19. X-RAY MINERALOGY DATA, TASMAN SEA AND FAR WESTERN PACIFIC LEG 30 DEEP SEA DRILLING PROJECT[1]

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METHODS

Semiquantitative determinations of the mineral composition of bulk samples, 2-20 μm, and <2 μm fractions were performed according to the methods described in the appendix of Volume 28.

The method of sample preparation, in brief, is as follows: Bulk samples are washed to remove seawater salts and are ground to less than 10 μm under butanol. A portion of the sediment is decalcified in a sodium-acetate-buffered, acetic-acid solution (*p*H 4.5). The residue is fractionated into 2-20 μm and <2 μm samples by wet-sieving and centrifugation. The 2-20 μm samples are ground to less than 10 μm. These three preparations are treated with trihexylamine acetate to expand the smectites. All samples are X-rayed as random powders.

The X-ray mineralogy results of this study are summarized in Tables 1 through 7. The mineralogy data are presented in Tables 8 through 15. Sediment ages, lithologic units, and nomenclature of the sediment types in Tables 1 through 7 are from the DSDP Leg 30 Hole Summaries. Throughout Tables 1 to 14 the samples are identified by their subbottom depths. The samples used in X-ray diffraction analysis along with their subbottom depths are listed in Table 15.

The percent amorphous is a measure of the weight fraction of amorphous material in each sample which commonly consists of biogenic silica, volcanic glass, palagonite, allophane, and organic material. The amorphous content is calculated from the total diffuse scattering of the sample. The method of calculation assumes that the diffuse scatter in excess of the diffuse scatter from the crystalline materials is proportional to the amorphous content. The diffuse scatter of the crystalline minerals is determined from the mineral calibration standards. Ideally the amorphous content varies between 0 and 100%, but, in cases where the minerals in the sample have a higher degree of crystallinity than the calibration standards, negative values can result. The negative values are reported as blanks; these samples can be assumed to contain little or no amorphous material.

The crystalline minerals are quantified by the method of mutual ratios using peak heights and concentration factors derived from ratioing the diagnostic peaks of

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TABLE 1
Summary of X-Ray Mineralogy Samples, Sample Depths, Lithology, Age, and X-Ray Diffraction Results Hole 285

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent			2-20μm Fraction Major Constituent			<2μm Fraction Major Constituent		
			1	2	3	1	2	3	1	2	3
1.2 17.5	Unit 1 Zeolite-bearing clay micronodulite	?	Plag. Phil.	Mont. Plag.	Quar. Mont.	Plag. Phil.	Quar. Plag.	Augi. Mont.	Mont. Phil.	Plag. Mont.	Quar. Plag.
20.5 23.1	Unit 2 Nanno ooze	Late Miocene-early Plio.	Phil. Calc.	Plag. Plag.	Quar. Augi.	Phil. Plag.	Plag. Quar.	Quar. Augi.	Phil. Mont.	Mont. Plag.	Plag. Quar.
38.4 39.9	Unit 3A Siliceous nanno ooze	Late Miocene	Calc. Calc.	 Plag.		Plag. Plag.	Augi. Augi.	 Quar.	Mont. Mont.	Plag. Plag.	Augi. Augi.
56.0 59.2	Unit 3B Nanno ooze	Late Miocene	Calc. Calc.	 Plag.		Plag. Plag.	Augi. Augi.	Mont. Mica	Mont. Mont.	Plag. Plag.	Augi. Augi.
62.3	Unit 3C[a]	Late Miocene	Calc.	Plag.	Augi.	Plag.	Augi.	Mont.	Mont.	Plag.	Augi.
76.3 79.3	Unit 4A Glass-shard bearing nanno ooze	Early middle Miocene to late Miocene	Calc. Calc.	Plag. Plag.	Augi. Mont.	Plag. Plag.	Augi. Augi.	Quar. Mont.	Mont. Mont.	Plag. Plag.	Augi. Augi.

[a]Unit 3C consists of siliceous fossil-bearing (to rich) nanno ooze and nanno rad ooze.

TABLE 2
Summary of X-Ray Mineralogy Samples, Sample Depths, Lithology, Age, and X-Ray Diffraction Results, Hole 285A

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent 1	2	3	2-20μm Fraction Major Constituent 1	2	3	<2μm Fraction Major Constituent 1	2	3
131.2	Unit 4A	Early	Plag.	Augi.	Mont.	Plag.	Augi.			Insuffic. residue	
131.7	Glass-bearing nanno	middle	Clac.	Mont.	Plag.	Plag.	Mont.	Augi.	Mont.	Plag.	Augi.
133.1	ooze, to nanno-bearing	Miocene	Calc.	Plag.	Mont.	Plag.	Augi.	Mont.	Mont.	Plag.	Augi.
245.8	glass shard, sandy	to late	Calc.	Plag.	Mont.	Plag.	Augi.	Mong.	Mont.	Plag.	Augi.
351.3	siltstone and tuff	Miocene	Calc.	Plag.	Mont.	Plag.	Mont.	Augi.	Mont.	Plag.	Augi.
455 0	Unit 4B	Early	Clin.	Mont.	Plag.	Clin.	Plag.	Mont.	Mont.	Clin.	Plag.
456.8	Cycles of sandy	middle	Calc.	Clin.	Plag.	Clin.	Plag.	Mont.	Mont.	Clin.	Plag.
510.2	siltstone and	Miocene	Mont.	Calc.	Plag.	Plag.	Mont.	Clin.	Mont.	Clin.	
514.1	siltstone, with		Mont.	Clin.	Plag.	Plag.	Clin.	Mont.	Mont.	Clin.	
514.4	glass shards and		Mont.	Clin.	Calc.	Mont.	Plag.	Clin.	Mont.	Clin.	
514.7	nanno fossils		Mont.	Plag.	Clin.	Plag.	Clin.	Mont.	Mont.	Clin.	
514.9			Calc.	Mont.	Clin.	Plag.	Clin.	Mont.	Mont.	Clin.	Plag.
563.6			Mont.	Plag.	Calc.	Plag.	Mont.	Clin.	Mont.	Plag.	
564.2			Mont.	Plag.		Plag.	Mont.	Clin.	Mont.	Plag.	
564.3			Quar.	Hema.	Plag.	Quar.	Plag.	Hema.	Quar.	Hema.	Mont.

minerals with the major peak of quartz. Unquantifiable minerals i.e., unidentified minerals and minerals for which standards are not available, are tentatively quantified using a hypothetical concentration factor of 3.0 which is applied to the major peak of the mineral. The concentrations of the quantifiable minerals is summed to 100%. The amorphous content and the unquantifiable minerals are not included in the total. The unquantifiable minerals are reported on a qualitative scale as trace (less than 5%), present (5%-25%), abundant (25%-65%), and major (greater than 65%).

The precision of the mineral determination is approximately ±1 weight percent of the amount present. Because of differences in the crystallinity between the

TABLE 3
Summary of X-Ray Mineralogy Samples Sample Depths, Lithology, Age, and X-Ray Diffraction Results, Site 286

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent 1	2	3	2-20μm Fraction Major Constituent 1	2	3	<2μm Fraction Major Constituent 1	2	3
1.7	Unit 1	Oligocene	Plag.	Augi.	Mont.	Plag.	Augi.	Mont.	Mont.	Plag.	Augi.
24.7	Glass shard ash	through	Plag.	Mont.	Augi.	Plag.	Augi.	Mont.	Mont.	Plag.	Phil.
36.6	with microfossils	Pleistocene	Plag.	Phil.	Mont.	Plag.	Phil.	Augi.	Mont.	Phil.	Plag.
55.5	and glass shard-		Dolo.	Plag.	Quar.	Plag.	Quar.	Phil.	Mont.	Plag.	Quar.
77.4	rich clays		Mont.	Plag.	Quar.	Quar.	Plag.	Mica	Mont.	Quar.	Plag.
115.0	Unit 2	Late	Calc.	Plag.		Plag.	Quar.	Mont.	Mont.	Quar.	Plag.
154.4	Nanno ooze and	Eocene	Plag.	Calc.		Plag.	Quar.		Mont.	Plag.	
169.4	nanno chalk with	Oligocene	Plag.			Plag.			Mont.	Plag.	
	glass shards										
208.5	Unit 3A	[a]	Plag.			Plag.			Plag.	Mont.	
	vitric siltstone										
247.1	Unit 3B	[a]	Plag.	Mont.		Plag.			Plag.	Mont.	
	Volcanic conglomerate		Plag.	Calc.	Mont.	Plag.	Mont.		Mont.	Plag.	
379.9	Unit 3C	[a]	Plag.	Calc.	Mont.	Plag.			Mont.	Plag.	
418.1	Vitric siltstone		Plag.	Mont.	Quar.	Plag.	Quar.	Mont.	Mont.	Plag.	
476.7	with minor vitric		Plag.	Mont.		Plag.	Mont.		Mont.	Plag.	
512.2	sandstone and		Plag.	Mont.	Quar.	Plag.	Quar.	Mont.	Mont.	Plag.	Chlo.
569.5			Plag.	Mont.		Plag.	Mont.		Mont.	Plag.	
607.6			Plag.	Mont.		Plag.	Mont.		Mont.	Plag.	
626.8			Plag.	Mont.		Plag.	Mont.		Mont.	Plag.	
627.8			Plag.	Mont.	Phil.	Plag.	Phil.	Mont.	Mont.	Phil.	Plag.
643.6			Plag.	Mont.		Plag.	Mont.		Mont.	Plag.	
645.0			Mont.	Plag.		Mont.	Plag.		Mont.		

[a]Unit 3A, 3B, and 3C are middle and late Eocene in age.

TABLE 4
Summary of X-Ray Mineralogy Samples, Sample Depths, Lithology, Age, and X-Ray Diffraction Results, Site 287

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent			2-20μm Fraction Major Constituent			<2μm Fraction Major Constituent		
			1	2	3	1	2	3	1	2	3
4.3	Unit 1 Graded rythms of silt and clay with interbeds of nanno ooze	Late Pliocene through Pleistocene	Quar.	Mica	Calc.	Mica	Quar.	Plag.	Mont.	Mica	Quar.
7.6			Quar.	Mica	Plag.	Mica	Quar.	Plag.	Mont.	Mica	Quar.
77.8			Mica	Quar.	Plag.	Quar.	Mica	Plag.	Mont.	Mica	Quar.
97.6			Mica	Quar.	Plag.	Mica	Quar.	Plag.	Mont.	Mica	Quar.
97.7			Calc.	Quar.	Mica	Quar.	Mica	Plag.	Daol.	Mont.	Mica
97.8			Quar.	Calc.	Arag.	Quar.	Plag.	Mica	Mont.	Kaol.	Mica
131.7	Unit 2 Clay and silty clay with volcanic glass	?	Mica	Quar.	Plag.	Quar.	Mica	Plag.	Mont.	Mica	Kaol.
132.0			Mica	Quar.	Plag.	Quar.	Mica	Plag.	Mont.	Mica	Quar.
153.0			Mica	Plag.	Quar.	Mica	Plag.	Quar.	Mont.	Mica	Plag.
171.4	Unit 3 Silty clay with glass shards	?	Plag.	Mont.	Quar.	Phil.	Plag.	Quar.	Mont.	Quar.	Plag.
173.1	Unit 4 Clay-bearing nanno ooze	Late Oligocene	Calc.			Phil.	Plag.	Clin.	Mont.	Quar.	Plag.
211.4	Unit 5 Nanno chalk with variable clay, zeolite, micarb, and chert	Early Eocene through early middle Eocene	Calc.			Clin.	Quar.	Mica	Mont.	Cris.	Mica

TABLE 5
Summary of X-Ray Mineralogy Samples, Sample Depths, Lithology, Age, and X-Ray Diffraction Results, Hole 288

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent			2-20μm Fraction Major Constituent			<2μm Fraction Major Constituent		
			1	2	3	1	2	3	1	2	3
2.7	Unit 1A Pyrite-bearing, ash-rich, foram nanno ooze	Late Miocene through Pleistocene	Calc.			Plag.	Augi.	Amph.	Mont.	Plag.	Augi.
16.4			Calc.	Plag.		Plag.	Augi.	Mont.	Mont.	Plag.	Augi.
72.2			Calc.			Plag.	Mont.	Augi.	Mont.	Plag.	Augi.
88.7	Unit 1B Foram-nanno ooze and chalk	Early Oligocene through late Miocene	Calc.			Plag.	Quar.	Mont.	Mont.	Plag.	

TABLE 6
Summary of X-Ray Mineralogy Samples, Sample Depths, Lithology, Age, and X-Ray Diffraction Results, Hole 288A

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent 1	2	3	2-20μm Fraction Major Constituent 1	2	3	$<2\mu m$ Fraction Major Constituent 1	2	3
457.8	Unit 1B Foram-nanno ooze and chalk	Early Oligocene-late Miocene	Calc.			Insuffic. residue			Mont.	Plag.	Paly.
535.1	Unit 2A Nanno-foram chalk and nanno ooze to chalk with interbedded cherts	Santonian through late Coniacian	Calc.			Insuffic. residue			Paly.	Mont.	Mica
535.9			Calc.			Insuffic. residue			Clin.	Mont.	Quar.
578.1			Calc.			Insuffic. residue			Plag.	Clin.	Quar.
579.3			Calc.			Insuffic. residue			Paly.	Mica	Mont.
609.9			Calc.			Insuffic. residue			Paly.	Mica	Quar.
649.4			Paly.	Calc.		Insuffic. residue			Paly.	Mica	Mont.
762.0	Unit 2B Calcareous ooze and chalk interbedded with vitirc siltstone and chert	Late Coniacian to Santonian	Calc.	Clin.	Plag.	Clin.	Plag.	Quar.	Mont.	Paly.	Apat.
762.0			Calc.	Quar.		Clin.	Plag.	Bari.	Mont.	Apat.	Paly.
762.4			Clin.	Plag.	Mont.	Clin.	Bari.	Plag.	Mont.	Apat.	Paly.
850.8	Unit 2D Rythmic sequences of vitirc clay-to siltstone, nanno chalks to silicified limestone	Middle Cenomanian through Aptian	Calc.	Quar.		Quar.	Cris.	Bari.	Cris.	Quar.	
858.1			Calc.	Clin.		Bari.	Plag.	Clin.	Mont.	Bari.	
876.7			Calc.	Cris.	Quar.	Quar.	Cris.	Trid.	Cris.	Trid.	
884.8			Calc.	Quar.		Insuffic. residue			Insuffic. residue		
895.0			Calc.	Quar.		Insuffic. residue			Insuffic. residue		
913.6	Unit 2E Limestone and silicified limestone interbedded with chert	Early Cenomanian through Aptian	Calc.	Quar.	Cris.	Insuffic. residue			Insuffic. residue		
934.2			Calc.	Quar.		Insuffic. residue			Insuffic. residue		
952.3			Calc.	Cris.	Quar.	Insuffic. residue			Insuffic. residue		
971.1			Quar.	Calc.	Cris.	Insuffic. residue			Insuffic. residue		
980.5			Quar.	Calc.	Cris.	Insuffic. residue			Insuffic. residue		

mineral calibration standards and the minerals in the samples, the accuracy of the reported concentrations is often less than the precision of the method allows. In terms of the reported concentration, smectites may vary ±50%; micas, chlorites, cristobalite, tridymite, goethite may vary ±20%; kaolinite, amphibole, augite, the feldspars, the zeolites, palygorskite, sepiolite, apatite may vary ±10%; the minerals which have stable crystal lattices and are not members of solid-solution series or typically have limited crystal-lattice substitution in the sedimentary environment, such as quartz, low-magnesium calcite, aragonite, dolomite, rhodochrosite, siderite, gibbsite, talc, barite, anatase, gypsum, anhydrite, halite, pyrite, hematite, magnetite, will vary less than ±5%.

The user of the X-ray mineralogy data should bear in mind that (1) the reported values are not absolute concentrations and that some adjustment has to be made for the amorphous content and the unquantifiable minerals; (2) in a homogeneous system of minerals, the mineral concentration trends are reliable because of the precision, but when comparing mineral concentrations between different geographic regions or lithologic units additional information regarding the crystallinity of the minerals is required; (3) the representativeness of the samples selected for X-ray diffraction analysis is the responsibility of the shipboard scientists and any questions pertaining to this aspect should be directed to them.

DRILLING MUD USAGE

Drilling mud, containing montmorillonite and barite, was used only in Hole 288A. Drilling mud was used between Cores 4 and 5, after Core 23, before Core 30, and after Core 30. No contamination of X-ray mineralogy samples from cores near these intervals was encountered.

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TABLE 7
Summary of X-Ray Mineralogy Samples, Sample Depths, Lithology, Age and X-Ray Diffraction Results, Site 289

Sample Depth Below Sea Floor (m)	Lithology	Age	Bulk Sample Major Constituent			2-20μm Fraction Major Constituent			<2μm Fraction Major Constituent		
			1	2	3	1	2	3	1	2	3
0.7	Unit 1	Late	Calc.			Plag.	Quar.	Mica	Mont.	Mica	Quar.
67.1	Nanno-foram ooze,	Eocene	Calc.			Plag.	Quar.	Mica	Mont.	Mica	Plag.
144.4	interbedded with	through	Calc.			Plag.	Quar.	K-Fe.	Mont.	Plag.	Mica
182.6	nanno foram ooze	Pleistocene	Calc.			Insuffic. residue			Mont.	Mica	Plag.
260.2	and nanno-foram		Calc.			Plag.	Quar.	K-Fe.	Mont.	Plag.	Quar.
336.2	chalk		Calc.			Plag.	K-Fe.	Quar.	Mont.	Plag.	
374.1			Calc.			Plag.	Quar.	Mont.	Mont.	Plag.	Quar.
450.0			Calc.			Plag.	Quar.	Mont.	Mont.	Mica	Kaol.
488.9			Calc.			Plag.	Quar.	Mont.	Mont.	Quar.	Kaol.
564.3			Calc.			Plag.	Mont.	Quar.	Mont.		
602.0			Calc.			Plag.	Mont.	Quar.	Mont.	Plag.	
678.3			Calc.			Mont.	Plag.	Quar.	Mont.	Plag.	
716.3			Calc.			Plag.	Mont.	Quar.	Mont.	Plag.	
754.4			Calc.			Plag.	Mont.		Mont.	Plag.	
790.2			Calc.			Plag.	Mont.	Quar.	Mont.	Plag.	
829.9			Calc.			Plag.	Mont.		Mont.	Plag.	
887.3			Calc.			Plag.	Pyri.		Mont.	Plag.	
915.8			Calc.			Plag.	Mont.		Mont.	Plag.	
925.8			Calc.			Plag.	Mont.		Mont.	Plag.	
950.8			Calc.			Plag.	Mont.	Quar.	Mont.	Plag.	
960.4			Calc.			Plag.	Bari.	Mont.	Mont.	Plag.	
1001.6	Unit 2A	Late	Calc.			Plag.	Bari.	Mont.	Mont.	Plag.	Mica
1036.8	Radiolarian-bearing	Cretaceous	Calc.	K-Fe.		Cris.	Trid.		Cris.	Trid.	
1065.2	limestone, siliceous	through	Calc.			Insuffic. residue			Mont.	Quar.	
1112.3	limestone, nanno	late	Calc.			Insuffic. residue			Insuffic. residue		
1138.3	foram chalk, and	Eocene	Calc.	Sepi.	Clin.	Clin.	K-Fe.		Mont.	Sepi.	
1194.4	nodular chert		Calc.			Insuffic. residue			Paly.	Mica	K-Fe.
1230.5			Calc.	Paly.		Quar.	Mica	K-Fe.	Paly.	Mica	
1231.6	Unit 2B	Early	Paly.	Quar.		Mica	Quar.	K-Fe.	Paly.	Mica	
1233.6	limestone and	Cretaceous	Calc.			Bari.	Clin.	Plag.	Mont.	Paly.	
1259.5	tuff	to Late	Calc.			Insuffic. residue			Paly.	Mica	Quar.
1261.5		Cretaceous	K-Fe.	Mont.	Quar.	K-Fe.	Mont.	Quar.	Mont.	K-Fe.	
1261.8			Mont.	K-Fe.	Mica	K-Fe.	Mica	Mont.	Mont.	Mica	K-Fe.
1262.3			Calc.			Insuffic. residue			Insuffic. residue		

TABLE 8
Results of X-Ray Diffraction Analysis, Hole 285

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Quar.	Plag.	Kaol.	Mica	Chlo.	Mont.	Clin.	Phil.	Anal.	Amph.	Augi.
Bulk Sample													
1.2	80.1	–	14.8	35.3		9.2	1.8	17.4	1.5	7.8		–	12.1
17.5	61.7	–	10.2	15.0		6.0	–	13.7	–	47.7		1.6	5.7
20.5	59.3	3.7	8.7	13.8		4.7	–	5.8	–	63.4		–	–
23.1	78.6	39.7	9.5	27.2		5.2	2.2	5.2	–	–		–	11.0
38.4	34.7	92.7	–	3.1		–	–	–	–	–		–	4.2
39.9	48.6	86.2	0.9	8.4		–	–	–	–	–		–	4.4
56.0	43.8	86.2	0.6	4.8		–	–	3.5	–	–		–	4.9
59.2	51.4	84.9	1.1	7.5		–	–	1.2	–	–		–	5.4
62.3	73.1	52.1	3.7	23.8		2.4	–	4.9	–	–		–	13.1
76.3	65.1	69.8	2.5	14.0		–	–	5.1	–	–		–	8.7
79.3[a]	66.2	50.2	4.1	21.7		1.7	–	16.3	–	–		–	6.0
2-20µm Fraction													
1.2	62.8		21.4	43.1		7.0	1.5	6.1	1.2	5.6	–	1.5	12.6
17.5	39.3		9.2	20.5		5.2	–	9.4	–	49.3	–	1.1	5.2
20.5	38.5		9.8	15.7		2.4	–	–	–	65.4	–	–	6.6
23.1	73.7		17.5	53.8		6.4	2.3	8.7	–	–	–	–	11.3
38.4	77.0		6.5	59.4		2.3	–	–	–	–	–	–	31.9
39.9	75.4		7.7	54.3		3.9	–	6.3	–	–	–	–	27.7
56.0	74.4		5.8	55.2		–	–	10.6	–	–	–	–	28.4
59.2	75.5		6.7	56.2		8.0	–	–	–	–	1.4	–	27.6
62.3	74.4		9.6	51.6		2.8	–	10.1	–	–	–	–	25.9
76.3	77.9		11.2	56.5		3.5	–	–	1.1	–	–	–	27.7
79.3[a]	72.6		11.1	51.1		3.8	–	14.0	–	–	–	–	20.0
<2µm Fraction													
1.2	74 9		9.5	18.4	1.8	5.3	1.2	49.1		5.4	–	–	9.4
17.5	63.9		5.0	8.3	–	3.0	–	37.9		44.7	–	1.1	–
20.5	64.6		6.1	9.5	–	2.5	–	21.0		55.8	–	–	5.0
23.1[a]	82.9		13.3	28.1	–	6.1	–	41.4		–	–	–	11.1
38.4[a]	77.5		4.3	28.9	–	3.4	–	44.6		–	–	–	18.8
39.9[a]	79.0		6.4	29.7	–	–	–	45.3		–	–	–	18.6
56.0	72.3		3.5	31.1	–	2.1	–	49.3		–	–	–	14.0
59.2[a]	76.2		3.3	29.8	–	–	–	52.5		–	1.1	–	13.2
62.3[a]	77.3		8.6	29.9	–	–	–	48.1		–	1.2	–	12.1
76.3[a]	72.4		4.8	23.0	–	–	–	61.8		–	–	–	10.4
79.3[a]	68.4		7.2	24.1	–	–	–	59.0		–	–	–	9.6

[a]Broad peak at 7.38Å which indicates kaolinite. The kaolinite peak at 3.57Å is very small to absent.

TABLE 9
Results of X-Ray Diffraction Analysis, Hole 285A

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Quar.	Plag.	Mica	Chlo.	Mont.	Clin.	Anal.	Hema.	Augi.	Magn.
131.2	80.4	18.1	4.4	35.0	–	–	21.1	–	–	–	21.4	–
131.7[a]	67.7	44.1	4.1	16.9	–	1.5	23.5	–	1.1	–	8.8	–
133.1	73.9	36.0	3.9	28.9	–	0.8	15.3	–	1.5	–	11.5	2.1
245.8	74.2	44.6	5.1	24.8	–	–	18.6	–	–	–	6.8	–
351.3[a]	70.2	39.8	4.2	25.7	–	–	20.5	1.0	–	–	8.8	–
455.0	44.6	12.0	3.1	24.0	–	–	25.5	35.4	–	–	–	–
456.8	46.6	31.1	5.3	20.2	–	–	18.2	25.1	–	–	–	–
510.2	48.1	23.8	3.8	21.9	–	–	40.4	10.0	–	–	–	–
514.1	40.3	7.5	5.5	11.6	2.1	–	60.0	13.3	–	–	–	–
514.4	40.1	15.7	5.3	14.6	–	–	47.5	17.0	–	–	–	–
514.7	28.1	9.7	4.5	21.6	–	–	47.9	16.2	–	–	–	–
514.9	44.3	34.0	5.4	13.6	–	–	31.9	15.1	–	–	–	–
563.6	44.7	11.0	3.8	25.6	–	–	51.1	8.1	–	–	–	–
564.2	41.1	2.0	0.7	31.4	–	–	57.0	6.6	–	–	–	2.4
564.3	47.8	–	38.6	20.5	4.6	3.0	3.0	–	–	30.1	–	–
2-20µm Fraction												
131.2	81.1		8.4	54.1	–	–	–	–	–	–	37.5	–
131.7	72.1		11.1	43.4	–	1.3	21.8	1.7	2.3	–	18.5	–
133.1	76.1		8.6	46.4	–	–	15.4	1.4	1.3	–	24.0	2.8
245.8	76.0		10.4	49.2	–	–	17.2	1.7	1.5	–	20.0	–
351.3[a]	71.5		8.0	41.7	–	–	26.8	1.6	1.2	–	20.8	–
455.0	29.3		6.2	34.9	–	–	22.6	36.4	–	–	–	–
456.8	35.9		10.2	36.8	–	–	10.3	42.7	–	–	–	–
510.2	32.3		8.1	48.2	–	–	25.2	18.5	–	–	–	–
514.1	27.3		12.4	31.7	–	–	25.5	30.4	–	–	–	–
514.4	23.7		9.2	30.1	–	–	37.2	23.5	–	–	–	–
514.7	21.3		6.0	36.8	–	–	26.0	31.1	–	–	–	–
514.9	26.9		12.0	33.0	–	–	24.1	30.9	–	–	–	–
563.6	37.1		7.1	46.8	–	–	33.3	12.8	–	–	–	–
564.2	36.8		1.4	51.1	–	–	35.6	9.1	–	–	–	2.9
564.3	46.1		49.0	22.7	8.5	2.3	7.9	–	–	9.6	–	–
<2µm Fraction												
131.7	71.3		2.1	15.1	–	2.1	70.3	–	1.3	–	9.1	–
133.1	73.2		2.6	21.4	–	1.0	59.9	–	–	–	11.6	3.5
245.8	71.8		4.6	32.1	–	–	49.1	1.6	–	–	12.6	–
351.3[a]	70.1		2.6	22.8	–	–	62.4	–	–	–	12.1	–
455.0	48.9		–	8.4	–	–	63.2	28.4	–	–	–	–
456.8	51.3		–	12.9	–	–	61.8	25.2	–	–	–	–
510.2	51.8		4.8	6.7	–	–	77.6	10.8	–	–	–	–
514.1	45.5		6.2	4.8	–	–	80.1	9.0	–	–	–	–
514.4	49.9		4.8	4.6	–	–	75.1	15.5	–	–	–	–
514.7	26.4		3.6	4.0	–	–	71.1	21.3	–	–	–	–
514.9	52.5		9.7	8.4	–	–	68.2	13.8	–	–	–	–
563.6	54.0		4.0	10.8	–	–	81.2	4.1	–	–	–	–
564.2	54.1		–	13.5	–	–	82.4	1.1	–	–	–	3.1
364.3	60.6		42.1	8.0	3.6	1.3	17.6	–	–	27.4	–	–

[a]Broad peak at 7.38Å which indicates kaolinite. The kaolinite peak at 3.57Å is very small to absent.

TABLE 10
Results of X-Ray Diffraction Analysis, Site 286

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Dolo.	Quar.	Plag.	Mica	Chlo.	Mont.	Clin.	Phil.	Anal.	Gibb.	Amph.	Augi.	Goet.
Bulk Sample															
1.70[a]	67.1	10.8	–	3.2	36.3	2.8	–	18.1	1.6	–	1.9		–	25.4	–
24.7	67.8	4.9	–	6.0	42.3	7.1	–	13.6	2.1	9.7	–		1.6	12.6	–
36.6	62.9	–	–	4.4	30.7	8.3	–	17.3	1.4	25.3	–		1.9	10.8	–
55.5[a]	75.7	3.4	38.0	12.3	19.8	4.0	2.1	11.4	–	7.3	1.6		–	–	–
77.4[a]	70.0	–	–	23.8	25.0	11.8	3.8	35.6	–	–	–		–	–	–
115.0[a]	40.8	82.7	–	3.5	10.0	–	–	3.8	–	–	–		–	–	–
154.4[a]	51.9	37.7	–	4.5	51.2	1.5	–	3.7	–	–	–		1.4	–	–
169.4[a]	55.9	3.1	–	1.1	89.0	–	–	6.7	–	–	–		–	–	–
208.5[a]	31.1	–	–	1.1	93.7	–	–	5.1	–	–	–		–	–	–
247.1	39.0	7.2	–	3.4	76.9	–	0.5	12.0	–	–	–		–	–	–
301.6	51.5	15.6	–	1.6	70.2	–	–	12.6	–	–	–		–	–	–
379.9	49.1	10.8	–	–	80.7	–	–	8.4	–	–	–		–	–	–
418.1	70.6	2.4	–	8.4	65.7	–	1.4	22.1	–	–	–		–	–	–
476.7	63.9	8.6	–	4.0	73.4	–	0.6	13.4	–	–	–		–	–	–
512.2	80.6	–	–	11.2	60.2	3.8	2.6	20.5	–	–	–		1.7	–	–
569.5	74.2	7.6	–	2.0	71.1	–	–	19.2	–	–	–		–	–	–
607.6	76.7	3.8	–	5.0	72.4	–	–	18.8	–	–	–		–	–	–
626.8	47.9	–	–	0.7	70.7	–	–	28.6	–	–	–		–	–	–
627.8	64.4	–	–	6.0	46.9	–	–	21.9	5.9	19.3	–		–	–	P
643.6	54.7	2.0	–	3.5	65.5	–	–	29.0	–	–	–		–	–	–
645.0	41.4	–	–	4.2	41.3	–	–	53.9	0.6	–	–		–	–	–
2-20μm Fraction															
1.7	57.2			4.3	38.1	1.3	–	20.7	2.1	–	2.2	–	–	31.3	–
24.7	52.4			7.0	42.7	4.0	–	13.4	3.0	7.9	0.9	–	2.7	18.4	–
36.6	48.4			5.1	39.3	4.8	–	8.4	1.4	28.0	–	–	1.9	11.2	–
55.5[a]	61.7			23.0	39.2	6.9	2.5	8.9	2.0	11.7	2.4	1.7	1.6	–	–
77.4[a]	54.0			31.8	28.5	21.5	5.4	–	2.7	7.8	–	–	2.4	–	–
115.0[a]	73.2			25.3	58.9	–	0.6	12.8	–	–	–	–	2.4	–	–
154.4[a]	58.9			8.8	83.1	0.8	–	5.5	–	–	–	–	1.7	–	–
169.4	51.4			0.9	99.1	–	–	–	–	–	–	–	–	–	–
208.5	26.9			1.4	98.6	–	–	–	–	–	–	–	–	–	–
247.1	27.7			3.3	90.4	–	0.5	5.7	–	–	–	–	–	–	–
301.6	43.1			1.6	90.3	–	–	8.1	–	–	–	–	–	–	–
379.9	52.3			1.4	91.5	–	–	7.2	–	–	–	–	–	–	–
418.1	68.6			10.3	79.3	–	0.9	9.5	–	–	–	–	–	–	–
476.7	60.5			3.6	86.2	–	0.4	9.9	–	–	–	–	–	–	–
512.2	83.8			11.6	74.2	–	3.1	9.9	–	–	–	–	1.3	–	–
569.5	74.6			5.0	80.0	–	0.4	14.7	–	–	–	–	–	–	–
607.6	79.6			4.8	67.7	–	–	27.5	–	–	–	–	–	–	–
626.8	34.3			0.8	84.0	–	–	15.2	–	–	–	–	–	–	–
627.8	45.5			5.9	52.2	–	–	10.4	8.1	23.5	–	–	–	–	P
643.6	43.3			1.7	79.3	–	–	19.0	–	–	–	–	–	–	–
645.0	38.5			2.3	46.8	–	–	49.9	1.0	–	–	–	–	–	–
<2μm Fraction															
1.7	74.1			2.6	17.7	–	–	64.2	–	–	1.6		–	13.8	–
24.7	73.0			4.4	26.0	2.4	–	39.3	1.0	18.7	–		–	8.2	–
36.0	72.0			2.1	11.8	–	–	44.2	–	33.1	–		–	8.8	–
55.5[a]	81.9			12.3	18.2	5.8	–	55.8	–	6.2	1.7		–	–	–
77.4[a]	74.4			13.9	13.5	–	2.9	60.8	1.8	7.1	–		–	–	–
115.0[a]	79.4			13.2	10.6	–	–	76.2	–	–	–		–	–	–
154.4[a]	76.0			7.6	37.7	3.0	–	51.7	–	–	–		–	–	–
169.4[a]	76.6			4.6	44.5	–	–	50.9	–	–	–		–	–	–
208.5[a]	58.6			1.1	73.9	–	–	25.0	–	–	–		–	–	–
247.1	58.6			1.4	49.1	–	0.9	48.7	–	–	–		–	–	–
301.6	66.8			3.0	48.5	–	–	48.5	–	–	–		–	–	–
379.9	71.6			3.0	33.5	–	–	63.4	–	–	–		–	–	–
418.1	74.0			2.8	47.4	–	2.1	47.8	–	–	–		–	–	–
476.7	66.8			1.3	44.3	–	1.3	53.2	–	–	–		–	–	–
512.2	80.0			3.2	41.6	3.5	7.7	42.4	–	–	–		1.5	–	–
569.5	78.1			3.9	33.9	–	–	62.2	–	–	–		–	–	–
607.6	86.2			2.2	36.6	–	–	61.3	–	–	–		–	–	–
626.8	33.0			0.4	8.9	–	–	90.6	–	–	–		–	–	–
627.8	69.9			4.5	10.1	–	–	70.1	5.1	10.2	–		–	–	A
643.6	52.6			0.4	24.3	–	–	75.3	–	–	–		–	–	–
645.0	21.6			–	1.7	–	–	98.3	–	–	–		–	–	–

[a]Broad peak at 7.38Å which indicates kaolinite. The kaolinite peak at 3.57Å is very small to absent. Two plagioclases were combined.

TABLE 11
Results of X-Ray Diffraction Analysis, Site 287

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Arag.	Quar.	K-Fe.	Plag.	Kaol.	Mica	Chlo.	Mont.	Clin.	Phil.	Pyri.	Amph.	Cris.	Trid.	Phil.
Bulk Sample																	
4.3	59.8	18.4	–	24.4	2.9	15.3	4.4	24.1	5.1	4.4	–	–	–	1.0	–	–	
7.6	64.2	–	–	28.1	4.1	18.8	6.0	27.8	6.2	7.9	–	–	–	1.1	–	–	
77.8	63.0	7.4	–	25.6	5.2	15.3	4.6	31.3	7.8	2.7	–	–	–	–	–	–	
97.6	61.0	10.0	–	22.9	6.5	13.1	4.2	28.6	6.4	8.3	–	–	–	–	–	–	
97.7	61.9	35.9	6.7	21.5	2.9	4.6	9.4	13.9	1.0	4.2	–	–	–	–	–	–	
97.8	47.8	24.0	17.1	28.0	4.6	11.8	2.7	8.5	1.3	–	–	–	2.0	–	–	–	
131.7	65.8	–	–	26.0	7.7	19.8	5.2	28.1	4.8	6.6	–	–	–	1.8	–	–	
132.0	62.7	–	–	25.4	6.8	22.7	2.1	29.1	5.9	5.4	–	–	–	2.6	–	–	
153.0	48.6	–	–	20.3	4.3	24.6		33.1	8.1	8.0	–	–	–	1.6	–	–	
171.4	61.9	–	–	16.8	8.4	20.8	3.1	12.5	2.0	19.4	7.2	11.6	–	–	–	–	
173.1	22.9	90.5	–	1.4	2.2	1.6	–	–	–	1.2	1.0	2.1	–	–	–	–	
211.5	29.6	82.4	–	3.4	–	1.6	–	3.2	–	2.8	4.5	–	–	–	1.7	0.5	
2-20μm Fraction																	
4.3	43.4			27.6	2.8	16.2	3.8	34.7	6.0	7.8	–	–	–	1.0	–	–	
7.6	39.0			28.7	4.2	19.9	4.2	30.0	5.0	6.5	–	–	–	1.6	–	–	
77.8	41.1			32.4	5.9	18.9	3.7	28.9	4.6	5.5	–	–	–	–	–	–	
97.6	37.8			30.7	5.0	17.9	4.2	34.8	6.2	–	–	–	–	1.1	–	–	
97.7	25.6			49.6	9.9	16.6	2.2	17.9	1.3	–	–	–	1.3	1.1	–	–	
97.8	27.9			44.2	8.2	17.7	3.1	12.8	1.4	–	–	–	11.6	1.0	–	–	
131.7	37.6			33.1	9.0	21.4	2.3	27.7	3.8	–	–	–	–	2.8	–	–	
132.0	45.5			35.2	6.2	24.8	1.9	25.1	5.3	–	–	–	–	1.6	–	–	
153.0	23.5			18.6	2.9	23.6	–	43.0	9.6	–	–	–	–	2.2	–	–	
171.4	29.6			15.6	11.7	20.0	–	12.0	2.5	6.0	8.0	24.2	–	–	–	–	
173.1	27.4			11.3	11.0	18.1	–	5.3	1.8	8.1	15.4	28.0	–	1.1	–	–	
211.5	22.9			26.1	–	13.5	–	22.3	1.0	–	33.8	–	–	–	2.5	.9	
<2μm Fraction																	
4.3	59.4			12.3	3.3	4.7	11.0	18.9	3.2	46.6	–		–		–	–	–
7.6	59.4			12.6	1.6	5.7	7.4	21.0	3.2	48.6	–		–		–	–	–
77.8	58.5			11.6	4.6	6.7	10.1	22.7	4.4	39.9	–		–		–	–	–
97.6	58.1			12.3	4.1	7.0	10.1	23.9	3.5	39.0	–		–		–	–	–
97.7	64.2			13.2	3.8	3.0	34.8	16.2	–	29.0	–		–		–	–	–
97.8	66.3			14.4	5.6	3.9	23.9	20.5	2.4	26.3	–		3.0		–	–	–
131.7	60.9			11.4	3.7	5.0	11.8	14.3	2.9	51.0	–		–		–	–	–
132.0	58.1			11.2	3.4	6.0	10.0	17.7	3.4	48.3	–		–		–	–	–
153.0	52.3			9.8	4.2	10.1	1.5	23.6	8.4	42.4	–		–		–	–	–
171.4	61.9			10.8	5.6	10.1	8.4	6.9	1.4	52.0	4.8		–		–	–	–
173.1	52.9			11.2	7.8	8.6	1.2	5.4	2.5	54.3	4.8		–		–	–	4.1
211.5	61.1			8.4	–	2.6	–	12.3	0.5	45.8	2.6		–		25.1	2.8	–

TABLE 12
Results of X-Ray Diffraction Analysis, Hole 288

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Quar.	Plag.	Kaol.	Mica	Chlo.	Mont.	Clin.	Anal.	Pyri.	Amph.	Augi.
Bulk Sample													
2.7	31.5	97.5	0.8	1.7									–
16.4	63.6	83.7	0.5	12.0									3.7
72.2	19.2	97.9	0.5	1.6									–
88.7	8.4	100.0	–	–									–
2-20μm Fraction													
2.7[a]	64.0		12.5	39.4			3.6	9.9	2.1	–	–	13.3	19.2
16.4[a]	81.3		6.0	56.9			–	9.3	1.3	1.7	1.9	2.9	19.9
72.2[a]	64.3		10.4	42.4			1.6	19.2	–	0.9	1.7	7.5	16.3
88.7	74.4		21.9	57.3			0.8	8.5	–	–	3.1	2.4	5.9
<2μm Fraction													
2.7[a]	79.0		7.4	17.7	5.5	3.6	4.6	47.5	–		–	4.6	9.2
16.4[a]	81.2		2.5	23.9	–	–	–	52.8	1.5		2.2	–	17.2
72.2[a]	78.0		4.4	19.6	–	–	2.1	58.9	–		–	2.6	12.4
88.7[a]	74.1		6.4	20.5	–	–	2.7	70.4	–		–	–	–

[a]Broad peak at 7.38Å which indicates kaolinite. The kaolinite peak at 3.57Å is very small to absent.

TABLE 13
Results of X-Ray Diffraction Analysis, Hole 288A

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Dolo.	Quar.	Cris.	K-Fe.	Plag.	Mica	Mont.	Paly.	Trid.	Clin.	Pyri.	Apat.	Bari.	U-1[a]
Bulk Sample																
457.8	7.4	100.0	–	–	–	–	–	–	–	–	–	–			–	
535.1	6.3	100.0	–	–	–	–	–	–	–	–	–	–			–	
535.9	10.2	100.0	–	–	–	–	–	–	–	–	–	–			–	
578.1	3.7	100.0	–	–	–	–	–	–	–	–	–	–			–	
579.3	2.1	100.0	–	–	–	–	–	–	–	–	–	–			–	
609.9	1.3	100.0	–	–	–	–	–	–	–	–	–	–			–	
649.4	48.0	22.3	2.3	5.9	–	–	–	5.5	2.6	60.1	–	1.2			–	
762.0	53.2	55.7	–	2.9	–	–	10.3	–	4.0	4.3	–	19.5			3.3	
762.0	18.1	88.4	–	10.0	–	–	–	–	–	–	–	–			1.6	
762.4	55.6	2.7	–	4.5	–	–	16.7	3.9	15.0	13.7	–	35.0			8.5	
850.8	65.0	80.2	–	11.2	5.8	–	–	–	–	–	1.5	–			1.3	
858.1	37.6	69.9	–	0.2	–	–	4.1	–	3.9	–	–	17.2			4.7	
876.7	9.4	54.2	–	13.9	22.8	–	–	–	1.8	–	4.8	–			2.5	
884.8	16.1	72.3	–	25.6	–	–	–	–	–	–	–	–			2.1	
895.0	16.8	79.0	–	17.0	–	–	–	–	1.4	–	–	–			2.6	
913.6	24.4	53.8	–	31.8	10.3	–	1.3	–	–	–	2.1	0.8			–	
934.2	14.2	67.5	–	30.1	–	–	–	–	–	–	–	–			2.4	
952.3	12.8	49.2	–	21.3	22.5	–	–	–	–	–	5.5	–			1.6	
971.1	13.9	32.2	–	37.5	28.0	–	1.1	–	–	–	–	1.2			–	
980.5	27.0	38.2	–	41.7	10.4	3.7	1.8	0.9	2.2	–	–	1.0			–	
2-20μm Fraction																
762.0	30.5			7.9	–		22.1	–	–		–	70.0			–	
762.0	33.2			3.7	–		18.9	4.0	4.7		–	53.1			15.6	
762.4	35.6			6.1	–		17.8	3.3	8.5		–	46.5			17.9	
850.8	28.3			71.6	15.1		–	–	–		3.4	0.9			9.0	
858.1	28.6			0.6	–		27.4	1.4	14.3		–	22.1			34.0	
876.7	2.4			51.8	29.4		–	–	–		9.9	–			8.9	
<2μm Fraction																
457.8	77.2			1.9	–		15.2	–	66.5	8.6	–	7.7	–	–	–	–
535.1	69.4			7.9	–		–	16.0	28.2	36.2	–	11.7	–	–	–	–
535.9	27.3			13.7	–		11.3	11.0	19.1	11.7	–	32.0	1.3	–	–	–
578.1	54.7			9.7	–		78.0	–	–	–	–	12.3	–	–	–	A
579.3	75.2			6.7	–		16.7	20.5	18.5	24.9	–	12.8	–	–	–	A
609.9	72.6			8.6	–		–	14.5	6.2	67.6	–	3.1	–	–	–	–
649.4	45.1			3.5	–		–	10.1	7.8	78.6	–	–	–	–	–	–
762.0	61.5			7.0	–		2.1	–	62.3	14.6	–	2.2	–	11.9	–	–
762.0	62.7			6.0	–		–	–	71.9	8.3	–	2.1	–	8.4	3.3	–
762.4	65.7			7.8	–		–	–	62.8	10.1	–	2.4	–	12.7	4.2	–
850.8	30.6			39.0	54.2		–	–	–	–	3.8	–	–	–	3.1	–
858.1	67.6			3.3	–		–	6.7	62.0	7.7	–	2.1	–	–	18.2	–
876.7	-40.5			7.2	80.9		–	–	2.0	–	7.9	–	–	–	2.0	–

[a]U-1 Peaks at 3.47Å, 1.819Å, and 1.639Å among others.

TABLE 14
Results of X-Ray Diffraction Analysis, Site 289

Sample Depth Below Sea Floor (m)	Amor.	Calc.	Quar.	Cris.	K-Fe.	Plag.	Kaol.	Mica	Chlo.	Mont.	Paly.	Trid.	Clin.	Anal.	Pyri.	Bari.	Sepi.
Bulk Sample																	
0.7	18.0	99.1	0.9	–	–	–		–	–	–	–	–	–		–	–	–
67.1	12.6	99.7	0.3	–	–	–		–	–	–	–	–	–		–	–	–
144.4	10.2	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
182.6	6.6	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
260.2	8.5	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
336.2	7.4	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
374.1	10.0	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
450.0	6.6	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
488.9	8.5	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
564.3	8.9	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
602.0	7.4	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
678.3	10.8	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
716.3	8.7	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
754.4	10.8	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
790.2	13.9	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
929.9	6.1	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
887.3	30.8	93.0	–	–	–	6.3		–	–	–	–	–	–		0.6	–	–
915.8	35.9	95.8	–	–	–	2.9		–	–	1.3	–	–	–		–	–	–
925.8	13.5	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
950.8	34.0	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
960.4	9.8	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
1001.6	9.2	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
1036.8	23.2	70.8	5.3	16.3	–	–		–	–	–	–	6.3	–		–	1.4	–
1065.2	2.6	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
1112.3	2.9	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
1138.3	48.2	55.8	1.2	–	1.6	–		–	1.6	3.7	–	–	15.0		–	–	21.2
1194.4	1.9	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
1230.5	39.3	47.6	6.5	–	3.6	–		5.4	0.6	1.3	35.1	–	–		–	–	–
1231.6	33.5	–	11.3	–	5.7	–		4.8	0.6	2.3	75.3	–	–		–	–	–
1233.6	14.5	89.7	–	–	–	–		–	–	1.6	3.9	–	1.5		–	3.2	–
1259.5	2.1	100.0	–	–	–	–		–	–	–	–	–	–		–	–	–
1261.5	52.4	–	8.7	–	59.6	–		3.1	–	28.7	–	–	–		–	–	–
1261.8	69.7	–	7.2	–	41.7	–		8.6	–	42.5	–	–	–		–	–	–
1262.3	1.0	94.9	4.1	–	–	–		1.0	–	–	–	–	–		–	–	–
2-20μm Fraction																	
0.7	65.6		32.4	–	9.7	35.4	–	16.7	4.4	–	–	–	1.4	–	–	–	–
67.1	75.1		19.6	–	8.1	46.8	–	8.9	2.5	8.2	–	–	–	1.3	4.6	–	–
144.4	75.3		18.4	–	15.8	36.1	–	10.8	3.1	7.5	–	–	–	1.1	7.2	–	–
260.2	90.2		27.5	–	13.8	29.2	–	6.7	2.4	11.1	–	–	–	–	9.2	–	–
336.2	86.7		17.2	–	23.0	40.1	–	–	1.2	12.8	–	–	–	–	2.9	2.8	–
374.1	89.4		21.5	–	11.7	43.4	4.8	–	–	15.9	–	–	2.7	–	–	–	–
450.0	82.6		25.6	–	–	46.3	5.0	–	1.5	18.8	–	–	2.8	–	–	–	–
488.9	87.5		23.9	–	–	42.8	–	5.8	2.1	14.1	–	–	–	–	4.1	7.3	–
564.3	88.0		19.2	–	6.2	38.9	1.8	–	0.9	25.3	–	–	–	–	1.6	6.1	–
602.0	73.5		20.0	–	7.5	35.2	–	5.3	1.2	26.3	–	–	1.4	–	–	3.1	–
678.3	83.4		9.8	–	–	29.3	–	–	–	54.9	–	–	–	–	1.1	4.9	–
716.3	92.4		12.3	–	–	49.7	–	–	–	31.3	–	–	–	–	–	6.7	–

754.4	86.9	5.9	–	–	57.2	–	–	–	36.9	–	–	–	–	–	–	–
790.2	87.8	8.4	–	–	62.0	–	–	–	29.5	–	–	–	–	–	–	–
829.9	30.6	4.8	–	–	73.6	–	–	–	21.6	–	–	–	–	–	–	–
887.3	68.7	1.4	–	–	49.2	–	–	–	7.1	–	–	–	–	42.4	–	–
915.8	84.5	3.9	–	–	67.7	–	–	–	26.7	–	–	1.7	–	–	–	–
925.8	85.9	6.4	–	–	73.1	–	–	–	17.6	–	–	–	–	2.9	–	–
950.8	92.2	8.8	–	–	55.2	–	7.3	–	28.7	–	–	–	–	–	–	–
960.4	89.6	4.4	–	–	52.0	–	–	–	16.2	–	–	–	–	–	27.5	–
1001.6	98.3	3.7	–	–	51.4	–	–	–	15.0	–	–	–	–	–	29.8	–
1036.8	1.0	5.8	67.6	–	–	–	–	–	–	–	20.3	–	–	–	6.2	–
1138.3	23.9	3.7	–	9.9	–	–	–	–	–	–	–	77.7	1.2	–	–	7.5
1230.5	35.1	32.9	–	23.1	7.1	–	25.5	1.7	–	9.8	–	–	–	–	–	–
1231.6	26.6	30.6	–	17.0	6.1	–	35.0	2.4	–	8.9	–	–	–	–	–	–
1233.6	10.7	1.2	–	–	14.1	–	2.8	–	–	–	–	32.4	–	1.3	48.2	–
1261.5	50.1	9.5	–	58.7	–	–	–	–	31.8	–	–	–	–	–	–	–
1261.8	59.5	7.5	–	58.8	–	–	17.5	–	16.2	–	–	–	–	–	–	–
<2μm Fraction																
0.7	76.9	18.6	–	2.5	12.3	5.1	22.9	5.5	33.2	–	–	–		–	–	–
67.1	84.3	11.0	–	5.1	12.5	7.3	16.7	2.4	43.3	–	–	–		1.7	–	–
144.4	83.6	10.1	–	6.3	15.5	7.3	15.1	3.0	40.5	–	–	–		2.1	–	–
182.6	85.0	8.8	–	6.0	11.8	9.0	11.8	1.9	50.6	–	–	–		–	–	–
260.2	86.2	10.1	–	2.9	11.8	4.6	7.5	2.4	60.7	–	–	–		–	–	–
336.2	86.6	7.6	–	2.9	16.4	6.9	4.7	3.9	55.2	–	–	–		–	2.4	–
374.1	89.5	10.6	–	–	14.6	10.3	10.1	3.0	51.4	–	–	–		–	–	–
450.0	79.7	8.1	–	–	6.5	8.8	10.6	–	65.9	–	–	–		–	–	–
488.9	87.7	13.3	–	–	9.8	10.1	6.8	2.5	55.5	–	–	–		2.0	–	–
564.3	68.5	4.1	–	–	5.8	5.5	5.0	1.5	76.6	–	–	–		–	1.5	–
602.0	73.8	4.5	–	3.4	11.2	4.5	4.8	2.0	69.6	–	–	–		–	–	–
678.3	76.9	3.5	–	1.9	11.6	–	2.2	–	79.4	–	–	–		–	1.4	–
716.3	77.2	2.3	–	–	13.0	–	–	–	80.9	–	–	–		–	3.8	–
754.4	81.9	3.0	–	–	22.6	–	–	–	74.5	–	–	–		–	–	–
790.2	87.1	3.0	–	–	33.4	–	–	–	63.6	–	–	–		–	–	–
829.9	88.2	2.5	–	–	38.4	–	–	–	59.0	–	–	–		–	–	–
887.3	83.4	–	–	–	36.1	–	–	–	58.6	–	–	–		5.3	–	–
915.8	80.2	1.9	–	–	34.5	–	–	–	63.6	–	–	–		–	–	–
925.8	87.3	2.1	–	–	42.7	–	–	–	55.2	–	–	–		–	–	–
950.8	88.2	7.2	–	–	37.5	–	–	–	55.4	–	–	–		–	–	–
960.4	89.2	6.5	–	–	27.7	–	7.3	–	58.5	–	–	–		–	–	–
1001.6	92.7	6.3	–	–	27.8	–	9.4	–	50.1	–	–	–		–	6.5	–
1036.8	38.0	0.9	76.3	–	1.6	–	–	–	4.6	–	13.7	–		–	2.9	–
1065.2	74.2	9.7	–	–	–	–	6.4	–	80.0	–	–	–		–	3.9	–
1138.3	76.7	2.7	–	3.2	–	–	5.0	–	50.3	–	–	4.1		–	–	34.7
1194.4	53.3	13.6	–	15.0	–	–	21.0	–	7.2	43.2	–	–		–	–	–
1230.5	45.8	5.8	–	3.2	–	–	11.7	0.5	2.1	76.7	–	–		–	–	–
1231.6	35.0	4.9	–	2.1	–	–	15.8	0.7	2.2	74.4	–	–		–	–	–
1233.6	55.9	6.6	–	–	3.7	–	7.5	–	37.3	36.7	–	2.8		–	5.5	–
1259.5	69.4	14.7	–	–	–	–	22.0	–	8.2	55.1	–	–		–	–	–
1261.5	54.2	1.2	–	13.3	–	–	–	–	85.5	–	–	–		–	–	–
1261.8	72.4	2.1	–	11.3	–	–	13.3	–	73.2	–	–	–		–	–	–

TABLE 15
Samples Submitted for X-Ray Diffraction Analysis, Leg 30

Sample (Interval in cm)	Depth Below Sea Floor (m)
Hole 285	
1-1, 122-124	1.2
2-1, 50-52	17.5
2-3, 51-53.5	20.5
2-5, 11-13	23.1
3-2, 90-93	38.4
3-3, 92-95	39.9
4-1, 105-107	56.0
4-3, 115-117	59.2
4-5, 135-137	62.3
5-2, 75-79	76.3
5-4, 75-78	79.3
Hole 285A	
1-1, 21	131.2
1-1, 67-73	131.7
1-2, 55-58	133.1
3-2, 29-31	245.8
4-2, 125-127	351.3
5-2, 81-82	455.0
5-3, 75	456.8
6-1, 20-21	510.2
6-3, 110-111	514.1
6-4, 17-18	514.4
6-4, 42-45	514.7
6-4, 89-90	514.9
7-6, 59-63	563.6
7-6, 120-121	564.2
7-6, 130-131	564.3
Site 286	
1-2, 16-18	1.7
2-6, 70-72	24.7
3-1, 110-113	36.6
4-1, 100-103	55.5
5-2, 90.5-93.5	77.4
7-3, 50.5-53	115.0
9-4, 38-40	154.4
10-1, 91-93	169.4
12-2, 54-56	208.5
14-2, 108-110	247.1
17-1, 15-17.5	301.6
21-2, 92-94	379.9
23-2, 106-108	418.1
26-3, 117-120	476.7
28-2, 22-24	512.2
31-2, 48-50	569.5
33-2, 60-62	607.6
34-2, 77-81	626.8
34-3, 26-27	627.8
35-1, 12-13	643.6
35-1, 146-149	645.0
Site 287	
1-3, 131-134	43.0
1-6, 11-13	7.6
5-3, 30-32	77.8
6-3, 112-114	97.6
6-3, 122-123	97.7
6-3, 126-128	97.8
8-1, 20-22	131.7
8-1, 50-52	132.0
9-2, 97-99	153.0
10-2, 40-42	171.4
10-3, 60-62	173.1
14-3, 100-102	211.5

TABLE 15 – *Continued*

Sample (Interval in cm)	Depth Below Sea Floor (m)
Hole 288	
1-2, 122-125	2.7
2-5, 35-36.5	16.4
5-4, 67-69	72.2
6-2, 120-122	88.7
Hole 288A	
6-1, 77-79	457.8
8-2, 63-65	535.1
8-2, 144-146	535.9
9-5, 114-115	578.1
9-6, 85-87	579.3
10-1, 89-91	609.9
11-2, 92-92.5	649.4
16-1, 97-99	762.0
16-1, 100-103	762.0
16-1, 131-134	762.4
20-3, 129-131	850.8
21-2, 61-62	858.1
23-2, 19-21	876.7
24-1, 28-30	884.8
25-1, 105-106	895.0
26-1, 58-60	913.6
27-2, 71-73	934.2
28-1, 125-127	952.3
29-1, 114-116	971.1
30-1, 102-103	980.5
Site 289	
1-1, 73-75	.7
8-1, 60-62	67.1
16-2, 40-42	144.4
20-2, 60-62	182.6
28-3, 70-72	260.2
36-3, 70-72	336.2
40-3, 60-62	374.1
48-3, 50-52	450.0
52-3, 135-137	488.9
60-3, 80-82	564.3
64-3, 55-60	602.0
72-3, 80-82	678.3
76-3, 85-87	716.3
80-3, 90-92	754.4
84-2, 20-22	790.2
88-3, 38-40	829.9
94-3, 80-82	887.3
97-3, 77-78	915.8
98-3, 127-128	925.8
101-1, 83-84	950.8
102-1, 93-94	960.4
106-3, 110-112	1001.6
110-1, 128-128.5	1036.8
113-1, 116-117	1065.2
118-1, 85-87	1112.3
121-2, 84	1138.3
127-1, 144-146	1194.4
130, CC	1230.5
131-1, 106-107	1231.6
131-2, 105-107	1233.6
132-2, 50-52	1261.5
132-2, 75-77	1261.8
132-2, 87-89	1233.4