

LITHOLOGIC LOGS FROM KOEHN DRY LAKE TEST WELL NO. 4

Depth (Feet)	Depth (Meters)	Description
0 - 37.5	0 - 11.4	CLAY, moderate-yellowish-brown (10YR 5/4), calcareous, with scattered biotite and muscovite flakes as much as 1 mm (0.04 in.) across. Unit contains a minor amount of frosted medium gypsum(?) grains from 0 to 1.5 m (0 to 5 ft). Clay oxidizes dark-yellowish-brown (10YR 4/2) from 0 to 9.1 m (0 to 30 ft) and moderate-yellowish-brown (10YR 5/4) from 9.1 to 11.4 m (30 to 37.5 ft)
37.5 - 39	11.4 - 11.9	CLAY, micaceous
39 - 44	11.9 - 13.4	CLAY, micaceous, with calcite along partings and scattered ostracodes
44 - 45	13.4 - 13.7	CLAY, black (N 1) calcareous. Clay oxidizes light-olive-gray (5Y 5/2)
45 - 52	13.7 - 15.8	CLAY, moderate-olive-brown (5Y 4/4), calcareous. Clay oxidizes light-olive-gray (5Y 5/2)
52 - 53	15.8 - 16.2	CLAY, greenish-gray (5GY 6/1), calcareous. Clay oxidizes light-olive-gray (5Y 5/2)
53 - 55	16.2 - 16.8	CLAY, variegated, black (N 1) and greenish-black (5GY 2/1), calcareous, with scattered very fine mica flakes. Clay tastes slightly salty and oxidizes light-olive-gray (5Y 5/2)
55 - 258	16.8 - 78.6	CLAY, black (N 1), calcareous, with scattered biotite and muscovite or chlorite as much as 0.5 mm (0.02 in.) across. Abundant mica occurs along partings from 22.9 to 24.4 m (75 to 80 ft). Calcite is common along partings from 22.9 to 24.4 m (75 to 80 ft) and 44.2 to 45.7 m (145 to 150 ft). Scattered ostracodes occur from 21.3 to 29.0 m (70 to 95 ft), being fairly abundant from 22.9 to 24.4 m (75 to 80 ft). Hydrogen sulfide smell was noted at 18.3, 21.9, and 25.2 m (60, 72, and 86 ft) and ammonia at 27.1 m (89 ft). Black (N 1) and greenish-black (5GY 2/1) variegated clay occurs from 21.3 to 24.4 m (70 to 75 ft). Unit contains grayish-green (5GY 6/1) laminae as much as 3 mm (0.12 in.) thick from 41.1 to 42.7 m (135 to 140 ft) and from 77.7 to 78.6 m (255 to 258 ft)
258 - 262	78.6 - 79.9	CLAY, dark-greenish-gray (5GY 4/1), calcareous. Clay oxidizes greenish-gray (5GY 6/1)
262 - 270	79.9 - 82.3	CLAY, greenish-gray (5GY 6/1), calcareous, with scattered biotite flakes as much as 0.5 mm (0.02 in.) across. Clay oxidizes light-olive-gray (5Y 5/2) from 79.9 to 80.8 m (262 to 265 ft) and grayish-olive (10Y 4/2) from 80.8 to 82.3 m (265 to 270 ft)
270 - 283	82.3 - 86.3	CLAY, olive-gray (5Y 4/1), calcareous, with abundant mica along bedding planes. Clay oxidizes grayish-olive (10Y 4/2)
283 - 285	86.3 - 86.9	CLAY, dark-greenish-gray (5GY 4/1), calcareous, with scattered mica as much as 0.5 mm (0.02 in.) across. Clay oxidizes grayish-olive (10Y 4/2)
285 - 289	86.9 - 88.1	CLAY, greenish-gray (5GY 6/1), calcareous, with abundant biotite and chlorite flakes as much as 1.0 mm (0.04 in.) across. Clay oxidizes grayish-olive (10Y 4/2)
289 - 293	88.1 - 89.3	CLAY, dark-greenish-gray (5GY 4/1), calcareous, with scattered mica as much as 0.5 mm (0.02 in.) across. Clay oxidizes grayish-olive (10Y 4/2)
293 - 295	89.3 - 89.9	CLAY, lithology similar to 88.1 - 89.3 m (289 - 293 ft), but clay is olive-gray (5Y 4/1)
295 - 300	89.9 - 91.4	CLAY, dark-greenish-gray (5GY 4/1), calcareous. Clay oxidizes grayish-olive (10Y 4/2)
300 - 302	91.4 - 92.1	CLAY, greenish-gray (5GY 6/1), calcareous, with scattered chlorite and biotite as much as 0.5 mm (0.02 in.) across and masses of calcite crystals along bedding planes. Clay oxidizes grayish-olive (10Y 4/2)
302 - 303.5	92.1 - 92.5	CLAY, lithology similar to 91.4 - 92.0 m (300 - 302 ft), but clay is dark-greenish-gray (5GY 4/1)
303.5 - 305	92.5 - 93.0	CLAY, interlaminated, dark-greenish-gray (5GY 4/1) and greenish-gray (5GY 6/1), calcareous. Laminae are as much as 6.4 mm (0.25 in.) thick and contain scattered chlorite and biotite as much as 0.5 mm (0.02 in.) across. Clay oxidizes grayish-olive (10Y 4/2)
305 - 310	93.0 - 94.5	CLAY, olive-gray (5Y 4/1), less calcareous than above, with scattered mica. Clay oxidizes grayish-olive (10Y 4/2)
310 - 315	94.5 - 96.0	CLAY, lithology same as 92.5 - 93.0 m (303.5 - 305 ft)
315 - 323	96.0 - 98.4	CLAY, light-olive-gray (5Y 5/2), calcareous, with scattered mica as much as 0.5 mm (0.02 in.) across. Clay oxidizes grayish-olive (10Y 4/2)
323 - 331	98.4 - 100.9	CLAY, variegated, moderate-olive-brown (5Y 4/4) and light-olive-gray (5Y 5/2), calcareous, with scattered mica as much as 1.0 mm (0.04 in.) across. Clay oxidizes grayish-olive (10Y 4/2) to light-olive-gray (5Y 5/2)
331 - 333	100.9 - 101.5	CLAY, light-olive-gray (5Y 5/2), calcareous, with scattered mica. Unit contains one thin [less than 25 mm (1 in.)] layer of claystone. Clay oxidizes light-olive-gray (5Y 5/2)
333 - 336.5	101.5 - 102.6	CLAY, interbedded, light-olive-brown (5Y 5/6) and light-olive-gray (5Y 5/2), calcareous, with scattered mica as much as 0.5 mm (0.02 in.) across. Clay oxidizes light-olive-gray (5Y 5/2)
336.5 - 339	102.6 - 103.3	CLAY, moderate-olive-brown (5Y 4/4), calcareous, with scattered mica flakes as much as 0.5 mm (0.02 in.) across. Unit contains three light-olive-brown (5Y 5/6) claystone layers as much as 25 mm (1.0 in.) thick. Clay oxidizes light-olive-gray (5Y 5/6)
339 - 343	103.3 - 104.5	CLAY, lithology similar to 102.4 - 103.3 m (336 - 339 ft), but clay is light-olive-gray (5Y 5/6)
343 - 345	104.5 - 105.2	CLAY, moderate-olive-brown (5Y 4/4), calcareous. Clay oxidizes light-olive-gray (5Y 5/2)
345 - 368	105.2 - 112.2	CLAY, interbedded, light-olive-brown (5Y 5/6) and moderate-olive-brown (5Y 4/4), calcareous, with scattered mica. Clay beds are as much as 2 ft thick. Unit contains gritty calcareous partings from 108.2 to 109.7 m (355 to 360 ft) and scattered fine gypsum(?) grains from 109.7 to 111.3 m (360 to 365 ft). Clay oxidizes light-olive-gray (5Y 5/2) from 105.2 to 109.7 m (345 to 360 ft) and dark-yellowish-brown (10YR 4/2) from 109.7 to 112.2 m (360 to 368 ft)
368 - 369	112.2 - 112.5	CLAY, dark-gray (N 3), calcareous. Clay oxidizes dark-yellowish-brown (10YR 4/2)
369 - 374.5	112.5 - 114.1	CLAY, black (N 1), calcareous, minor mica at top of unit becoming abundant below 112.8 m (370 ft). Mica is less than 0.25 mm (0.01 in.) across. Unit contains scattered ostracodes. Clay oxidizes grayish-olive (10Y 4/2)
374.5 - 384	114.1 - 117.0	CLAY, lithology similar to 112.5 - 114.1 m (369 374.5 ft), but clay is greenish-gray (5GY 4/1) from 114.1 to 115.8 m (374.5 to 380 ft) and dark-greenish-gray (5GY 4/1) from 115.8 to 117.0 m (380 to 384 ft)
384 - 389	117.0 - 118.6	CLAY, interlaminated, black (N 1) and dark-greenish-gray (5GY 4/1), calcareous, with scattered mica and ostracodes. Clay oxidizes grayish-olive (10Y 4/2)
389 - 390	118.6 - 118.9	CLAY, dark-greenish-gray (5GY 4/1), calcareous, with occasional greenish-gray (5GY 6/1) and dark-gray (N 3) laminae as much as 1.6 mm (0.06 in.) thick. Unit contains scattered mica and ostracodes. Clay oxidizes grayish-olive (10Y 4/2)
390 - 398	118.9 - 121.3	CLAY, black (N 1), calcareous, with a few ostracodes. Unit is speckled with numerous white carbonate(?) masses as much as 1 mm (0.04 in.) across. Clay oxidizes moderate-olive-brown (5Y 4/4) from 118.9 to 120.4 m (390 to 395 ft) and grayish-olive (10Y 4/2) from 120.4 to 121.3 m (395 to 398 ft)
398 - 400	121.3 - 121.9	CLAY, dark-greenish-gray (5GY 4/1), calcareous. Unit contains scattered ostracodes. Clay oxidizes grayish-olive (10Y 4/2)

EXPLANATION

INTRODUCTION

This report presents lithologic data from Koehn Dry Lake, California. These data provided leaseable mineral resource input to the Bureau of Land Management's comprehensive long-range plan for the management, use, development, and protection of public lands within the California Desert Conservation Area (index map). This plan was authorized by the Federal Land Policy and Management Act of October 21, 1976 (Public Law 94-579).

TEST WELL NO. 4
DRILLING AND LITHOLOGIC LOGGING TECHNIQUES

The test well was completed in December 1978 using the reverse circulation drilling technique. During drilling, either air or water or both, were pumped between the outer and inner walls of the dual-wall drill pipe to an open-face insert bit. The drilling fluids and cuttings were then forced up the inner opening of the drill pipe to the surface. This technique allows recovery of uncontaminated sediment samples. In situ ground water was used as a drilling fluid as much as possible; when this was not possible a fine mist of imported fresh water and air was used.

Lithologic characteristics of the sampled drill cuttings were described in the field. Field descriptions were later supplemented during laboratory examination. The rock color chart (Goddard and others, 1948) was used to describe sample color. All color classifications were made on damp to wet cuttings. Sediment names were described using the classification scheme of Wentworth (1922). The term "clay" is used only in the sense of particle size (less than 4 microns) and does not infer mineralogical content. Percentages of lithologic constituents listed in the description are approximate.

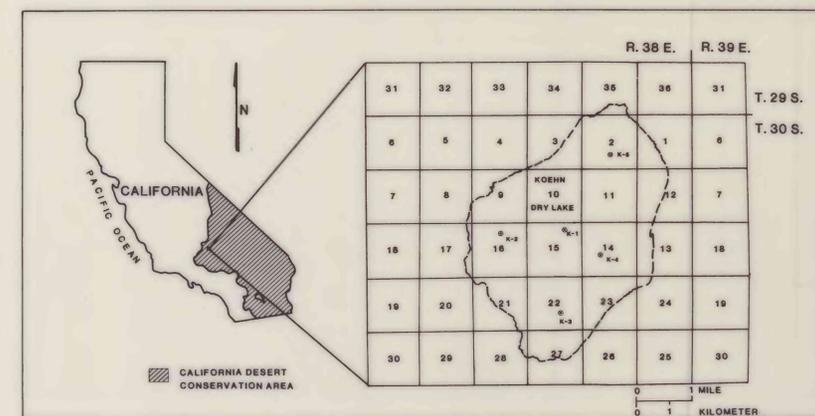
ACKNOWLEDGEMENTS

G. Thomas Server provided oxidation color descriptions.

REFERENCES

Goddard, E. N., chm., and others, 1948, Rock-color chart: National Research Council, reprinted by Geological Society of America, 1951, 1963, 1970, 6 p.
Wentworth, C. K., 1922, A scale of grade and class terms for clastic sediments: Journal of Geology, v. 30, p. 377-392.

INDEX MAP



TEST WELL LOCATION

K-4
Latitude: 35° 19' 24" N.
Longitude: 117° 52' 23" W.
NW1/4 NE1/4 SW1/4 sec. 14, T. 30 S., R. 38 E.
Mount Diablo Meridian

This report has not been edited for conformity with Geological Survey editorial standards

PRELIMINARY
LITHOLOGIC AND WATER QUALITY DATA FROM TEST WELLS ON
KOEHN DRY LAKE, KERN COUNTY, CALIFORNIA

By Roger D. Dockter

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