11. X-RAY MINERALOGY STUDIES – LEG 2

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METHODS

Semi-quantitative analyses of the crystalline components in sediments can be made by the use of X-ray powder diffraction techniques. The method used for this study is called the method of mutual standards, mutual ratios, or multiple ratios. It has been in use approximately twenty years by a number of industry and governmental laboratories, and is particularly useful for semi-quantitative ranking of relative mineral abundances. The percentage given in the analyses constitutes the percentage of those crystalline components defined to constitute 100 per cent of the sediment in question. Consequently, minerals not included in the calibration matrix may be present in the sediment, but they are ignored in calibrating the sum of the components. In addition, amorphous materials are excluded.

The bulk mineralogy analytical data presented here are obtained from carefully ground sediment samples that have been washed free of sea salts. Consequently, diffraction patterns show little or no trace of halite and gypsum. The samples were ground under *n*-butanol for two hours in alumina, motor-driven mortar and pestle grinders. The samples were then moistened with water and treated with tri-*n*-hexyl amine acetate according to the method of Rex and Bauer (1965). Moistening the specimen prior to the use of amine reagent was essential as water acts as a catalyst. The X-ray diffraction spacing for montmorillonite produced by the use of the amine reagent was 18.0 A° which is the same value obtained with glycerol. This reagent expanded corrensite and rectorite in the same fashion as does glycerol.

The calibration factor for plagioclase was based on the assumption that they are intermediate in composition. The mica calibration was based on very fine grained sedimentary K-mica, such as that which is typical of the acid insoluble fractions of limestone called illite by some workers. The phillipsite used was obtained from the horizon nodule. The clinoptilolite was provided by Dr. R. Hay. The cristobalite standard was a diagenetic alteration product of the recrystallization of diatomite from the Monterey Formation, Lompoc, California. The remainder of the standard mineral specimens were from relatively conventional sources of mineral standards, such as, museums, Ward's Scientific Supply and personal collections.

The presence or absence of a mineral in these computer prepared lists does not necessarily indicate that this mineral is truly present or absent from the sediment in question. It instead represents the present degree of development of recognition criteria in the computer programs employed at this point in time to interpret the digital X-ray diffraction patterns obtained of the specimens under analysis. Further improvement in the computer software should improve our ability of recognize and measure mineral abundances. However, all of the analog diffraction patterns interpreted here have been checked by direct inspection to monitor the progress of the computer program development.

Intermineral interferences were handled by spectrum stripping techniques with a sequency of successive steps based on interpeak intensity ratios directly analogous to those used in manual calculations. This technique is dependent upon minimizing preferred orientation, which is primarily controlled by careful particle size control and by the specimen mounting technique.

RESULTS

Site 8

The X-ray diffraction analyses of Hole 8 sediments indicate that the bulk mineralogy of the crystalline materials is grossly similar throughout the hole. The detrital minerals in the radiolarian oozes are a mixture of clays, quartz, potash-feldspars, and plagioclase that is typical of the western Atlantic turbidites of younger ages. The glauconite reported in the microscope studies is included here under mica and montmorillonite.

The Miocene radiolarian ooze analyzed from Core 1 was carbonate-free while one of the five samples of the Eocene radiolarian ooze from Hole 8, Core 2 contained 7 per cent dolomite. No carbonates were detected in Hole 8A suggesting that this area was below the carbonate compensation depth from the Eocene to the present.

The Eocene chert samples recovered from Hole 8A, Core 2 consist predominantly of cristobalite with accessory clinoptilolite. Minor amounts of quartz and a trace of mica both probably of detrital origin are found in the chert.

Site 9

These sites contain several distinct lithologic zones. The Quaternary near surface sediments contain the

typical detrital assemblage of quartz, kaolinite, mica, and feldspars. Some dolomite and varying amounts of calcite are present.

The Miocene oozes of Site 9 contain no calcite and dolomite. Montmorillonite dominates the crystalline phases with moderate amounts of quartz, mica, and kaolinite, typical of pelagic clays, persent throughout the Miocene and fossil-free lower portion of Hole 8. Phillipsite dominates the coarser than 2 micron fraction. but this fraction was very sparse in the samples provided for X-ray analysis. The original core descriptions based on water mount smear slides reported a great abundance of phillipsite. The X-ray data support the phillipsite presence but show much lower abundances in the samples analyzed. The possible X-ray phillipsite interferences were checked by acid dissolution and heat treatment procedures. Isolated carbonate occurs in Site 9 consisting of blebs or pockets of rhodochrosite. In one case siderite also is abundant. The rhodochrosite is grey, finely crystalline, and has both peak positions and relative intensities in very good agreement with reference standards. Three rhodochrosite zones (six samples) were detected in Holes 9 and 9A suggesting that it may be a fairly common accessory mineral in the lower Tertiary and Cretaceous in this area.

The Eocene of Hole 9A was not studies in detail but the phillipsite of the Miocene is replaced by clinoptilolite as the dominant zeolite; montmorillonite is absent; a little dolomite and siderite represent the carbinates; and quartz, mica, kaolinite, and a little plagioclase feldspar represent the background pelagic terrigenous assemblage. A brown chert zone consists almost entirely of cristobalite with accessory clinoptilolite, and a trace of quartz.

The Cretaceous of Hole 9A starting with Core 2 going down in the hole is grossly similar to the Eocene but has a few distinctive features. The basal sediment is bright red and contains up to 12 per cent hematite plus considerable quantities of X-ray amorphous red iron oxides. Siderite is the dominant carbonate with dolomite and rhodochrosite each found in one sample. Calcite and arogonite were not seen. The abundant cristobalite chert zones associated with clinoptilolite are a distinctive feature of the Cretaceous in this site.

Site 10

This site is located in a carbonate sedimentation area, and the bulk mineralogy samples are almost entirely calcite. The Cretaceous bulk samples contained no other detectable minerals. This suggests that this area has been above the carbonate compensation depth since the Cretaceous.

The Eocene included the typical cristobalite cherts. Clinoptilolite is the dominant silicate mineral. Sufficient amounts of quartz, mica, kaolinite and felsdpars, typical of the pelagic terrigenous suite, are present to be detectable in the bulk samples.

The Oligocene is so dominated by the biogenous calcite that only a trace of the terrigenous suite is detectable in this area.

The Miocene is characterized by cristobalite chert with phillipsite as the accessory zeolite. The terrigenous clastic assemblage with its quartz, mica, kaolinite and feldspars is important in this interval, and calcite grades from dominant at the base to 10 to 15 percent at the top.

Siderite occurs close to both sides of the Pliocene-Miocene contact. The Pliocene is dominated by calcite with the typical accessory pelagic terrigenous assemblage dominated by quartz.

Site 11

The Quaternary to Plio-Pleistocene calcareous ooze of Hole 11 is dominated by calcite with only a trace of quartz and kaolinite detected in the bulk samples.

Calcite was the only crystalline phase detected in the Miocene sediments analyzed from Hole 11A.

Site 12

The cores from Hole 12B correspond to the interval approximately 380± to 704 feet (115.8± to 214.6 meters) below the mud line. The cherts within this interval are of Eocene Age. The lithology is dominated by volcanic ash fragments altered to clay. This clay is almost entirely palygorskite (Plate 1). Sepiolite (Plate 2) becomes the dominant clay near the bottom of the hole in the chert bed. Cristobalite is abundant and the main constituent of the cherts. Quartz is ubiquitous but always of minor importance. A few traces of kaolinite are found. Feldspars are present in minor amounts as would be expected in any ash deposit. Dolomite is a major constituent of the sepiolite-rich chert bed.

Hole 12C cored a shallower interval in the section covering the Quaternary through the Pliocene. Palygorskite was abundant in the ashy zones nearly to the top of the Pliocene and sepiolite was found in much of the Pliocene.

The Quaternary was dominated by calcite with traces of quartz, feldspar and kaolinite. Calcite is almost absent in the Pliocene. The upper Pliocene, especially in the less ashy zones, has the typical pelagic terrigenous suite of quartz, feldspars, mica and kaolinite.

Cristobalite in cherty zones is present in much of the palygorskite-containing portion of the Pliocene.

REFERENCE

Rex, R.W. and Bauer, W.R., 1965. New amine reagents for X-ray determination of expandable clays in dry samples. **In** *Clays and Clay Minerals.* W.F. Bradley and S.W. Bailey (Eds.). Great Britain (Pergammon Press) **13**, 411.

PLATE 1

Palygorskite

Hole 12B, Core 2, Section 1, 129-131 cm Cape Verde Islands

PLATE 2

Sepiolite Clusters and Palygorskite

Hole 12B, Core 3, Section 1, 132-134 cm Cape Verde Islands

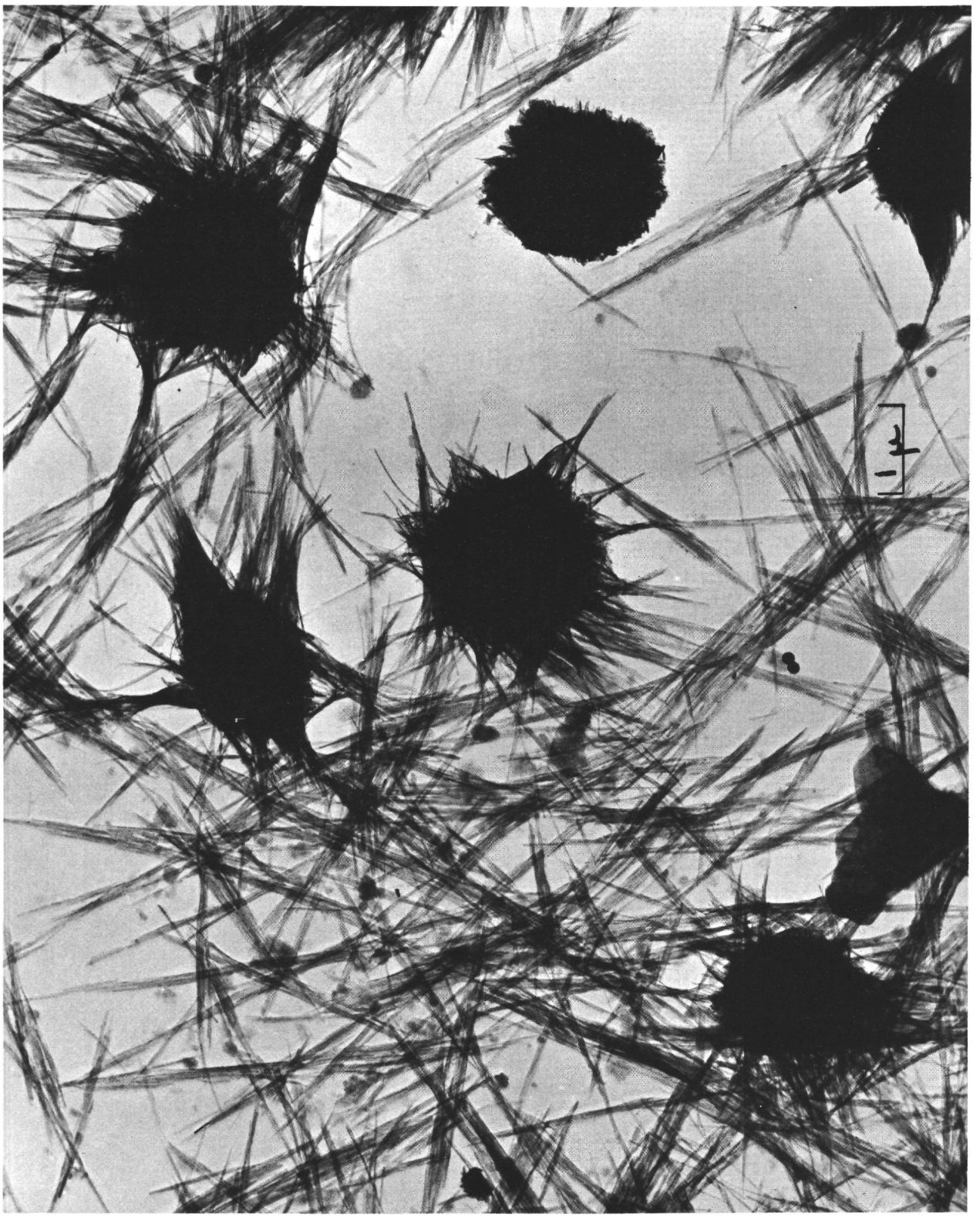

TABLE 1
Results of X-Ray Diffraction Analysis of Samples from Leg 2[a]

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz. %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
Hole 8:																			
1	1	103-105	34.1	0.0	16.3	0.0	15.1	25.4	0.0	3.1	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	98-100	69.5	0.0	0.0	0.0	17.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	4-6	42.7	0.0	21.0	0.0	25.7	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	75-77	55.7	0.0	6.5	0.0	21.3	16.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	10-12	45.0	0.0	10.6	0.0	12.3	13.4	0.0	5.9	4.4	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0
2	3	70-72	21.6	0.0	7.0	0.0	7.1	55.7	0.0	4.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hole 8A:																			
1	1	8-10	22.1	0.0	8.5	0.0	10.5	55.5	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	8-10	16.2	0.0	11.1	0.0	12.7	57.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	95-97	28.2	0.0	15.5	0.0	17.9	26.1	0.0	7.1	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	50-bottom	0.0	0.0	1.8	3.7	0.0	6.9	86.5	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0
3	1	top	0.0	0.0	0.0	7.0	0.0	4.0	89.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hole 9:																			
5	1	12-14	0.0	0.0	13.7	0.0	10.5	18.2	0.0	2.9	8.8	39.3	6.6	0.0	0.0	0.0	0.0	0.0	0.0
5	1	80-82	0.0	0.0	19.3	0.0	19.7	26.0	0.0	6.7	14.7	7.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0
5	2	10-12	0.0	0.0	20.3	0.0	16.8	29.7	0.0	6.5	16.5	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0
5	2	86-88	0.0	0.0	21.9	0.0	18.7	28.5	0.0	5.5	12.0	5.9	7.5	0.0	0.0	0.0	0.0	0.0	0.0
5	3	10-12	0.0	0.0	23.1	0.0	16.9	29.6	0.0	6.5	15.4	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
5	3	86-87	0.0	0.0	20.1	0.0	19.0	27.0	0.0	4.7	11.9	6.7	10.6	0.0	0.0	0.0	0.0	0.0	0.0
5	4	10-12	0.0	0.0	29.2	0.0	24.2	29.3	0.0	2.8	10.9	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
5	4	86-88	0.0	0.0	4.0	0.0	3.1	5.8	0.0	0.0	3.4	79.2	3.5	0.0	0.0	0.0	0.0	0.0	0.0
5	5	11-13	0.0	0.0	34.0	0.0	22.8	27.6	0.0	0.0	8.9	3.6	3.1	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.–*Continued*

Hole 9 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio %
5	5	86-88	0.0	0.0	27.1	0.0	25.0	31.9	0.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	1	124-126	27.0	0.0	17.3	0.0	19.9	25.8	0.0	3.9	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	2	92-94	28.8	0.0	18.7	0.0	19.8	23.2	0.0	3.6	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	3	75-77	19.3	0.0	21.5	0.0	21.6	31.9	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4	3-5	15.0	0.0	20.6	0.0	25.0	29.9	0.0	3.8	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4	88-89	21.4	0.0	20.5	0.0	17.7	30.9	0.0	2.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	2	16-18	29.7	0.0	15.6	0.0	20.5	24.1	0.0	3.5	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	2	69-71	25.2	0.0	21.8	0.0	18.3	31.2	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	3	9-11	34.3	0.0	14.9	0.0	19.9	24.1	0.0	3.3	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	4	110-113	29.7	0.0	18.7	0.0	19.3	25.8	0.0	2.4	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	5	6-8	32.5	0.0	14.2	0.0	17.0	27.1	0.0	3.2	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	5	70-72	21.3	0.0	19.0	0.0	17.9	32.8	0.0	4.1	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	6	7-9	35.9	0.0	16.2	0.0	19.9	24.1	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	6	80-83	24.4	0.0	18.0	0.0	20.7	30.3	0.0	2.4	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	11-13	26.5	0.0	15.1	0.0	27.3	28.4	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	90-92	35.0	0.0	18.7	0.0	21.5	22.7	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	2	7-9	30.2	0.0	19.3	0.0	22.3	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	2	82-84	21.7	0.0	20.1	0.0	29.5	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	3	1-4	37.1	0.0	14.6	0.0	23.3	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	3	90-93	36.8	0.0	12.4	0.0	23.3	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	4	79	0.0	0.0	8.6	0.0	11.0	23.3	0.0	0.0	8.7	0.0	0.0	25.4	23.0	0.0	0.0	0.0	0.0
9	4	133	0.0	0.0	5.9	0.0	6.8	17.2	0.0	0.0	6.7	0.0	0.0	63.4	0.0	0.0	0.0	0.0	0.0
9	6	120-123	35.5	0.0	12.7	0.0	23.5	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	1	90-93	45.7	0.0	12.6	0.0	17.9	20.7	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.—*Continued*

Hole 9 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica. %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
10	2	4-7	39.9	0.0	12.4	0.0	13.4	23.6	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	2	75-77	49.1	0.0	13.1	0.0	15.4	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	3	14-16	52.9	0.0	9.5	0.0	15.9	19.8	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	3	83-85	45.4	0.0	12.9	0.0	14.4	22.3	0.0	2.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	4	10-12	51.2	0.0	13.6	0.0	17.6	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	4	72-74	45.1	0.0	9.8	0.0	18.3	26.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	5	3-5	43.7	0.0	13.5	0.0	19.3	23.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	6	11-13	49.5	0.0	12.8	0.0	15.5	22.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	6	85-87	44.4	0.0	9.5	0.0	17.7	20.2	0.0	0.0	3.1	1.8	0.0	3.3	0.0	0.0	0.0	0.0	0.0
10	6	110	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	98.0	0.0	0.0	0.0	0.0	0.0
11	1	130-132	64.3	0.0	6.4	0.0	7.2	16.5	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0
12	1	50	68.9	6.3	7.4	0.0	3.8	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	5	17-19	49.1	12.7	9.2	0.0	5.8	20.8	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hole 9A:																			
1	4	67-69	0.0	0.0	0.0	6.1	0.0	2.7	91.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5	21-24	0.0	0.0	14.1	28.6	21.0	26.7	0.0	0.0	4.2	0.0	0.0	0.0	5.4	0.0	0.0	0.0	0.0
1	6	37-39	0.0	0.0	10.0	25.8	18.2	25.8	0.0	0.0	7.7	0.0	7.7	0.0	4.8	0.0	0.0	0.0	0.0
2	1	39-41	0.0	0.0	0.0	3.4	0.0	5.1	91.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	30	0.0	0.0	0.0	0.0	0.0	5.5	94.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	35	0.0	0.0	0.0	0.0	0.0	5.3	94.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	1	40	0.0	0.0	2.1	20.8	0.0	4.2	62.8	0.0	9.1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
3	1	82-84	0.0	0.0	5.6	22.8	0.0	7.7	54.2	2.8	2.9	2.6	0.0	0.0	1.4	0.0	0.0	0.0	0.0
3	1	143-144	0.0	0.0	3.7	26.2	1.7	6.6	56.5	2.4	1.9	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0

TABLE 1.–*Continued*

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
Hole 9A (Continued):																			
3	2	49-51	0.0	0.0	0.0	22.4	0.0	4.5	70.0	0.0	2.2	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
3	2	113-115	0.0	0.0	3.6	28.2	1.8	7.1	55.5	2.8	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
3	3	14-18	0.0	0.0	5.3	42.9	2.4	10.1	29.0	3.5	3.0	0.0	0.0	1.9	1.9	0.0	0.0	0.0	0.0
3	4	110	0.0	0.0	0.0	6.0	0.0	1.6	90.4	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	25	0.0	0.0	3.0	24.2	0.0	7.5	61.5	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	114	0.0	0.0	2.0	32.0	0.0	9.6	52.9	0.0	2.1	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
5	1	75	0.0	0.0	8.5	6.8	0.0	84.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	30	0.0	0.0	5.2	0.0	0.0	86.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	0.0
5	2	34-35	0.0	0.0	4.2	0.0	0.0	84.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	0.0	0.0	0.0
5	2	50-51	0.0	0.0	2.1	21.8	0.0	7.1	67.8	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
Hole 10:																			
1	1	90-92	0.0	0.0	0.0	0.0	3.4	3.8	0.0	1.3	0.0	91.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	3-5	0.0	0.0	0.0	0.0	4.7	7.7	0.0	2.8	1.0	82.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
1	2	24-26	0.0	0.0	6.9	0.0	6.7	9.7	0.0	1.9	0.0	74.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	52-54	0.0	0.0	6.5	0.0	4.5	5.4	0.0	1.4	1.3	80.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	120-122	0.0	0.0	3.6	0.0	3.7	8.1	0.0	0.0	1.1	83.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	142-144	0.0	0.0	5.7	0.0	6.9	4.7	0.0	0.0	1.8	79.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	17-19	0.0	0.0	14.0	0.0	21.8	32.8	0.0	9.4	8.4	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	39-41	0.0	0.0	13.7	0.0	19.5	24.0	0.0	6.3	7.3	29.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	69-71	0.0	0.0	0.0	0.0	25.4	29.9	0.0	8.7	8.0	26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2	89-91	0.0	0.0	2.8	0.0	24.2	19.8	41.2	4.9	5.4	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0
2	2	133-135	0.0	0.0	4.8	0.0	4.2	14.8	29.8	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	44.4	0.0
2	2	16-18	0.0	0.0	0.0	0.0	9.0	14.8	21.7	1.9	0.0	9.8	0.0	0.0	0.0	0.0	0.0	42.8	0.0
2	3	79-81	0.0	0.0	7.7	0.0	1.9	14.7	0.0	8.9	10.3	56.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.–*Continued*

Hole 10 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
2	3	102-104	0.0	0.0	0.0	0.0	36.8	31.8	0.0	10.7	20.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3	139-141	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4	24-26	0.0	0.0	0.0	0.0	12.6	9.1	0.0	2.1	7.4	68.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4	75-77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	43-45	0.0	0.0	0.0	0.0	10.4	7.8	0.0	3.1	2.7	76.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	93-95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1	140-142	0.0	0.0	0.0	0.0	3.8	2.1	0.0	0.0	0.0	91.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2	5-7	0.0	0.0	0.0	0.0	5.2	2.8	0.0	0.0	0.0	92.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2	80-82	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	13-15	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	98.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	83-85	0.0	0.0	0.0	0.0	6.8	5.9	0.0	1.6	1.9	83.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3	140-142	0.0	0.0	0.0	0.0	2.5	2.5	0.0	0.0	0.0	95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	15-17	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	96.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4	127-129	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	95.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1	115-117	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	98.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	15-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	70-72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3	5-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3	88-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4	8-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4	40-42	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4	78-80	0.0	0.0	2.3	0.0	2.2	1.7	0.0	0.0	1.9	91.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4	120-122	0.0	0.0	0.0	0.0	1.7	2.2	0.0	0.0	1.3	89.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4	147-149	0.0	0.0	3.3	0.0	9.2	3.8	0.0	1.1	4.1	78.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1. *–Continued*

Hole 10 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
5	5	10-12	0.0	0.0	0.0	0.0	9.1	6.2	0.0	2.2	2.4	80.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5	35-37	0.0	0.0	0.0	0.0	4.9	3.4	0.0	1.2	1.3	89.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5	84-86	0.0	0.0	0.0	0.0	6.5	2.2	0.0	0.0	1.8	89.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5	99-101	0.0	0.0	0.0	0.0	4.7	2.8	0.0	0.0	1.1	91.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5	144-146	0.0	0.0	0.0	0.0	7.3	2.8	0.0	1.7	1.7	86.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	1	100-102	0.0	0.0	2.8	0.0	11.2	3.3	0.0	4.7	1.6	76.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	2	20-22	0.0	0.0	3.1	6.6	6.2	2.3	0.0	0.0	1.8	86.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	3	5-7	0.0	0.0	0.0	11.1	5.2	3.1	0.0	0.0	2.1	77.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	3	87-89	0.0	0.0	0.0	11.1	7.9	3.4	0.0	0.0	1.6	76.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	3	134-136	0.0	0.0	0.0	11.7	5.0	4.5	0.0	2.1	4.3	72.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4	4-6	0.0	0.0	0.0	11.5	0.0	4.9	0.0	0.0	0.0	83.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	4	87-89	0.0	0.0	0.0	10.2	5.8	6.5	0.0	0.0	0.0	77.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	11-13	0.0	0.0	0.0	0.0	0.0	2.2	0.0	1.4	0.0	96.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	33-34	0.0	0.0	0.0	0.0	0.0	5.0	47.5	0.0	0.0	47.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1	86-88	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	98.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	2	10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	2	100-102	0.0	0.0	0.0	0.0	4.9	2.4	0.0	0.0	0.0	92.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	3	10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	3	110-112	0.0	0.0	0.0	13.5	0.0	3.6	0.0	0.0	0.0	82.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	1	88-90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	2	12-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	2	80-82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	3	6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	3	84-86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.–*Continued*

Hole 10 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
10	4	10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	4	76-78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	5	12-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	5	74-76	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	1	130-132	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	2	16-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	2	85-87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	2	130-132	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	3	6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	4	15-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	2	6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	2	85-87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	3	14-16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	3	71-73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	4	15-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	4	77-79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	1	92-94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	2	18-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	2	98-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	3	30-32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	3	80-82	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	4	10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	2	18-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	3	6-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.—*Continued*

Hole 10 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
15	1	106-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	2	10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	2	78-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	1	77-79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	1	143-145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	2	2-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	3	143-145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	1	98-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	2	5-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	3	3-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	1	14-16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	1	73-75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	2	10-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	2	75-77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	3	4-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	4	13-15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	5	0-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hole 11:																			
1	1	1-2	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	98.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	12-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	86-88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	12-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3	86-88	0.0	0.0	0.0	0.0	2.0	1.4	0.0	0.0	0.0	94.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.—*Continued*

Hole 11 (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
1	4	12-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4	70-80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hole 11A:																			
4	1	0-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	0-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3	0-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	4	39-49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hole 12B:																			
1	1	34-35	0.0	0.0	0.0	0.0	0.0	16.5	0.0	11.6	1.5	0.0	0.0	0.0	0.0	0.0	70.4	0.0	0.0
1	4	139-141	0.0	0.0	0.0	0.0	0.0	9.0	8.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0
2	1	129-131	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	94.0	0.0	0.0
2	1	143-145	0.0	0.0	0.0	0.0	2.1	5.3	0.0	1.0	1.1	0.0	0.0	0.0	0.0	0.0	90.5	0.0	0.0
2	2	44-46	0.0	0.0	0.0	0.0	0.0	5.5	13.5	0.8	2.4	0.0	0.0	0.0	0.0	0.0	73.0	0.0	4.8
2	2	76-77	0.0	0.0	0.0	0.0	0.0	5.0	67.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	24.4	0.0	0.0
3	1	121-122	0.0	0.0	0.0	0.0	0.0	2.7	93.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0
3	1	132-134	0.0	0.0	0.0	0.0	0.0	3.6	14.5	1.1	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	43.3
3	1	140-141	0.0	0.0	0.0	0.0	0.0	2.5	88.5	1.5	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	3.9
3	1	148-150	0.0	0.0	0.0	0.0	1.0	2.7	10.4	0.4	1.0	1.3	23.4	0.0	1.0	0.0	27.6	0.0	31.2
Hole 12C:																			
1	1	145-150	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	95.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2	145-150	0.0	0.0	0.0	0.0	4.2	1.9	0.0	0.0	3.4	90.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 1.–*Continued*

Hole 12C (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
1	3	145-150	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	0.0	93.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4	145-150	0.0	0.0	0.0	0.0	5.6	9.0	0.0	1.4	1.5	82.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2R	1	145	0.0	0.0	0.0	0.0	3.7	5.3	0.0	1.4	1.5	88.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2R	2	145-150	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	98.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2R	3	145-150	0.0	0.0	0.0	0.0	6.1	7.6	0.0	0.0	0.0	84.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0
2R	4	145-150	0.0	0.0	0.0	0.0	2.7	5.2	0.0	1.7	0.0	90.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	60-62	0.0	0.0	0.0	0.0	0.0	2.2	0.0	1.4	1.2	95.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	1	94-96	0.0	0.0	0.0	0.0	3.9	5.5	0.0	2.2	1.9	86.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	12-14	0.0	0.0	0.0	0.0	2.9	3.4	0.0	1.8	1.2	90.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2	74-76	0.0	0.0	4.7	0.0	6.5	5.4	0.0	2.0	0.0	81.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3	5-7	0.0	0.0	6.1	0.0	7.7	9.9	0.0	2.6	3.9	69.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2	12-14	0.0	0.0	9.3	0.0	17.6	26.4	0.0	6.8	5.0	7.6	0.0	0.0	0.0	0.0	23.5	0.0	0.0
5	3	8-10	0.0	0.0	11.8	0.0	19.9	34.7	0.0	4.7	4.4	0.0	0.0	0.0	0.0	0.0	24.5	0.0	0.0
5	3	74-76	0.0	0.0	16.5	0.0	18.8	44.2	0.0	9.9	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	1	100-102	0.0	0.0	9.6	0.0	20.7	31.7	0.0	6.3	5.7	3.1	0.0	0.0	0.0	0.0	22.9	0.0	0.0
6	2	12-14	0.0	0.0	9.3	0.0	31.6	22.5	25.2	6.2	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	2	74-76	0.0	0.0	13.4	0.0	10.8	22.0	19.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	14.3
7	1	4-6	0.0	0.0	4.8	0.0	24.3	25.3	14.4	0.0	2.4	0.0	0.0	0.0	0.0	0.0	10.3	0.0	18.5
7	1	90-93	0.0	0.0	7.4	0.0	22.4	32.8	0.0	2.7	0.0	3.0	0.0	0.0	0.0	0.0	0.0	31.6	0.0
8	1	70-72	0.0	0.0	4.3	0.0	23.4	26.8	24.6	6.3	0.0	0.0	0.0	0.0	0.0	0.0	14.6	0.0	0.0
9	1	143-145	0.0	0.0	0.0	0.0	15.2	13.4	0.0	4.0	3.0	0.0	0.0	0.0	0.0	0.0	44.5	0.0	19.9
9	2	21-22	0.0	0.0	0.0	0.0	10.9	11.7	18.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0	55.2	0.0	0.0
9	2	74-76	0.0	0.0	0.0	0.0	7.8	19.4	0.0	16.5	17.5	0.0	0.0	0.0	0.0	0.0	38.8	0.0	0.0
10	1	96-98	0.0	0.0	0.0	0.0	11.0	9.3	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	77.2	0.0	0.0

TABLE 1.–*Continued*

Hole 12C (Continued):

Core	Section	Depth	Montm. %	Chlor. %	Mica %	Clin. %	Kao. %	Quartz %	Cris. %	K-feld. %	Plag. %	Calc. %	Dolo. %	Rhod. %	Side. %	Hema. %	Paly. %	Phil. %	Sepio. %
11	1	62-64	0.0	0.0	0.0	0.0	8.6	5.0	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	82.5	0.0	0.0
12	1	25-27	0.0	0.0	0.0	0.0	0.0	8.8	0.0	0.9	2.0	0.0	0.0	0.0	0.0	0.0	76.8	0.0	11.5
12	1	98-100	0.0	0.0	0.0	0.0	3.5	13.2	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	75.1	0.0	0.0
12	1	121-123	0.0	0.0	0.0	0.0	0.0	8.4	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	67.5	0.0	22.6

[a]Abbreviations for X-ray mineralogy results: Montm.–Montmorillonite; Chlor.–Chlorite; Clin.–Clinoptilolite; Kao.–Kaolinite; Cris.–Cristobalite; K-feld.–K-feldspar; Plag.–Plagioclase; Calc.–Calcium; Dolo.–Dolomite; Rhod.–Rhodochrosite; Side.–Siderite; Hema.–Hematite; Paly.–Palygorskite; Phil.–Phillipsite; Sepio.–Sepiolite.

X-Ray Chert Samples[b]

Hole 8A										
Core	Section	Depth	Mica %	Clin. %	Quartz %	Cris. %	K-feld. %	Calc. %	Side. %	Paly. %
2	1	50-bottom	1.8	3.7	6.9	86.5	0.0	0.0	1.1	0.0
3	1	Top	0.0	7.0	7.0	89.0	0.0	0.0	0.0	0.0
Hole 9A										
1	4	67-69	0.0	6.1	2.7	91.2	0.0	0.0	0.0	0.0
2	1	39-41	0.0	3.4	5.1	91.5	0.0	0.0	0.0	0.0
Hole 10										
9	1	33-34	0.0	0.0	5.0	47.5	0.0	47.5	0.0	0.0
9	1	33-34	0.0	0.0	3.5	96.5	0.0	0.0	0.0	0.0
Hole 12B										
2	2	76-77	0.0	0.0	5.0	67.5	3.1	0.0	0.0	24.4
3	1	121-122	0.0	0.0	2.7	93.5	0.0	0.0	0.0	3.8

[b]Abbreviations for X-ray mineralogy results: Clin.–Clinoptilolite; Cris.–Cristobalite; K-feld.–K-feldspar; Calc.–Calcium; Side.–Siderite; Paly.–Palygorskite.