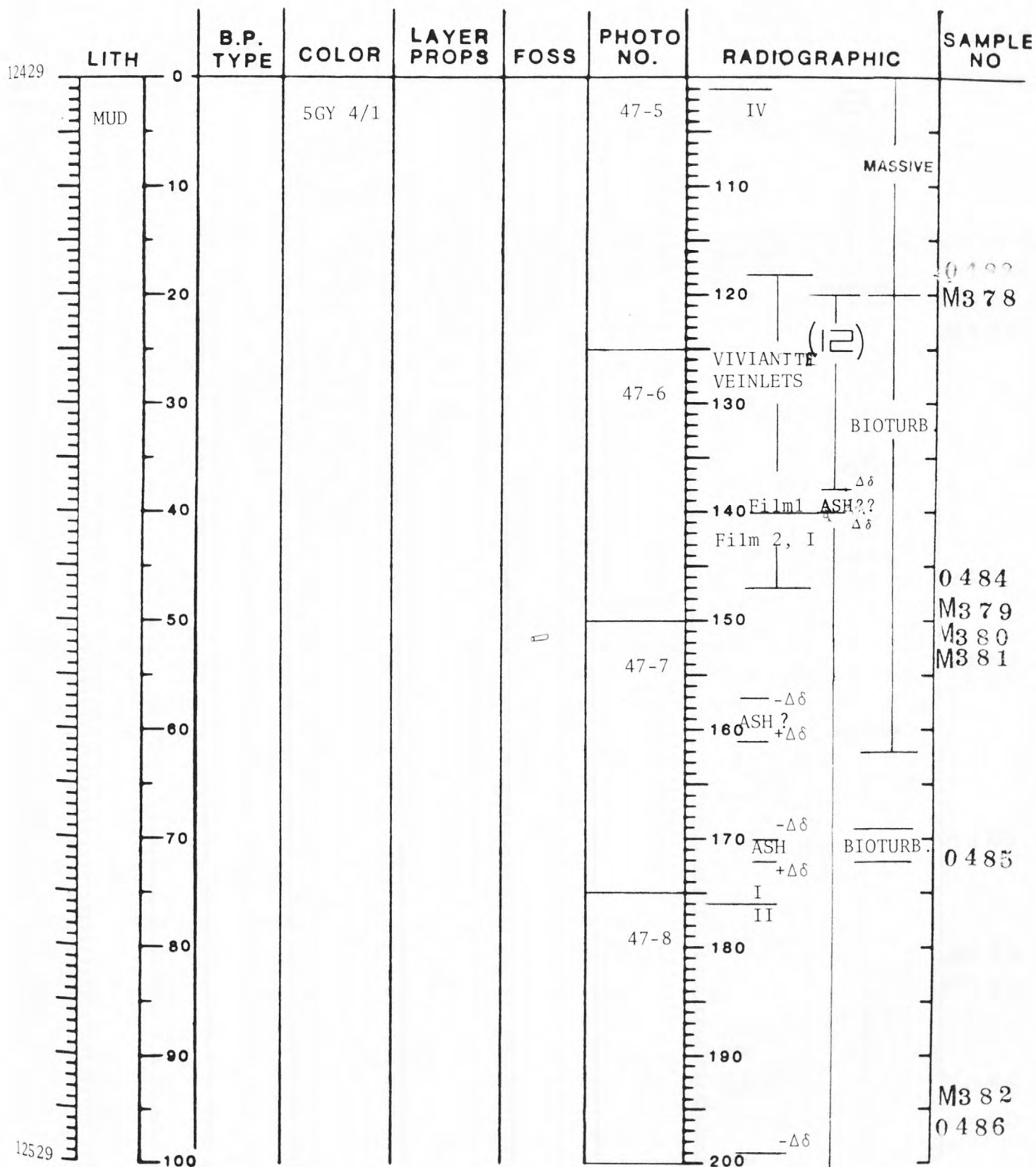
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 47 DEPTH 12329 to 12429 cm

DESCRIBED BY mjr and jds DATES JUL 31 1960 and NOV 4 1960 SHEET 1 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
12329	0		5GY 4/1			47-1		0478
	MUD						GRANULES	
	10							M373
							MASSIVE	M374
	20							0479
							I	
							II	
	30					47-2		
							($\neq$)	M375
							Ξ	0492
	40						$-\Delta\delta$	0491
	ASH						ASH	
							$+\Delta\delta$	0480
	MUD							
	50					47-3		
	60						II	M376
							III	
	70						MASSIVE	0481
							ϕ	
	80					47-4		
	90							M377
								0482
12429	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 47 DEPTH 12429 to 12529 cm

DESCRIBED BY mjr and jds DATES JUL 31 1980 and NOV 4 1980 SHEET 2 of 4



LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 47 DEPTH 12529 to 12629 cm

DESCRIBED BY mjr and jds DATES JUL 31 1960 and NOV 4 1960 SHEET 3 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
12529 MUD		5Y 5/1			47-9	ASH +Δδ	
		5G 4/1				210	
						II	
						III	
						220	0487 M383
					47-10	230	
						240	
						XOL*	0488
					47-11	250	M384
						260	
						III	
						IV	
						270	0489
					47-12	280 ∞	M385 M386
						290 Δδ	
						ASH?	M388
						Δδ	0490
12629						300	

*XOL=X-RAY OPAQUE LAMINA

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 47 DEPTH 12629 to 12634 cm

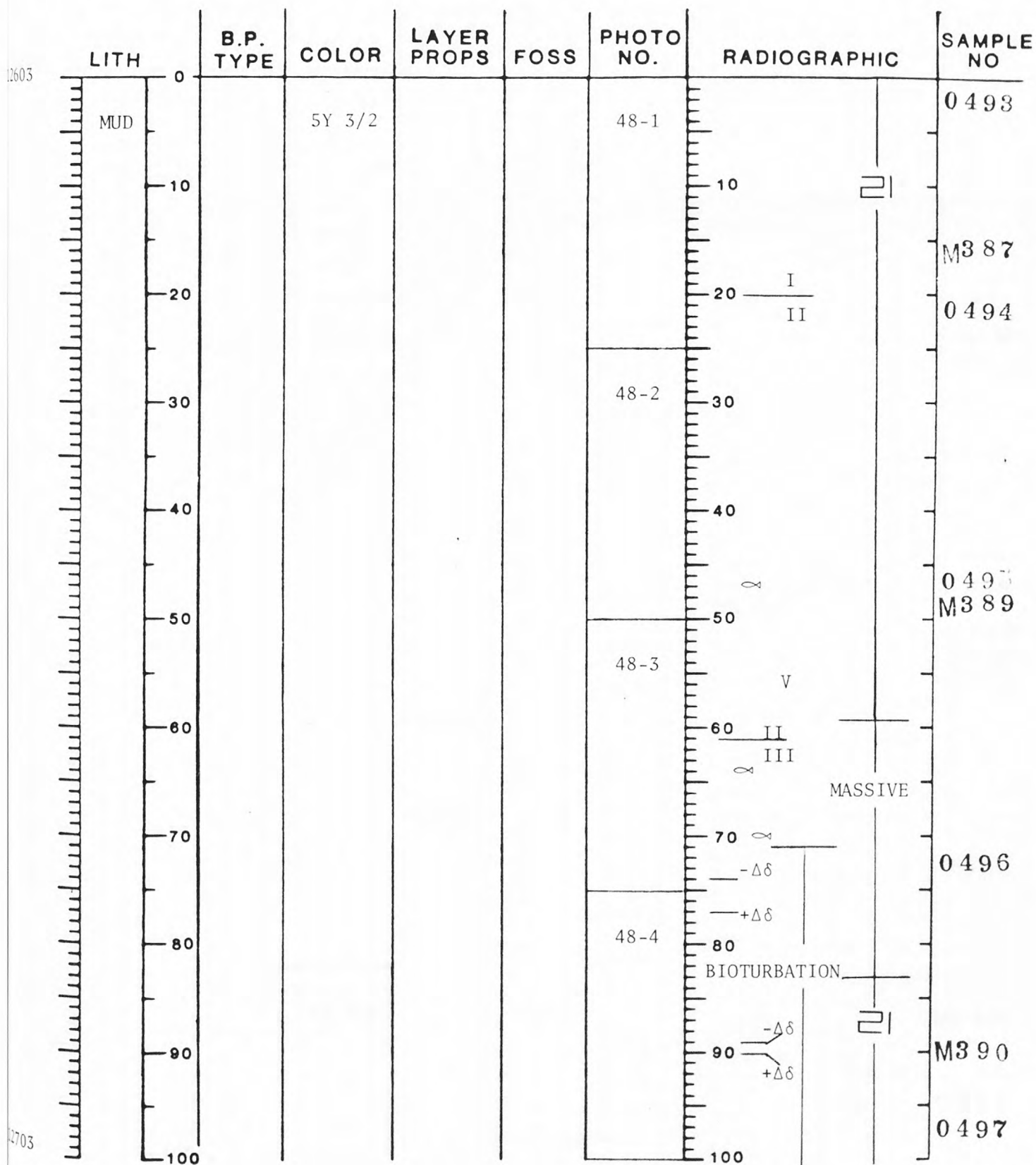
DESCRIBED BY mjr and jds DATES JUL 31 1969 and NOV 4 1969 SHEET 4 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
12629	0							
12634	MUD		5Y 4/1			47-13	MASSIVE	
	10							
	20							
	30							
	40							
	50							
	60							
	70							
	80							
	90							
	100							

Note: THE DEPTH TO THE BOTTOM OF THIS SEGMENT (12634cm) IS GREATER THAN THE DEPTH TO THE TOP OF THE FOLLOWING SEGMENT (12603cm) OWNING TO EXPANSION OF THIS CORE SEGMENT AFTER RETRIEVAL FROM THE HOLE. THE SAMPLES THAT FALL IN THIS 31cm RANGE ARE IN CORRECT STRATIGRAPHIC ORDER.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 48 DEPTH 12603 to 12703 cm

DESCRIBED BY mjr and jds DATES AUG 1 1980 and NOV 4 1980 SHEET 1 of 3



LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 48 DEPTH 12703 to 12803 cm

DESCRIBED BY mjr and jds DATES AUG 1 1980 and NOV 4 1980 SHEET 2 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
12703	0						
MUD		5Y 3/2			48-5	12 $\overline{\text{IV}}$ BIOTURBATION - $\Delta\delta$ ASH?	
	10					110 $\overline{\text{IV}}$ + $\Delta\delta$	
	20					- $\Delta\delta$ 120 $\overline{\text{IV}}$ ASH? + $\Delta\delta$	0498 M391
	30	5Y 3/1			48-6	130	
	40					140	
	50					Film 1, $\overline{\text{IV}}$ Film 2, I 150	0499 M392 M393 M394
	60				48-7	160	(12)
	70		(12)			170	
	80				48-8	180	0500
	90	5Y 3/2				I II 190	M395
	100					12	0501
12803						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 48 DEPTH 12803 to 12866 cm

DESCRIBED BY mjr and jds DATES AUG 1 1980 and NOV 4 1980 SHEET 3 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
12803	0		5Y 3/2			48-9		
	10						210	M 396
	20			(12)			220	0502
	30					48-10	II III FRACTURED	M397 M398
	40						230	
	50						240	
	60					48-11	250	0503
12866	70						260	
	80						270	
	90						280	
	100						290	
							300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 49 DEPTH 12908 to 13008 cm

DESCRIBED BY mjr and jds DATES AUG 1 1980 and NOV 4 1980 SHEET 1 of 4

12908	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
	0							
	MUD		5Y 4/3			49-1		0504
	10							
				(12)			BIOTURBATION	M399
	20							0505
						49-2		
	30							
							I	
	40						II	0506
	50					49-3	GRANULES	
	60							M401
	70							0507
	80					49-4	-Δδ	
							II	
							III	M402
							BIOTURBATION	
	90							0508
13008	100							

BIOTURBATION THROUGHOUT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 49 DEPTH 13108 to 13208 cm

DESCRIBED BY mjr and jds DATES AUG 1 1960 and NOV 4 1960 SHEET 3 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13108 MUD		5Y 3/2			49-9	-Δδ +Δδ	
10		5GY 4/1				210	
						BIOTURBATION	0513
20						220	
30					49-10	-Δδ +Δδ	M408 M409
						230	
40						II III	
						240	0514
50						VIVIANTE VEINLETS	
					49-11	250	
60						260	M410
70						270	0515
80					49-12	III IV	
						280	
90						MASSIVE	
						290	0516 M411 M412
13208						BIOTURBATION	
						300	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 49 DEPTH 13208 to 13227 cm

DESCRIBED BY mjr and jds DATES AUG 1 1960 and NOV 4 1960 SHEET 4 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13208	0							
	MUD		5GY 4/1			49-13	BIOTURBATION	
	10							
13227	20							
	30						Note: THE DEPTH TO THE BOTTEM OF THIS SEGMENT (13227cm) IS GREATER THAN THE DEPTH TO THE TOP OF THE FOLLOWING SEGMENT (13213cm) OWING TO EXPANSION OF THIS CORE SEGMENT AFTER RETRIEVAL FROM THE HOLE. BECAUSE NO SAMPLES FALL IN THIS 14cm INTERVAL OF OVERLAP NO ADJUSTMENT OF SAMPLE DEPTHS IS MADE FOR POST RETRIEVAL EXPANSION.	
	40							
	50							
	60							
	70							
	80							
	90							
	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 50 DEPTH 13213 to 13313 cm

DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 1 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13213	MUD		5GY 4/1			50-1		
	0							
	10							0523 M414
	20							M413
	30					50-2	I 30 II	
	40						(Ø)	0524 M415
	50				-			
	60					50-3		0525
	70							
	80				-			
	90					50-4	II 80 III	
13313	100							0526

BIOTURBATION THROUGHOUT SEGMENT
PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 50 DEPTH 13313 to 13413 cm

DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 2 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13313	0						
MUD		5GY 4/1			50-5		
	10					III 110 IV	0527 M416
	20						
	30				50-6		0528
	40						M417
	50					Film 1, IV 150 Film 2, I	M418
	60				50-7		0529
	70						
	80				50-8		M419
	90					I II	M420
13413	100						0530
	200						

BIOTURBATION THROUGHOUT SEGMENT

DESCRIBED BY mjr and jds DATES AUG 4 1960 and NOV 4 1960 SHEET 3 of 4

BIOTURBATION THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 50 DEPTH 13513 to 13518 cm

DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 4 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13513								
	0							
	MUD		5GY 4/1			50-13	BIOTURBATION (17)	
13518								
	10							
	20							
	30							
	40							
	50							
	60							
	70							
	80							
	90							
	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 51 DEPTH 13518 to 13618 cm

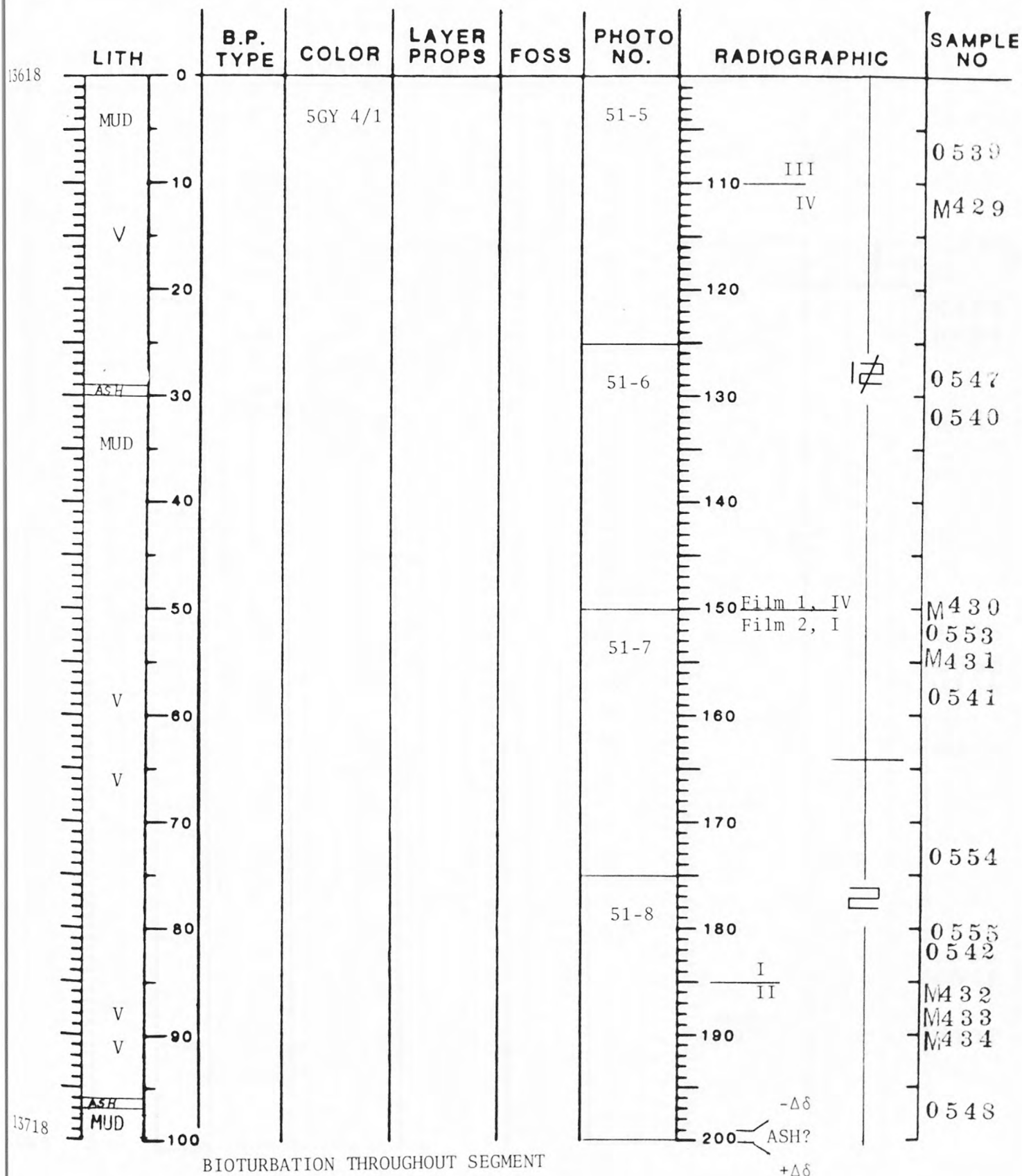
DESCRIBED BY mjr and jds DATES AUG 4 1960 and NOV 4 1960 SHEET 1 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13518	0		5GY 4/1			51-1		
	10							0535
	20							M425 M426
	30					51-2	I II	0536
	40						(17)	
	50							M427 0550
	60					51-3		0537 0551
	70						II III	
	80					51-4		M428 0538
	90							
13618	100							0552

BIOTURBATION THROUGHOUT SEGMENT.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 51 DEPTH 13618 to 13718 cm

DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 2 of 4



DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 3 of 4

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LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 51 DEPTH 13818 to 13824 cm

DESCRIBED BY mjr and jds DATES AUG 4 1960 and NOV 4 1960 SHEET 4 of 4

	LITH	0	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13818									
	MUD			5GY 4/1			51-13	2	
13824									
		10							
		20							
		30							
		40							
		50							
		60							
		70							
		80							
		90							
		100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 52 DEPTH 13838 to 13874 cm

DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 1 of 1

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
13838	0							0560
	MUD		5GY 4/1			52-1		M439
								M440
	10						10 (17) V?	0562
								0563
	20						20 V	
								M441
	30					52-2	30 V V	0561
13874								
	40						40	
	50						50	
	60						60	
	70						70	
	80						80	
	90						90	
	100						100	

PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 53 DEPTH 14173 to 14273 cm

DESCRIBED BY mjr and jds DATES AUG 4 1980 and NOV 4 1980 SHEET 1 of 4

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
14173 MUD		5GY 4/1			53-1	because sample is thin (4cm diameter) and badly fractured X-ray slab is substandard	
						10	
						20	
						I	
					53-2	II	0564
						30	
						MASSIVE	0573
						40	M0442
							M0443
						50	
					53-3		0565
						60	
						I	0570
						II	M044
						70	
					53-4		0566
						80	
						Poor Radiograph	
						90	
V						100	
14273							

SEGMENT IS LOCALLY FRACTURED AND SOME SECTIONS HAVE BEEN ROTATED AS MUCH AS 30 DEGREES (SEE PHOTOS). PLANT FRAGMENTS DISSEMINATED THROUGHOUT SEGMENT. FROM 75cm FROM THE TOP OF THE SAMPLE TO THE BOTTOM OF SEGMENT, SAMPLE HAS BEEN WINNOWED TO 4cm IN DIAMETER DUE TO PROLONGED WASHING DURING DRILLING.

DESCRIBED BY mjr and jds DATES AUG 4 1960 and NOV 4 1960 SHEET 2 of 4

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LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 53 DEPTH 14373 to 14473 cm

DESCRIBED BY mjr and jds DATES AUG 4 1960 and NOV 4 1960 SHEET 3 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
14373	0		5GY 4/1			53-9		
	10						210	
	20						220	
	30					53-10	230	
	40						240	
	50						250	
	60					53-11	260	
	70						270	
	80					53-12	280	
	90						290	
14473	100						300	

NO RADIOGRAPH

0575
M0442
M0449

0568

0571

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 53 DEPTH 14473 to 14477 cm

DESCRIBED BY mjr and jds DATES AUG 4 1960 and NOV 4 1960 SHEET 4 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
14473	0							
14477	MUD		5GY 4/1			53-13	NO RADIOGRAPH	0574
	10						Note: THE DEPTH TO THE BOTTOM OF THIS SEGMENT (14477cm) IS GREATER THAN THE DEPTH TO THE TOP OF THE FOLLOWING SEGMENT (14463cm) OWING TO EXPANSION OF THIS CORE SEGMENT AFTER RETRIEVAL FROM THE HOLE. BECAUSE NO SAMPLES FALL IN THIS 14cm INTERVAL OF OVERLAP NO ADJUSTMENT OF SAMPLE DEPTHS IS MADE FOR POST RETRIEVAL EXPANSION.	
	20							
	30							
	40							
	50							
	60							
	70							
	80							
	90							
	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 54 DEPTH 14463 to 14563 cm

DESCRIBED BY mjr and jds DATES AUG 5 1980 and NOV 5 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
14463	0							
	MUD		5GY 4/1			54-1		
							BIOTURBATION	M0150
	10							M0151
								0556
							SEE NOTE	
	20							
						54-2		
	30							
							I	0557
	40						II	M0452
	50					54-3		
	60							0558
							II	
							III	
	70							
						54-4		M0453
	80							
	90						MASSIVE	0559
14563	100							

Note: LENTICULAR LAMINAE(?) COMPOSED OF X-RAY OPAQUE GRANULES

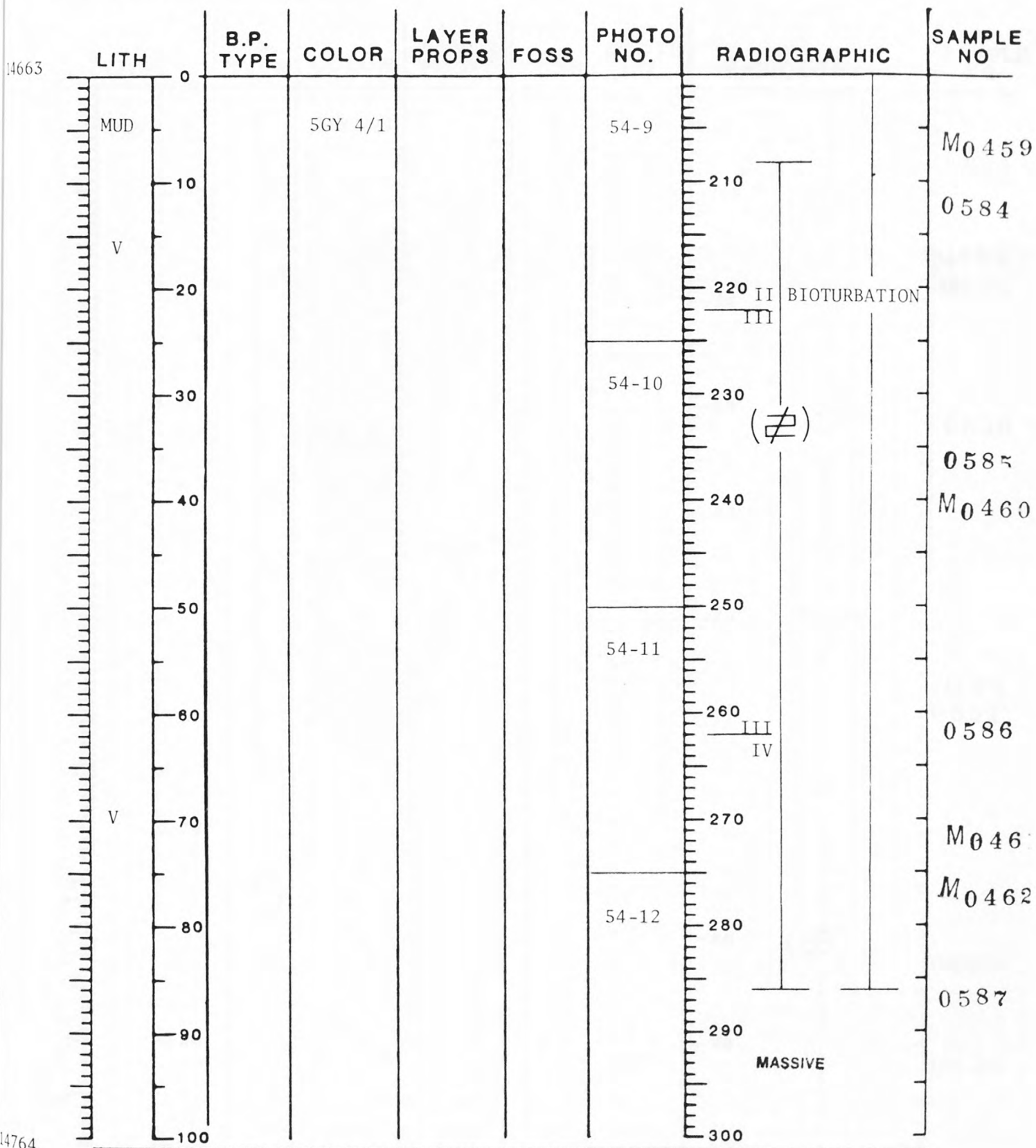
LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 54 DEPTH 14563 to 14663 cm

DESCRIBED BY mjr and jds DATES AUG 5 1960 and NOV 5 1960 SHEET 2 of 3

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
14563	0				54-5		
MUD		5GY 4/1				III IV	
	10					110	
	20					120	M0455 0580
						MASSIVE	
	30				54-6	V	
V						130	
V	40					140	0581 M0456 0457
	50					Film 1, IV Film 2, I	
						150 $-\Delta\delta$	
	60				54-7	ASH??	
						160 $+\Delta\delta$	0582
	70					BIOTURBATION	
V						170	M0458
	80				54-8	180 I II	
	90					190	0583
14663	100					200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 54 DEPTH 14663 to 14764 cm

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LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 55 DEPTH 14768 to 14868 cm

DESCRIBED BY mjr and jds DATES AUG 6 1980 and NOV 5 1980 SHEET 1 of 3

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
14768	0							
	MUD		5GY 4/1			55-1		
								0589
							($\neq$)	
								M463
								M464
							I II	
						55-2		
								0590
	ASH		7.5YR 7/0					
	MUD		5GY 4/1					
							MASSIVE	
						55-3		
								M465
								0591
							II III	
	V							
						55-4		
								0592
							($\neq$)	
								M466
14868	100							

BIOTURBATION THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 55 DEPTH 14868 to 14968 cm

DESCRIBED BY mjr and jds DATES AUG 6 1980 and NOV 5 1980 SHEET 2 of 3

14868

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
MUD		5GY 4/1			55-6	III IV (⊗)	0593
						110	
						120	
					55-7	MASSIVE	M467
						130	M468
							0594
						140 Film 1, III Film 2, I	
						150	
					55-8	(⊗ ?)	0595
						160	M469
						170	
					55-9	I II	
						180	0596
						190	
						MASSIVE	M470
							M471
							M472
						200	

14968

BIOTURBATION THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 55 DEPTH 14868 to 14968 cm

DESCRIBED BY mjr and jds DATES AUG 6 1980 and NOV 5 1980 SHEET 2 of 3

14868

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
MUD		5GY 4/1			55-6	III IV ($\neq$)	0593
						110	
						120	
					55-7	MASSIVE	M467 M468 0594
						130	
						140 Film 1, III Film 2, I	
						150	
					55-8	($\neq$?)	0595
						160	M469
						170	
					55-9	I II	
						180	0596
						190	
						MASSIVE	M470 M471 M472
						200	

14968

BIOTURBATION THROUGHOUT SEGMENT

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14968

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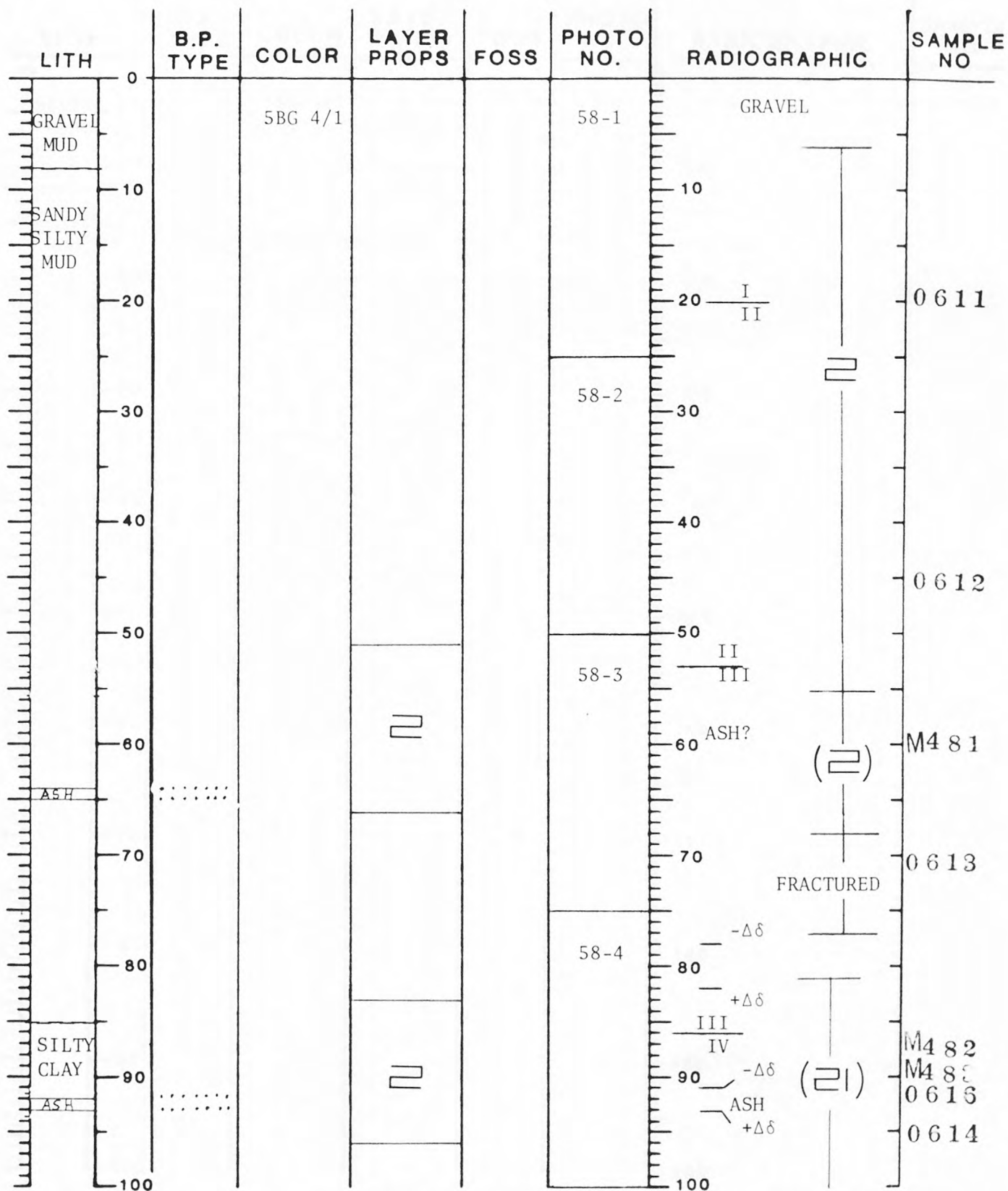
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LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0							
MUD		5BG 4/1			57-1		
10							0609
SANDY MUD							
20							0610
PEBBLY MUD		5G 4/1			57-2	NO RADIOGRAPH	
30							
40							
50							
60							
70							
80							
90							
100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 58 DEPTH 15530 to 15630 cm

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15530



15630

CORE BADLY BROKEN AND ROTATED IN INTERVALS 21 - 26cm, 43 - 54cm, 66 - 83cm, AND 96 - 106cm.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 58 DEPTH 15630 to 15646 cm

DESCRIBED BY mjr and jds DATES AUG 7 1980 and NOV 5 1980 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
15630	0		5BG 4/1			58-5		
	SILTY CLAY							
	10			≡			110	
15646	GRAVE MUD							
	20						120	
	30						130	
	40						140	
	50						150	
	60						160	
	70						170	
	80						180	
	90						190	
	100						200	

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 59 DEPTH 15834 to 15934 cm

DESCRIBED BY mjr and jds DATES AUG 7 1960 and NOV 5 1960 SHEET 1 of 2

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0					59-1		
MUD					Note:	FRACTURED DRILLING DISTURBANCE	
10						I II	0617
20							
CLAY					59-2		M484
30							485
40						MASSIVE	0618
50						II III	
60					59-3		0619
70							
80					59-4		M486
90						III IV	0620
100						-Δδ ASH +Δδ	

15934

Note: LABEL NOT RECORDED AT BEGINNING OF PHOTO RUN BUT AT END.

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 59 DEPTH 15934 to 16039 cm

DESCRIBED BY mjr and jds DATES AUG 7 1960 and NOV 5 1960 SHEET 2 of 2

5934

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
CLAY					59-5		
						110	M488
						MASSIVE	0621
						120	M489
SANDY MUD						Film 1, IV	
					59-6	Film 2, I	
						130	
						140	0622
						150	
					59-7	((=))	
						160 I	
						II	0623
						170	
			≠				
					59-8		M490
						180	M491
						190	
						(≠)	0624
						DRILLING DISTURBANCE	
						200	
					59-9		

6039

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 60 DEPTH 16139 to 16239 cm

DESCRIBED BY mjr and jds DATES AUG 8 1980 and NOV 5 1980 SHEET 1 of 4

16139

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0						DRILLING DISTURBANCE	
SILTY CLAY		5GY 4/1			60-1		0637
10							0625
20							
30					60-2	I II	M492
40							M493
50							0626
60					60-3		0627
70						II III	M494
ASH							0639
80					60-4	- $\Delta\delta$ ASH? + $\Delta\delta$ - $\Delta\delta$ ASH? + $\Delta\delta$	0638
90							0628
100							M495

16239

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 60 DEPTH 16239 to 16339 cm

DESCRIBED BY mjr and jds DATES AUG 8 1980 and NOV 5 1980 SHEET 2 of 4

16239

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0 SILTY CLAY 10 ASH 20 30 40 50 60 70 80 90 100		5GY 4/1			60-5 60-6 60-7 60-8	110 III $-\Delta\delta$ IV $+\Delta\delta$ $-\Delta\delta$ ASH $+\Delta\delta$ ASH? BIOTURB. (≡) Film 1, IV Film 2, I 150 (≠) 170 $-\Delta\delta$ ASH?? $+\Delta\delta$ 180 I II 190 200	0629 0630 M496 M497 0631 M498 0632

16339

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 60 DEPTH 16339 to 16439 cm

DESCRIBED BY mjr and jds DATES AUG 8 1980 and NOV 5 1980 SHEET 3 of 4

16339

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0						BIOTURBATION ($\neq$)	
SILTY CLAY		5GY 4/1			60-9		
10						210 $-\Delta\delta$ ($\neq$) ASH $+\Delta\delta$	0633
20						220 II III	M499
30					60-10	BIOTURBATION	0640
40						230	
50						240 $-\Delta\delta$ MASSIVE ASH? $+\Delta\delta$	0634
60					60-11	250 ($\neq$)	
70						260	0635 M500
ASH						$\Delta\delta$ BIOTURBATION ASH $+\Delta\delta$	0641
80					60-12	270	
90						280 ($\neq$)	0636
100						290	M501 M502
						300	

16439

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 60 DEPTH 16439 to 16444 cm

DESCRIBED BY mjr and jds DATES AUG 8 1980 and NOV 5 1980 SHEET 4 of 4

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
16439	0							
16444	SILTY CLAY		5GY 4/1			60-13		
	10							
	20							
	30							
	40							
	50							
	60							
	70							
	80							
	90							
	100							

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 61 DEPTH 16444 to 16544 cm

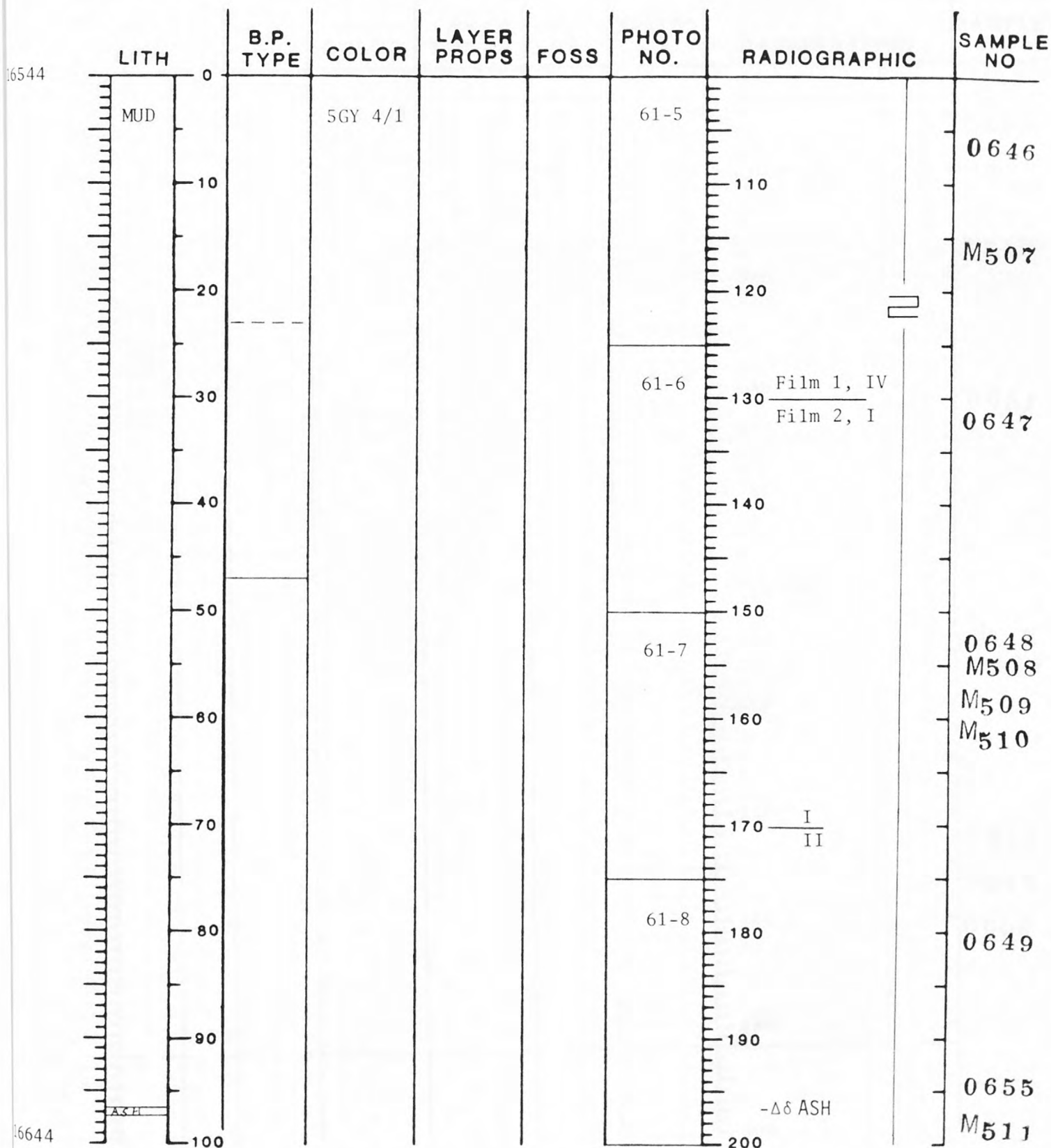
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16444

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
0						DRILLING DISTURBANCE	
MUD		5GY 4/1			61-1		M503
10							0642
							M504
20							
30					61-2		0643
SILTY CLAY						DRILLING DISTURBANCE	
40							
50					61-3		M505
							0644
MUD							
60							
70							
80					61-4		0654
ASH?							0645
90							M506
100							

16544

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BIOTURBATION THROUGHOUT SEGMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 61 DEPTH 16644 to 16736 cm

DESCRIBED BY mjr and jds DATES AUG 9 1980 and NOV 5 1980 SHEET 3 of 3

16644

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
MUD		5GY 4/1			61-9		0650
						210 $\frac{II}{III}$	
							M512
						220	
SILTY CLAY							
					61-10		0651
MUD						230	
						240	
						250 $\frac{III}{IV}$	
					61-11		M513
						260	0652
						270	
							514
					61-12		M515
						280	0653
						290	
						300	

16736

BIOTURBATION THROUGHOUT SEGEMENT

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 62 DEPTH 16749 to 16849 cm

DESCRIBED BY mjr and jds DATES AUG 9 1980 and NOV 5 1980 SHEET 1 of 2

16749

LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
MUD		5GY 5/1	12		62-1		0656
SILTY CLAY							
MUD							M516
SILTY CLAY							0657
					62-2		
MUD			12			NO RADIOGRAPH	M517
						0-69cm not radiographed.	
			12			This part is too cemented to cut.	0658
ASH					62-3		0661
MUD		(5Y 7/1)					0662
ASH		5Y 6/1					M518
							0663
							0659
SAND WITH SILT AND PEBBLES		5BG 4/1			62-4		
						MASSIVE	
						PEBBLY	
							M519

16849

LAKE CLEAR LAKE, CALIF. CORE CL-80-1 SEGMENT 62 DEPTH 16849 to 16865 cm

DESCRIBED BY mjr and jds DATES AUG 9 1990 and NOV 5 1990 SHEET 2 of 2

	LITH	B.P. TYPE	COLOR	LAYER PROPS	FOSS	PHOTO NO.	RADIOGRAPHIC	SAMPLE NO
16849	0 SAND		5BG 4/1			62-5	PEBBLY	0660
	10 SILTY SAND							
16865	20						120	
	30						130	
	40						140	
	50						150	
	60						160	
	70						170	
	80						180	
	90						190	
	100						200	

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