**LITHOLOGIC DESCRIPTION**

**FORAMINIFER DIATOM AND DIATOM FORAMINIFER OOZE**

Major lithologies: FORAMINIFER DIATOM and DIATOM FORAMINIFER OOZE, color varies throughout from pink (5YR 7/3) to light gray (10YR 7/1); homogeneous; induration grades downcore from soft to firm; bioturbation (mottling) varies from minor to moderate.

Drilling disturbance: 4 cm void in Section 1, 17-21 cm; soupy from Section 1 through Section 2; slightly disturbed from Section 3 through Section 5 and Section 7; Section 6 is moderately disturbed.

Dropstones: Section 3, 67-68 cm, basaltic, 1.5 cm; Section 6, 88-89 cm, quartz, 2.5 cm.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>1.1</th>
<th>1.58</th>
<th>2.59</th>
<th>2.84</th>
<th>2.110</th>
<th>3.16</th>
<th>3.116</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>M</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**TEXTURE:**

* Sand 50 40 69 60 58 50 35 68
  * Silt 50 50 35 35 35 40 30 35
  * Clay 35 5 5 5 5 40 2 2

**COMPOSITION:**

* Diatoms 75 42 25 30 45 30 30 25
  * Foraminifers 13 55 70 59 25 45 25 45
  * Glass 10 10 10 10 10 10 10 10
  * Heavy minerals 10 10 10 10 10 10 10 10
  * Nannofossils 5 5 5 5 5 5 5 5
  * Opaques 10 10 10 10 10 10 10 10
  * Quartz 10 10 10 10 10 10 10 10
  * Radiolarians 5 5 5 5 5 5 5 5
  * Silicoflagellates 5 5 5 5 5 5 5 5
  * Spicles 5 5 5 5 5 5 5 5

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th></th>
<th>4.81</th>
<th>4.142</th>
<th>5.56</th>
<th>6.46</th>
<th>6.138</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**TEXTURE:**

* Sand 45 55 70 60 39 45 35 35
  * Silt 55 45 25 40 55 55 40 40
  * Clay 5 3 3 3 3 3 3 3

**COMPOSITION:**

* Carbonate — — 10 — 4
  * Clay — — 10 — — — —
  * Diatoms 23 42 25 30 74 37 37 37
  * Foraminifers 13 55 70 59 30 45 45 45
  * Glass 1 — — — — — — —
  * Heavy minerals 1 — — — — — — —
  * Nannofossils 1 — — — — — — —
  * Opaques 1 — — — — — — —
  * Quartz 1 — — — — — — —
  * Radiolarians 1 — — — — — — —
  * Silicoflagellates 1 — — — — — — —
  * Spicles 1 — — — — — — —
DIATOM Ooze WITH FORAMINIFERS

Major lithology: DIATOM Ooze with FORAMINIFERS, white (10YR 8/2) to pale brown (10YR 8/3); grades downward from soft to firm. Moderate to minor bioturbation throughout, mottles evident near color changes (e.g., Section 1, 116-150 cm).

Drilling disturbance: Entire Section 1 thinned. Section 3 soupy (may have some flow-in).

Dropstones: Disseminated in Section 1, 0-15 cm (approximately 0.5 cm diameter); in Section 2, 0-23 cm, and Section 5, 49 cm.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>2,20</th>
<th>2,70</th>
<th>6,87</th>
<th>6,88</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Clay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Clay</th>
<th>10</th>
<th>10</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diatoms</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>8</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Glass</td>
<td>Tr</td>
<td>Tr</td>
<td>Tr</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>15</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Spicules</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

SITE 747 HOLE A
CORE 2H
CORED INTERVAL 9.0-18.5 mbsf

BIOSTRAT. ZONE/FOSSIL CHARACTER
LITHOLOGIC DESCRIPTION

DIATOM Ooze with FORAMINIFERS

Major lithology: DIATOM Ooze with FORAMINIFERS, white (10YR 8/2) to pale brown (10YR 8/3); grades downward from soft to firm. Moderate to minor bioturbation throughout, mottles evident near color changes (e.g., Section 1, 116-150 cm).

Drilling disturbance: Entire Section 1 thinned. Section 3 soupy (may have some flow-in).

Dropstones: Disseminated in Section 1, 0-15 cm (approximately 0.5 cm diameter); in Section 2, 0-23 cm, and Section 5, 49 cm.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>2,20</th>
<th>2,70</th>
<th>6,87</th>
<th>6,88</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Clay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Clay</th>
<th>10</th>
<th>10</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diatoms</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>8</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Glass</td>
<td>Tr</td>
<td>Tr</td>
<td>Tr</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>15</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Spicules</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
**FORAMINIFER DIATOM Ooze with Nannofossils**

Major lithology: FORAMINIFER DIATOM Ooze with Nannofossils, light gray (10YR 7.5/2) to light olive gray (2.5Y 6/2); color changes are gradational; darker layers have fewer foraminifers, more micrite and clay; minor dissolution. Material is firm; bioturbation occurs in specified intervals.

Minor lithologies:

a. Vitric ash layers in Section 1, 25-42 cm, and in Section 2, 116-124 cm.
b. Diatom foraminifer ooze, firm, Section 6, contacts gradational; disturbed in Sections 2 and 3.

d. Dropstones: Amphibole-bearing microgranite, Section 1; quartzites, Section 4.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Section</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.25</td>
<td><strong>M</strong></td>
<td><strong>M</strong></td>
<td><strong>D</strong></td>
<td><strong>M</strong></td>
<td><strong>D</strong></td>
<td><strong>D</strong></td>
<td><strong>D</strong></td>
</tr>
<tr>
<td><strong>TEXTURE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>40</td>
<td>25</td>
<td>30</td>
<td>5</td>
<td>15</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>Clay</td>
<td>—</td>
<td>25</td>
<td>40</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td><strong>COMPOSITION:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diatoms</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Glass</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Mica</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Coating</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Quartz</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Section</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEXTURE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>50</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Clay</td>
<td>40</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>COMPOSITION:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diatoms</td>
<td>67</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>35</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Glass</td>
<td>9</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>9</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Quartz</td>
<td>5</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Silicoflagellates</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Spicules</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
**LITHOLOGIC DESCRIPTION**

FORAMINIFER NANNOTOSSAL Ooze WITH DIATOMS

- **Major lithology:** FORAMINIFER NANNOTOSSAL Ooze with DIATOMS, soft to firm, light gray (5Y 7/2) to white (5Y 8/2), bioturbation where indicated.

- **Minor lithologies:**
  a. Foraminifer diatom nannofossil ooze
  b. Nannofossil ooze with foraminifers
  c. Nannofossil ooze with foraminifers, white (10YR 6/1); in Section 7 and CC, no volcanic clasts.

- **Drilling disturbance:** Minor heave?

**SMEAR SLIDE SUMMARY (%)**

<table>
<thead>
<tr>
<th>Texture</th>
<th>D</th>
<th>D</th>
<th>D</th>
<th>D</th>
<th>D</th>
<th>D</th>
<th>CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>25</td>
<td>25</td>
<td>40</td>
<td>20</td>
<td>25</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Sil</td>
<td>60</td>
<td>70</td>
<td>50</td>
<td>70</td>
<td>70</td>
<td>80</td>
<td>91</td>
</tr>
<tr>
<td>Clay</td>
<td>15</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

**COMPOSITION:**

- **Accessory minerals**
- **Diatoms**
- **Feldspar**
- **Ferromagnetics**
- **Glabs**
- **Mica**
- **Magnetite**
- **Nannofossils**
- **Radiolarians**
- **Silicoflagellates**
- **Spicules**
**Lithologic Description**

NANNOFOSSIL Ooze with Diatoms and Foraminifer Nanofossil Ooze with Diatoms

Major lithologies: Alternating NANNOFOSSIL Ooze with Diatoms, white (10YR 8/1), and Foraminifer Nanofossil Ooze with Diatoms, light gray (5Y 7/2). Darker hues have more foraminifers. Induration soft to firm. Bioturbation minor to moderate, increasing in middle of core; contacts all gradational, bioturbated.

Drilling disturbance: Very deformed to soupy in Sections 1 and 2; slightly deformed in central part of core, Sections 4 to 7.

Dropstones: Rare in Sections 1, 2, and 4; quartzite in Sections 1 and 4; occurrence of volcanic glass with pyroxenes, feldspars.

**Smear Slide Summary (%):**

<table>
<thead>
<tr>
<th>Level</th>
<th>3.50</th>
<th>4.50</th>
<th>6.50</th>
<th>6.134</th>
<th>7.7</th>
<th>CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>D</td>
<td>O</td>
<td>D</td>
<td>O</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Silts</td>
<td>83</td>
<td>92</td>
<td>77</td>
<td>40</td>
<td>70</td>
<td>10</td>
</tr>
<tr>
<td>Clay</td>
<td>13</td>
<td>10</td>
<td>16</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**Texture:**

- Sand: 7 25 7 60 25 5
- Silts: 83 92 77 40 70 10
- Clay: 13 10 16 5 2 2

**Composition:**

- Accessory minerals
- Diatoms: 10 15 10 10 10 1
- Foraminifers: 10 25 10 10 10 1
- Glass: — 5 — 13 3 1
- Micrite: 5 2 4 — — —
- Nannofossils: 70 50 70 30 53 88
- Opal: — 1 — 10 — —
- Radiolarians: 4 2 4 2 2 1
- Rock fragment: — — — 20 — —
**LITHOLOGIC DESCRIPTION**

Major lithology: NANNOFOSSIL Ooze, white (2.5Y N8/0); FORAMINIFERS decreasing, nannofossils increasing downcore. Section 4 slightly darker (5Y 8/1, white) due to presence of more foraminifers and diatoms; each still less than 10%. Section 2 contains a mottled zone (between 120-150 cm), volcanic grains of glass and pyroxene. Darker hues have more foraminifers and diatoms.

Drilling disturbance: Minor (Sections 2, 3, 4, and 6) to moderate (Sections 1 and 5) and severe (Sections 1 and 7).

Dropstones: Medium-grained diorite, Section 1 (although drilling-disturbed interval and thus not in place).

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th></th>
<th>2.50</th>
<th>2.125</th>
<th>4.50</th>
<th>6.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>M</td>
<td>D</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>10</td>
<td>30</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>Clay</td>
<td>10</td>
<td>30</td>
<td>26</td>
<td>5</td>
</tr>
</tbody>
</table>

**TEXTURE:**

- Sand: 10% 30% 26% 5%
- Clay: 10% 30% 26% 5%

**COMPOSITION:**

<table>
<thead>
<tr>
<th>Component</th>
<th>2.50</th>
<th>2.125</th>
<th>4.50</th>
<th>6.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory minerals</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Diatoms</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>12</td>
<td>25</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Micrite</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>75</td>
<td>50</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**GRAPHIC LITHOLOGY**

- **SITE 747 HOPE B**
- **TIME-ROCK UNIT**
- **NANNOPC**
- **FORAMINIFERS**
- **DIATOMS**
- **TEXTURE**
- **COMPOSITION**
- **Drilling Structures**
- **Cored Interval 47.0-56.5 mbsf**

**CORED INTERVAL 47.0-56.5 mbsf**

**SITE 747 HOPE B**

**TIME-ROCK UNIT**

- **NANNOPC**
- **FORAMINIFERS**
- **DIATOMS**
- **TEXTURE**
- **COMPOSITION**
- **Drilling Structures**
- **Cored Interval 47.0-56.5 mbsf**

**GRAPHIC LITHOLOGY**

**NANNOPC Ooze with Foraminifers and Diatoms**

Major lithology: NANNOPC Ooze, white (2.5Y N8/0); FORAMINIFERS decreasing, nannofossils increasing downcore. Section 4 slightly darker (5Y 8/1, white) due to presence of more foraminifers and diatoms; each still less than 10%. Section 2 contains a mottled zone (between 120-150 cm), volcanic grains of glass and pyroxene. Darker hues have more foraminifers and diatoms.

Drilling disturbance: Minor (Sections 2, 3, 4, and 6) to moderate (Sections 1 and 5) and severe (Sections 1 and 7).

Dropstones: Medium-grained diorite, Section 1 (although drilling-disturbed interval and thus not in place).

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th></th>
<th>2.50</th>
<th>2.125</th>
<th>4.50</th>
<th>6.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>M</td>
<td>D</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>10</td>
<td>30</td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>Clay</td>
<td>10</td>
<td>30</td>
<td>26</td>
<td>5</td>
</tr>
</tbody>
</table>

**TEXTURE:**

- Sand: 10% 30% 26% 5%
- Clay: 10% 30% 26% 5%

**COMPOSITION:**

<table>
<thead>
<tr>
<th>Component</th>
<th>2.50</th>
<th>2.125</th>
<th>4.50</th>
<th>6.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory minerals</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Diatoms</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>12</td>
<td>25</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Micrite</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>75</td>
<td>50</td>
<td>60</td>
<td>85</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
SITE 747  HOLE A  CORE 7H  CORED INTERVAL 56.5-66.0 mbsf

LITHOLOGIC DESCRIPTION

NANNOFOSSIL Ooze
Major lithology: NANNOFOSSIL Ooze, white (2.5Y N8), firm. Section 7 is white (5Y 6/1), contains slightly more foraminifers.

Minor lithology: Vitric ash with fresh feldspars and pyroxenes; unaltered, highly vesicular shards; thickness and contacts uncertain due to severe drilling disturbance.

Drilling disturbance: Middle part of core highly disturbed; flow-in occurs in Sections 1 and 3.

SMERG SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.141</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>M</td>
<td>Q</td>
<td>D</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Accessory minerals</th>
<th>Diamict</th>
<th>Feldspar</th>
<th>Foraminifers</th>
<th>Glass</th>
<th>Nannofossils</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>7</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>2.0</td>
<td>5</td>
<td>35</td>
<td>70</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>5.0</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>6.0</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>7.0</td>
<td>10</td>
<td>70</td>
<td>20</td>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td>8.0</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>80</td>
</tr>
</tbody>
</table>

SITE 747 HOLE A
CORE 8H
CORED INTERVAL 66.0-75.5 mbsf

<table>
<thead>
<tr>
<th>SITE 747 HOLE A</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE 8H</td>
</tr>
<tr>
<td>CORED INTERVAL 66.0-75.5 mbsf</td>
</tr>
</tbody>
</table>

**LITHOLOGY DESCRIPTION**

- NANNOFOSSIL OOZE with FORAMINIFERS and NANNOFOSSIL OOZE

**TEXTURE:**

- Sand: 20%
- Silt: 75%
- Clay: 5%

**COMPOSITION:**

- Diatoms: 8%
- Foraminifers: 20%
- Glass: 2%
- Micrite: 2%
- Nannofossils: 65%
- Radiolarians: 12%
- Rock fragment: 0%

**CHEMISTRY:**

- CH4: 92.0%
- C2H6: 0.1%
- C3H8: 0.1%

**TIME-ROCK UNIT**

- FORAMINIFERS
- NANNOFOSILS
- RADIOLARIANS

**PALEOMAGNETICS**

- PHYS. PROPERTIES

**SECTION**

- Meters

**DRILLING DISTURBANCE**

- Slight to moderate.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Section</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**TEXTURE:**

<table>
<thead>
<tr>
<th>Section</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**COMPOSITION:**

<table>
<thead>
<tr>
<th>Section</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**SHEAR SLOPE SUMMARY:**

- 1: 0.14
- 2: 0.16
- 3: 0.18
- 4: 0.20
- 5: 0.22
- 6: 0.24
SITE 747 HOLE A CORE 9H CORED INTERVAL 75.5-85.0 mbsf

LITHOLOGIC DESCRIPTION

NANNOSILITE WITH FORAMINIFERS AND NANNOSILITE Ooze

Major lithologies: NANNOSILITE Ooze with FORAMINIFERS, white (10YR 8/1), in Sections 1-6 and 8, to light gray in Section 7. Intermittent drilling disturbance throughout; incomplete recovery resulted in flow-in. Size distribution homogeneous; almost completely silt fraction (nannofossils), and sediment is almost entirely biogenic. Suggestion of laminae in Section 7, 127-128 cm. Few burrow mottles evident.

N.B.: Core has eight sections due to expansion after recovery.

SMALL SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Texture</th>
<th>2.71</th>
<th>3.50</th>
<th>4.50</th>
<th>5.50</th>
<th>6.73</th>
<th>7.50</th>
<th>7.86</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

TEXTURE:

- Sand: 5 10 10 5 10 5 15
- Silt: 94 85 85 90 85 90 85
- Clay: 1 5 5 5 5 5 5

COMPOSITION:

- Calcite: — — — — 2 — —
- Clay: — Tr — 2 — — —
- Diatom: Tr — — — — —
- Foraminifers: 7 10 5 5 5 5 5 15
- Glass: — Tr Tr — — — —
- Nannofossils: 93 90 90 95 90 95 85
- Radiolarians: — Ty Ty — — Ty 2
- Rock fragment: — Ty 1 Ty Ty Tr —
- Spicules: — Tr 1 Tr Tr Tr —

Continued
### SITE 747 HOLE A CORE 9H CORED INTERVAL 75.5-85.0 mbsf

<table>
<thead>
<tr>
<th>LITHOLOGIC DESCRIPTION</th>
<th>GRAPHITIC LITHOLOGY</th>
<th>DATING</th>
<th>PALEOMAGNETIC</th>
<th>PHYS. PROPERTIES</th>
<th>SAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continued.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:** The image contains a table with columns for Time, Rock Unit, Biostratigraphy Zone, Fossil Character, Paleomagnetic, Phys. Properties, and Lithologic Description, along with a graphic representing the lithologic description.
NANOFOSIL OOEZE
Major lithology: NANOFOSIL OOEZE, white (10YR 8/2) from middle of Section 3 to base of core. Faint mottling and some light gray streaks.
Minor lithology: Nanofossil ooze with foraminifers, white (10YR 6/1), from top of core to approximately the middle of Section 3.
Drilling Disturbance: Slight.
SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th></th>
<th>4,74</th>
<th>6,74</th>
<th>8,74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

COMPOSITION:

- Diatoms: 10%
- Foraminifers: 2%
- Nannofossils: 38%
- Radiolarians: 1%
- Spicules: 2%
**SITE 747 HOLE A  CORE 11H  CORED INTERVAL 94.5-104.0 mbsf**

<table>
<thead>
<tr>
<th>TIME-SLIP UNIT</th>
<th>FORMATION</th>
<th>STRATIGRAPHIC</th>
<th>FACIES</th>
<th>DIVERSITY</th>
<th>FREQUENCY</th>
<th>STRAT. CHARACTER</th>
<th>LITHOLOGY</th>
<th>LITHOLOGIC DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LITHOLOGIC DESCRIPTION

**NANNOFOSSIL Ooze with FORAMINIFERS**

- **Major Lithology:** NANNOFOSSIL Ooze with FORAMINIFERS, white (10YR 8/2 to 10YR 8/1) throughout core. Ooze is mostly firm in texture. No burrow mottles are evident.
- **Drilling disturbance:** Slight to moderate. Some voids and cracks occur in Sections 4, 5, and 6 probably due to handling and settling after sections were cut. Section 1 washed along side entire 150 cm.

#### SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>20</td>
<td>77</td>
<td>3</td>
</tr>
<tr>
<td>Section 2</td>
<td>20</td>
<td>77</td>
<td>3</td>
</tr>
<tr>
<td>Section 3</td>
<td>30</td>
<td>77</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>Foraminifers</th>
<th>Glass</th>
<th>Nannofossils</th>
<th>Radiolarians</th>
<th>Spicules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>20</td>
<td>77</td>
<td>3</td>
<td>10</td>
<td>Tr</td>
</tr>
<tr>
<td>Section 2</td>
<td>20</td>
<td>77</td>
<td>3</td>
<td>10</td>
<td>Tr</td>
</tr>
<tr>
<td>Section 3</td>
<td>20</td>
<td>77</td>
<td>3</td>
<td>10</td>
<td>Tr</td>
</tr>
</tbody>
</table>
Site 747 Hole A Core 12H Cored Interval 104.0-113.5 mbf

<table>
<thead>
<tr>
<th>Depth (mbsf)</th>
<th>Lithology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>104.0-113.5</td>
<td>NANNOFOSSIL Ooze with FORAMINIFERS</td>
<td>Major lithology: NANNOFOSSIL Ooze grading into nannofossil oozes with foraminifers between Section 3 and Section 4; white (whiter than 10YR 8/1); homogeneous and firm throughout; no burrow mottles are evident.</td>
</tr>
</tbody>
</table>

**Drilling Disturbance:** Slight throughout.

**Smear Slide Summary (%):**

<table>
<thead>
<tr>
<th>Texture</th>
<th>Foraminifers</th>
<th>Nannofossils</th>
<th>Radioiarians</th>
<th>Spicules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>7</td>
<td>93</td>
<td>Tr</td>
<td>Tr</td>
</tr>
<tr>
<td>Silt</td>
<td>10</td>
<td>50</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Clay</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Texture:**

- Sand: 7%
- Silt: 91%
- Clay: 2%

**Composition:**

- Foraminifers: 7%
- Nannofossils: 93%
- Radioiarians: Tr
- Spicules: Tr

---

![Drilling Core Image]

---
**SITE 747 HOLE A CORE 13H CORED INTERVAL 113.5-123.0 mbsf**

### NANNOFOSIL OOZE WITH FORAMINIFERS

Major lithology: NANNOFOSIL OOZE with FORAMINIFERS; white (white than 10YR 8/1); homogeneous and firm throughout; gradual color change to a slightly darker interval in Section 5, 126 cm; trace of volcanic ash in Section 5, 124-134 cm; ice-rafted(?); 5 mm subangular quartz grain in Section 5, 85-86 cm; no burrow mottles are evident.

Drilling disturbance: Slightly disturbed throughout.

**SMEAR SLIDE SUMMARY (%)**:

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td></td>
<td></td>
<td>85</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Silt</td>
<td>10</td>
<td>6</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clay</td>
<td></td>
<td>93</td>
<td>93</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

**COMPOSITION**:

| Foraminifers |   | 7 | 8 |
| Glass        |   | Tr |  |
| Nannofossils | 85| 90|  |
| Quartz       | Tr| Tr|  |
| Radiolarians |   | Tr| Tr|
| Spicles      | Tr| Tr| Tr|

---

**LITHOLOGIC DESCRIPTION**

<table>
<thead>
<tr>
<th>TIME ROCK UNIT</th>
<th>FORMATION</th>
<th>NANNOFOSIL</th>
<th>FORAMINIFERS</th>
<th>NASCENT DIATOMS</th>
<th>SEDIMENTS</th>
<th>CIS AGR LITHOLOGY</th>
<th>SEDIMENTOLOGY</th>
<th>SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**LITHOLOGIC DESCRIPTION**

**NANNOFOSSIL OOZE WITH FORAMINIFERS**
- Major lithology: NANNOFOSSIL OOZE with FORAMINIFERS; uniformly white (whiter than 10YR 8/1); firm. Minor mottling through Sections 3 through 6.
- Drilling disturbance: Drills occur in Section 6, 113-150 cm; otherwise core is undeformed.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Texture</th>
<th>Section 1</th>
<th>Section 2</th>
<th>Section 3</th>
<th>Section 4</th>
<th>Section 5</th>
<th>Section 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>10</td>
<td>15</td>
<td>10</td>
<td>20</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Silt</td>
<td>80</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Clay</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

**TEXTURE:**

- Sand: 10-15%
- Silt: 80-85%
- Clay: 5%

**COMPOSITION:**

- Clay: Tr
- Foraminifera: 6-10%
- Radiolarians: 7-10%
- Epifauna: Tr
- Nanofossils: 80-85%
**Site 747 Hole A Core 15H Cored Interval 132.5-142.0 mbsf**

**Lithologic Description**

**NANNOPHOSIL Ooze**

Major lithology: NANNOPHOSIL Ooze; color white (10YR 8/1) with a darker white interval from Section 2 to Section 3, 0-42 cm; firm and homogeneous throughout; slight burrow mottling in Sections 2 and 3.

Drilling disturbance: Section 3, 28-60 cm, highly disturbed (cracks and voids caused by stretching of core).

Trace of ash disseminated throughout Section 2 and Section 3, 0-42 cm.

**Smear Slide Summary (%):**

<table>
<thead>
<tr>
<th>Texture</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 73</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
</tr>
<tr>
<td>Diatoms</td>
</tr>
<tr>
<td>Foraminifers</td>
</tr>
<tr>
<td>Glass</td>
</tr>
<tr>
<td>Heavy minerals</td>
</tr>
<tr>
<td>Nannofossils</td>
</tr>
<tr>
<td>Quartz</td>
</tr>
<tr>
<td>Radiolarians</td>
</tr>
<tr>
<td>Sponges</td>
</tr>
</tbody>
</table>

| 2     | 34   | 4     |
| 2     | Tr   | 3     |
| 95    | 93   | 95    |
| Tr    | Tr   | Tr    |
| Tr    | Tr   | Tr    |

**Graphic Litholith**

- Upper Oligocene
- S. murchisoni
- S. murchisoni Subzone
- 747A-15H
**Lithologic Description**

**Nannofossil Ooze and Nannofossil Ooze with Forams**

**Major Lithologies:**
- **a.** Nannofossil Ooze with Foraminifers, Sections 1 to 5. White (2.5Y N 8) in Sections 1 and 2; white (10YR 8/1), Sections 3 and 4.
- **b.** Firm Nannofossil Ooze, pale yellow (10YR 6/4), bioturbated, in Sections 6 and 7.

**Minor Lithology:** Vitric ash, olive gray (5Y 5/2), dispersed in Section 4, 36-94 cm, 44-47 cm, and 57-69 cm. Ash is bioturbated, and mixed into dominant lithology in Section 5, 50-94 cm, 50-100 cm, and 135-150 cm. Section 6, 0-10 cm, contains bioturbated ash. Ash is highly dispersed in Section 3, 47-53 cm, and is concentrated in 33-35 cm.

**Drilling Disturbance:** Highly disturbed in first two sections, then moderate through Section 6. Section 5 contains a trace of flow-in.

**Smear Slide Summary (%)**:

<table>
<thead>
<tr>
<th>Layer</th>
<th>3.0</th>
<th>5.32</th>
<th>6.7</th>
<th>5.90</th>
<th>7.50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>M</td>
<td>M</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**Texture:**

<table>
<thead>
<tr>
<th>Texture</th>
<th>3.0</th>
<th>5.32</th>
<th>6.7</th>
<th>5.90</th>
<th>7.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>13</td>
<td>50</td>
<td>20</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Clay</td>
<td>7</td>
<td></td>
<td>10</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

**Composition:**

<table>
<thead>
<tr>
<th>Component</th>
<th>3.0</th>
<th>5.32</th>
<th>6.7</th>
<th>5.90</th>
<th>7.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diatoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foraminifers</td>
<td>13</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Glass</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Igneous rock fragments</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mica</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micrite</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micrite</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartz</td>
<td>80</td>
<td>50</td>
<td>10</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Radiolaria</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slacks</td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LITHOLOGIC DESCRIPTION

NANNOFOSIL CHALK

Major lithology: NANNOFOSIL CHALK, very pale brown (10YR 7/2) to light gray (10YR 7/1) to white (10YR 8/2). Cyclic variations from darker to lighter. Darker parts (Section 1; Section 3, 98-150 cm; Section 4, 79-140 cm; Section 5, 0-64 cm and 86-150 cm; Section 6) have more brown volcanic glass and slightly more foraminifers. Contacts are all gradational. Lighter intervals (white, 10YR 8/2) are in Section 3, 98-150 cm, and Section 4, 0-64 cm. An ash layer occurs in Section 4, 64-74 cm, olive (5Y 4/3). Contacts are gradational at lower diffuse due to bioturbation. Core is faintly bioturbated throughout. Scattered rare black flecks composed of angular, silt-sized glass and basaltic fragments throughout.

Minor lithology: Nanfossil chalk with foraminifers, light yellowish brown (10YR 6/4) in Section 1. Sharp basal contact, gradational bioturbated upper contact.

N.B.: Both Smear Slide and coarse fraction (100% sand) were examined in Section 4, 73-74 cm.

SMEAR SLIDE SUMMARY (%):

TEXTURE:

Sand 15 30 5 20 100 15 25
Silt 80 80 80 70 — 80 60
Clay 5 20 5 10 — 5 15

COMPOSITION:

Diatoms 2 3 8 2 10 5 5
Foraminifers 10 2 5 4 2 10 5
Glass 2 8 10 10 5 5
Igneous fragments 8 16 2 10 3 10 5
Nannofossils 68 55 80 30 60 75 55
Opalites — 10 5 1 — 5
Palagonite — 2 — 10 8 — 5
Quartz 10 — 1 5 1 1
Silicoflagellates — — 1 1 1

SMEAR SLIDE SUMMARY (%):

Silt 6.45
Clay 0.45

TEXTURE:

Sand 35
Silt 70
Clay 5

COMPOSITION:

Diatoms 5
Foraminifers 5
Glass 5
Igneous fragments 5
Nannofossils 63
Opalites 5
Palagonite 1
Quartz 1
Silicoflagellates 1
 SITE 747 HOLE A  CORE 18X  CORED INTERVAL 161.0 - 170.5 mbsf

**LITHOLOGIC DESCRIPTION**

**NANNOFOSIL CHALK**
Major lithology: NANNOFOSIL CHALK, alternating from light (white, 10YR 8/2) to dark (very pale brown, 10YR 7/4). The darker chalk has more foraminifers, clay, and (probably) volcaniclastic debris. Lighter intervals occur in Section 1, 0-55 cm and 68-133 cm; Section 2, 30-36 cm and 59-90 cm; and Section 3, 0-27 and 64-97 cm. All contacts are gradational and the entire core has minor bioturbation.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Composition</th>
<th>D</th>
<th>D</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diatoms</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>10</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Glass</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>73</td>
<td>85</td>
<td>43</td>
</tr>
<tr>
<td>Opal</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Palagonite</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**TEXTURE:**
- Sand: 15
- Silt: 80
- Clay: 10

**COMPOSITION:**
- Diatoms: 3%
- Foraminifers: 10%
- Glass: 5%
- Nannofossils: 73%
- Opal: 1%
- Palagonite: 2%
- Radiolarians: 2%
NANOFOSIL CHALK

Major lithology: NANOFOSIL CHALK, highly bioturbated, with burrows 2 mm-5 cm across, filled with nanofossil chalk (lighter colors) or nanofossil foraminifer chalk with clay (darker colors). Mottled colors (10YR 7/2), gray (7.5YR N5), and pink (5YR 8/3). Molluscs and mollusc fragments are rare. Burrows overlap; many exhibit cocentric fills, with the outer zone often white, the inner zone brown to gray or pink (more foraminifers, clay). Abundant opaque flecks throughout.

A hardground occurs in Section 2, 110-119 cm; also a gray layer of Mn micronodules.

SMRE SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th></th>
<th>1,117</th>
<th>2,116</th>
<th>2,117</th>
<th>3,59</th>
<th>2,112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silt</td>
<td>55</td>
<td>80</td>
<td>66</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>Clay</td>
<td>5</td>
<td>5</td>
<td>29</td>
<td>2</td>
<td>99</td>
</tr>
</tbody>
</table>

COMPOSITION:

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
<td>20</td>
<td>30</td>
<td>30</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>2</td>
<td>15</td>
<td>7</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Phragmites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lignite rock fragments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micrite</td>
<td>60</td>
<td>80</td>
<td>80</td>
<td>65</td>
<td>30</td>
</tr>
<tr>
<td>Zeolite</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

TEXTURE:

<table>
<thead>
<tr>
<th></th>
<th>1,117</th>
<th>2,116</th>
<th>2,117</th>
<th>3,59</th>
<th>2,112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silt</td>
<td>55</td>
<td>80</td>
<td>66</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>Clay</td>
<td>5</td>
<td>5</td>
<td>29</td>
<td>2</td>
<td>99</td>
</tr>
</tbody>
</table>
SITE 747 HOLE A CORE 20X CORED INTERVAL 180.0-189.5 mbsf

**LITHOLOGIC DESCRIPTION**

**NANNOFOSIL CHALK AND VOLCANICLASTIC SEDIMENTS**

Major lithologies:

- a. **NANNOFOSIL CHALK**, white (2.5Y N8) and pale yellow (10YR 8/4), intensely mottled, burrows up to 5 cm, white (2.5Y N8), light gray (2.5Y N7 and 10YR 7/2). From Section 1, 60 cm, downward increasing abundance of weathered volcaniclastic sand and red and black basalt fragments.

- b. **VOLCANICLASTIC** clay to rounded pebbles in Section 2, 46-66 cm, and in fragments and clay pellets. Green, white, red, and brown smectite layered on a cm-scale; highly weathered components. Hard volcanic siltstone clast (5 cm) at base. Conglomerate set in white clay matrix.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Texture</th>
<th>1, 101</th>
<th>1, 102</th>
<th>2, 48</th>
<th>CC, 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>20</td>
<td>3</td>
<td>20</td>
<td>—</td>
</tr>
<tr>
<td>Silt</td>
<td>70</td>
<td>55</td>
<td>70</td>
<td>—</td>
</tr>
<tr>
<td>Clay</td>
<td>10</td>
<td>2</td>
<td>10</td>
<td>—</td>
</tr>
</tbody>
</table>

**TEXTURE:**

- Sand: 20%
- Silt: 70%
- Clay: 10%

**COMPOSITION:**

- Algae: —
- Bivalves: —
- Bryozoa: —
- Calcite fragments: —
- Chaledony: —
- Fish: —
- Foraminifers: 15%
- Graptolites: 8%
- Molluscs: 35%
- Nonforaminifers: 10%
- Pyrite: —
- Spicules: —

**SAMPLES**

- 1
- 1, 101
- 1, 102
- 2, 48
- CC, 40
SITE 747 HOLE A  
CORE 21X  
CORED INTERVAL 189.5-199.0 mbsf

LITHOLOGIC DESCRIPTION

NANNOFOSSIL CHALK

Major lithology: NANNOFOSSIL CHALK, white (10YR 8/2); faint sub-horizontal streaks in Sections 1 and 2. Burrow-mottled in Section 3, 60-86 cm. Grayish green (5G 5/2) laminations in Section 3, 96-120 cm, through Section 4, 44 cm. Yellowish brown (10YR 5/8) laminations in Section 4, 44-48 cm, 75-138 cm, and 142-150 cm. Dark volcanic grains in sub-horizontal layers in Section 3, 88-89 cm, and, the CC, in 8 cm and 20 cm. In Section 4, nannofossil chalk is overprinted with multicolored, episodic laminae grading from dark brown clay laminae to yellow brown and pale blue green laminae in white chalk over 10-20 cm; horizontal, approximately 4 repetitions.

Drilling disturbance: Core is only slightly disturbed below Section 1.

SMEAR SLIDE SUMMARY (%):

TEXTURE:

Sand
Silt
Clay

COMPOSITION:

Clay
Foraminifers
Micrite
Nannofossils
Palagonite
Zeolite

25
0
35
60
10
45
1
MAGNOFOSSIL OOZE

Major lithology: MAGNOFOSSIL OOZE, firm, white (2.5YR 8/1), with faint gray streaks throughout (probably owing to pyrite-filled foraminifers). Chert granules 0.5 cm, probably downhole contamination. Yellow STAIN (10YR 7/8) between 17-20 cm and 35-49 cm.

Drilling disturbance: Section 1 was split with the saw and was highly disturbed. The rest of the core was split with the wire, and drilling disturbance appears to be moderate.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Texture</th>
<th>1.20</th>
<th>1.30</th>
<th>2.00</th>
<th>3.55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>92</td>
<td>92</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>Clay</td>
<td>8</td>
<td>37</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Clay</th>
<th>4</th>
<th>3</th>
<th>1</th>
<th>Tr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foraminifers</td>
<td>7.6</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
<td>Tr</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>96</td>
<td>92</td>
<td>94</td>
<td>90</td>
</tr>
</tbody>
</table>

---

SITE 747 HOLE A CORE 22X CORED INTERVAL 199.0-208.5 mbsf

---

NANNOFOSSIL OOZE

Major lithology: NANNOFOSSIL OOZE, firm, white (2.5YR 8/1), with faint gray streaks throughout (probably owing to pyrite-filled foraminifers). Chert granules 0.5 cm, probably downhole contamination. Yellow STAIN (10YR 7/8) between 17-20 cm and 35-49 cm.

Drilling disturbance: Section 1 was split with the saw and was highly disturbed. The rest of the core was split with the wire, and drilling disturbance appears to be moderate.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Texture</th>
<th>1.20</th>
<th>1.30</th>
<th>2.00</th>
<th>3.55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>92</td>
<td>92</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>Clay</td>
<td>8</td>
<td>37</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Clay</th>
<th>4</th>
<th>3</th>
<th>1</th>
<th>Tr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foraminifers</td>
<td>7.6</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
<td>Tr</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>96</td>
<td>92</td>
<td>94</td>
<td>90</td>
</tr>
</tbody>
</table>
NANNOSJOIN, Ooze:
Major lithology: NANNOSJOIN, Ooze, white (2.5YR 8/1), with faint gray streaks caused by pyrite-filled foraminifers; occurs from top of core through CC, 34 cm. Original structures are disturbed by splitting the cohesive sediment and possibly by drilling (biscuits?).
Minor lithology: Nannofossil chalk, light gray (10Y 7/1) at the very base of the core (CC, 34-43 cm).

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Sample</th>
<th>1.60</th>
<th>5.20</th>
<th>5.46</th>
<th>5.60</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>M</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

TEXTURE:

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Silt</td>
<td>64</td>
<td>65</td>
<td>88</td>
<td>88</td>
</tr>
<tr>
<td>Clay</td>
<td>4</td>
<td>5</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
<td>Tr</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>2</td>
<td>7</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Glass</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2</td>
</tr>
<tr>
<td>Mica</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2</td>
</tr>
<tr>
<td>Nannofossil</td>
<td>98</td>
<td>65</td>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>Pyrite</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Zeolite</td>
<td>--</td>
<td>--</td>
<td>2</td>
<td>--</td>
</tr>
</tbody>
</table>
NANNOFOSSIL Ooze:
Major lithology: NANNOFOSSIL Ooze, white (2.5 YR 8/1). Sedimentary structures obscured by drilling disturbance, with biscuits caused by rilling and/or splitting throughout. Gray streaks throughout core from pyritized foraminifers. Inoceramid fragments in Section 5, 30-40 cm. Chert fragments in Section CC, 20-30 cm, in nanofossil ooze. Texture is firm throughout, with a few chalky layers.
SITE 747 HOLE A CORRE 25X CORED INTERVAL 227.5-237.0 mbsf

LITHOLOGIC DESCRIPTION

NANNOFOSSIL OOZE
- Major lithology: NANNOFOSSIL OOZE, white (2.5YR 6/1), firm to chalky. Faint gray streaks occur throughout, may be pyritized foraminifers or Mn-oxide. Inoceramid shell fragments occur scattered through Section 2.

Minor lithologies:
- a. Nannofossil chalk, white (10YR 8/1) in Section 1 through Section 2, 10 cm.
- b. Chert, black (10YR 2/1), sometimes with light gray rims, occurs as nodules up to 5 cm across in Section 1, 0-5 cm, 51-58 cm, and 132-141 cm; Section 2, 70-77 cm and 120-128 cm; in Section 3, 92-99 cm; and in Section 4, 16-19 cm and 37-44 cm.

Drilling disturbance: Original structures have been mostly obscured by drilling disturbance, which includes formation of biscuits in firmer intervals.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Composition</th>
<th>1</th>
<th>40</th>
<th>2</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silt</td>
<td></td>
<td></td>
<td>56</td>
<td>90</td>
</tr>
<tr>
<td>Clay</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TEXTURE:

<table>
<thead>
<tr>
<th>PP</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>96</td>
<td>2</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>40</th>
<th>2</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foraminifers</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese oxide</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nanofossils</td>
<td></td>
<td></td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Pyrite</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skeletal debris</td>
<td></td>
<td></td>
<td>5</td>
<td>Tr</td>
</tr>
</tbody>
</table>
### Lithologic Description

**Major Lithology:** NANNOFOSSIL CHALK, white (2.5YR 8/1), relatively undisturbed. Contains numerous shell fragments including tiny mollusc (2 mm) and crinoid columnal fragments (0.5 cm). Burrow mottling throughout, with most burrows light gray (10Y 7/1) and sub-horizontal; multiple generations of burrowing in some cases. Gray color appears to be caused by pyrite linings of foraminifers.

**Minor Lithology:** Chert, black (2.5Y 2/1), occurs as small (<1 cm) fragments in two main intervals: Section 2, 112-123 cm, and Section 4, 35-50 cm.

**Drilling Disturbance:** Relatively minor; original features visible.

**Smear Slide Summary (%):**

<table>
<thead>
<tr>
<th>Texture</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
<th>Foraminifers</th>
<th>Nannofossils</th>
<th>Pyrite</th>
<th>Skeletal debris</th>
<th>Zeolite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>44</td>
<td>56</td>
<td>37</td>
<td>2</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

**Texture:** Sand 44, Silt 56, Clay 10, Foraminifers 37, Nannofossils 2, Pyrite 10, Skeletal debris 10, Zeolite 10.
**SITE 747 HOLE A**
**CORE 27X**
**CORED INTERVAL 246.5-256.0 mbsf**

**LITHOLOGIC DESCRIPTION**

**NANNOFossil Chalk**
Major lithology: NANNOFossil Chalk, white (2.5YR 8/1), burrow-mottled throughout, contains predominantly sub-horizontal burrows. A layer of pyritized foraminifers occurs in Section 2, 98-99 cm. A small (2 mm) mollusc shell occurs in Section 2, 47 cm.

Minor lithology: Chert, black (10YR 2/1), occurs in Section 2, 108-118 cm, and Section 3, 41-52 cm; shell is fractured into pieces <2 cm across.

Drilling disturbance: relatively undisturbed by drilling; original structures visible.

**SMER Slide Summary (%):**

<table>
<thead>
<tr>
<th>Texture</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>12</td>
<td>D</td>
<td>M</td>
<td>1.40</td>
</tr>
<tr>
<td>Clay</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Composition:**
- Foraminifers: 2%
- Manganese oxide: 2%
- Nannofossils: 95%
- Pyrite: 1%
- Goethite: Tr

Drilling disturbance: relatively undisturbed by drilling; original structures visible.
SITE 747 HOLE B CORE 1H CORED INTERVAL 0.0-2.80 mbsf

DIATOM Ooze with Foraminifers
Major lithology: DIATOM Ooze with FORAMINIFERs, pinkish tan (5YR 7/3), from top of core through Section 2, 90 cm.

Minor lithologies:
- a. Foraminifer diatom ooze, light yellowish brown (2.5Y 6/4), Section 2, 5-15 cm, 35-45 cm, and 90-100 cm.
- b. Diatom nannofossil ooze with foraminifers, white (2.5Y 8/1, 5Y 8/1), Section 2, 15-35 cm, 100-132 cm.

Drilling disturbance: Entire core was water saturated; original structures are disturbed.

N.B.: No core catcher.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

TEXTURE:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>30</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Silt</td>
<td>68</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td>Clay</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diatoms</td>
<td>89</td>
<td>68</td>
<td>30</td>
</tr>
<tr>
<td>Foraminifers</td>
<td>7</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Glass</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nannofossils</td>
<td>1</td>
<td>Tr</td>
<td>58</td>
</tr>
<tr>
<td>Quartz</td>
<td>1</td>
<td>Tr</td>
<td>1</td>
</tr>
<tr>
<td>Radiolarians</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Silicoflagellates</td>
<td>2</td>
<td>Tr</td>
<td>Tr</td>
</tr>
</tbody>
</table>
## Lithologic Description

Diatom Ooze with Foraminifers

- Major lithology: Diatom Ooze with Foraminifers. White (10YR 8/1) alternating on 50-100 cm scale with pale grays (10YR 8/2 and 10YR 7/2). Light gray intervals contain volcanic ash and possibly ice-rafted debris, as in Section 1, 0-60 cm and in Section 2. Bioturbation minor to moderate; bedding on 1-4 cm scale is preserved. Texture is soft to firm; some dewatering occurred after splitting.

- Drilling disturbance: Minor to moderate.

**Smear Slide Summary (%):**

<table>
<thead>
<tr>
<th>Sample</th>
<th>2.20</th>
<th>2.75</th>
<th>6.70</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>

**Texture:**

- Sand: 20 10 15
- SI: 75 85 80
- Clay: 5 5 5

**Composition:**

- Diatoms: 70 85 80
- Foraminifers: 20 9 15
- Nannofossils: 17 1 7
- Radiolarians: 8 4 9
- Silicoflagellates: 2 1 7
LITHOLOGIC DESCRIPTION

DIATOM Ooze WITH FORAMINIFERS

Major lithology: DIATOM Ooze with FORAMINIFERS, predominantly white (10YR 8/2) or cream-colored, decimeter-thick gradational bands of darker light gray (10YR 7/2) and light brown gray (10YR 6/2) contain slightly more foraminifers.

Minor lithologies:
- a. Vitric ash, brown (10YR 2/2), sand sized with fresh angular vesicular shards and pipe vesicles; uniform, faintly graded.
- b. Vitric ash, gray brown (10YR 5/2), silt sized, more altered appearance than the other ash.

Drilling disturbance: Minor; upper ash layer contacts are smeared.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
</tr>
<tr>
<td>Silt</td>
</tr>
<tr>
<td>Clay</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOSITION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
</tr>
<tr>
<td>Foraminifers</td>
</tr>
<tr>
<td>Glass</td>
</tr>
<tr>
<td>Mollusks</td>
</tr>
<tr>
<td>Nannofossils</td>
</tr>
<tr>
<td>Radiolarians</td>
</tr>
</tbody>
</table>

1,50 | D | 2,50 | 3,50 | 4,50 | 5,147 | M | D | M | M | M
### Site 747 Hole B, Core 4H, Cored Interval 21.8-31.3 mbsf

<table>
<thead>
<tr>
<th>Time-Hole Unit</th>
<th>Foraminifera</th>
<th>Nannofossils</th>
<th>Sediments</th>
<th>Graphic Lithology</th>
<th>Spinning Structures</th>
<th>Lithologic Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Graphic Lithology**

**Spinning Structures**

**Lithologic Description**

**Diatom Foraminifer Ooze and Foraminifer Diatom Ooze**

Major lithologies: Diatom foraminifer ooze changing to foraminifer diatom ooze in Section 4; colors are predominantly uniform with gradational contacts of light gray (10YR 7/2) lightening to white (10YR 8/2 and 10YR 8/1). Faint burrow mottles below darker boundaries.

Minor lithologies:

- a. Diatom foraminifer ooze with vitric ash, brown (10YR 5/3), 20-cm bed in Section 5.
- b. Foraminifer nannofossil ooze, white (10YR 8/1 to 10YR 8/2), below Section 5, 30 cm; grades downward to Section 6, 128 cm, darkening to light gray (10YR 8/2).

N.B.: No core catcher.

**Smear Slide Summary (%)**

<table>
<thead>
<tr>
<th>Texture</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>30</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>30</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>30</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>30</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

**Composition**

- Diatoms: 30 30 30 15
- Foraminifers: 40 35 30 40
- Glass: 5 5 5 5
- Nannofossils: 5 5 5 45
- Radiolarians: 5 5 5 5
- Silicoflagellates: 5 5 5 5

---

**Note**: The document contains a table and a graph that are not transcribed here but are integral to understanding the description of the core samples.
Major lithology: NANNOFOSIL OOZE, diatom and foraminifer content approaches 10% each. Uniformly white (10YR 8/2) in Section 2 to Section 5, 28 cm, and mottled in Section 6, 1 cm. to CC.

Minor lithologies:

a. Nannofossil ooze with foraminifers, light gray (10YR 7/2), in Section 1.
b. Nannofossil ooze with diatoms and foraminifers, white (10YR 8/2), mottled, in Section 6, with patches of very pale brown (10YR 7/3) in Section 7, 8-48 cm.

SMIR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th></th>
<th>1.50</th>
<th>D</th>
<th>4.50</th>
<th>D</th>
<th>D</th>
<th>D</th>
</tr>
</thead>
</table>

TEXTURE:

DI 10 10 10 10
Clay 90 90 90 90

COMPOSITION:

- Diatoms: 5 5 15 5
- Foraminifers: 15 5 15 3
- Glass: — Ty Ty Ty
- Radiolarians: 80 85 76 85
- Silicoflagellates: Ty — Ty 3
- Spicules: Ty — — —
# SITE 747 HOLE B CORE 6H CORED INTERVAL 40.8-50.3 mbsf

## Lithologic Description

<table>
<thead>
<tr>
<th>TIME-ROCK UNIT</th>
<th>FORMATION</th>
<th>NANNOFOSSIL</th>
<th>D. spirophora</th>
<th>LITHOLOGY</th>
<th>DRILLING DISTURBANCE</th>
<th>SMEAR SLIDE SUMMARY (%)</th>
<th>TEXTURE</th>
<th>COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.67 3.50 7.20</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

- Major lithology: NANNOFOSSIL Ooze, white (10YR 8/2, 10YR 8/1) and light gray (10YR 7/2). Darker intervals contain more foraminifers, diatoms, and trace volcaniclastic material.
- Faintly mottled at gradational color boundaries (e.g., Section 5; Section 3, 50 cm; and Section 3, 100 cm).
- Drilling disturbance: moderate except in first section (highly disturbed).

### Smear Slide Summary (%):

- 1.67
- 3.50
- 7.20

### Texture:

- Silt: 10 10 10
- Clay: 90 90 90

### Composition:

- Clay: 5 1 2
- Diatoms: 10 5 3
- Foraminifers: 15 7 5
- Glass: Tt Tt —
- Mica: 3 1 3
- Nannofossils: 65 85 85
- Radiolarians: 5 1 2
- Silicoflagellates: Tt —
SITE 747 HOLE C CORE 1R CORED INTERVAL 159.0-168.5 mbsf

LITHOLOGIC DESCRIPTION

NANNOFOSSIL CHALK
Major lithology: NANNOFOSSIL CHALK, light gray (10YR 7/2), white (10YR 8/2), and very pale brown (10YR 7/3), with some pale brown (10YR 6/3) intervals (e.g., Section 4, 82-91 cm). Brownish intervals contain increased minor foraminifer component. Sediment in this core is moderately well indurated and could barely be split with the wire. No bedding is visible, although faint motling and gradational color changes are seen.

Minor lithology: Pebble composed of epidote and zeolite in Section 1, 108 cm.

N.B.: No core catcher.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Silt</th>
<th>Clay</th>
<th>Diatoms</th>
<th>Foraminifers</th>
<th>Nannofossils</th>
<th>Radiolarians</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,88</td>
<td>85</td>
<td>10</td>
<td>13</td>
<td>75</td>
<td>1</td>
</tr>
<tr>
<td>5,114</td>
<td>80</td>
<td>12</td>
<td>2</td>
<td>20</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>2</td>
<td>5</td>
<td>90</td>
<td>—</td>
</tr>
</tbody>
</table>

COMPOSITION:

Clay 85 80 95
Silt 15 25 5
Diatoms 5 10 5
Foraminifers 1 2 —
Nannofossils 13 12 5
Radiolarians 1 3 —
LITHOLOGIC DESCRIPTION

NANNOFOSIL CHALK

Major lithology: NANNOFOSIL CHALK, white (10YR 8/2) and pale yellow (10YR 7/2), in Sections 1-3. Darker intervals (Sections 1, 87-92 cm; Section 2, 142-150 cm; and Section 3, 7-14 cm and 127-142 cm) are richer in foraminifera and clay. Trace of calcite occurs in darker interval in Section 5 and in Section 1, 92 cm. Nannofossil chalk in Section 3, 142-150 cm, and Sections 4 and 5 is highly bioturbated, white (10YR 8/2), light grey (10YR 8/2) and black (10YR 2/2). Burrows 2-5 mm across; simply or complexly (concentrically) filled, overlapping.

A hardground occurs in Section 1, 87-92 cm, with an upper black Mn layer overlying a dolomudstone layer (lateral).

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>10</td>
<td>85</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory minerals</td>
</tr>
<tr>
<td>Foraminifera</td>
</tr>
<tr>
<td>Nannofossils</td>
</tr>
<tr>
<td>Zeolite</td>
</tr>
</tbody>
</table>

SITE 747 HOLE C
CORE 2R
CORED INTERVAL 168.5-178.0 mbsf
NANOFOSIL CHALK WITH FORAMINIFERS AND VOLCANOCLASTIC SEDIMENTS

Major lithology:

b. NANOFOSIL CHALK with FORAMINIFERS in Section 1 through Section 2, 50 cm; white (10YR 8/1 light), burrow mottling on cm scale with Zoophycos tracks, moderate throughout; large (cm-sized) worm burrows in white (10YR 8/1) chalk and filled with light gray (10YR 7/1) chalk, Section 1, 6-150 cm; numerous bedding parallel burrows in Section 1, 6-150 cm, and Section 2, 0-46 cm. Note driling disturbance in some intervals (e.g., laminations caused by rotation of chalk pieces); from Section 2, 50 cm, downward increasing abundance of volcanoclastic sediments.

c. VOLCANOCLASTIC SEDIMENTS in Section 3, 50-150 cm, and CC, dark gray (7.5 YR 4/1), consisting mostly of volcanic particles and claystone, scattered chert and chalk pieces; various clay clasts are rounded; colors vary from yellow, green, orange, white, dark brown, dark gray, reddish ferrigenous to pinkish waxy; hard brown limestone crust; lithology stratified but not graded.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>Texture</th>
<th>1.50</th>
<th>2.49</th>
<th>2.79</th>
<th>3.100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Silt</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Clay</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
</tr>
</tbody>
</table>

COMPOSITION:

<table>
<thead>
<tr>
<th>Accessory minerals</th>
<th>1.50</th>
<th>2.49</th>
<th>2.79</th>
<th>3.100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foraminifers</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Glass</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Nanofossils</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

LITHOLOGIC DESCRIPTION

- Major lithology:
  - Section 1: NANOFOSIL CHALK with FORAMINIFERS
    - White, burrow mottling on cm scale with Zoophycos tracks, moderate throughout.
    - Large (cm-sized) worm burrows in white chalk and filled with light gray chalk.
    - Numerous bedding parallel burrows in Section 1.
    - Note drilling disturbance in some intervals caused by rotation of chalk pieces.
  - Section 2: Downward increasing abundance of volcanoclastic sediments.
  - Section 3: VOLCANOCLASTIC SEDIMENTS
    - Dark gray, consisting mostly of volcanic particles and claystone.
    - Scattered chert and chalk pieces.
    - Various clay clasts are rounded.
    - Colors vary from yellow, green, orange, white, dark brown, dark gray, reddish ferrigenous to pinkish waxy.
    - Hard brown limestone crust.

- Lithology stratified but not graded.
SITE 747 HOLE C CORE 4R CORED INTERVAL 187.5-197.0 mbsf

<table>
<thead>
<tr>
<th>TIME-ROCK UNIT</th>
<th>FORMATIONS</th>
<th>FOSSILS</th>
<th>FORAMINIFERS</th>
<th>NANNOFOSILS</th>
<th>MUSCLEmonds</th>
<th>DRILLING DISTURB.</th>
<th>SEM. STRUCTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LITHOLOGIC DESCRIPTION

**NANNOFOSIL CHALK AND POLYGENIC BRECCIA**

Major lithologies:

1. **NANNOFOSIL CHALK**, white (10YR 8/1), may be downhole contamination; contains foraminifer fragments.
2. **POLYGENIC BRECCIA**, comprising a mosaic of colors, is cemented by white micritic limestone. Clasts are of polygenetic origin, range in size from approximately 1 cm and smaller, and includes red, hematinic claystone, black chert with chalk patina, scoriaceous basalt weathered in situ, vitreous chert, and inoceramid fragments. Most clasts are angular to subangular, except for the clay clasts, which are rounded. The remainder of the breccia is composed of the same type clasts, but is unconsolidated.

SITE 747 HOLE C CORE 5R CORED INTERVAL 197.0-206.5 mbsf

<table>
<thead>
<tr>
<th>TIME-ROCK UNIT</th>
<th>FORMATIONS</th>
<th>FOSSILS</th>
<th>FORAMINIFERS</th>
<th>NANNOFOSILS</th>
<th>MUSCLEmonds</th>
<th>DRILLING DISTURB.</th>
<th>SEM. STRUCTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LITHOLOGIC DESCRIPTION

**NANNOFOSIL CHALK WITH FORAMINIFERS AND BRECCIA**

Major lithologies:

1. **NANNOFOSIL CHALK WITH FORAMINIFERS**, white (7.5YR 8/1) with sub-horizontal laminations in Section 1, 16-30 cm, and white (10YR 8/1) with faint mottles in Section 1, 30-83 cm. The sharp contact between the chalk units may be a result of drilling disturbance.
2. **Volcaniclastic BRECCIA**, polygenetic. Most clasts are altered aphanitic basalt, some cemented by chalk. Veins and vesicles of basalt are filled (zeolite crystals occur in veins). CC recovered altered basalt with olivine altered to clay, altered microgranular gneiss, rocks, vitric tuff, microporphyritic tuffs, and siltstone.

SMEAR SLIDE SUMMARY (%):

<table>
<thead>
<tr>
<th>TEXTURE</th>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foraminifera</td>
</tr>
<tr>
<td>Nannofossils</td>
</tr>
</tbody>
</table>

TEXTURE:

<table>
<thead>
<tr>
<th>Sand</th>
<th>Silt</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foraminifera</td>
</tr>
<tr>
<td>Nannofossils</td>
</tr>
</tbody>
</table>
SITE 747  HOLE C  CORE 6R  CORED INTERVAL 252.0-261.5 mbsf

**BIOSTRAT. ZONE/FOSSIL CHARACTER**

**FORAMINIFERS**

Not dated

**NANNOFOSSILS**

C/P Q. trifidum

**RADIOLARIANS**

Barren

**DIATOMS**

Barren

**PHYS. PROPERTIES**

**CHEMISTRY**

**LITHOLOGY**

**DRILLING DISTURB.**

Apart from Section 1, 70-120 cm, which is only moderately disturbed, this core is highly disturbed by drilling and splitting.

---

**SITE 747  HOLE C  CORE 7R  CORED INTERVAL 261.5-271.0 mbsf**

**BIOSTRAT. ZONE/FOSSIL CHARACTER**

**FORAMINIFERS**

Q. trifidum

**NANNOFOSSILS**

C/P Q. trifidum

**RADIOLARIANS**

Barren

**DIATOMS**

Barren

**PHYS. PROPERTIES**

**CHEMISTRY**

**LITHOLOGY**

**DRILLING DISTURB.**

Apart from Section 1, 70-120 cm, which is only moderately disturbed, this core is highly disturbed by drilling and splitting.
# SITE 747 HOLE C CORE 8R CORED INTERVAL 271.0-280.5 mbsf

<table>
<thead>
<tr>
<th>TIME-ROCK UNIT</th>
<th>Fossil Character</th>
<th>Graphic Lithology</th>
<th>Sed. Structures</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Campanian</td>
<td>Nannofossils, Foraminifers, Paleomagnetics</td>
<td>Nanofossil Chalk</td>
<td>Drill Imbition</td>
<td>Sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Major lithology: Nanofossil Chalk, white (10YR 8/1), contains inoceramid fragments in Section 1, 40-45 cm; chert pebbles in Section 1, 50 cm, 80 cm, and 108 cm. Burrows and laminations are mostly obscured by drilling disturbance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nannofossils: <em>C/M 0. trifidum</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiolarians: Barren</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diatoms:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paleomagnetics:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phys. Properties:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chemistry:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Section</th>
<th>1, 52</th>
<th>1, 98</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture:</td>
<td>Sand: 7</td>
<td>5</td>
</tr>
<tr>
<td>Silt: 93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clay: 95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPOSITION:**

Foraminifers: 7 5
Nannofossils: 93 95
Pyrite: Tr Tr
Unspecified minerals: — Tr

---

# SITE 747 HOLE C CORE 9R CORED INTERVAL 280.5-290.0 mbsf

<table>
<thead>
<tr>
<th>TIME-ROCK UNIT</th>
<th>Fossil Character</th>
<th>Graphic Lithology</th>
<th>Sed. Structures</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle - Upper Campanian</td>
<td>Nannofossils, Foraminifers, Paleomagnetics</td>
<td>Nanofossil Chalk</td>
<td>Drill Imbition</td>
<td>Sample</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Major lithology: Nanofossil Chalk, white (5Y 8/1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>from top of Section 1 (burrowed throughout), through CC, 8 cm; white (10YR 8/1) in CC, 9-17 cm, with some horizontal laminations. An inoceramid layer occurs in Section 1, 57-64 cm, and possibly represents a single shell now fragmented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minor lithology: Chert, black (7.5YR 3/0), occurs in Section 1, 33-37 cm. Chalk is still visible in vugs in chert.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drilling disturbance: Core is fractured into numerous pieces which remain generally in place; the greatest disturbance is in Section 1, 138-150 cm.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMEAR SLIDE SUMMARY (%):</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEXTURE:**

<table>
<thead>
<tr>
<th>Section</th>
<th>CC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture:</td>
<td>Sand: 1</td>
</tr>
<tr>
<td>Silt: 99</td>
<td></td>
</tr>
</tbody>
</table>

**COMPOSITION:**

Foraminifers: 1
Nannofossils: 99
Pyrite: Tr
**LITHOLOGIC DESCRIPTION**

**NANNOFOSSIL CHALK AND CHERT**

- **Major Lithologies:**
  a. **NANNOFOSSIL CHALK**, white (10YR 8/1), contains inoceramid fragments and unidentified carbonate (presumed nannofossils?). Section 1, 0-45 cm. b. **CHERT**, black (10YR 2/1), occurs as angular gravel (3mm-1cm) along with volcanic and siltstone pebbles; in Section 1, 45 cm. through Section 2, 15 cm. Gravel is moderately well sorted, and appears to be a by-product of drilling.

- **Minor Lithology:** Rocks in CC include sandstone, greenish gray (5G 6/1), with silt-sized grains of a green mineral (claystone, chlorite?), also highly weathered volcanic rock, dark greenish gray (5Gy 4/1), may be derived from the volcanoclastic unit in this hole. These rocks have all lost their original orientation.

**SMEAR SLIDE SUMMARY (%):**

<table>
<thead>
<tr>
<th>Clay</th>
<th>0-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>105</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td></td>
</tr>
</tbody>
</table>

**TEXTURE:**

- **Sand:** 10
- **Silt:** 94
- **Clay:** 5

**COMPOSITION:**

- **Accessory minerals:**
- **Carbonate:** 10
- **Foraminifers:** 2
- **Glass:** 2
- **Nannofossils:** 88
UNIT 1: MODERATELY PLAGIOCLASE-PYROXENE PHYRIC BASALT

Pieces 1-2

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 5%, 1 mm, euhedral laths.
- Pyroxene - 1%, 1 mm, subhedral.

GROUNDMASS: Microcrystalline.

VESICLES: 10%, 1 mm, show flow orientation, some infilling with calcite, zeolites and smectites.

COLOR: Medium gray.

STRUCTURE: Not determined.

ALTERATION: Slight.

VEINS/FRACTURES: Slightly fractured, infilled by calcite and zeolites.

UNIT 2: MODERATELY PLAGIOCLASE-PYROXENE PHYRIC BASALT

Pieces 3-8

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 1%, 1 mm, euhedral laths.
- Pyroxene - 1%, 0.5 mm, subhedral.
- Olivine - 1%, 5 mm, altered to iddingsite.

GROUNDMASS: Microcrystalline.

VESICLES: 10%, 1-5 mm, filled with zeolites and greenish clay minerals.

COLOR: Dark gray.

STRUCTURE: Not determined.

ALTERATION: Moderate.

VEINS/FRACTURES: Moderately fractured, infilled by calcite.

UNIT 3: BRECCIATED SPARSELY PLAGIOCLASE PHYRIC BASALT

Pieces 9-25

CONTACTS: Not determined.

PHENOCRYSTS: Plagioclase - 2%, 0.5-1 mm, euhedral laths.

GROUNDMASS: Microcrystalline.

VESICLES: 20%, 1-6 mm, filled with zeolites and greenish clay minerals.

COLOR: Dark gray.

STRUCTURE: Not determined.

ALTERATION: Highly altered.

VEINS/FRACTURES: Highly brecciated, fractures infilled mainly with calcite but also some smectite.
UNIT 4: SPARSELY CLINOPYROXENE-PLAGIOCLASE PHYRIC TO APHYRIC BASALT

Pieces 1-25

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - <1%, <1 mm, anhedral.
- Pyroxene - 2%, 1 mm, euhedral.
- Olivine - < 1%, subhedral, weathered.

GROUNDMASS: Microcrystalline.

VESICLES: 1-6 mm, occasionally showing flow alignment (dip 15 degrees). Pieces 1-14: 5%.
- Pieces 16-20B: 0-3%, no vesicles. Pieces 21-25: 10-15%. Vesicles are filled with light green clay, calcite, and zeolites.

COLOR: Dark gray to green gray.

STRUCTURE: Not determined.

ALTERATION: Moderate.

VEINS/FRACTURES: Veins are distributed irregularly throughout, consisting of zeolites and calcite. Pieces 1 and 15: veins of calcite, zeolites and green clay minerals.
UNIT 4: SPARSELY CLINOPYROXENE-PLAGIOCLASE PHYRIC TO APHYRIC BASALT

Pieces 1-7

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - <1%, 1 mm.
- Pyroxene - 2%, 1 mm.

GROUNDMASS: Microcrystalline.

VESICLES: Pieces 1, 2, and top 3 cm of 3: 15%, 1-7 mm, filled with calcite, zeolites and green clay minerals

COLOR: Dark gray (brown).

STRUCTURE: Not determined.

ALTERATION: Moderate to high.

VEINS/FRACTURES: Mainly calcite infilling. Pieces 3-7: veining increased from 5% to 70%.

UNIT 5: APHYRIC BASALT

Pieces 8-10

CONTACTS: Not determined.

PHENOCRYSTS: Aphyric.

GROUNDMASS: Microcrystalline, plagioclase and olivine crystals.

VESICLES: (7)%, 1-2 mm, mostly filled with green clay minerals.

COLOR: Gray.

STRUCTURE: Not determined.

ALTERATION: Highly altered, olivine to iddingsite.

VEINS/FRACTURES: Piece 4: small fracture infilled with calcite.

UNIT 6: APHYRIC BASALT

Piece 11

CONTACTS: None.

PHENOCRYSTS: Plagioclase - <0.5%, 1 mm.

GROUNDMASS: Highly altered.

VESICLES: 10%, filled with calcite.

COLOR: Green gray.

STRUCTURE: Not determined.

ALTERATION: High.

VEINS/FRACTURES: Piece 11B pervasively veined.
UNIT 7: ALTERED BASALT WITH CHERT FRAGMENTS

Pieces 1-4.

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Fine-grained.
VESICLES: Green-gray.
COLOR: Not determined.
STRUCTURE: Strongly altered to chlorite and epidote.
ALTERATION: Not determined.
VEINS/FRACTURES: Pieces 1, 2, and 4: chert fragments.

UNIT 8: APHYRIC TO MODERATELY CLINOPYROXENE PHYRIC BASALT

Pieces 5-12

CONTACTS: Not determined.
PHENOCRYSTS: Pyroxene - 3%, 2 mm. Olivine - < 1%, 2 mm.
GROUNDMASS: Microcrystalline.
VESICLES: Pieces 5: 20%, 1-4 mm. Pieces 6-12: < 5%, 1-2 mm. Filled with calcite.
COLOR: Greenish gray to dark gray.
STRUCTURE: Not determined.
ALTERATION: Pervasive brownish alteration.
VEINS/FRACTURES: Vesicles filled with zeolites, veins filled with calcite. Criss-cross veinlets < 1 mm thick throughout.

UNIT 9: HIGHLY ALTERED AND BRECCIATED APHYRIC BASALT

Pieces 13-16

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Microcrystalline.
VESICLES: 2%, 0.5 mm.
COLOR: Gray brown.
STRUCTURE: Not determined.
ALTERATION: Highly altered.
VEINS/FRACTURES: Calcite and green clay minerals in veins. Vesicles filled by green clay minerals. Breccia separates units.

UNIT 10: MODERATELY PLAGIOCLASE OLIVINE-PHYRIC BASALT

Pieces 17-20

CONTACTS: Not determined.
PHENOCRYSTS: Plagioclase - 7%, 2 mm. Olivine - 2%, 3 mm.
GROUNDMASS: Microcrystalline.
VESICLES: (?)% , 2-15 mm, filled with zeolites and calcite.
COLOR: Gray.
STRUCTURE: Not determined.
ALTERATION: Slight.
VEINS/FRACTURES: 1-5 mm, slightly veined, filled with calcite.
UNIT 10: CONTINUED

12R-2, Pieces 1-13, 12R-3, Pieces 1-12, 12R-4, Pieces 1-11, and 13R-1, Pieces 1-2

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 7%, 2 mm.
- Olivine - 2%, 3 mm.

GROUNDMASS: Microcrystalline.

VESICLES: Piece 12R-2, 1: 2-10%, 2-15 mm filled with zeolites, calcite and green clay minerals.
- Top Section 12R-3 to bottom Section 12R-4, very few (< 1%) vesicles filled with greenish clay minerals and zeolites. Section 12R-4, least amount of vesicles. Piece 13R-1, 2: 3-5%, 8 mm, “stretched out” with dip of 10 degrees.

COLOR: Greenish gray.

STRUCTURE: Not determined.

ALTERATION: Slight to moderate. Section 12R-4 looks freshest.

VEINS/FRACTURES: (?)%, up to 3 mm in thickness, both horizontal and vertical, filled with calcite.
UNIT 10: CONTINUED

Pieces 1-12

See Section 120-747C-12R-2
UNIT 10: CONTINUED

Pieces 1-11

See Section 120-747C-12R-2
UNIT 10: CONTINUED

Pieces 1-2

See Section 120-747C-12R-2

UNIT 11: ALTERED APHYRIC BASALT

Pieces 3-7

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Microcrystalline.
VESICLES: 10%, filled with green clay minerals.
COLOR: Gray to dark gray.
STRUCTURE: Not determined.
ALTERATION: Highly altered.
VEINS/FRACTURES: Filled with calcite and goethite.

UNIT 12: ALTERED APHYRIC BASALT

Pieces 8-11

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Microcrystalline.
VESICLES: None.
COLOR: Gray green.
STRUCTURE: Not determined.
ALTERATION: Highly altered.
VEINS/FRACTURES: Calcite, goethite (subaerial weathering?).

UNIT 13: SPARSELY PLAGIOCLASE-CLINOPYROXENE PHYRIC BASALT

13R-1, Pieces 12-13, and 13R-2, Pieces 1-7

CONTACTS: Not determined.
PHENOCRYSTS:
    Plagioclase - 1%, 2 mm.
    Clinopyroxene - 1%, 2 mm.
GROUNDMASS: Microcrystalline.
VESICLES: 3%, 3 mm, filled with zeolites and smectite.
COLOR: Gray.
STRUCTURE: Not determined.
ALTERATION: Slight.
VEINS/FRACTURES: None.
UNIT 13: CONTINUED

Pieces 1-7

See Section 120-747C-13R-1

UNIT 14: ALTERED BRECCIATED APHYRIC BASALT

Pieces 8-11

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Microcrystalline.
VESICLES: 10%, 2 mm, filled with smectite, green clay minerals, and zeolites. Breccia pieces vary in vesicle content (7%-30%).
COLOR: Dark gray lava breccia in brown matrix.
STRUCTURE: Not determined.
ALTERATION: Highly altered.
VEINS/FRACTURES: Some fibrous calcite veins.

UNIT 15: ALTERED APHYRIC BASALT

Pieces 12-17

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Not determined.
VESICLES: Not determined.
COLOR: Not determined.
STRUCTURE: Not determined.
ALTERATION: Not determined.
VEINS/FRACTURES: Not determined.
ADDITIONAL COMMENTS: Fractured, cut pervasively by veins of calcite, green clay minerals, and zeolites. Parts of Piece 16 completely altered to clay minerals - mainly smectite.

UNIT 16: APHYRIC BASALT

Pieces 18-22

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Microcrystalline.
VESICLES: 5%, 2-5 mm, filled with calcite.
COLOR: Gray.
STRUCTURE: Not determined.
ALTERATION: Moderate.
VEINS/FRACTURES: None.
UNIT 17: SPARSELY OLIVINE-PLAGIOCLASE PHYRIC BASALT

Pieces 1-6

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 1%, 1 mm.
- Olivine - 1%, 2 mm, altered.

GROUNDMASS: Microcrystalline.

VESICLES: < 3%, 2-3 mm.

COLOR: Gray

STRUCTURE: Not determined.

ALTERATION: Slight to moderate.

VEINS/FRACTURES: One vertical vein 4 mm across, filled with calcite. Some network veining (width < 1 mm).

UNIT 18: MODERATELY PLAGIOCLASE-PYROXENE-OLIVINE PHYRIC BASALT

Pieces 7-16

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 4%, 1-2 mm.
- Clinopyroxene - 2%, 1 mm.
- Olivine - 1%, 2-3 mm.

GROUNDMASS: Microcrystalline.

VESICLES: < 5%, filled with zeolite. One filled with green clay minerals.

COLOR: Green gray

STRUCTURE: Not determined.

ALTERATION: Moderate.

VEINS/FRACTURES: None.
UNIT 19: SPARSELY OLIVINE-PLAGIOCLASE PHYRIC BASALT

Pieces 1-3

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 1%, 2 mm.
- Olivine - 2%, < 0.5 mm, subhedral, altered.

GROUNDmass: Microcrystalline.

VESICLES: (?)%, 1-6 mm, subrounded to round, irregularly distributed, filled with green clay minerals.

COLOR: Gray green.

STRUCTURE: Not determined.

ALTERATION: Mild to moderate.

VEINS/FRACTURES: Overall none, thin 1 mm, calcite vein in Piece 1D.

UNIT 20: MODERATELY OLIVINE-PLAGIOCLASE PHYRIC BASALT

Pieces 4-9

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 5%, radiating laths, unaltered(?).
- Olivine - 5%, < 1 mm, partially altered.

GROUNDmass: Fine grained with intergranular texture.

VESICLES: (?)%, 2-3 mm, rare except for Piece 8, infilled with green clay minerals and zeolites.

COLOR: Light green.

STRUCTURE: Not determined.

ALTERATION: Devitrified (chlorite?) glass in groundmass.

VEINS/FRACTURES: Rare.

UNIT 21: MODERATELY PLAGIOCLASE-CLINOPYROXENE-OLIVINE PHYRIC BASALT

14R-1, Pieces 10-16, 14R-2, Pieces 1-8, and 15R-1, Pieces 1-2

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase - 1-4%, euhedral laths. Up to 5% plagioclase in Piece 16.
- Pyroxene - 1%, 1 mm.
- Olivine - 1%, 1 mm, altered.

GROUNDmass: Microcrystalline.

VESICLES: 2-4%, 2-5 mm, round, irregularly distributed, filled with green clay minerals and zeolites.

COLOR: Light green.

STRUCTURE: Not determined.

ALTERATION: Moderate.

VEINS/FRACTURES: Small microveinlets filled with calcite.
UNIT 21: CONTINUED

Piece 1-8
See Section 120-747C-14R-1
UNIT 22: CONTINUED

Pieces 1-2

See Section 120-747C-14R-1

UNIT 23: HIGHLY PLAGIOCLASE-PYROXENE PHYRIC BASALT

15R-1, Pieces 3-6, 15R-2, Piece 1

CONTACTS: Not determined.

PHENOCRYSTS:
- Plagioclase: 15-20%, 2 mm, euhedral to subhedral.
- Clinopyroxene: 10-15%, 2-3 mm, euhedral.
- Olivine: 7%, 2 mm, altered to iddingsite.

GROUNDMASS: Microcrystalline to fine-grained and secondary minerals (celadonite or chlorite?).

VESICLES: 1%. Piece 3B: 2-10 mm, filled with calcite. Section 15R-2: more vesicular.

COLOR: Medium gray.

STRUCTURE: Not determined.

ALTERATION: Moderate.

VEINS/FRACTURES: (?% 2 mm to 1.5 cm, almost vertical, filled with calcite.
UNIT 23: CONTINUED

Piece 1

See Section 120-747C-15R-1

UNIT 24: SPARSELY PLAGIOCLASE PHYRIC BASALT

Pieces 2-11.

CONTACTS: Not determined.

PHENOCRYSTS:
Plagioclase - 1-2%, 2 mm, subhedral.
Olivine - 1%, 2 mm, altered.

GROUNDMASS: Microcrystalline.
VESICLES: 1-20 mm, filled with calcite and zeolites. Piece 2 up to 15%, other pieces up to 5%.
COLOR: Gray brown.
STRUCTURE: Not determined.
ALTERATION: Slight to moderate.
VEINS/FRACTURES: Not determined.

UNIT 25: MODERATELY CLINOPYROXENE PLAGIOCLASE PHYRIC BASALT

Pieces 12-18

CONTACTS: Not determined.

PHENOCRYSTS:
Plagioclase - 1-2%, 1 mm. subhedral to euhedral laths.
Pyroxene - 5%, 1-5 mm.

GROUNDMASS: Fine-grained.
VESICLES: 1-5%, 1-5 mm, infilled with calcite and zeolites.
COLOR: Gray.
STRUCTURE: Not determined.
ALTERATION: Slight to moderate.
VEINS/FRACTURES: No veins.
UNIT 26: ALTERED APHYRIC BASALT

Pieces 1-10

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Microcrystalline, altered.
VESICLES: Up to 15%, 2-3 mm, filled with zeolites and green clay minerals.
COLOR: Reddish brown.
STRUCTURE: Not determined.
ALTERATION: Very altered to smectite and iron hydroxides.
VEINS/FRACTURES: Brecciated in part.

UNIT 27: APHYRIC TO MODERATELY PLAGIOCLASE-OLIVINE PHYRIC BASALT

15R-3, Pieces 11-14, and 15R-4, Pieces 1-8

CONTACTS: Not determined.
PHENOCRYSTS: Pieces 15R-3, 11-13: aphyric. Piece 15R-3, 14:
Plagioclase - 7%, 1-2 mm.
Pyroxene - 1%, 1 mm.
Olivine - 2-3%, 1 mm, altered to iddingsite.
Piece 15R-3, 14: fine grained.
VESICLES: ~10%, 1-20 mm, filled with zeolites, calcite, and green clay minerals.
COLOR: Red-brown.
STRUCTURE: Not determined.
ALTERATION: Moderate.
VEINS/FRACTURES: Randomly distributed 1-2 mm, zeolites, chlorite, and celadonite(?).
ADDITIONAL COMMENTS: Unit has distinct red-brown color. Piece 11, top of lava flow?
UNIT 27: CONTINUED

PIECES 1-8

See Section 120-747C-15R-3
UNIT 28: APHYRIC TO MODERATELY PLAGIOCLASE-CLINOPYROXENE-OLIVINE PHYRIC BASALT

Pieces 1-9

CONTACTS: Not determined.
PHENOCRYSTs: Pieces 2-7 and 9: aphyric.
   Plagioclase - 5%, 3 mm (Pieces 1 and 8).
   Clinopyroxene - 2%, 1 mm (Pieces 1 and 8).
   Olivine - 2%, 2 mm (Piece 1).
GROUNDMASS: Pieces 2-7 and 9: microcrystalline to fine-grained. Pieces 1 and 8: fine-grained.
VESICLES: Pieces 2-7 and 9: up to 15%, filled with zeolites and green clay minerals. Pieces 1 and 8: none.
COLOR: Pieces 2-7 and 9: dark brownish gray. Pieces 1 and 8: gray, speckled.
STRUCTURE: Not determined.
ALTERATION: Pieces 2-7 and 9: Strongly altered to smectite and iron hydroxides.
VEINS/FRACTURES: None.

UNIT 29: MODERATELY PLAGIOCLASE-CLINOPYROXENE PHYRIC BASALT

Pieces 10-11

CONTACTS: Not determined.
PHENOCRYSTs:
   Plagioclase - 10%, 1-3 mm.
   Pyroxene - 1-5%, 1-3 mm.
GROUNDMASS: Fine-grained (plagioclase, clinopyroxene).
VESICLES: 1%, 1-3 mm, infilled with zeolites.
COLOR: Greenish gray.
STRUCTURE: Not determined.
ALTERATION: Moderate.
VEINS/FRACTURES: (?%) 0.5-1.5 mm, calcite and green clay minerals.
UNIT 29: CONTINUED

16R-2, Pieces 1-7, and 16R-3, Pieces 1-4

CONTACTS: Not determined.
PHENOCRYSTS:
- Plagioclase - 5%, 1-3 mm.
- Clinopyroxene - 5%, 1-3 mm.
GROUNDMASS: Microporphyritic.
VESICLES: < 5%, infilled with green clay minerals.
COLOR: Gray, speckled.
STRUCTURE: Not determined.
ALTERATION: Slightly altered.
VEINS/FRACTURES: (?%), 1-8 mm, infilled with zeolites.
UNIT 29: CONTINUED

Pieces 1-4

See Section 120-747C-16R-2

UNIT 30: APHYRIC BASALT

Pieces 5-17

CONTACTS: Not determined.

PHENOCRYSTS: Aphyric.

GROUNDMASS:

Pieces 5-8: Microcrystalline.

Pieces 9-17: Fine-grained, coarsening down section.

VESICLES:

Pieces 5-8: 10-25%, 1-7 mm, irregular, infilled with zeolites and green clay minerals.

Pieces 9-17: 2%, 1-2 mm, up to 4 cm (Pieces 16-17), elongated, filled with pink zeolite and green clay minerals.

COLOR:

Piece 5: red-brown; Pieces 6-8: brown-gray; Pieces 9-17: medium gray.

STRUCTURE: Not determined.

ALTERATION: Slight to moderate.

VEINS/FRACTURES: None.

ADDITIONAL COMMENTS: Piece 5 (top) has 2-3 cm, red colored, chilled, vesicle-poor zone. Probably oxidized top of lava flow.
UNIT 30: CONTINUED
16R-4, Pieces 1A-1C, and 16R-5, Pieces 1A-1D

CONTACTS: Not determined.
PHENOCRYSTS: Clinopyroxene - < 1%, 2-3 mm, euhedral.
GROUNDMASS: Fine-grained, becoming finer grained toward base of unit (Section 16R-5).
VESICLES: 1%, up to 5 mm, semi-circular, infilled with clays and zeolites.
COLOR: Gray.
STRUCTURE: Not determined.
ALTERATION: Slight.
VEINS/FRACTURES: (?)%, thin (0.5 mm), filled by zeolites.
ADDITIONAL COMMENTS: Pieces 16R-5, 1B, 1C, and 1D are brecciated (base of flow?).
Fragments of more vesicular and fine grained basalts are cemented by lava matrix.
UNIT 30: CONTINUED

Pieces 1A-1D

See Section 120-747C-16R-4

UNIT 31: APHYRIC BASALT

Pieces 2-5

CONTACTS: Not determined.
PHENOCRYSTS: Aphyric.
GROUNDMASS: Fine-grained.
VESICLES: Piece 5: 5%, 8 mm, irregular, infilled with green clay minerals.
COLOR: Gray.
STRUCTURE: Not determined.
ALTERATION: Moderate.
VEINS/FRACTURES: None.