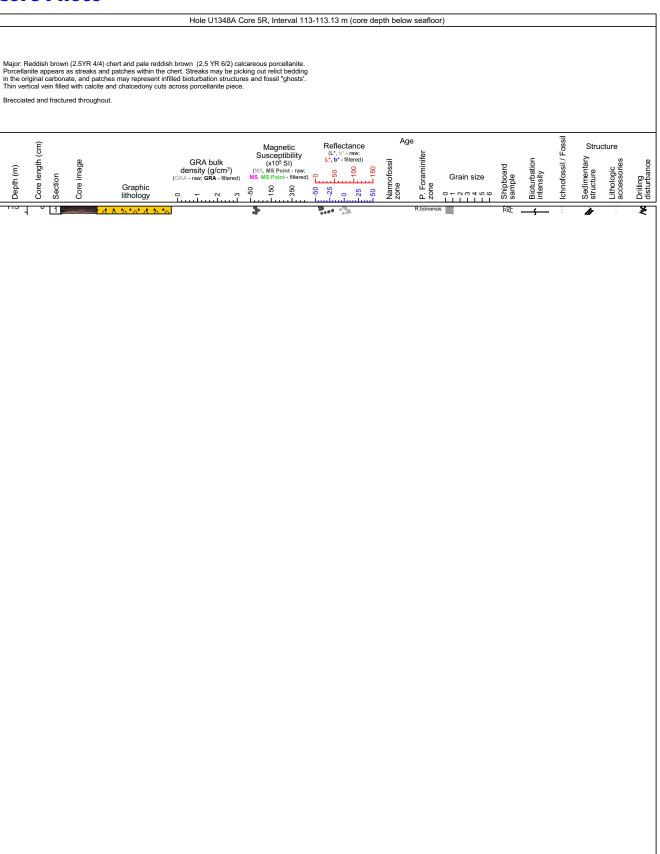
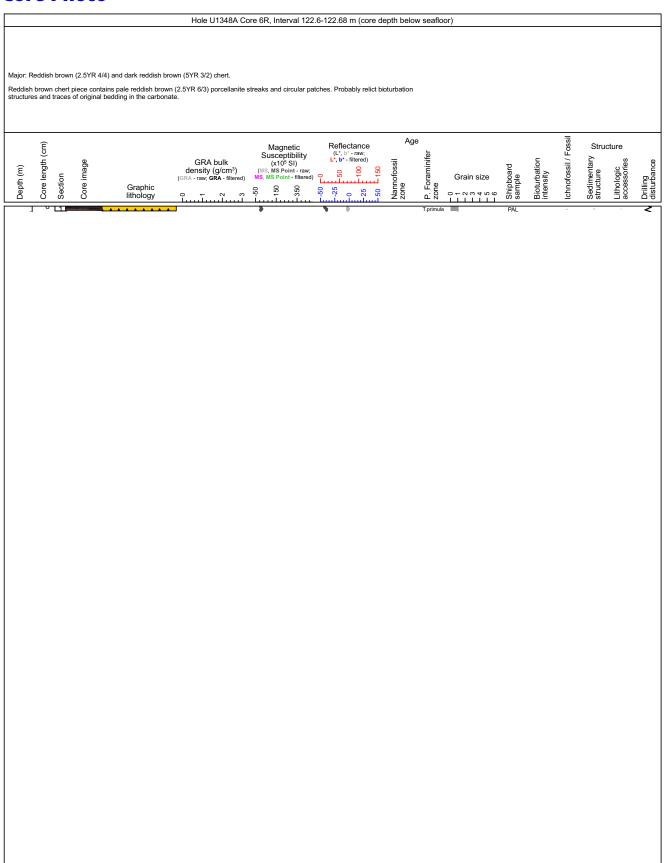
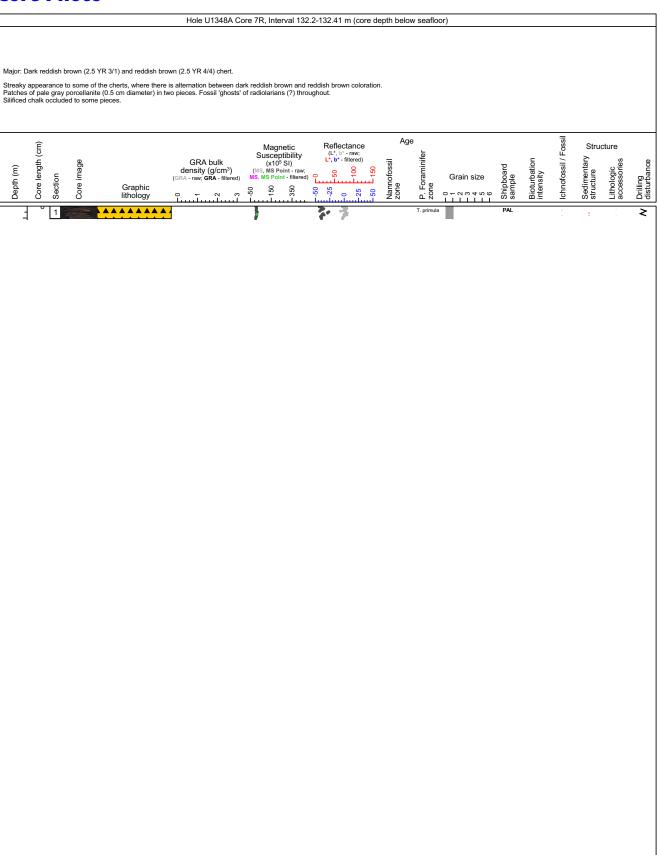
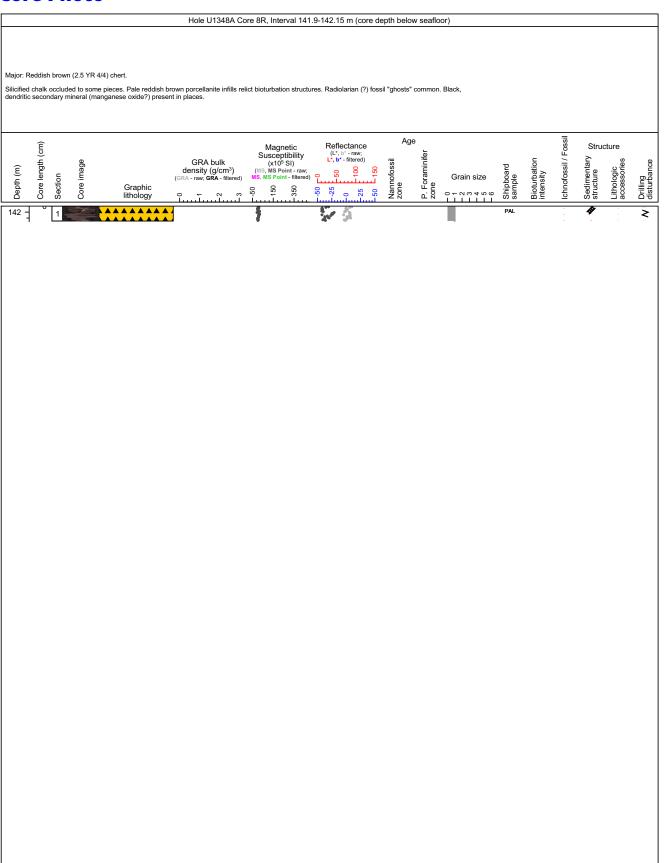


Core Photo

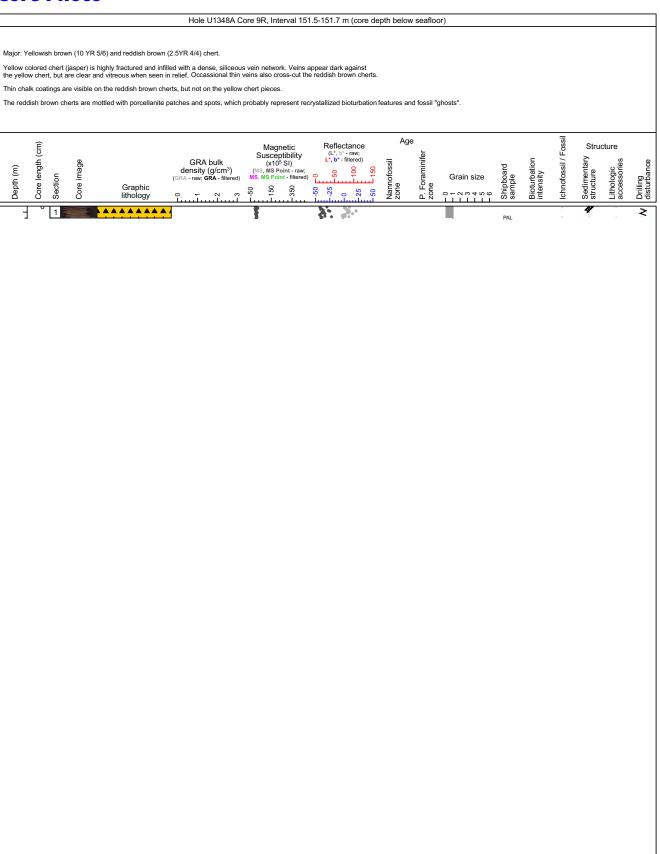




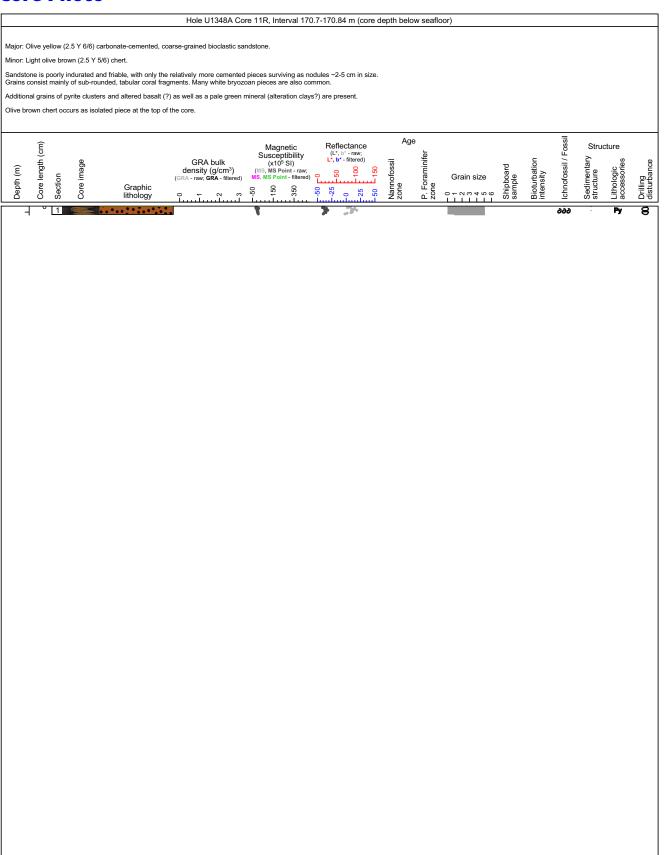




Core Photo



Hole U1348A Core 10R, Interval 161.1-161.98 m (core depth below seafloor) Major: Yellowish brown (2.5 Y 5/6) silicified sandstone. Sandstone is heavily silicified and altered. Grains are subangular to angular and composed of dark, Fe-rich (volcanogenic?) clasts and yellow, altered silica clasts. A small amount of carbonate is present within the yellow clasts. Silca cemented throughout with macro-quartz. Small piece of silica-cemented breccia present at 48-51 cm. Vugs in sandstone filled with ~0.5-1 mm quartz crystals. Recrystallization structures are visible throughout. Nannofossil ooze is partially lithified with some soupy drilling disturbance. Cross-beds of coarse sand-sized grains within the ooze can be seen at 14-18 cm. Age Magnetic Susceptibility (x10⁵ SI) (MS, MS Point - raw; S, MS Point - filtered) Reflectance Structure Core length (cm) (L*, b* - raw; L*, b* - filtered) GRA bulk Core image Shipboard sample 100 Depth (m) density (g/cm³) (GRA - raw; GRA - filtered) Grain size Graphic lithology 20 350 -25 2 PALSS TSBTS 8 PAL



Hole U1348A Core 12R, Interval 180.3-180.91 m (core depth below seafloor) Major: Olive green (5Y 6/3) clay. Brownish yellow (10YR 6/6) sandstone Minor: Yellow and green (5Y 7/6 to 5Y 8/4) claystone. Alternating green, yellow and white clay-silt sequence, below coarse yellow, bioclastic sand. Clays all have very low to no carbonate content. Green clay in Section 1 contains assorted zeolites and angular grains (altered volcanic glass?). White band (~1 cm thick) contains many fine needle-like crystals - probably zeolites. Pale green clay in Section CC is celadonite rich with angular clasts (altered volcanic glass?). The white band in this green clay contains angular fragments, zeolites and plagioclase. Some black, dendritic, secondary oxide coating present in the claystones in Sections 1 and CC. Bioclastic sandstone is carbonate-cemented and poorly indurated. Consists mainly of rounded, tabular coral fragments with some white bryozoan debris. Some opaque grains are also present as minor constituents. Age Magnetic Susceptibility (x10⁵ SI) (MS, MS Point - raw; S, MS Point - filtered) Reflectance Core length (cm) Structure (L*, b* - raw; L*, b* - filtered) GRA bulk Shipboard sample Depth (m) density (g/cm³) (GRA - raw; GRA - filtered) Grain size Graphic lithology 20 350 E-0 -25 20 PAL XRD Ø PAL: ICP:XRD FAL: Ö

Hole U1348A Core 13R, Interval 189.9-191.57 m (core depth below seafloor)

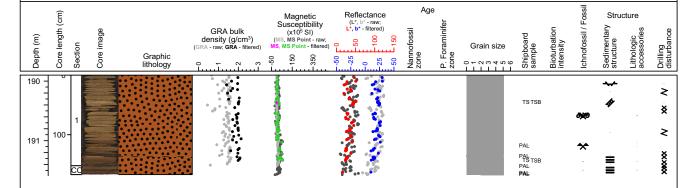
Major: Light yellowish gray (10 YR 7/6), calcite-cemented, very coarse-grained, bioclastic and volcaniclastic sandstone.

Minor: Medium-grained, orangey brown (7.5YR 5/6) calcite-cemented, laminated sandstone. Reddish yellow (7.5YR 6/6) clay.

Coarse sandstone contains some large bivalve shells and many smaller fragments of shelly material throughout. Echinoderm fragments are common. Large, rounded, altered, vesicular, green volcaniclastic clasts are common. The sandstones are mostly massive and unbedded.

Finer sandstone at the base of Section 1 is laminated and color-banded throughout, with a reddish to greenish tinge. Cemented with secondary zeolite and carbonate Contains some altered plagioclase laths and glassy fragments (altered volcanic glass?). Grains are angular and overgrown. No obvious bioclastic element remaining.

Thin layer of orangey brown clay occurs above the laminated sandstone. Some altered glassy fragments, iron oxides and altered plagioclase grains.



Hole U1348A Core 14R, Interval 199.5-203.85 m (core depth below seafloor)

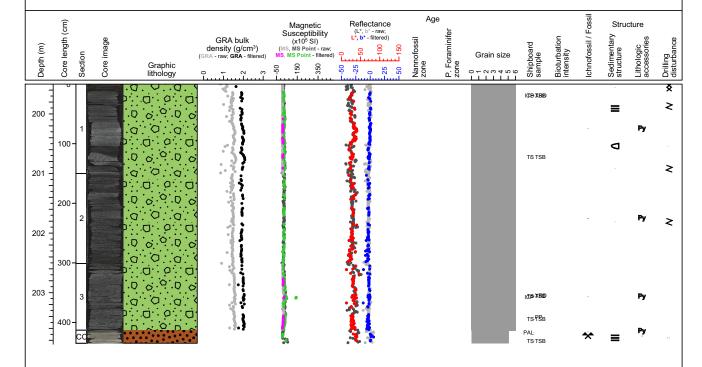
Major: Alternating gray (N 5), calcite-cemented, altered vitric hyaloclastite sandstone and granular hyaloclastite.

Minor: Light gray (N 7), calcite supported sandstone.

Hyaloclastite sandstones and granular hyaloclastites are well indurated and cemented with calcite throughout. Abundant clasts are dark volcaniclastics, which vary from very angular to sub-angular in shape. Mostly coarse sand to lappill sized. One large, gray, angular clast in Section 3 is 3 cm long. There are large, dark to light gray grains with aligned vesicle trails. Some of the dark clasts are basalt pieces.

Cream-colored, calcite supported sandstone contains a lower percentage of volcaniclastic grains. Clasts are smaller and more rounded and there is a larger proportion of calcite cement than in Sections 1-3. More of a "volcaniclastic limestone" in places.

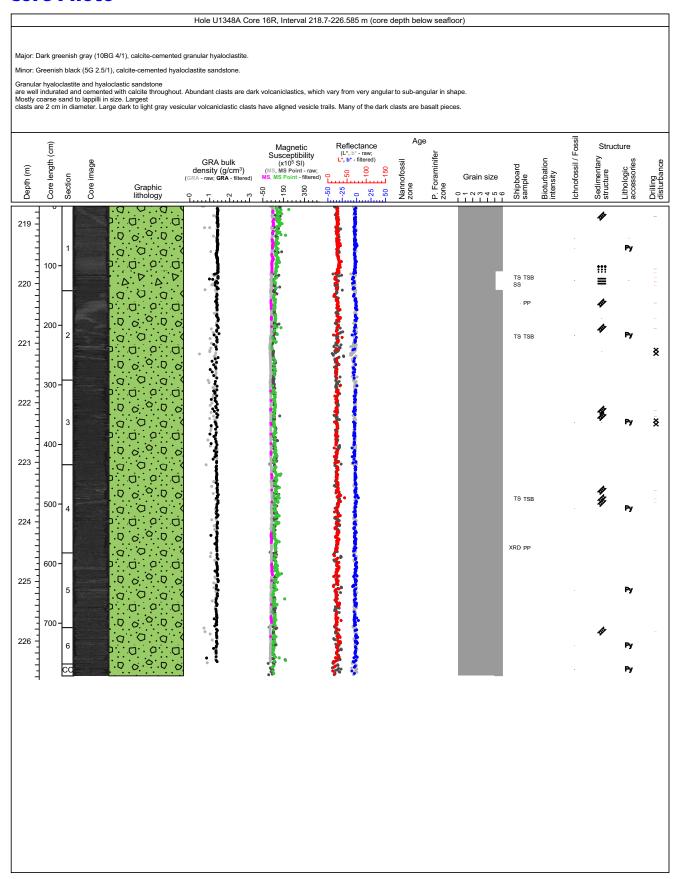
One large bivalve shell (3 cm long) in Section CC at 9 cm.



Hole U1348A Core 15R, Interval 209.1-217.25 m (core depth below seafloor) Grain size alternates between fine sand, coarse sand and granules Clasts are subangular to angular and quite poorly sorted. Normal and reverse grading is a common feature. In the finer beds parallel laminations are common. Beds become more massive and less sorted towards the base of the core. Clasts appear to be composed of a mixture of dark gray, light gray and bluish gray, very fine-grained material (altered volcanic glass and clays?).

Circulat ro leliptical structures, which are often hollow or infilled with calcite, are common within these clasts (palagonite?).

The edges of the clasts often have a ragged appearence with many grains having a relatively thick coating of calcite cement. The matrix is a dark gray, fine grained material with pervasive calcite cementation throughout. Age Magnetic Susceptibility (x10⁵ SI) MS, MS Point - raw; (cm) Reflectance Structure (L*, b* - raw; L*, b* - filtered) Lithologic accessories Nannofossil zone Drilling disturbance Core length Core image Shipboard sample Depth (m) 8 density (g/cm³) (GRA - raw; GRA - filter Grain size Graphic lithology 20 20 52 20 8 ٠٨ SS XRB-TSB D ë 210 X降島 TSB 100 ë · 乙· SS PAL 200 - 2 Ö n.o. ri .O..O 212 Ö ·a TS-TSB 300 4.0 0.0 .0. 000 213 400 . A. .Ō d .0.0. 0.0.0 .D 0 214 500 Ö TS: TSB 0.0. Q, 0.0.0 .D Ö ∴0 Ġ 215 0.0. 600 O. 0.0.0 .D O Ġ O ∴a 0.0.0 O. 216 700 Q. Ö O O ::0 0.0. O 0.0.0 Q. 0:0 a 800



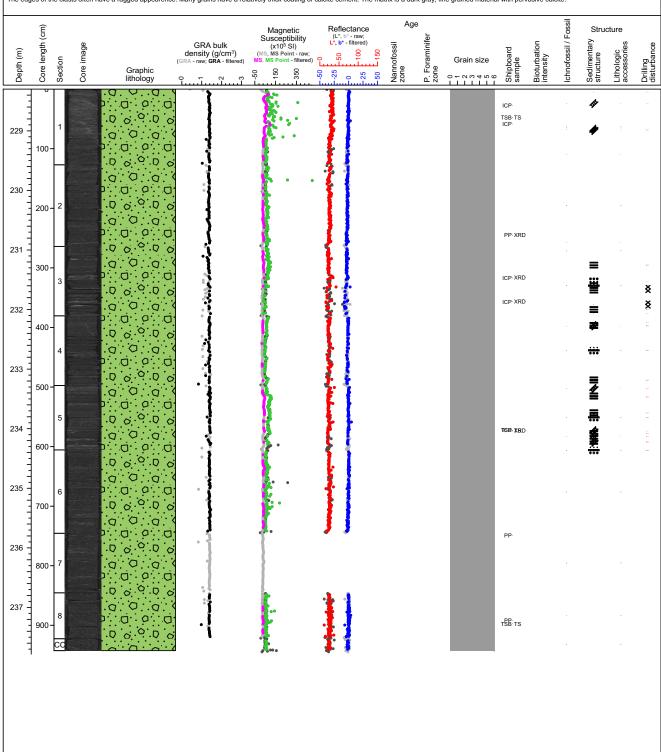
Hole U1348A Core 17R, Interval 228.3-237.725 m (core depth below seafloor)

Major: Dark greenish gray (10BG 4/1) granular hyaloclastite.

Grain size alternates between fine sand, coarse sand and granules. Clasts are subangular to very angular and quite poorly sorted, although normal and reversed grading is a common feature. In the finer beds parallel laminations are common.

Rock is well indurated due to extensive calcite cementation throughout. Some areas are more extensively cemented than others, leading to color alternations between light gray (more heavily cemented) and darker gray (less well cemented) sections.

Clasts appear to be composed of a mixture of dark gray, light gray and bluish gray, very fine-grained material (altered volcanic glass and clays?). Circular to eliptical structures, which are often hollow or infilled with calcite, are common within these clasts (palagonite?). The edges of the clasts often have a ragged appearence. Many grains have a relatively thick coating of calcite cement. The matrix is a dark gray, fine grained material with pervasive calcite.



Hole U1348A Core 18R, Interval 237.9-242.3 m (core depth below seafloor)

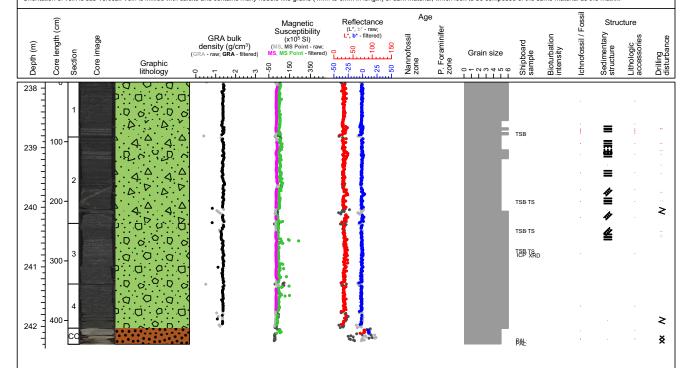
Major: Dark gray (N 3) to dark greenish gray (10 Y 4/1) granular hyaloclastite.

Rock is well indurated due to extensive calcite cementation throughout. Some areas are more extensively cemented than others, leading to color alternations between light gray (more heavily cemented) and darker gray (less well cemented) sections.

Grain size alternates between fine sand, coarse sand and pebbles. Largest clasts are 1.5 cm in diameter and concentrated into coarser bands. Clasts are subangular to very angular and poorly sorted. Normal and reverse grading in places. In Section 2 and the base of Section 1, parallel laminations are common. Section 3 and 4 show less grading.

Clasts are composed of a mixture of dark gray, light gray and bluish gray, very fine-grained material (altered glass and clays?). Circular to eliptical structures, which are often hollow or infilled with calcite, are common within these clasts (palagonite?). The edges of the clasts often have a ragged appearence and many grains have a relatively thick coating of calcite cement. The matrix is a dark gray, fine grained material with pervasive calcite cementation throughout.

Large, altered calcite vein (1cm in width and 50cm long) in Sections 2.
Orientation of vein is sub-vertical. Vein is infilled with calcite and contains many needle-like grains (1mm to 6mm in length) of dark material, which look to be composed of the same material as the matrix.



Hole U1348A Core 19R, Interval 247.5-249.57 m (core depth below seafloor)

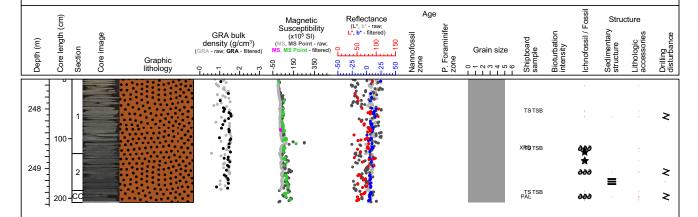
Major: Light gray (2.5 Y 7/2) to gray (2.5 Y 5/1) calcite cemented sandstone with glauconite and volcaniclastics in Section 1.

Minor: Dark gray (N 4) calcite cemented sandstone with bioclasts and volcaniclastics in the lower part of Section 1 and throughout Section 2.

Light gray sandstone in Section 1 contains glauconite clasts, dark minerals and red, vesicular oxidized grains. Grain size is predominantly medium to coarse sand. Grains are subrounded.

Towards the base of Section 1 the grain size increases with some granule-sized clasts. One large dark-colored clast in Section 1 is 2 cm in diameter and has a fiberous appearance.

The darker calcite-cemented sanstones in Section 2 and the lower part of Section 1 contain more bioclastic components. Shell fragments (some large, up to 1.5 cm) are common, the majority are likely bivalves. Crinoid ossicles can be seen in this part of the core. A star-shaped, five pointed crinoid ossicle is present in Section 1, 122 cm.



Hole U1348A Core 20R, Interval 257-265.23 m (core depth below seafloor) Major: Very dark gray (N 3) to very dark greenish gray (5 GY 3/1) calcite cemented, volcaniclastic sandstone and siltstone Rock is well indurated due to extensive calcite cementation throughout. Some areas are more extensively cemented than others, leading to color alternations between light gray (more heavily cemented) and daker gray (less well cemented) sections. Grain size alternates between silt, fine sand, coarse sand and ocassional granules.

Lower portion of the core (Sections 5, 6 and CC) is coarser (very coarse sand to granules) than the upper part (Sections 1, 2, 3 and 4). Some thick, inclined laminations and cross-beds are visible in places. Bioclastics, especially shell fragments and crinoid ossicles are present throughout. Large (3-5 cm) recrystallized trocospire gastropods and an ammonite are present at the top of Section 1. One large, calcite-infilled "rams horn" shaped burrow is present at the top of Section 5. Lags of coarser siliceous clasts (very coarse sand to granules) are present. Age Ichnofossil / Fossil Magnetic Susceptibility (x10⁵ SI) MS, MS Point - raw Reflectance (cm) Structure P. Foraminifer zone (L*, b* - raw; L*, b* - filtered) Bioturbation intensity GRA bulk Nannofossil zone Lithologic accessories Core length Core image Shipboard sample Depth (m) 8 density (g/cm³) (GRA - raw; GRA - filter Grain size Graphic lithology 20 -25 20 --25 20 D TSB D * % 0.0 258 100 * 4 % 200 259 **△·Þ**· * **△·▷**. Ď. 4 260 300 0.0 TS:TSB 261 400 D ss₽AŁ * 500 262 ICB X88 0.0 263 600 TS-TSB > 700 > Ö ia Ġ 800 ×

Hole U1348A Core 21R, Interval 266.6-273.54 m (core depth below seafloor) Major: Very dark greenish gray (5 BG 3/1), calcite cemented, altered vitric granular hyaloclastite and hyaloclastite breccia. Rock is well indurated due to extensive calcite cementation throughout. Some areas are more extensively cemented than others, leading to color alternations between lighter gray (more heavily cemented) and darker gray (less well cemented) sections Grain size alternates between medium sand, to very coarse sand, with a larger silt-sized component in Sections 3 to 5. Faint laminations are present in places but bedding is often chaotic and indistinct. Some cross bedding in Sections 2, 3 and 4. In Section 3 to CC, mottled appearance suggests extensive bioturbation. Clasts appear to be composed of a mixture of gray, very fine-grained material, with ocassional bivalve shells or crinoid ossicles. The matrix is a dark gray, fine grained material with pervasive calcite cementation throughout. Long, thin, sub-vertical calcite veins are present in Sections 5 and 3. Small (0.5mm), yellowish, globular mineral growths of (zeolite?) are common in Section 1. Magnetic Susceptibility (x10⁵ SI) (MS, MS Point - raw; S, MS Point - filtered) Reflectance Structure (cm) (L*, b* - raw; L*, b* - filtered) P. Foraminifer zone GRA bulk Core length Nannofossil zone Core image Shipboard sample Depth (m) density (g/cm³) (GRA - raw; GRA - filtere 8 Grain size Graphic 20 20 --25 25 20 lithology × 0.0. d > 267 0.0.0 .D 0 Ö .a 0.0. d × 100 0.0.0 Ö. O 268 Ö 0.0. Ď. 0.0.0 Q. 200 Ö a ::: 5 0.0. 269 d' . O.:O Q. Ö a 300 o: a. a. 5 .D 270 400 271 XRB TSE 500 D 272 600 S

Hole U1348A Core 22R, Interval 276.2-282.85 m (core depth below seafloor) Major: Dark greenish gray (10 Y 3/1) to pale gray (N 5), altered, calcite-cemented hyaloclastite sandstone, granular hyaloclastite and hyaloclastite breccia. Minor: Very dark gray (N 3) fine hyaloclastite.
Gray, altered, hyaloclastite sandstone is well indurated and heavily cemented with calcite throughout. Abundant clasts are dark, altered, volcaniclastics, which vary from very angular to sub-angular in shape. Mostly coarse sand in size. Very low to absent bioclastic component. Core is bedded throughout. Some horizontal laminations. Many intervals have inclined beds (up to 25 degrees from horizontal). The angle of inclination generally increases down core, from <5 degrees in section 1, to >20 degrees in Section 5. Thin, mostly sub-vertical, calcite veins present throughout. Age Magnetic Susceptibility (x10⁵ SI) MS, MS Point - raw; S, MS Point - filtered) (cm) Reflectance Structure P. Foraminifer zone (L*, b* - raw; L*, b* - filtered) GRA bulk Nannofossil zone Core length Lithologic accessories Core image Shipboard sample Depth (m) density (g/cm³) (GRA - raw; GRA - filtere 8 Grain size Graphic lithology 20 20 --25 25 20 D:D .0 0.0.0.D D 1 > 277 Ξ Δ 100 ٠4 0.0 4 278 200 ≡ $\triangle \cdot D$ ≥ ٠٨ Δ.Δ Δ <u>~</u> 279 300 څ 280 400 ssBA⊩ 281 \D ¥ ≥ 500 x#T6TSB = \Box 282 0.0 600 2 -≡

Hole U1348A Core 23R, Interval 285.9-290.38 m (core depth below seafloor)

Major: Alternating dark greenish gray (5 GY 4/1) to dark gray (N 4), altered vitric hyaloclastite breccia and granular hyaloclastite/hyaloclastite sandstone/fine hyaloclastite. Massive, moderately sorted, clast-suported hyaloclastite breccia and granular hyaloclastite. Some calcite cement present.

Many clasts are dark gray to purplish gray. Clasts show signs of alteration, including the growth of green crystals within the pore spaces and replacement with yellowish gray clay minerals. Clasts appear angular to subangular, although alteration and cementation have obscured the original geometry in many cases.

Inclined bedding and horizontal laminations are common throughout Section 1 and present in Section 2. Angle of inclination is 20 degrees to the horizontal. Sections 3 to CC are more massive and unsorted.

