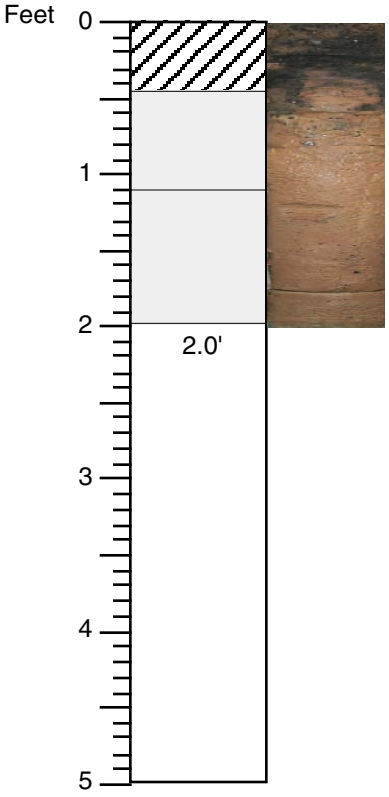


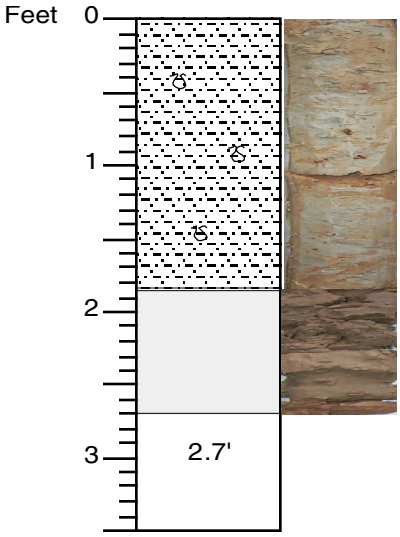
FILL; fragmental coal

SAND; fine to medium quartz; silty, subangular, moderate sorting, micaceous; possible burrow at 1.6 ft; light olive brown (2.5Y 5/6)

SILT; clayey, very fine sand, slightly micaceous, gray (2.5Y G/1)

174AX FM
Core #1

Start depth:	0 ft
Stop depth:	6 ft
Recovery:	2.0 ft
Date:	10/3/01
Described by:	JVB/PPMcL/PJS

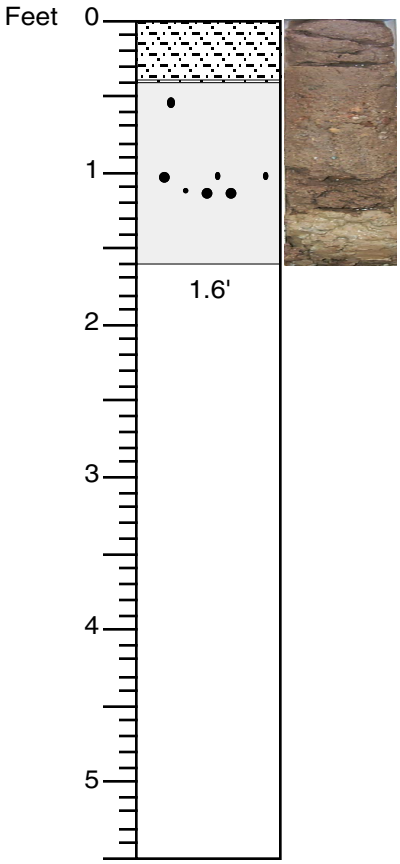


SILT; very fine, slightly sandy, clayey, mostly greenish; with rusty mottling and small (1-2 mm) concretions from red (2.5YR 4/6) to reddish brown (2.5YR 4/4) to reddish yellow (5YR 6/6); becomes sandier (fine) near bottom with trace of medium grains; gray (Gley 1 10Y 6/1)

SAND; fine to medium, very slightly silty; subrounded, up to 5% greenish to dark grains; inclined silty drape/lamination at 2.6 ft

174AX FM
Core #2

Start depth:	6 ft
Stop depth:	9.5 ft
Recovery:	2.7 ft
Date:	10/3/01
Described by:	JVB/PPMcL/PJS

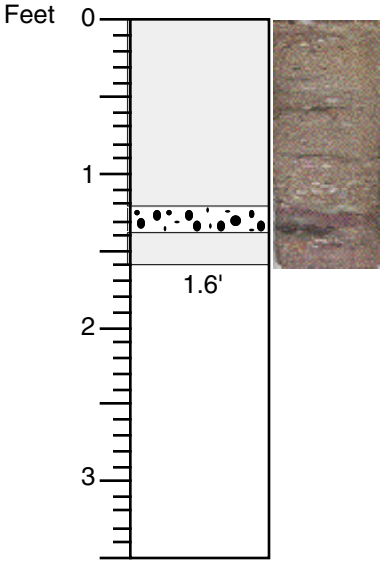


Drilling fluid slurried with core

SAND; slightly silty, pebbly, fine to very coarse to granules, rare pebbles; fairly clean; pebbles and granules include quartzite, sandstone, chert, slightly silty; mixed colors, overall brown (7.5YR 5/4)

174AX FM
Core #3

Start depth:	9.5 ft
Stop depth:	15 ft
Recovery:	1.6 ft
Date:	10/3/01
Described by:	JVB/PPMcL/PJS



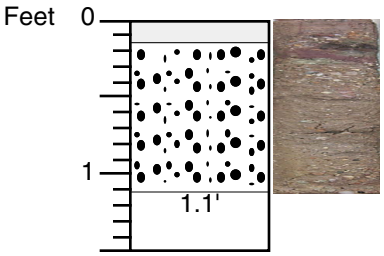
SAND; fine to very coarse, with zones of abundant granules and pebbles, especially near the bottom of the bed; subangular-subrounded; reddish gray (5YR 5/2)

GRAVEL; quartz, quartzite and chert pebbles; with large clasts of ?diorite (greenish gray, GLEY 2 5/1), clay (dusky red, 10R 3/3), claystone (very dusky red, 10R 2.5/2)

SAND; medium, slightly silty; moderate sorting with fine and coarse grains mixed in; mostly subangular; reddish brown (5YR 5/3)

174AX FM
Core #4

Start depth:	15 ft
Stop depth:	18.5 ft
Recovery:	1.6 ft
Date:	10/3/01
Described by:	JVB/PPMcL/PJS

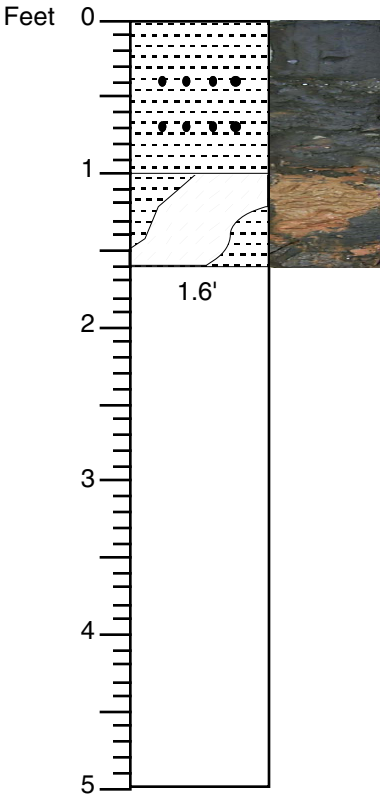


SAND; medium, similar to last core; reddish brown (5TR 5/3)

GRAVEL; sandy; pebbles up to 3 cm; pebbles include chlorite(?), red clay, red sandstone, and siltstone; sand matrix is very fine to coarse to granules with abundant whitish grains; matrix color is gray (5YR 6/1)

174AX FM
Core #5

Start depth:	18.5 ft
Stop depth:	20 ft
Recovery:	1.1 ft
Date:	10/3/01
Described by:	JVB/PPMcL/PJS

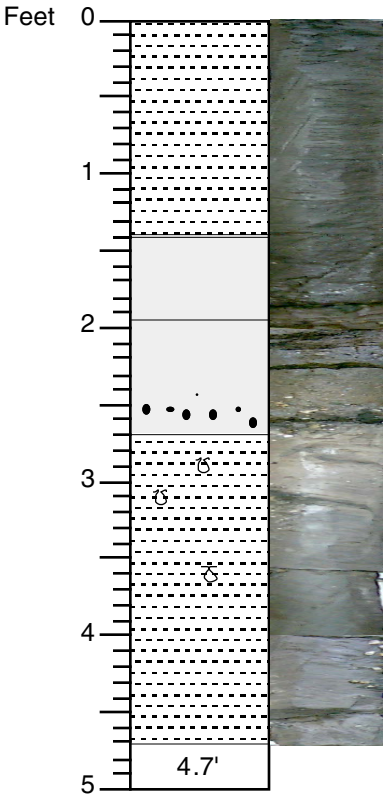


CLAY; sticky, soft; some very fine mica flakes in clay; a few zones with gravel, likely scraped in contamination, greenish black (GLEY 2 2.5/1 10G)

CLAY; very soft, greenish black clay, as above; and SILT; clayey; orangish, slightly sandy (very fine); brownish-yellow (10YR 6/6); the two lithologies are mixed together like an ice cream cone swirl; one zone contains a few small quartz, quartzite pebbles

174AX FM
Core #6

Start depth:	20 ft
Stop depth:	25 ft
Recovery:	1.6 ft
Date:	10/3/01
Described by:	PPMcL/JVB



CLAY; silty, silt increases downward; somewhat laminated, sticky and soft; greenish black (GLEY 2 2.5/1 10G)

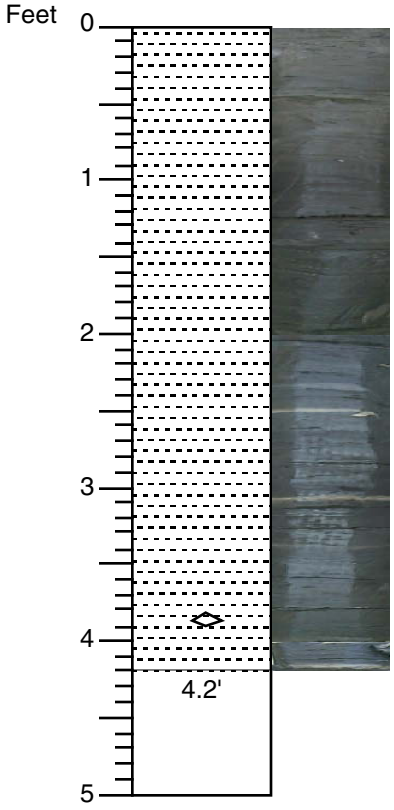
SAND; very fine to fine, silty, slightly clayey near top; micaceous, somewhat laminated with distinct laminations near base, soft and sticky, greenish black (GLEY 2 2.5/1 10 BG

SAND; poorly sorted, very fine to very coarse, average coarse, granule-rich from 2.1-2.2 ft, pebbles between 2.5-2.7 ft up to 2.5 cm in diameter; very dark grayish brown (10YR 3/2)

CLAY; silty; laminated (laminations are inclined) due to variable siltiness; a few darker softer zones are likely burrows and made of clayey silt; most of the lithology

174AX FM
Core #7

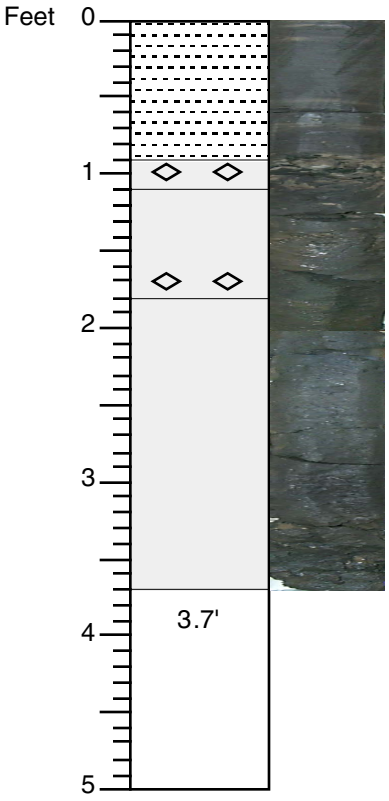
Start depth:	25 ft
Stop depth:	30 ft
Recovery:	4.7 ft
Date:	10/3/01
Described by:	PPMcL/JVB



CLAY; silty; micaceous, laminated (reflecting variations in silt content), some streaks of very fine to fine sand, two light yellowish-gray streaks at 2.5 and 3.05 ft, scattered flakes of plant debris, rare pyrite, including a nodule at 3.9 ft; glassy, soft, yellow nodule (2.15 ft) probably amber; small (~2-4 mm) very fine sand-filled burrows throughout; bulk of lithology is very dark gray (5Y 3/1), the two light streaks are olive gray (5Y 5/2)

174AX FM
Core #8

Start depth:	30 ft
Stop depth:	35 ft
Recovery:	4.2 ft
Date:	10/3/01
Described by:	PPMcL/JVB



CLAY; silty; increased silt near bottom; micaceous; laminated; very dark gray (5Y 3/1)

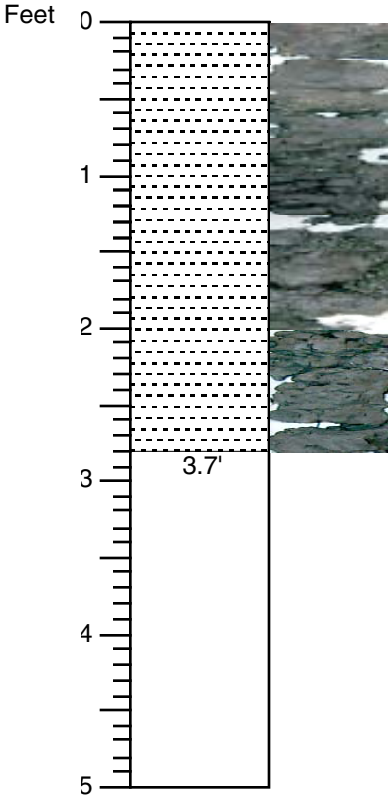
SAND; fine to medium; green glauconite, quartz; mixed with CLAY; silty; hard round concretions (1-2 mm; possibly pebbles); olive gray (5Y 5/2)

SAND; fine, some medium, very clayey and silty; notable lighter green glauconite, micaceous, plant debris; firmer core (?due to silt and clay); possible concretions at base

SAND; fine, some medium, slightly silty; small amount lighter green glauconite, very micaceous, plant debris; soft

174AX FM
Core #9

Start depth:	35 ft
Stop depth:	40 ft
Recovery:	3.7 ft
Date:	10/3/01
Described by:	PPMcL/JVB

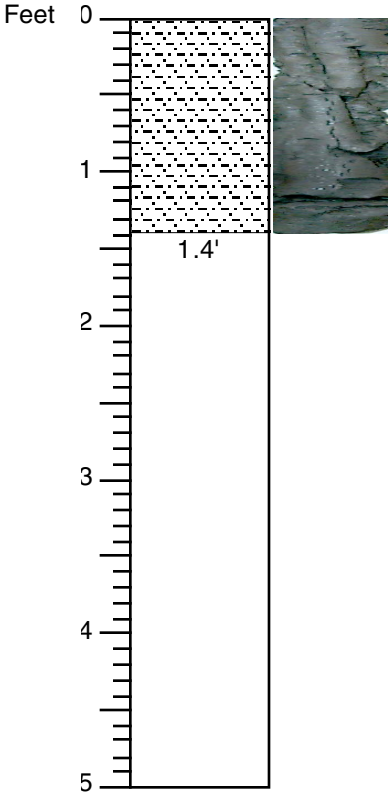


CLAY; silty; trace of shell material; trace of lignite; from the top to about 2 ft the core is mostly drilling fluid slurried together with core, the base is somewhat solid core intruded with mud; dark greenish gray (5GY 3/1)

174AX FM
Core #10

Start depth:	40 ft
Stop depth:	45.5 ft
Recovery:	2.8 ft
Date:	10/4/01
Described by:	PJS/SA

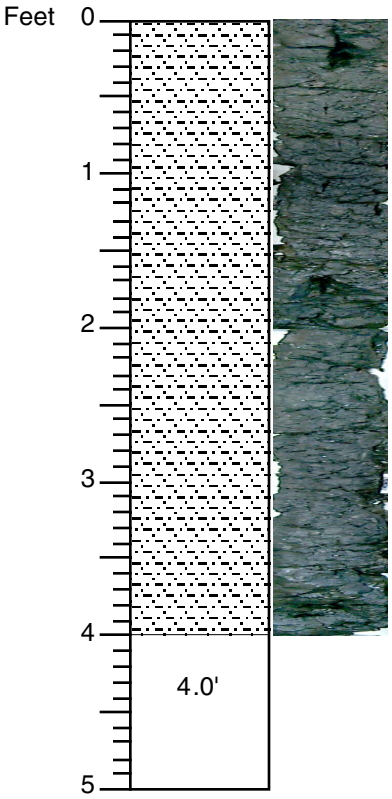
Core 11 (44.5-50 ft) NO RECOVERY



CLAY; laminated with SAND; very fine, silty, micaceous; dark greenish gray (5GY 3/1)

174AX FM
Core #12

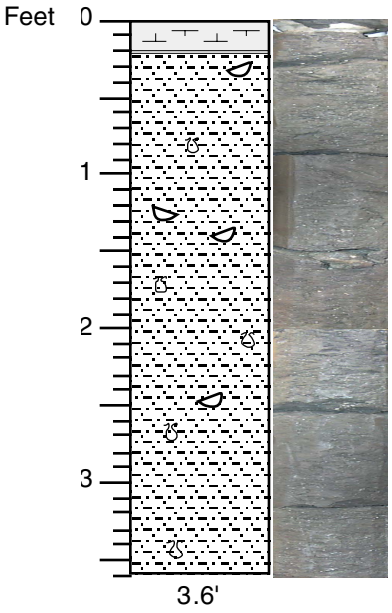
Start depth:	50 ft
Stop depth:	55 ft
Recovery:	1.4 ft
Date:	10/4/01
Described by:	SA/PJS/KGM



SILT; clayey, micaceous, with very fine sand, trace shell material, trace lignite; very dark gray-black (N 2.5/1)

174AX FM
Core #13

Start depth:	55 ft
Stop depth:	60 ft
Recovery:	4.0 ft
Date:	10/4/01
Described by:	KGM/PJS

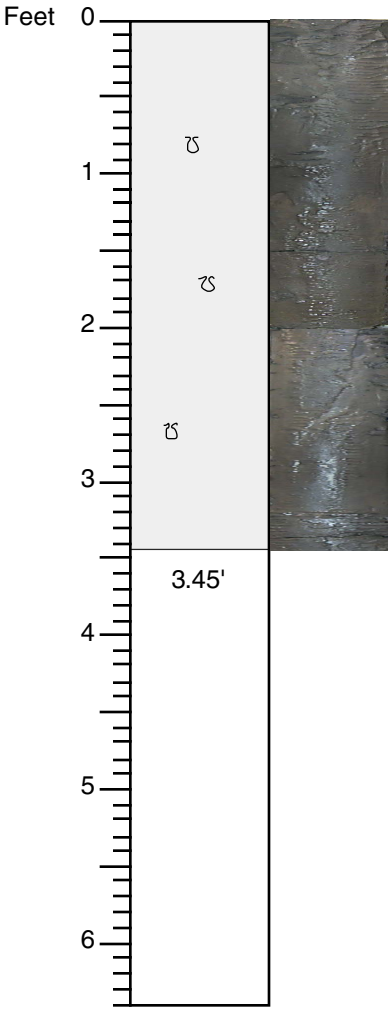


QUARTZITE; pebble/cobble, fell from higher up during casing

SILT; with very fine sand, slightly clayey; micaceous; burrowed, small burrows throughout, large burrows at 1.0, 4.3 ft; rare shells but more shelly than above, shells at 1.2, 1.5 and 2.5 ft, gastropod at 0.4 ft; large (45 mm) pyrite nodule at 1.6 ft; (GLEY 1 3/N)

174AX FM
Core #14

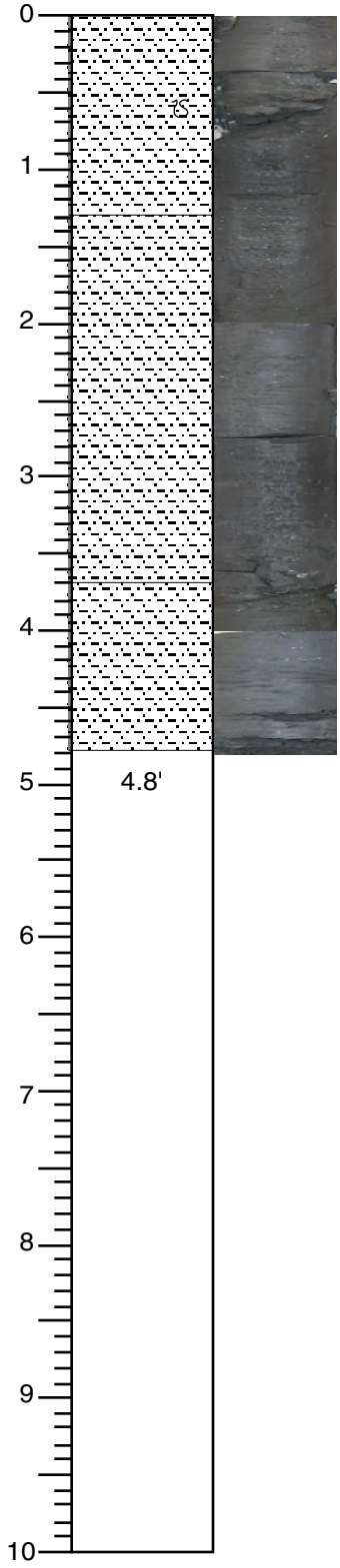
Start depth:	60 ft
Stop depth:	63.6 ft
Recovery:	3.6 ft
Date:	10/4/01
Described by:	JVB/RNB



SILT; clayey, slightly sandy; micaceous, trace of shell fragments, laminated and burrowed; (5GY 2.5/1)

174AX FM
Core #15

Start depth:	63.6 ft
Stop depth:	70 ft
Recovery:	3.45 ft
Date:	10/5/01
Described by:	RNB



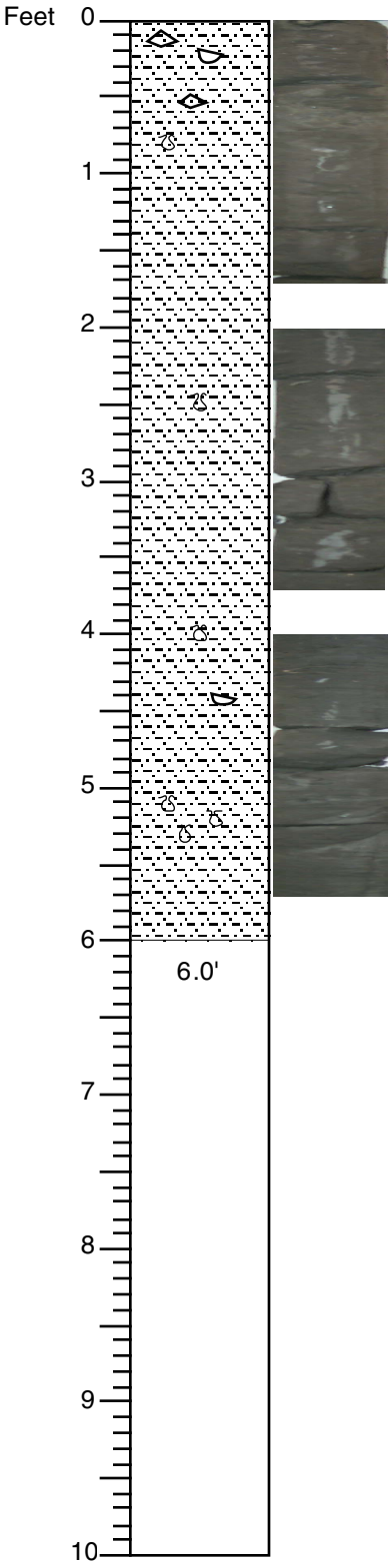
SILT; sandy; micaceous, trace of shell material; burrow at 0.6 ft; (5GY 2.5/1)

SILT; laminated with CLAY; micaceous, trace of shell material; (5GY2.5/1)

SILT; sandy, clayey; micaceous mica is finer than above, trace of shell material; apparently not laminated as above; 5GY 2.5/1

174AX FM
Core #16

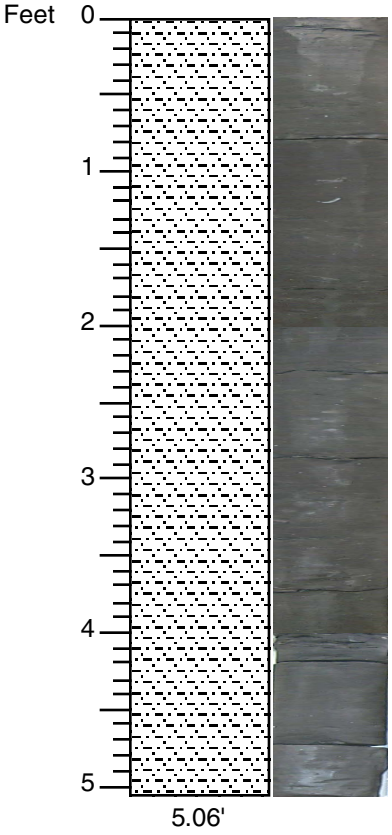
Start depth:	70 ft
Stop depth:	80 ft
Recovery:	4.8 ft
Date:	10/5/01
Described by:	RNB



CLAY; silty; laminated with scattered burrows, "swirly" burrow at 4.0 ft, large burrows between 5.0-5.5 ft; micaceous, trace of pyrite; shell at 0.2 ft, articulated bivalve at 4.3 ft; (5GY /3)

174AX FM
Core #17

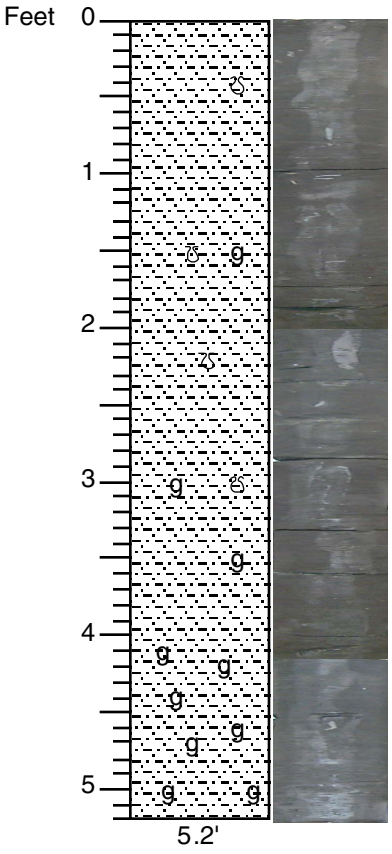
Start depth:	80 ft
Stop depth:	90 ft
Recovery:	6.0 ft
Date:	10/5/01
Described by:	RNB



CLAY; silty; laminated; micaceous, scattered pyrite, pyritized ?echinoid spines at 3.6 ft; a few scattered glauconite grains at 4.0 ft; very dark gray (N3/)

174AX FM
Core #18

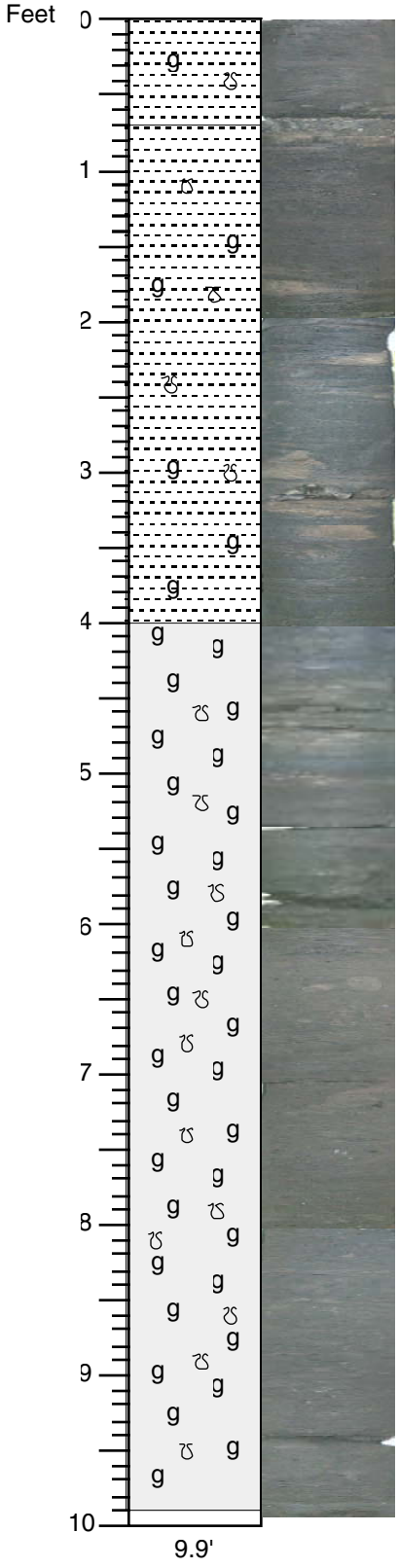
Start depth:	90 ft
Stop depth:	95 ft
Recovery:	5.06 ft
Date:	10/5/01
Described by:	RNB



CLAY/SILT; laminated; micaceous, scattered pyrite, scattered glauconite grains begin at 2.2 ft increasing to 2% at the base; scattered burrows; (N 3/ to 2.5/)

174AX FM
Core #19

Start depth:	95 ft
Stop depth:	100 ft
Recovery:	5.2 ft
Date:	10/5/01
Described by:	RNB

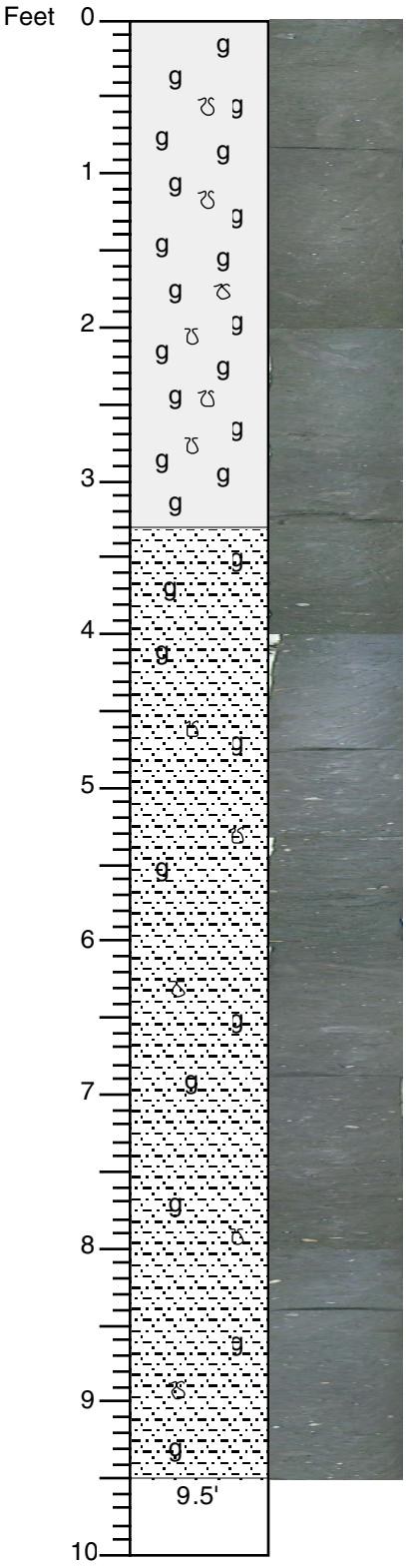


CLAY; silty; glauconite sand 2-5%, from 0 to 0.8 increasing glauconite, micaceous; large indurated (not carbonate cement) burrows at 0.8, 1.8, 2.3, 3.0-3.5, 4.4 ft; small burrows are common; the core coarsens down section to sandy silt; large and small burrows very common especially large clay lined burrows (*Thallassinoides*?); pyrite is present especially at 3 ft in cracks, 3.2 ft pyritic concretion; at 0.8 ft ammonite fragments; mostly greenish black (GLEY 10Y 2.5/), some is grayish brown (10YR 5/2)

gradational contact at 4 ft

SAND; very silty and clayey; quartz increases down section; abundant glauconite; micaceous, indurated brown burrows

174AX FM
Core #20
Start depth: 100 ft
Stop depth: 110 ft
Recovery: 9.9 ft
Date: 10/5/01
Described by: RNB/JVB



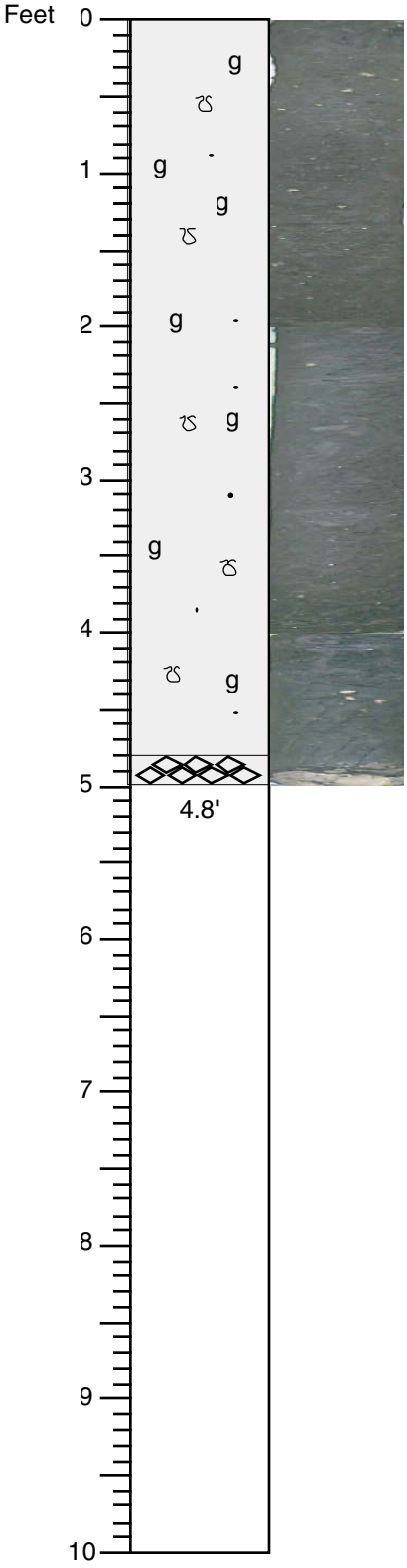
SAND; very silty, quartz, slightly clayey, micaceous, glauconite 2-5% at top, grades to glauconitic clay at the base; heavily burrowed, large burrows, 13 mm across by 9-13 mm long; greenish black (GLEY 1 2.5/5GY), burrow fillings: black to very dark gray (GLEY 1 2.5/N-3/N)

Contact – orangish break in core

SILT; sandy; micaceous, less glauconite, glauconite in burrows, glauconite is rare below 4.2 ft; scattered quartz/chert granules at contact; burrowed, thin burrows; 3 mm pebble at 119.4 ft; greenish black (GLEY 1 2.5/5GY)

174AXS FM
Core #21

Start depth:	110 ft
Stop depth:	120 ft
Recovery:	9.5 ft
Date:	10/5/01
Described by:	RNB

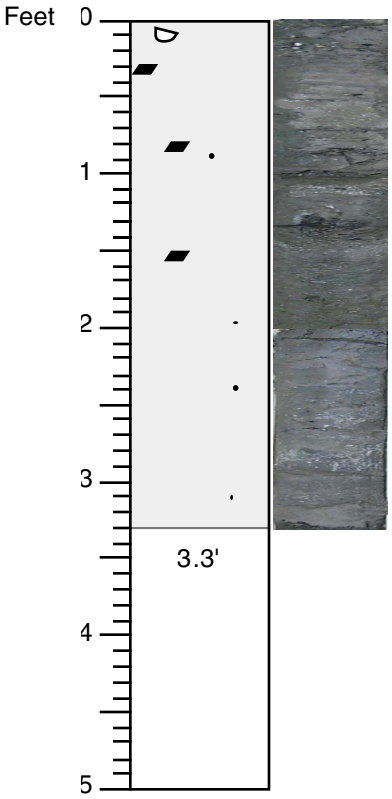


SILT; clayey, sandy; same lithology as the bottom half of core 21; micaceous, scattered, very angular, quartz and chert granules throughout; glauconite ~5%, grading to >5% in basal 0.5-1 ft; heavily bioturbated; greenish black (GLEY 1 2.5/5GY)

SILCRETE

174AXS FM
Core #22

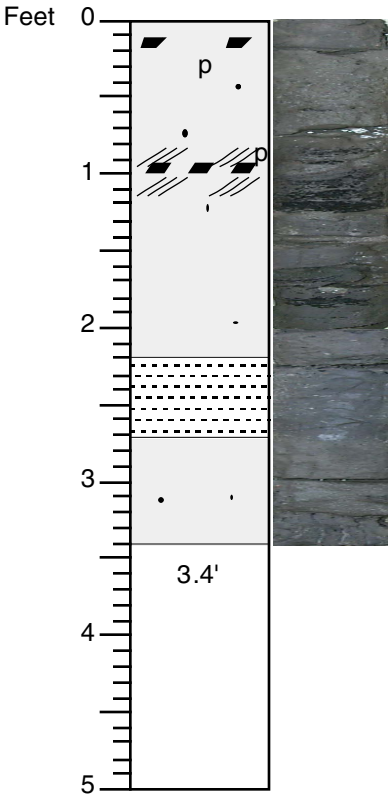
Start depth:	120 ft
Stop depth:	130 ft
Recovery:	4.8 ft
Date:	10/5/01
Described by:	RNB



SAND; medium, moderately well sorted; quartzose (milky), loose scattered quartz granules, fairly clean, scattered lignite chunks, shell fragment at top; dark gray (10YR 4/1)

174AXS FM
Core #23

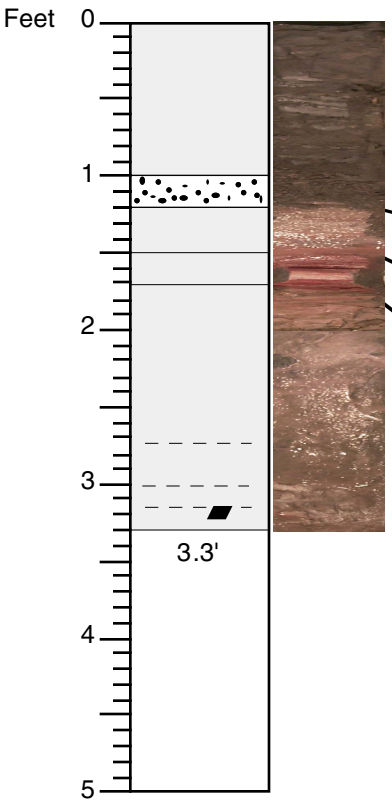
Start depth:	130 ft
Stop depth:	135 ft
Recovery:	3.3 ft
Date:	10/5/01
Described by:	RNB



SAND; medium to coarse, loose, clean, scattered granules; milky quartz; lignite chunks at 0.1-.02 ft and at 1.0 ft; inclined bedding 0.85-1.2 ft; (10YR 4/1); clay layer, 2.3-2.7 ft, very dark gray (GLEY 1 3/N)

174AXS FM
Core #24

Start depth:	135 ft
Stop depth:	140 ft
Recovery:	3.4 ft
Date:	10/5/01
Described by:	RNB



SAND; with interlaminated silty CLAY; sand is fine to medium; clay is silty; clays are 2-10 mm thick; sandier near bottom; dark gray (GLEY 1 N4/)

GRANULE BED; sandy; poorly sorted with granules to 2 mm and medium sand; mostly subangular

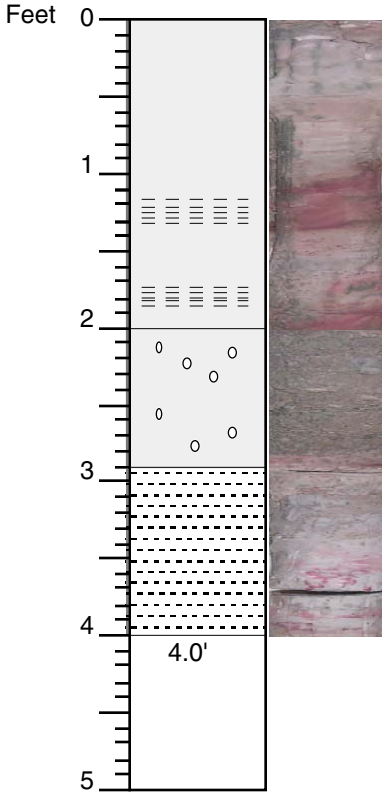
SAND; clean, very fine to fine, very water logged; light greenish gray (GLEY 1 10YR 7/1)

SAND; very fine to fine, somewhat silty; laminated; reddish at top and bottom (yellowish red [5YR 4/6]), whitish in middle (light gray [GLEY 1 N7/)]

SAND; very fine to fine, clean; very water logged in upper part; some clay intermixed in lower part including interbedded clay layers (3.0, 3.05 ft), some lignite; greenish gray (GLEY 1 10Y7/1)

174AXS FM
Core #25

Start depth:	140 ft
Stop depth:	145 ft
Recovery:	3.3 ft
Date:	10/6/01
Described by:	JCH/MW/PPMcL

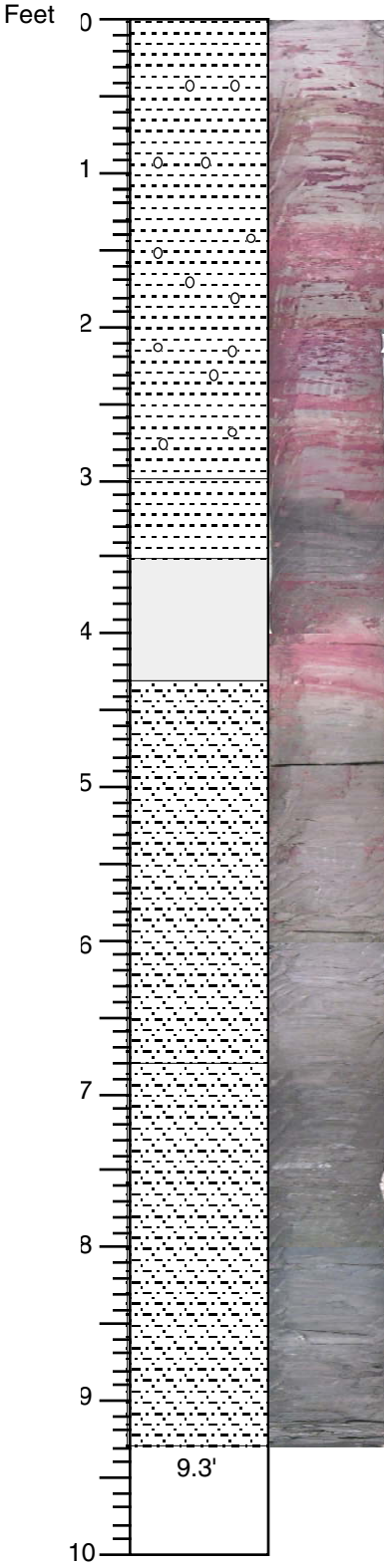


SAND; fine; siderite nodules increase in abundance down core; (10YR 6/2), interbedded clay layers at 1.1-1.4, and 1.85-2.0 ft; (2.5YR 4/6)

SAND; fine; with siderite nodules; (10YR6/2)

CLAY; with very fine sand, interspersed crystals down to 3.4 ft; (10YR 7/1); mottling

174AXS FM
Core #26
Start depth: 145 ft
Stop depth: 150 ft
Recovery: 4.0 ft
Date: 10/6/01
Described by: JCH/MW



CLAY; slightly silty; mostly light gray (GLEY 1 N7/), with greenish gray mottling (GLEY 1 10Y 6/1), dusky red mottling (10R 3/2) with common small concretions at cores (toffee crunch), and red mottling (10R 5/6), with red being most common

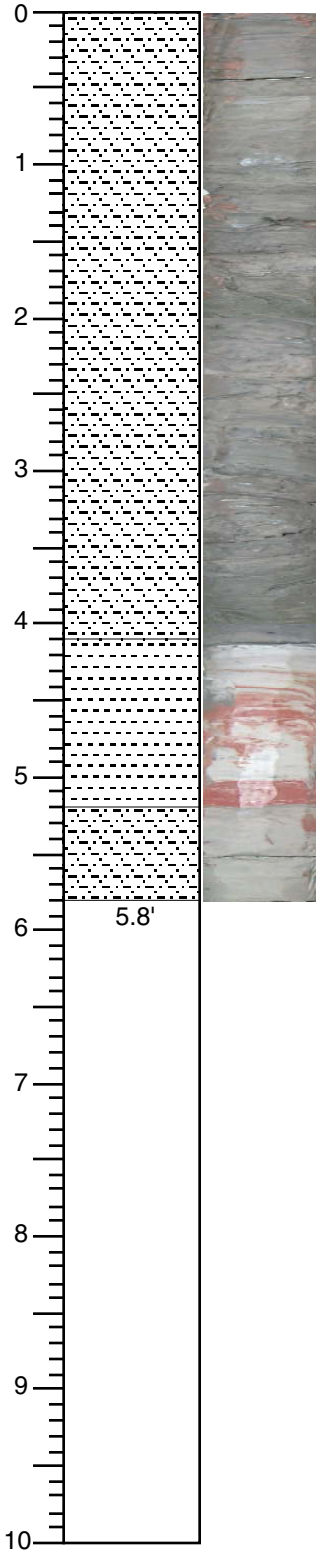
CLAY; silty, dark gray (mostly GLEY 1 N4/) with some variable gray streaking

SAND; very fine, very silty at top, mottled red (10R 5/6) on dark gray (~GLEY 1 N4/) at top and light gray (~GLEY 1 N7/) near bottom

SILT and very fine SAND; silty alternates between silty sand , silt and clayey silt with 5 mm clayier laminae lighter bluish gray (GLEY 2 5/5 PB)

174AXS FM
Core #27

Start depth:	150 ft
Stop depth:	160 ft
Recovery:	9.3 ft
Date:	10/6/01
Described by:	PPMcL

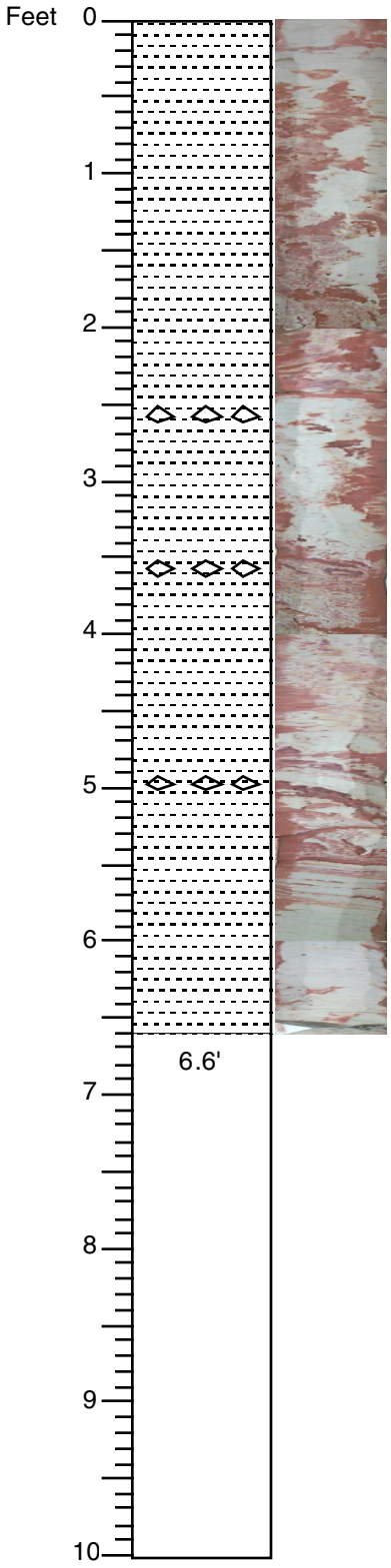


SILT; and very fine silty SAND and silty CLAY; alternates between silt and very fine sandy silt and clayey silt/silty clay, with clayier layers ~5 mm thick; becomes mostly silty clay near bottom; dark bluish gray (GLEY 2 5B4/1); or dark gray (GLEY 1 N4/)

CLAY; stiff and waxy, light gray (GLEY 1 N7/); with laminae and mottling of red (10R 5/6); some thin laminae are very small mottles of dark gray

174AXS FM
Core #28

Start depth:	160 ft
Stop depth:	170 ft
Recovery:	5.8 ft
Date:	10/6/01
Described by:	PPMcL



CLAY; silty with laminae of clayey silt in lower ~1 ft; mostly light gray (GLEY 1 N7/) with red (10R5/6) thicker (1-2 cm wide), "wormier," finer red (10R 5/6) and dusky red (10R 3/2) mottling from 0.7-2.35 and 3.3-4.5 ft and scattered dusky red zones with concretions

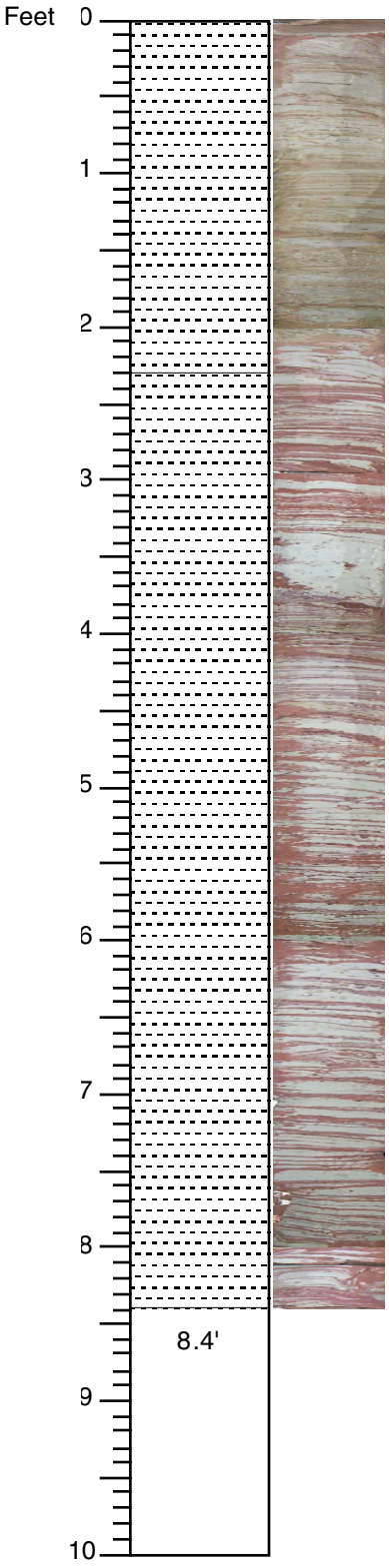
dusky red zone with concretions

dusky red zone with concretions

dusky red zone with concretions

174AXS FM
Core #29

Start depth:	170 ft
Stop depth:	180 ft
Recovery:	6.6 ft
Date:	10/6/01
Described by:	PPMcL



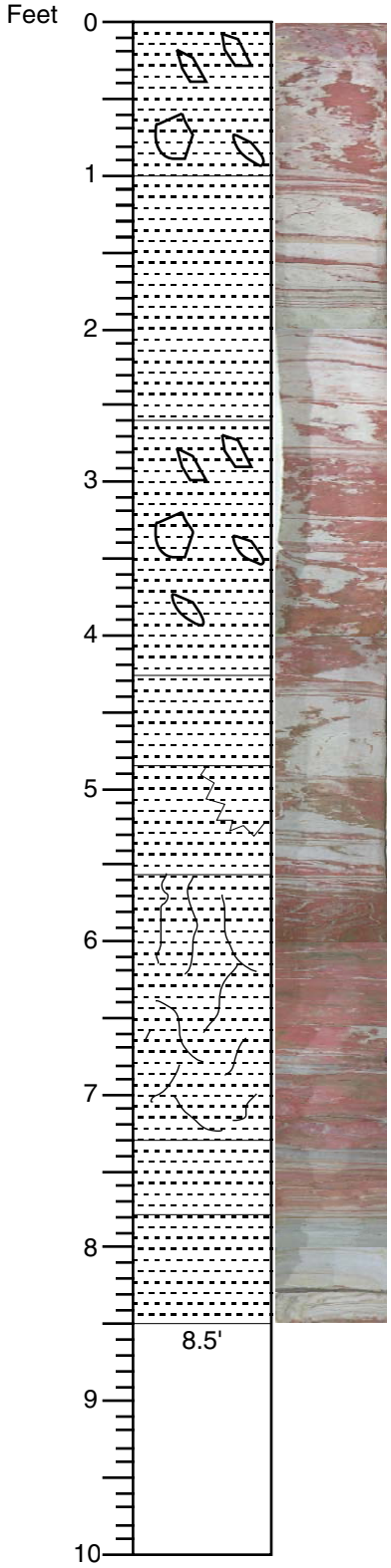
CLAY; silty; finely banded (laminated?); common siderite 0.5-1.0 mm diameter, black streak at 0.4 and 0.7 ft; light gray (GLEY 1N7?) and greenish gray (GLEY 1 10Y6/1), with rare red (10R 5/6)

Gradational contact

CLAY; silty; finely banded (laminated); light gray (GLEY 1N7/) and red (10R 5/6); siderite nodules 1-2 mm diameter common; light gray zone from ~3.3-3.7 ft; from 3.7-6.4 ft dusky red (10R3/2) and purplish bands are included

174AXS FM
Core #30

Start depth:	180 ft
Stop depth:	190 ft
Recovery:	8.4 ft
Date:	10/6/01
Described by:	PPMcL



CLAY; silty heavily mottled, with wide (~20 mm) mottle zones; main matrix is light gray (GLEY1N7/), with some zones with a light purple to lavender tint, reddish gray (10R6/1) and weak red (10R 5/2); mottle fill is red (10R 5/6) with smaller brownish mottles (7.5YR 4/2 and 4/3) and purplish tones; siderite occurs more commonly in the red zones; also common cracks with red alteration, alteration around cracks wider near top also small dusky red mottles

CLAY; silty, with siderite, light gray (GLEY1 N7/) with thin red (10R 5/6) bands (approximately ≤10% thickness) and a few olive gray (5Y 5/2) bands

CLAY; silty; mottled, light gray (GLEY1 N7/) with very wide (up to 40 mm) red (10R 5/6) mottles, including brown (10YR 4/3) mottling within the red mottles; thin red bands at ~2.8 an ~3.4 ft

CLAY; silty, less common mottles, mostly brown (10YR 4/3) some red (10R 5/6), red and brown thin bands at top

CLAY, silty, mottled, a large brown an red (>50 mm) mottle and other smaller brown and red ones

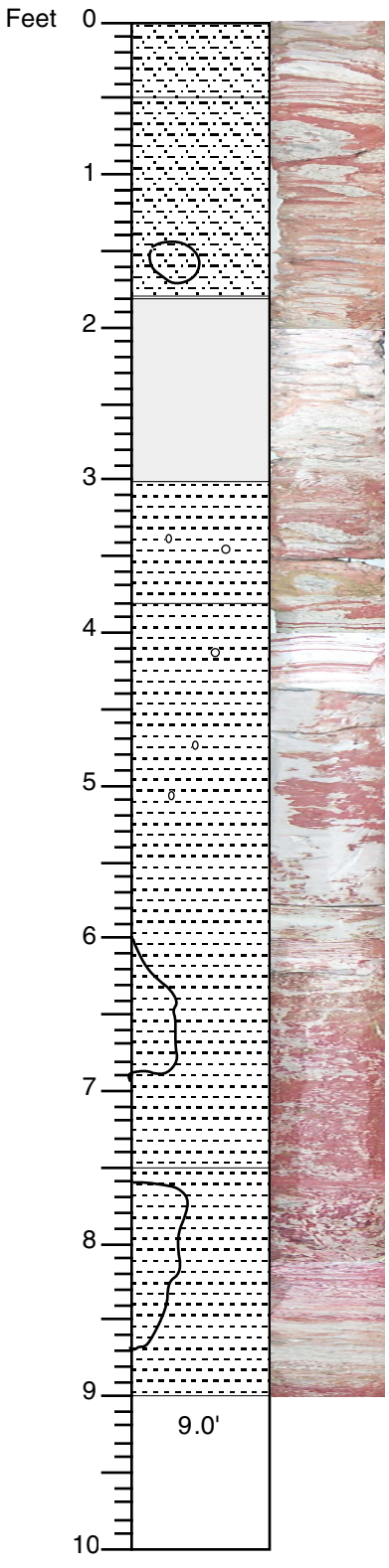
CLAY, silty, predominantly red (10R 5/6) and brown (10YR 4/3) with some light gray (GLEY1 N7/) mottles; extensively cracked, with light gray in cracks, brown inner halos, red outer halos, in the upper ~1 ft more irregularly cracked/mottled than lower

CLAY, silty, banded light gray, red, and olive gray, mostly red

CLAY, silty, banded, mostly light gray, some olive gray bands

174AXS FM
Core #31

Start depth:	190 ft
Stop depth:	200 ft
Recovery:	8.5 ft
Date:	10/6/01
Described by:	PPMcL



SILT; clayey, laminated, brown (7.5YR 5/2), red (10R 4/6)

SILT; clayey, mottled, a large mottle, some coarse sand (siderite?)

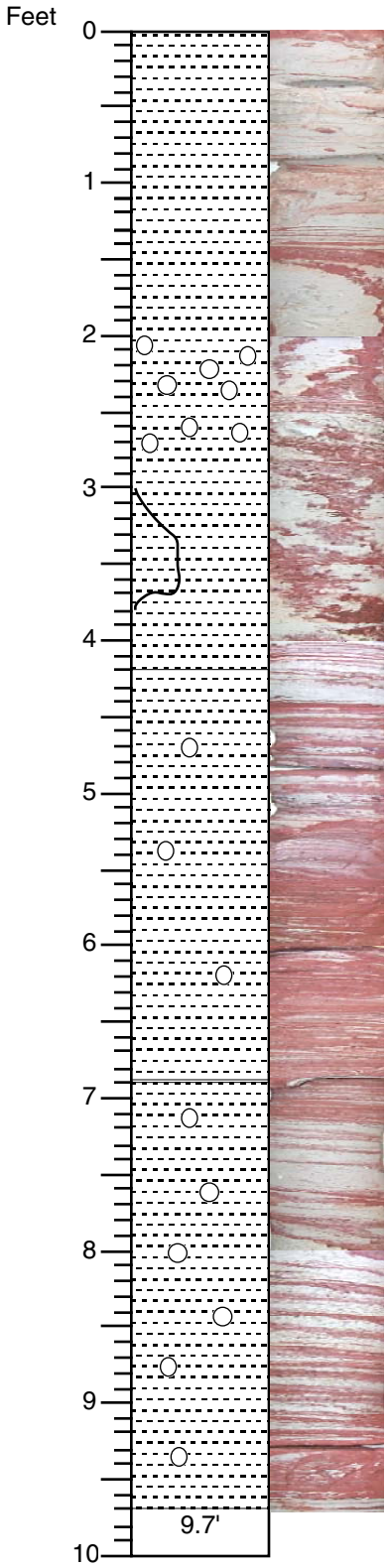
SAND; very fine, silty; light gray (7.5YR 7/1), occasional brown (7.5YR 5/4) mottles

CLAY-SILT, mottled, some siderite, (coarse sand sized) light gray (7.5YR 7/1) with weak red (10R 4/4) laminae

CLAY; silty, laminated to thick bedded, light gray (7.5YR 7/1) with red (10R 4/4) and dusky red (10R 3/3), also light yellowish brown (10YR 6/4) occasional siderite grains

174AXS FM
Core #32

Start depth:	200 ft
Stop depth:	210 ft
Recovery:	9 ft
Date:	10/7/01
Described by:	PJS



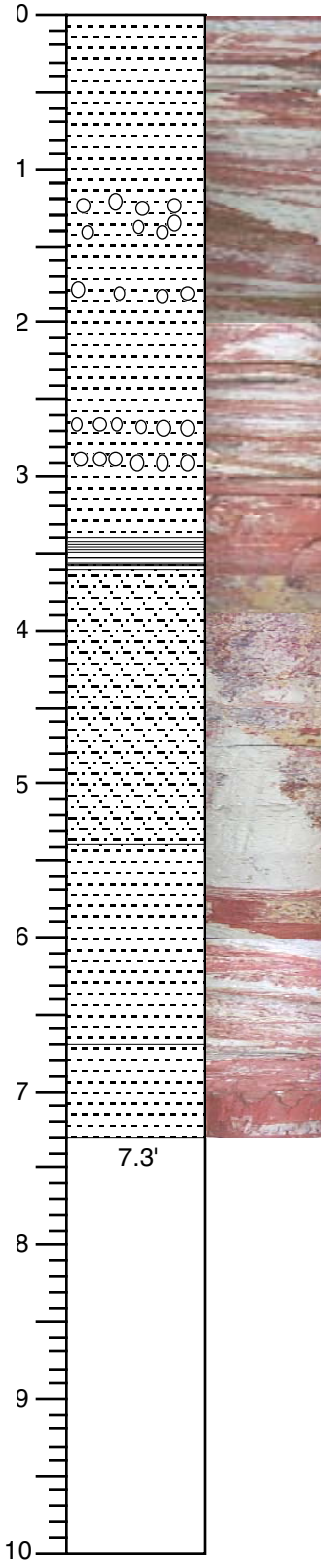
CLAY; silty, laminated in some intervals, more mottled at the base, light gray (7.5YR 7/1), reddish yellow (7.5YR 7/6) at top; weak red (10R 4/4) at bottom (mottled zone); laminated zones 1.3-1.4, 2.3-2.4, 3.85-4.1 ft; some siderite grains concentrated at 2-2.9 ft

CLAY; silty; mostly red (10R 4/6), with lesser light gray (10YR 7/1), laminated with some thicker beds (gray zones [~0.1-0.15 ft]); occasional siderite grains

CLAY; silty; more siderite grains, thicker gray beds (~0.2 ft), more red at base same colors as above

174AXS FM
Core #33

Start depth:	210 ft
Stop depth:	220 ft
Recovery:	9.7 ft
Date:	10/7/01
Described by:	PJS/MW



CLAY; silty, mottled, light gray (10YR 7/1) with red (10R 4/6), siderite concentrated at 1.2-1.5, 1.8, 2.7, and 2.9 ft

Laminated zone

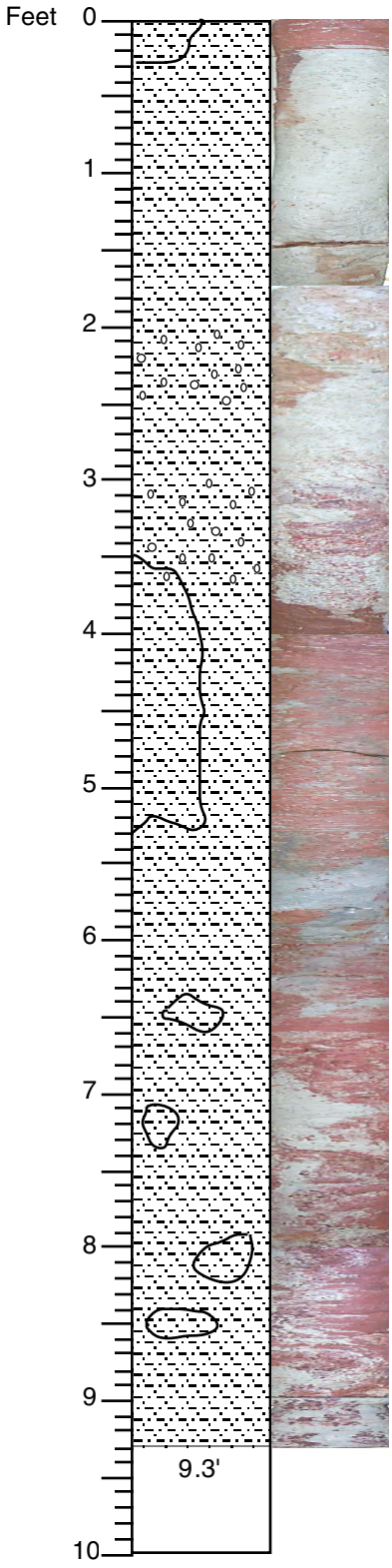
CLAY; silty, massive, mottled with root zones (halos), upper part variegated, gray, red, olive yellow (2.5Y 6/6), and dark reddish gray (10R 4/1); lower part is all gray

CLAY, gray and red, mottled/laminated with some olive yellow (2.4Y 6/6)

CLAY, tight massive, red (10R 4/6)

174AXS FM
Core #34

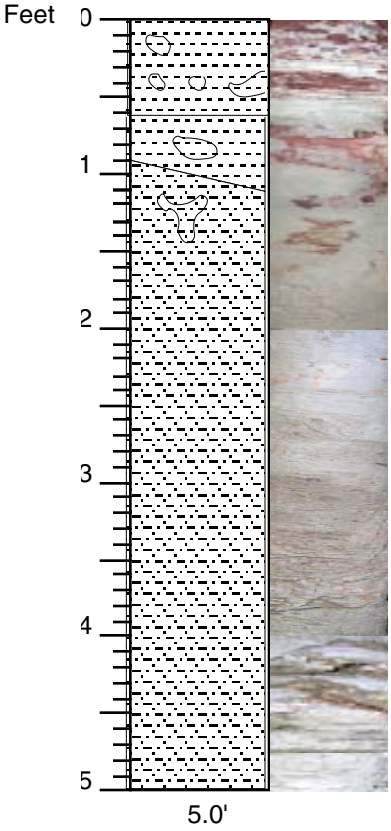
Start depth:	220 ft
Stop depth:	230 ft
Recovery:	7.3 ft
Date:	10/7/01
Described by:	PJS/MW



SILT; clayey, mottled, common siderite grain, trace of pyrite; siderite concentrated at 2-2.5, and 3-3.7 ft; dusky red (10YR 3/4), light gray (10YR 7/1)

174AXS FM
Core #35

Start depth:	230 ft
Stop depth:	240 ft
Recovery:	9.3 ft
Date:	10/7/01
Described by:	PJS/MW



CLAY; silty, mottled, dusky red (10YR 3/4), light gray (10YR 7/1); some fine roots, laminated

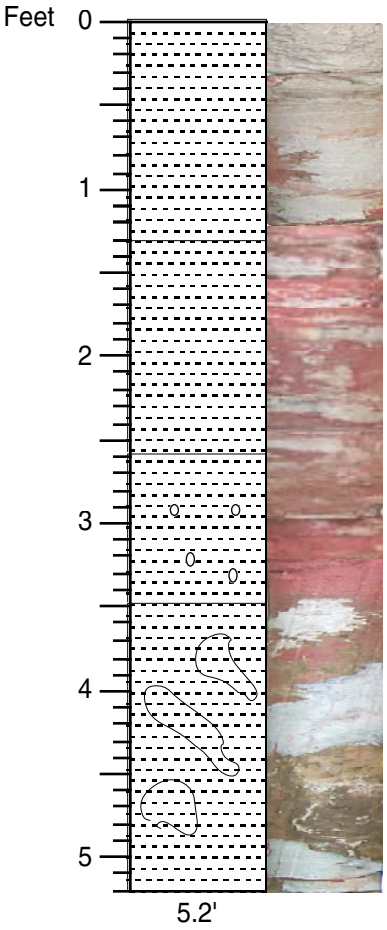
CLAY, mottled, slightly darker

?Contact

SILT; slightly clayey, laminated, possible root structures; lower section appears burrowed; reddish brown (5YR 4/4), gray (10YR 6/1)

174AXS FM
Core #36

Start depth:	240 ft
Stop depth:	245 ft
Recovery:	5 ft
Date:	10/7/01
Described by:	PJS/MW



CLAY; slightly silty, wavy laminations; light gray (10YR 7/1), with abundant mottles, weak red (10R 5/4)

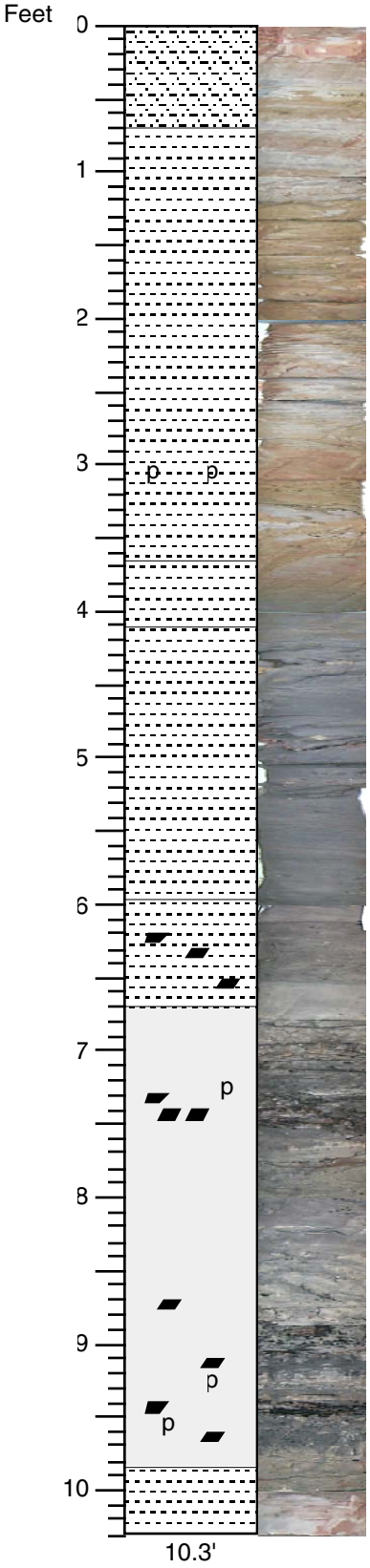
CLAY; as above but some olive brown (2.5Y 4/3) mottles; banding at 1.6 and 2.3 ft

CLAY; with medium to coarse sand sized siderite nodules

CLAY; slightly silty, light gray (10YR 7/1), with abundant dark olive brown (2.5Y 3/3), and olive brown (2.5Y 4/3), thin (3 mm) mottles, dark gray band at contact with olive gray mottles at 4.5-4.7 ft

174AXS FM
Core #37

Start depth:	245 ft
Stop depth:	250 ft
Recovery:	5.2 ft
Date:	10/8/01
Described by:	TMcK



SILT; clayey; light gray (10YR 7/1); abundant mottling is light olive brown (2.5Y 5/4)

CLAY; light gray (10YR 7/1); abundant mottling is light olive brown (2.5Y 5/4); pyrite nodules at 3-3.2 ft along with strings of light olive brown (2.5Y 5/4) colored clay (roots?)

CLAY; banded (2-10 mm); light olive brown (2.5Y 5/4) and dark gray (10YR 4/1)

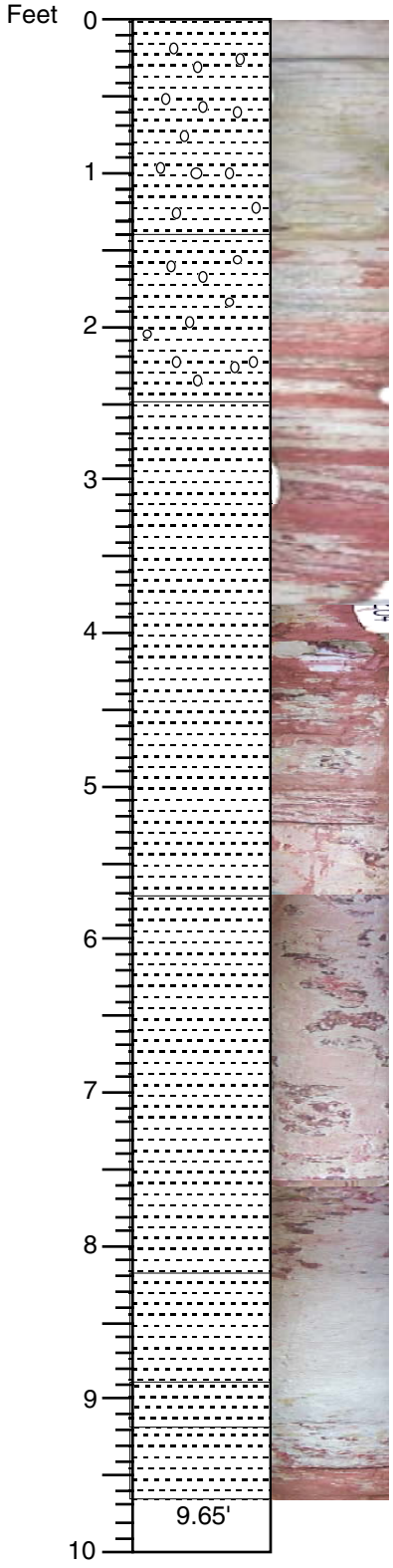
CLAY; silty; dark gray (10YR 4/1); minor light olive brown (2.5Y 5/4) bands

CLAY; silty; dark gray (10YR 4/1) to very dark grayish brown (10YR 3/2); abundant elongated and subhorizontal lignite

SAND; very fine to fine, silty, clayey; subangular to subrounded; better sorting in thin sandier beds but a lot of clay/silt matrix; common lignite, abundant lignite at 7.3-7.5 and 8.4-9.7 ft; common pyrite replacing wood; dark gray (10YR 4/1) to black (10YR 1/1)

174AXS FM
Core #38
Start depth: 250 ft
Stop depth: 260 ft
Recovery: 10.3 ft
Date: 10/8/01
Described by: TMcK

CLAY; slightly silty, featureless; gray (10YR 6/1)



CLAY; gray (10YR 6/1), with few pale olive mottles (elongated) (5Y 6/3), abundant siderite nodules; grayish brown (10YR 3/2)

CLAY; gray (10YR 6/1); with common reddish brown (2.5YR 4/4) mottles; some mottles as subhorizontal bands; abundant siderite; few pale olive (5Y 6/3) elongated (vertical) mottles at contact with above; some <1 mm black banding; (note: pyrite at 2.1-2.2 ft probably not in place)

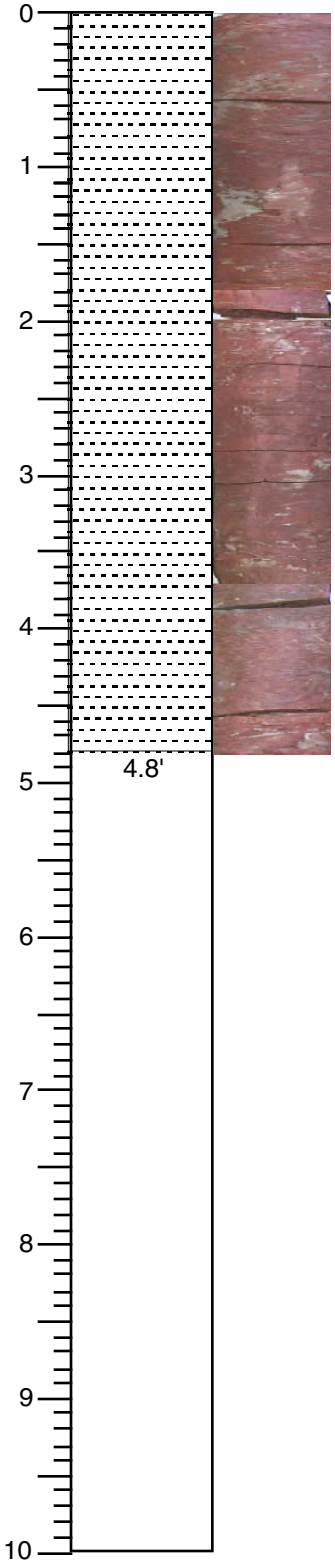
CLAY; gray (10YR 6/1), with abundant reddish brown (10YR 6/1) mottles, with a few dark reddish brown (5YR 3/2) isolated mottles; with in the gray is few pale olive (5Y 6/3)

CLAY; gray (10YR 6/1) with abundant light reddish brown (5YR 6/3) mottles and abundant dark reddish brown (5YR 3/2) mottles and small (rootlet-like) reddish brown (2.5YR 4/4) mottles

174AXS FM
Core #39

Start depth:	260 ft
Stop depth:	270 ft
Recovery:	9.65 ft
Date:	10/8/01
Described by:	TMcK

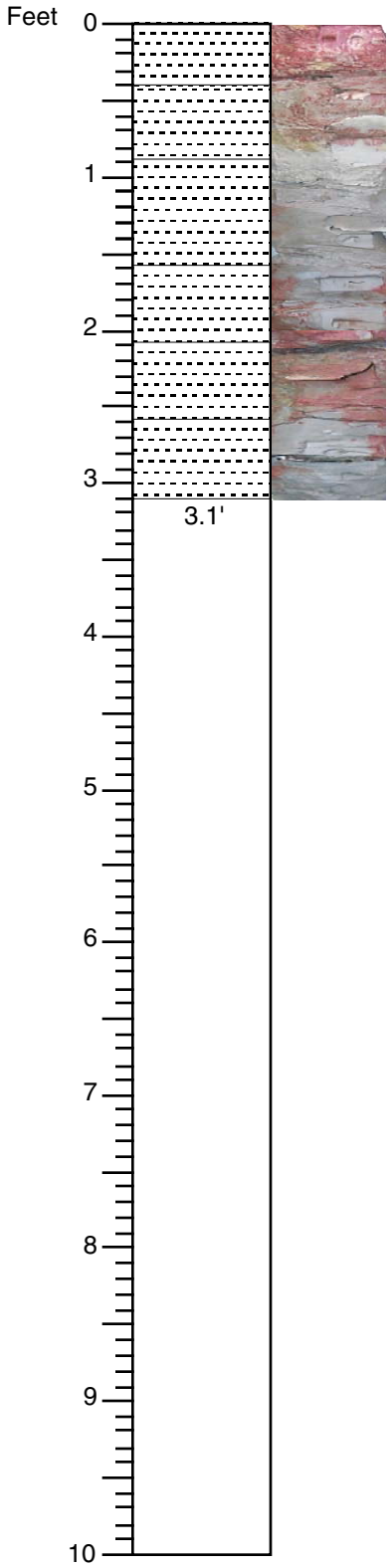
CLAY; gray (10YR 6/1), not mottled



CLAY; dusky red (10R 3/4), with few gray (10YR 6/1) mottles; mottles very different than above, blocky (dusky red peds and gray cutans in paleosol, very well developed; has that "brecciated" look)

174AXS FM
Core #40

Start depth:	270 ft
Stop depth:	280 ft
Recovery:	4.8 ft
Date:	10/8/01
Described by:	TMcK



CLAY; primarily red (10R 3/6) mottled with gray (2.5YR 7/1)

CLAY; primarily gray (10R 6/1), with red mottles (10R 3/6); red ending by 0.75 ft

CLAY; gray (10R 5/1), structureless

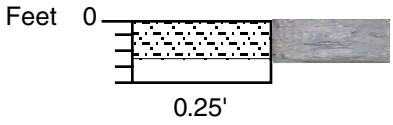
CLAY; gray (10R 5/1); picking up red (10R 3/4), fairly mottled by 2.1 ft

CLAY; primarily red (10R 3/4); mottled with gray; also streaked with reddish brown (2.5YR 4/3)

CLAY; gray (2.5Y 5/1); picking up a bit of silt, picking up fine sand from 2.8-3.1 ft

174AXS FM
Core #41

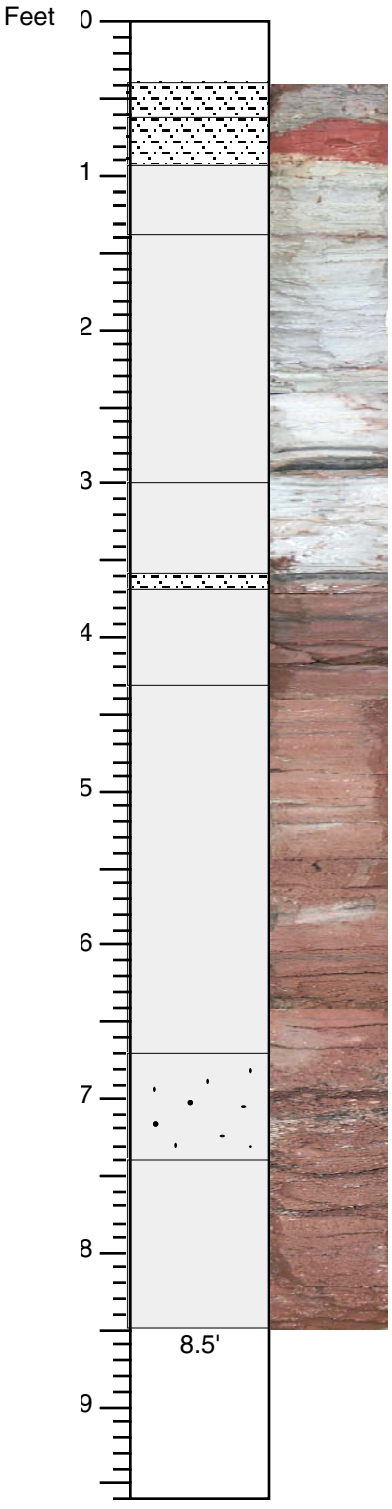
Start depth:	280 ft
Stop depth:	290 ft
Recovery:	3.1 ft
Date:	10/8/01
Described by:	SJB



SILT; gray (2.5Y 6/1), with very fine to fine sand, small dark heavies

174AXS FM
Core #42

Start depth:	290 ft
Stop depth:	290.4 ft
Recovery:	0.25 ft
Date:	10/9/01
Described by:	SJB



Top of core = 290.4 ft; hung at 0.4 ft

SILT; with very fine sand and clay; gray (GLEY 1 7/N)

SILT; with very fine sand and clay; red (10R 4/8)

SAND; very fine to medium, silty; light gray (GLEY 18/10Y); siltier interval from 0.95-1.1 ft; silty laminations from 1.1-1.4 ft; from 1.38-1.4 ft is a red sandy cross bed

SAND; silty, light gray; GLEY 18/N), fine with heavies scattered throughout; slightly siltier laminations scattered throughout interval; silty crossbed at 2.9 ft

Sharp contact
SAND; very fine; silty with heavy mineral banding concentrations at 3.1 and 3.3 ft; light gray (GLEY 2 7/5PB)

SILT layer with sand
SAND; fine to medium, primarily red (2.5YR 4/6); with heavy minerals concentrated from 3.7-3.75 and 4.0-4.05 ft; heavies are scattered throughout interval

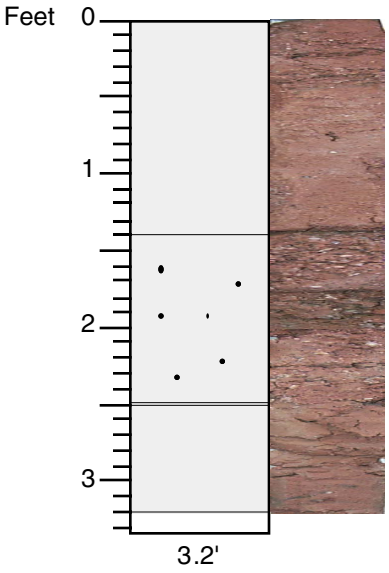
SAND; medium to coarse, subangular; penetrated with drilling mud, heavy mineral laminations at 4.4, 4.63, 4.65, 4.73, 5.9, and 6.1 ft, silty sand at 5.3 ft

Sharp contact
SAND; very coarse to gravel, up to 10 mm in diameter, subangular to subrounded, larger sizes concentrated from 7.0-7.3 ft; mostly quartz, some chert?

SAND; medium to coarse, penetrated with drilling mud; no heavy mineral laminations, structureless, quartz is clear to gray

174AXS FM
Core #43

Start depth:	290.4 ft
Stop depth:	300 ft
Recovery:	8.5 ft
Date:	10/9/01
Described by:	SJB



SAND; very coarse, subrounded; heavy mineral lamination at 0.5 ft; below the lamination it grades to a coarse sand

SAND; very coarse to granule; larger pieces are 10 mm and subangular

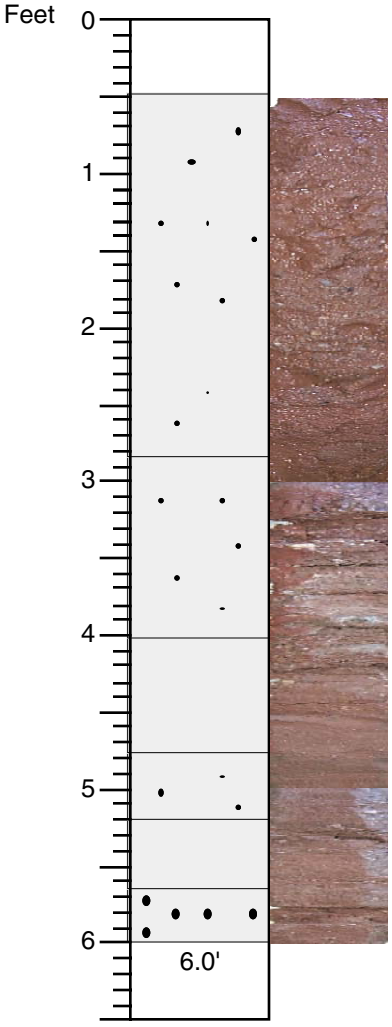
Sharp contact

SAND; fine to medium, grading to medium at the bottom; heavy mineral lamination at 3.1 ft

Entire core is penetrated with drilling mud

174AXS FM
Core #44

Start depth:	300 ft
Stop depth:	303.5 ft
Recovery:	3.2 ft
Date:	10/9/01
Described by:	SJB



Top of core is 303.5 ft; hung at 0.5 ft

SAND; medium to very coarse with abundant granules, penetrated with drilling mud; poorly sorted, granules are subangular, primarily quartz; scattered siderite nodules; structureless

SAND; medium to very coarse with abundant granules, scattered pebbles; penetrated with drilling mud; scattered siderite nodules; larger quartz pieces appear more angular than top of core; this part of the core has a silty matrix; it is much firmer to the touch than from 0.5-2.85 ft; silt stringers at 3.65 and 3.8 ft

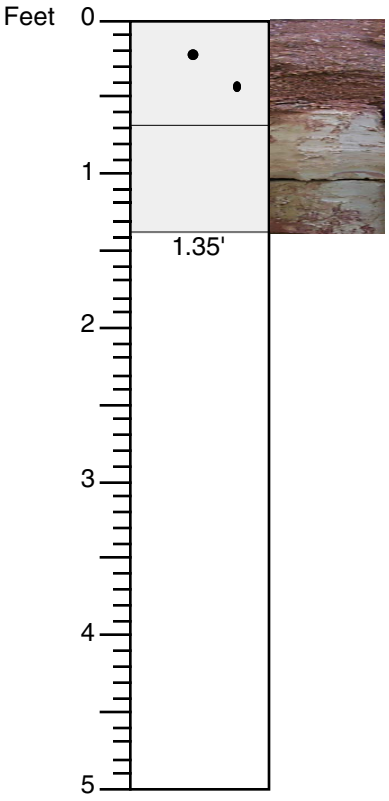
SAND; medium; very well sorted, abrupt contact with above; faint OHM laminations at 4.5, 4.6 and 4.65 ft

SAND; medium to very coarse with scattered granules; subangular pebbles between 5.0-5.2 ft; up to 12 mm
SAND; fine to coarse; less silt

SAND; medium to very coarse with scattered pebbles

174AXS FM
Core #45

Start depth:	303.5 ft
Stop depth:	310 ft
Recovery:	6.0 ft
Date:	10/9/01
Described by:	SJB

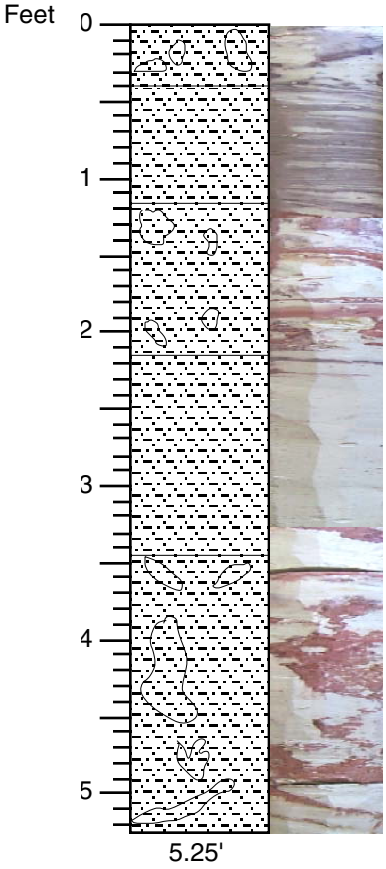


SAND; medium to very coarse with scattered granules and pebbles to 12 mm

CLAY; silty; mottled red

174AXS FM
Core #46

Start depth:	310 ft
Stop depth:	315 ft
Recovery:	1.35 ft
Date:	10/9/01
Described by:	SJB



SILT; mottled, light bluish gray (GLEY 1 5B7/1), with purple mottles (close in color to dark reddish gray (10r 4/1) but more purple), up to 1 cm in diameter

SILT; irregularly banded; mostly varying shades of purple in bands up to ~5 mm with intervening light bluish gray

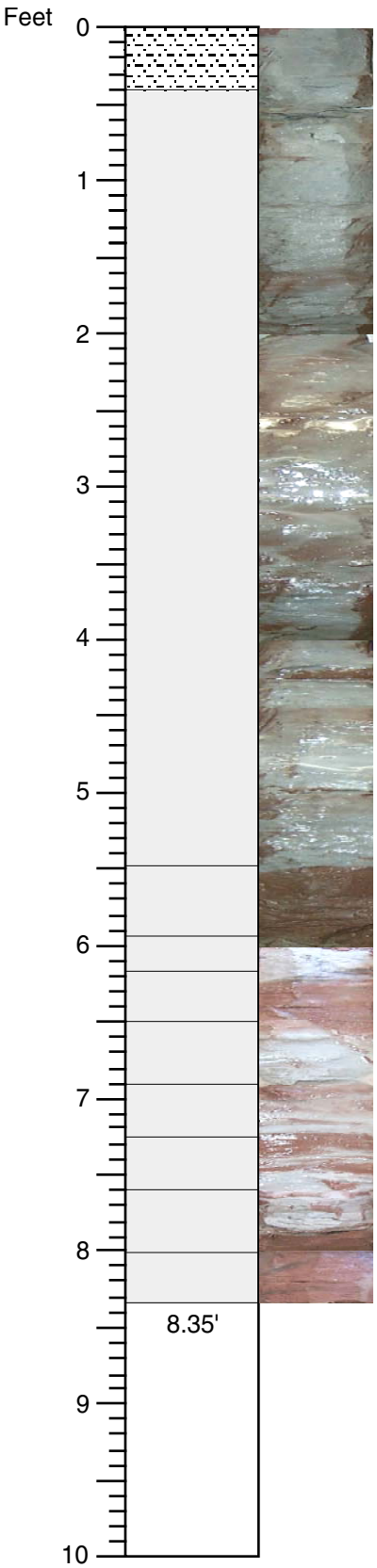
SILT; very clayey red (10R 4/6) mottles, on light bluish gray (GLEY 1 5B 7/1) with a few red bands up to 2 cm thick, some olive yellow mottles (2.5Y 6/6)

SILT; light bluish gray (GLEY 15B 7/1); with uncommon faint mottles

SILT; light bluish gray (GLEY 1 5B 7/1), with large (up to ~4 mm across) red mottles of clayey silt, mottles include red (10R 4/6) and lesser olive yellow (2.5 Y 6/6) and small spots of reddish brown (2.5YR 4/3)

174AXS FM
Core #47

Start depth:	315
Stop depth:	320
Recovery:	5.25
Date:	10/10/01
Described by:	PPMcL



SILT; sandy, very fine; slightly clayey; light bluish gray (GLEY 1 5B 7/1); some clayier laminations

SAND; very fine to fine; well sorted; common mica, rare (1-2%) dark grains (ohm?); common, thin (1-2 mm) silty/clayey laminations, concentrated in packages 3-10 cms thick, small clay bleb (clay/root fill?) at ~0.7 ft, light bluish gray (GLEY 15B 7/1)

174AXS FM
Core #48
Start depth: 320 ft
Stop depth: 330 ft
Recovery: 8.35 ft
Date: 10/10/01
Described by: PPMcL

SAND; mostly fine, some very fine, well sorted, common mica, 1-2% darks (ohm?), one gray 1 mm silt lamination, otherwise red (2.5YR 5/6)

SAND; gray same as 0.4-5.5 ft but slightly siltier

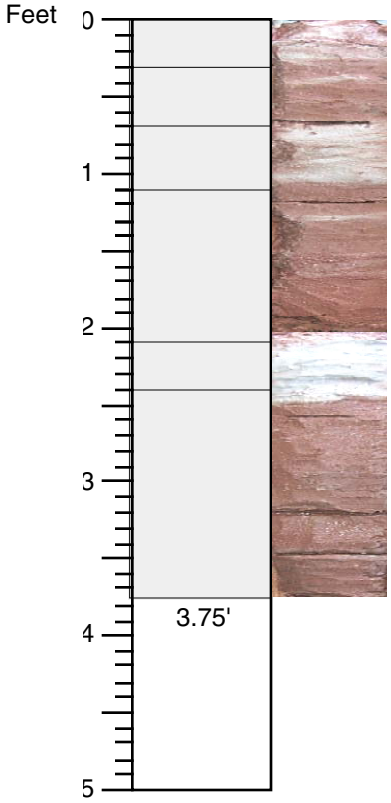
SAND; red same as 5.5-5.95 ft, but with laminations of dark (ohm?) mineral grains

SAND; gray, same as 6.0-6.2 ft; silty with clayier laminations at base

SAND; interlaminated red (2.5YR 5/6) and light bluish gray (GLEY 15B 7/1), fine to very fine sand with interlaminated light gray clay/silt, sand slightly silty

SAND, red, same as 5.5-5.95 ft but with ~3 mm lamina of clayey silt at ~7.9 ft
SAND, light bluish gray same as 6.0-6.2 ft, with abundant silty clay laminations from 7.8-8.0 ft

SAND red; same as from 5.5-5.95 ft
Note: red zones above are likely red due to drilling mud invasion of porous sand



SAND; fine, slightly silty, well sorted; micaceous, mica flakes up to 3 mm across, 1-3% ohm's; mostly light bluish gray (GLEY 1 5B7/1) with streaks of red

SAND; medium with some fine some coarse; moderate sorting; micaceous, some ohm's; some streaks of red; red (2.5YR 5/6)

SAND; gray, same as 0-0.3 ft; siltier, some ohm laminations

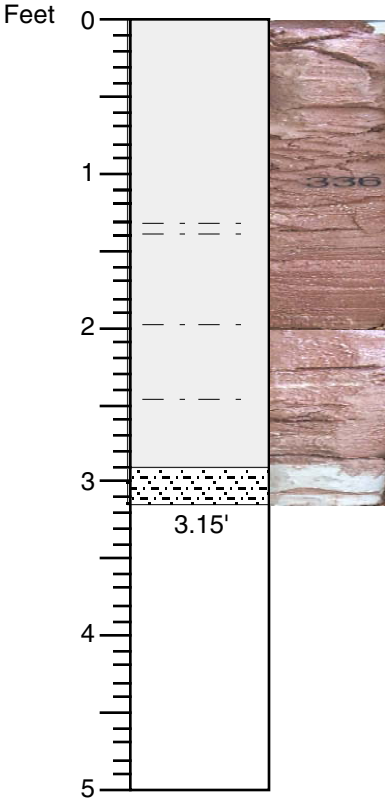
SAND; red, same as 0.3-0.7 ft

SAND; fine and medium, with likely ohms and lignitic fragments (?); thin laminations of clayey silt with a concentration of clayey silt in the bottom 30 mm; light bluish gray (GLEY 1 5B7/1)

SAND; red, same as 0.3-0.7 ft; with grain sizes slightly variable from medium to some fine, ohm lams in the bottom 0.2 ft

174AXS FM
Core #49

Start depth:	330 ft
Stop depth:	335 ft
Recovery:	3.75 ft
Date:	10/10/01
Described by:	PPMcL

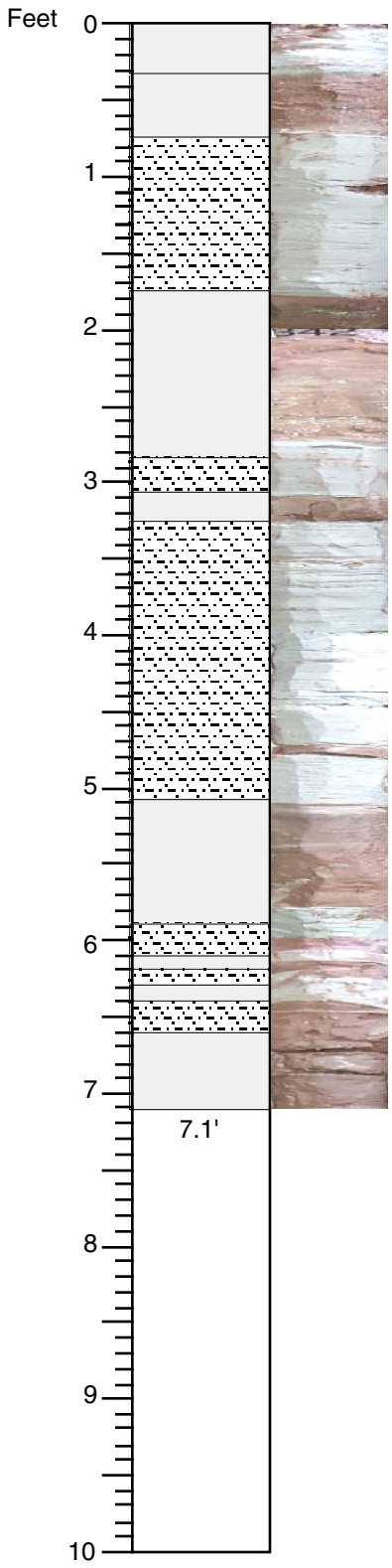


SAND; medium, moderate sorting (some fine some coarse), more fine at top, more medium at bottom, coarse to very coarse sand at the very base; subangular to angular; soft/cohesive; some mica (less than above sands but larger flakes), ~1% ohm, scattered whitish clay-silt laminations (not all are continuous); red, due to mud invasion

SILT; slightly clayey, very fine mica flakes; includes ~1 cm thick fine sand at ~3.1 ft; light bluish gray (GLEY 2 5B8/1)

174AXS FM
Core #50

Start depth:	335 ft
Stop depth:	340 ft
Recovery:	3.15 ft
Date:	10/10/01
Described by:	PPMcL/DM



SAND and SILT, interlaminated; sand is very fine to fine, moderate to well sorting, subangular-subrounded, ~3% ohm; silt is clayey; light bluish gray (GLEY 2 5B 7/1)

SAND; mostly medium, some fine and coarse; poor to moderate sorting, some dark grains but less than above, same for mica; pale red (10R 6/6), red due to drilling mud invasion

SILT and CLAY; interlaminated, laminae are commonly uneven; silt is mostly clayey; some cleaner, slightly sandy (very fine) silts wash out more easily; clay is silty, sticky; light greenish gray (GLEY 1 10Y 7/1)

SAND; fine, moderate sorting, subangular; zones with common ohm, individual laminae; also very thin (<1 mm) whitish silt/clay laminations, red (pale red 10R 6/6), red due to mud invasion

SILT and CLAY; contact with above is somewhat gradational; interlaminated, same as 0.75-1.75 ft, maybe clayier downward

SAND; fine; same as 1.75-2.85 ft

SILT and CLAY; interlaminated, same as 0.75-1.75 ft with sandy red zone from 4.75-4.85 ft

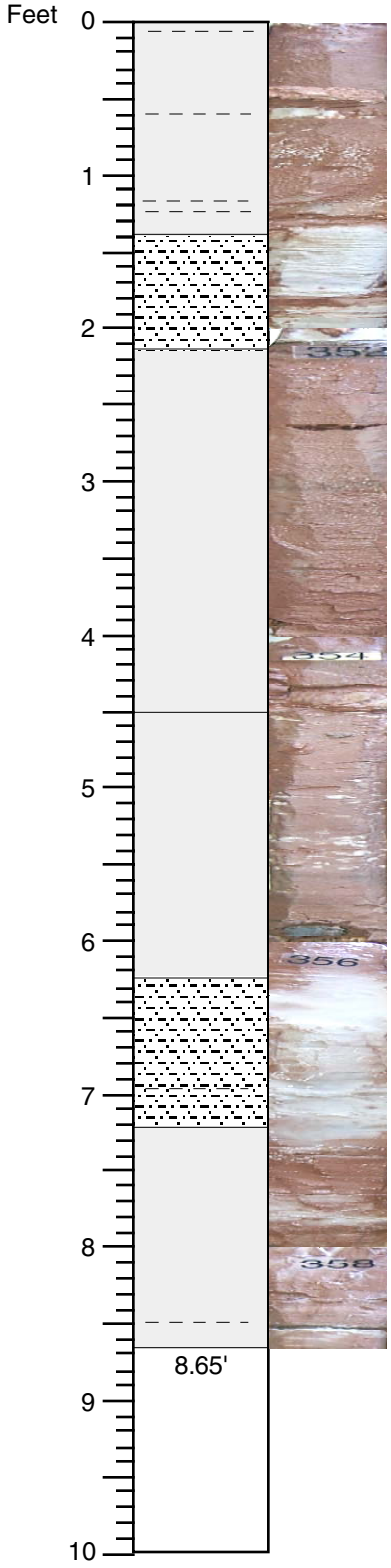
SAND; fine, same as 0.75-1.75 ft

SILT and CLAY; same as 0.75-1.75 ft
SAND; same as 0.75-1.75 ft

SILT and CLAY; same as 0.75-1.75 ft
SAND; same as 0.75-1.75 ft
SILT; clayey, but less clay than above whitish beds; clear but uneven lamination, some irregularity to clay body probably due to twisting in coring
SAND; same as 0.75-1.75 ft; more common medium grains

174AXS FM
Core #51

Start depth:	340
Stop depth:	350
Recovery:	7.1
Date:	10/10/01
Described by:	PPMcL/DM/JVB



SAND; medium quartz, subangular, well to moderately sorted, slightly micaceous, 1-2% ohm, with 1-5 mm thick whitish silty clay laminae (broken in places) at 0.1, 0.65, and 1.3 ft; pale red (10R 6/6),

SILT; clayey; SLAY, silty; and interlaminated very fine SAND; mostly thinly laminate; zone of fine sand at ~0.85 ft, 0.05 ft thick, intruded red; otherwise light greenish gray (GLEY 1 10Y 7/1), the clays being the greenish tint

SAND; medium; quartz, subangular, well to moderately sorted, slightly micaceous, 1-2% ohm, with ohm concentrations in upper ~3 mm (where ~50%), and other streaks in upper 0.1 ft also 3.1, 3.25 and other places; pale red (10R 6/6)

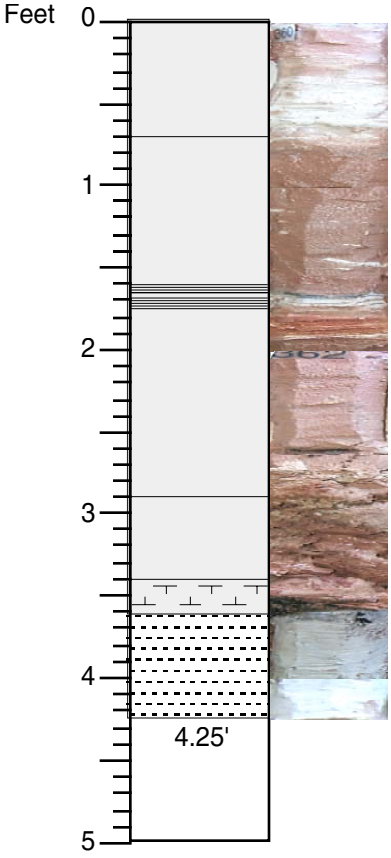
SAND, as above but with blebs of whitish clay at ~4.5, 5.1, 5.2, 5.3-5.55 ft possibly representing broken clay laminae or burrows; ohm laminae scattered throughout; dark, pyrite-cemented sand concretion at 6.0 ft

SAND; fine; subangular; well sorted; micaceous, silty, variably silty laminations, clay lamination at ~7.0 ft, ohm laminations common, light gray (GLEY 1 N7/)

SAND; fine to medium, moderate to well sorted, common ohm laminae; mostly pale red (10R 6/6), same red as red sand above, but with whitish sand bands from 7.6-7.9 ft and a silty clay laminae ~3 mm thick at 8.5 ft

174AXS FM
Core #52

Start depth:	350 ft
Stop depth:	360 ft
Recovery:	8.65 ft
Date:	10/10/01
Described by:	PPMcL/DM/JVB



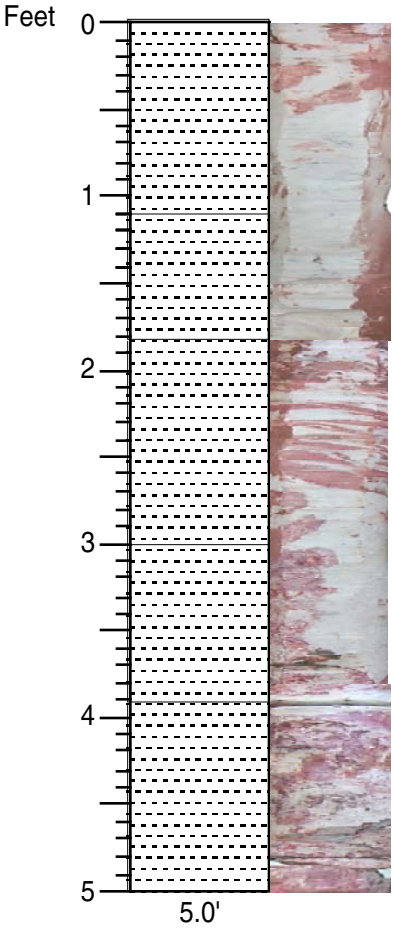
SAND; very fine and interlaminated SILT; very clayey, laminations 1-3 mm thick some ohm laminations, micaceous, mostly whitish; light gray (GLEY 1 N7); some reddish bands due to mud penetration

SAND; fining upward from medium at base to fine at top, moderate to well sorted, subangular; pale red (10R 6/6) in most parts; zone from 1.6-1.75 ft includes from top down, ~5 mm ohm bed with thin silt-clay lamination, then 2 whitish clay laminations ~5 mm thick separated by ~2 mm ohm sand (ohm beds ~≥50% ohm), then another ~5 mm whitish clay lamination, ~2 mm sand and ~5 mm reddish clay/silt; then coarsens downward

SAND; medium to very coarse, poorly sorted; subangular with yellowish siderite (?) nodules (more in lower part); some cemented zones, both yellowish (siderite?) and reddish (hematite?)
SANDSTONE; fine to medium, well sorted, very hard, hematite cemented; red (10R 4/6)
CLAY; very silty, micaceous in places remnants of plant debris at top (very soft - most probably destroyed), light greenish gray (GLEY 1 10Y 7/1)

174AXS FM
Core #53

Start depth:	360
Stop depth:	365
Recovery:	4.25
Date:	10/10/01
Described by:	PPMcL/DM



CLAY; creamy smooth; root trace (vertical) and black dots (roots from side view); light greenish gray (GLEY 1 10Y 7/1)

CLAY creamy smooth; root traces, red blotches of clay and spattered gray light greenish gray (GLEY 1 10Y 7/1) and red (2.5YR 4/4)

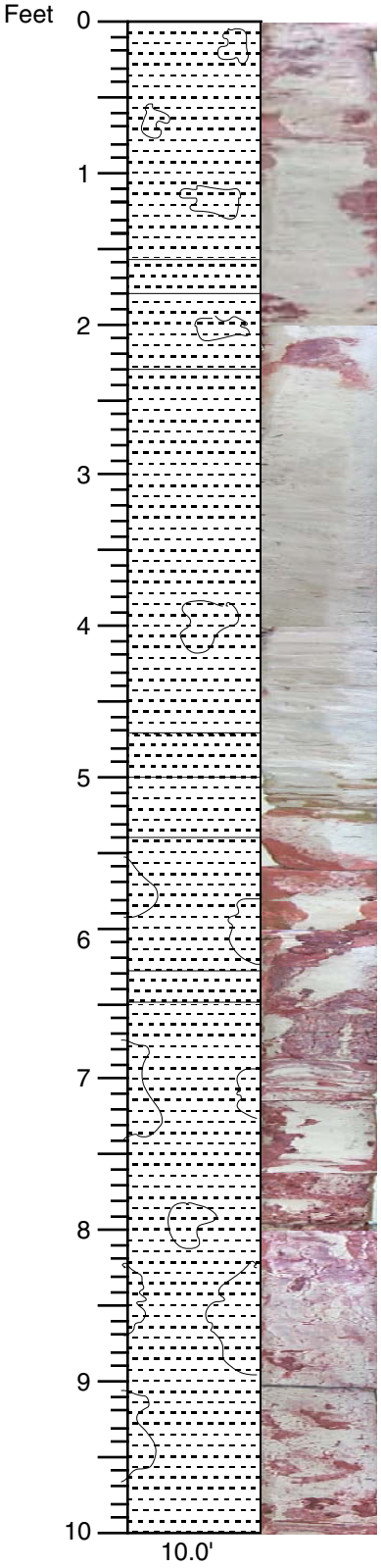
CLAY; laminated, horizontal wavy laminations, inconsistent thickness, smaller black fragments as halos to some laminations, black stringers (root traces); gray (GLEY 1 10Y 7/4) and red (2.5YR 4/4)

CLAY; large root trace with red clay as filler material, minor stringer structures, minor black root trace; light greenish gray (GLEY 1 10Y 7/1) and red (2.5YR 4/4)

CLAY; gray and red and dark red root trace in most of section, clay is dry and fissile, vertical traces throughout, light greenish gray (GLEY 1 10Y 7/1) and red (2.5YR 4/4)

174AXS FM
Core #54

Start depth:	365 ft
Stop depth:	370 ft
Recovery:	5 ft
Date:	10/11/01
Described by:	TAK



CLAY; creamy smooth, dry and compact, root traces and blebs of (10R 2.5 7/2), (GLEY CGY7/1), (10R 4/3)

CLAY; silty, mottled; (GLEY 1 CGY 7/1)

CLAY; creamy smooth, dry and compact, mottled colors; (10R 2.5/7/2), (GLEY CGY 7/1), (10R 4/3)

CLAY; (GLEY 1 7/N); fine cross bedded laminations; minor very fine mica; silty laminations, darker colored, material GLEY 1 4/N

CLAY; 11 laminations, very thin beds; dark gray (GLEY 1 4/N); dark red (10R 4/1); pale olive (S1 6/4), root traces in dark gray and dark red, apparent in lower section

CLAY; as above; with root traces of (GLEY 1 10R 4/4); lignite fragment black (10Y 2.5/1)

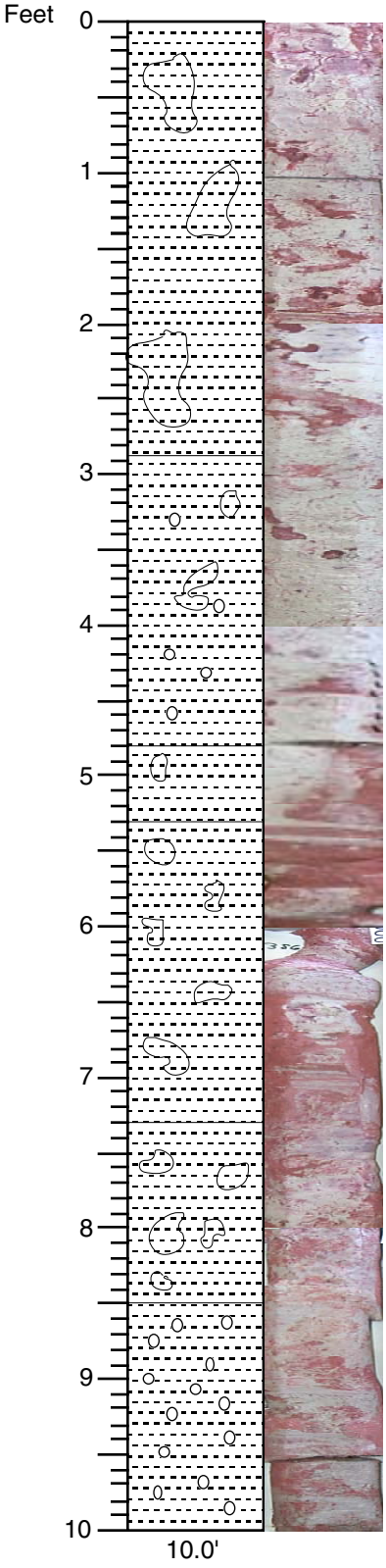
CLAY; mottled, gray (GLEY1 4/N) and red (10R 4/4), with minor regions of dark red (10R 3/6) and dark yellow (2.5YR 2/6); blebs inside of red

CLAY; as above, with parallel laminations without blebs

CLAY; mottled and root traces, matrix of (GLEY 1 4/N); with mottles and very distinct root traces of (10R 3/6); throughout entire section varying sizes of mottles throughout and root traces of several inches are visible; parallel laminations in very fine beds are visible in last 2 inches of section

Core #55

Start depth:	370 ft
Stop depth:	380 ft
Recovery:	10 ft
Date:	10/11/01
Described by:	TAK



CLAY; fine silty, with mottling and root traces; matrix light greenish gray (GLEY 1 N8/1), mottling and root traces dusky red (10R 3/4); gray shades in halos to GLEY 1 N 7/1, root traces are very distinct, very fine grained opaque heavy minerals throughout

CLAY; very fine silt, with 25% mottling and minor root traces of dusky red (10R 3/4); with in clay (GLEY 1 N8/1); minor mica, small coarse sand size grains sporadic throughout section (siderite?) minor mica and ohm, individual discontinuous mottles of 2.5YR 3/4

CLAY; same as above; more mottling at bottom of section; no siderite

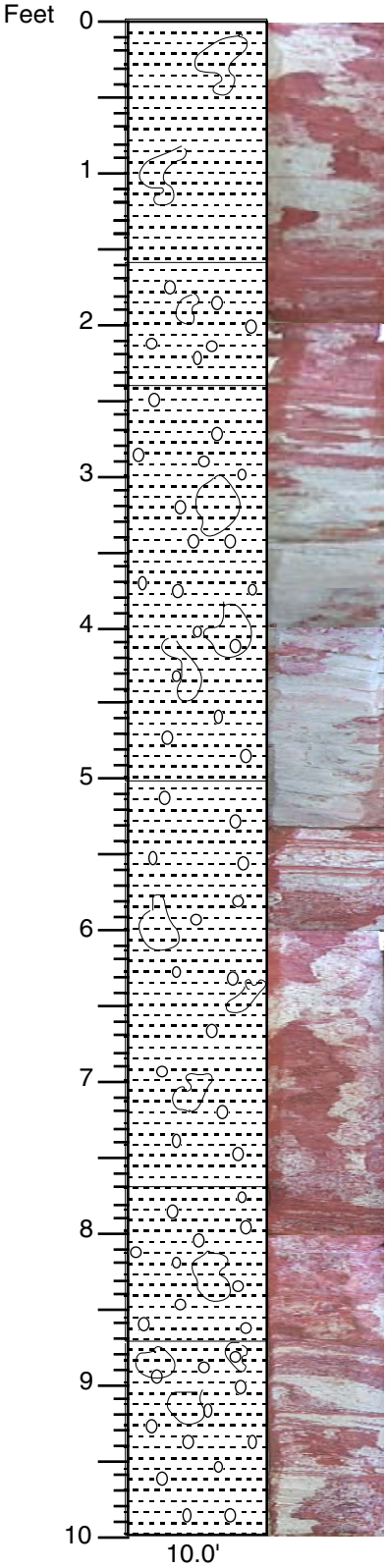
CLAY; silty; parallel laminations (root trace and mottle?), mica and small opaque heavy minerals; (GLEY 1 N 7/1) and mottles of dusky red (10R 3/4); minor siderite, 5% near bottom along with parallel laminations

CLAY; mottled; (GLEY N 7/1) clay with (10R 3/4) mottles; minor root traces and small mottles

CLAY; with 10% medium to fine siderite (?) grains in GLEY N 7/1 clay with (10R 3/4) mottles; fragmented root traces in dusky red

174AXS FM
Core #56

Start depth:	380
Stop depth:	390
Recovery:	10
Date:	10/11/01
Described by:	TAK



CLAY; silty, mottled, minor specks and minor root traces, light green (5Y 7/6); light greenish gray (GLEY 1 10Y 7/1)

CLAY; silty, minor ohm, medium grains of siderite with small root traces light greenish gray (GLEY 1 10Y 7/1)

CLAY; silty, minor mica and ohm light greenish gray (GLEY 1 10Y 7/1); mottled with (5YR 4/4); 50% mottle and root trace, root traces fade in and out of solid gray region; medium grained siderite present throughout, appears to coarsen slightly towards bottom

CLAY; silty; light greenish gray (GLEY 1 10Y 7/1); with mottles and root traces (some traces appear as mats and bundles; mottled areas are 10R 3/6; very fine mica apparent throughout, medium to coarse siderite grains, very minor ohm

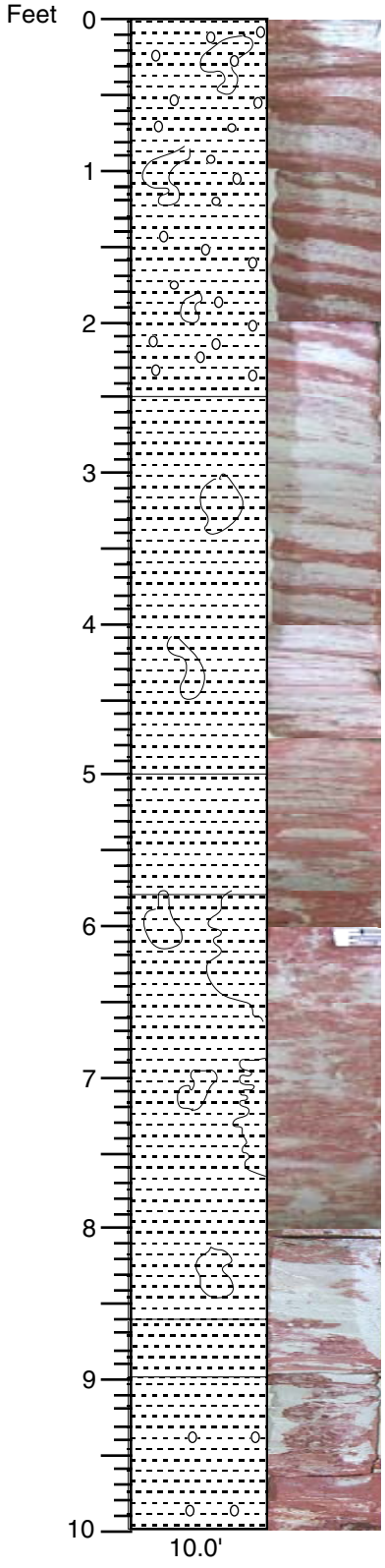
174AXS FM
Core #57

Start depth:	390 ft
Stop depth:	400 ft
Recovery:	10 ft
Date:	10/11/01
Described by:	TAK

CLAY; silty, light greenish gray (GLEY 1 10Y 7/1) with mottles and root traces and mats; mottles and mats dominate (70%), 10R 3/6; and "halos" (10Y 3/4)(shadows); medium siderite grains

CLAY; silty, light greenish gray (GLEY 1 10Y 7/1) with mottles and root mats (10YB 3/4), gray matrix is dominant; medium siderite grains present

Note: The Sun was going in and out of clouds, reason for red color variations, all red is the same color except as noted



CLAY; mottled, light greenish gray (GLEY 1 10Y 7/1); silty with red (2.5Y 4/4), tan (2/5YR 6/4) and pink (10R 6/7) mottled interbeds; minor mica; layers have parallelism as large mottles seem to be twisted in core (result of drilling?), each lamination has a thickness of 2 inches maximum, 50% medium to coarse siderite

CLAY; mottled; light greenish gray (GLEY 1 10Y 7/1); silty, with red (2.5Y 4/4), gray clay dominates with widely spaced red mottled layers, minor mica, scattered fine siderite; thin stringer laminations of 10R 6/2

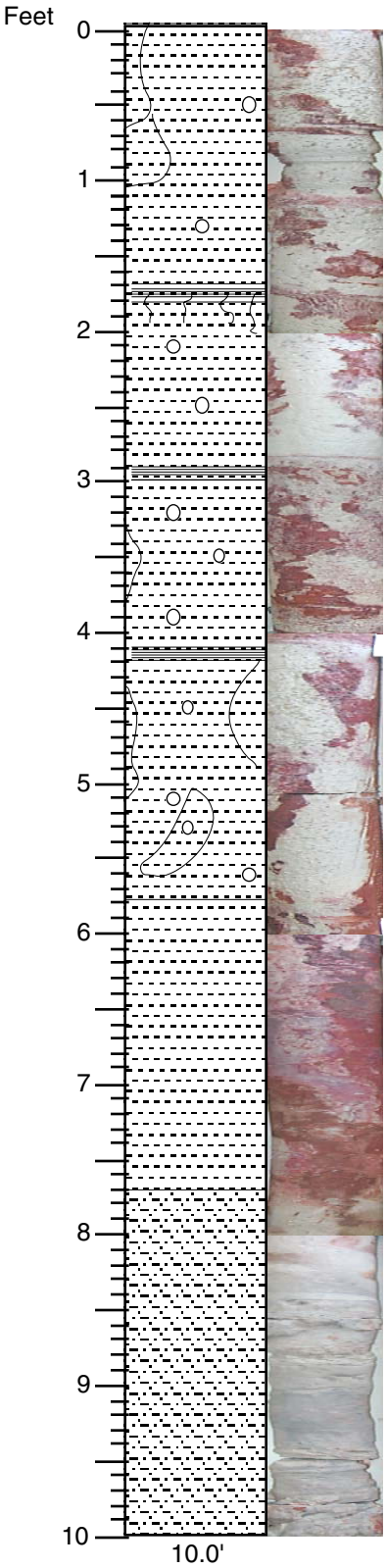
CLAY; mottled; light greenish gray (GLEY 1 10Y 7/1); silty, parallel fine laminations of dusky red (2.5Y 4/4), minor very fine mica

CLAY; silty, mottled, light greenish gray (GLEY 1 10Y 7/1); mottling is fragmented in massive clumps, minor root traces, fragmented root traces

174AXS FM
Core #58
Start depth: 400
Stop depth: 410
Recovery: 10
Date: 10/11/01
Described by: TAK

CLAY; light greenish gray (GLEY 1 10Y 7/1); minor mottling, dusky red (2.5Y 4/4), very minor silt

CLAY; silty; light greenish gray (GLEY 1 10Y 7/1); mottled with dusky red (2.5Y 4/4), larger mottles fragmented, sporadic siderite



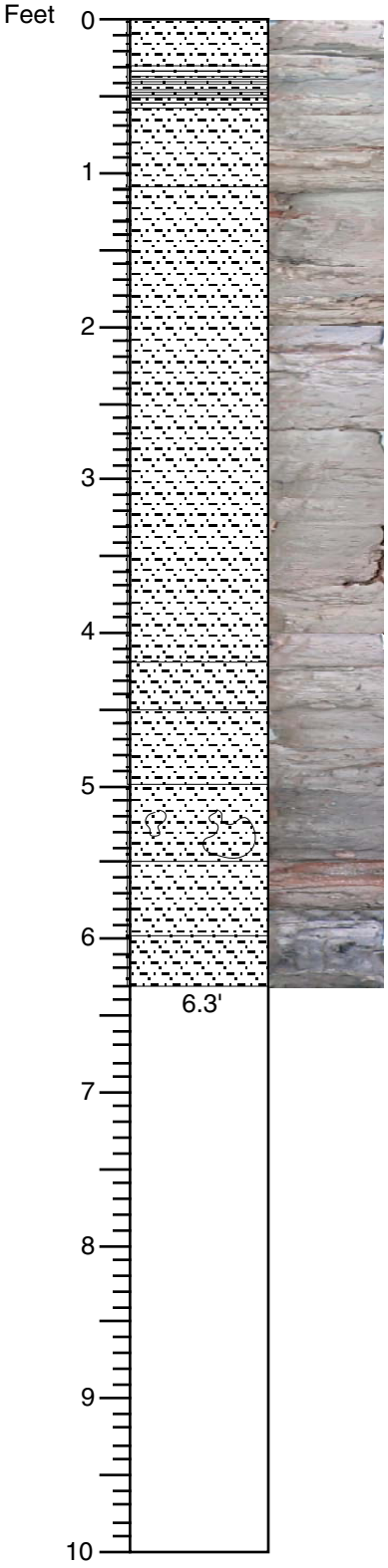
CLAY; slightly silty; gray clay with red clay; red clay generally vertically oriented, may be root casts, scattered nodules, 1-2 mm diameter, scratches steel but no reaction with HCl, common between 0.0-0.8 and 4.2-5.0 ft, few between 3.4-4.2 ft; laminations at 4.1 ft may be the top of paleosols; light greenish gray (GLEY 1 10Y 7/1); weak red (10R 4/4-4/6)

CLAY; slightly silty; mottled red to purple to brown, little gray; dusky red (10R 3/2); reddish brown (5YR 4/4); many root casts

SILT; very fine sand and clay; more clay rich at top gets grittier at bottom, clay is abundant, some coarser and finer layers, between 9-9.5 ft the coarse is darker and maybe more organic rich; gray (10YR 6/1-5/1); sand is light gray (10YR 7/1)

174AXS FM
Core #59

Start depth:	410 ft
Stop depth:	420 ft
Recovery:	10 ft
Date:	10/12/01
Described by:	RNB/JVB/JU



SAND; silty, laminated between 0.3-0.6 ft; very fine to fine; loose at the bottom; gray (10YR 5/1); light gray to gray (10YR 7/1-6/1)

SAND; silty, stiff, fine to very fine; silt clast in loose wet sand at 1.8 ft; the sediment stiffens at 2.5 ft and becomes clayey and silty

SAND; loose, wet, fine to very fine

SAND; stiff, clayey and silty

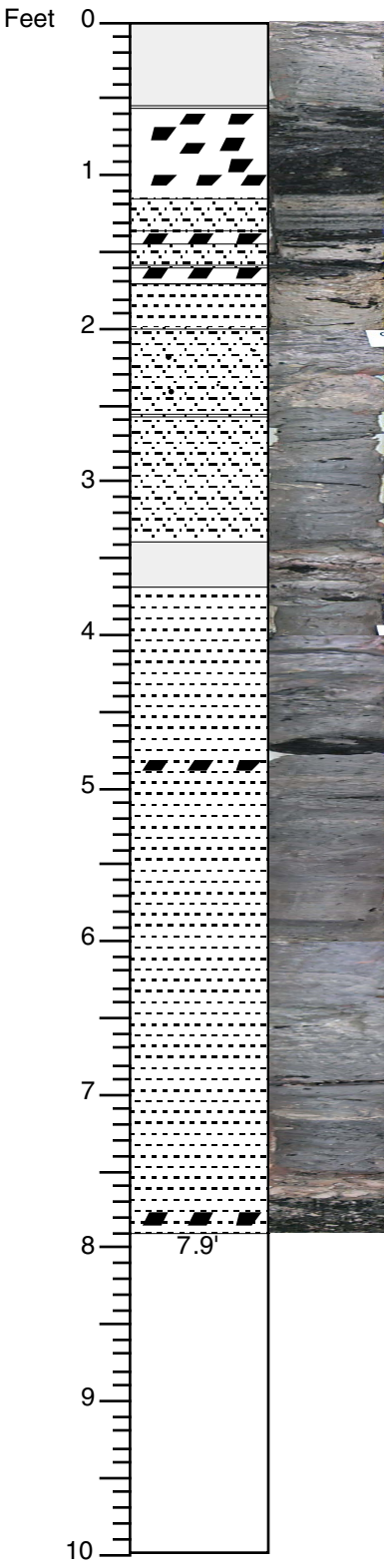
SAND, stiff, fine to very fine, clayey, mottled light and dark gray, organic streaks at 5.2 ft; gray (10YR 6/1); dark gray (10YR 4/1)

SAND; loose, fine to medium, laminated organic matter

SAND; medium to fine; silty, clayey

174AXS FM
Core #60

Start depth:	420 ft
Stop depth:	430 ft
Recovery:	6.3 ft
Date:	10/12/01
Described by:	RNB



SAND; silty, fine to very fine; some clay; inclined laminations, with organics in laminations; gray (2.5Y 5/1)

CHARCOAL; large chunks, pyritic masses, detrital(?), Laminations in base; fine to medium sand mixed in; black (2.5Y 2.5/1)

SILT; fine, clayey, sandy, laminated, wispy black charcoal

CHARCOAL

SAND; silty

CHARCOAL

CLAY; silty, tan cemented chunks on top; charcoal clasts; grayish brown (2.5Y 5/2); Sharp inclined contact; 1.85-2.05 ft

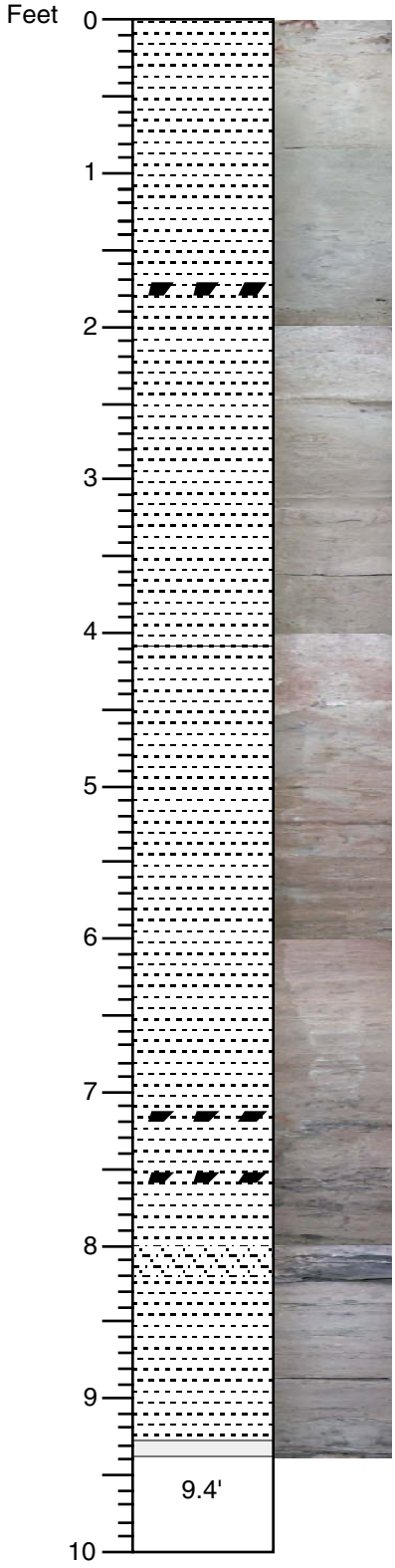
SILT; sandy, laminated, with scattered quartz granules (pink and brown), wispy charcoal laminations; dark gray (2.5Y 4/1)

SILT; sandy, laminated; no granules; charcoal chunks throughout; dark gray (2.5Y 4/1)

SAND; fine, loose, some charcoal; gray (2.5Y 5/1)

CLAY; gray silty, charcoal traces; sand lenses mixed in; gray (2.5Y 5/1); below 5.9 the color changes to dark gray (2.5Y 4/1) and to gray (2.5Y 6/1) at the bottom

174AXS FM
Core #61
Start depth: 430 ft
Stop depth: 440 ft
Recovery: 7.9 ft
Date: 10/12/01
Described by: RNB/JVB/JU



CLAY; slightly silty; scattered charcoal fragments; scattered sphaerosiderite; dark gray subvertical organic lined (?)roots; traces of mica; gray (2.5Y 5/1)

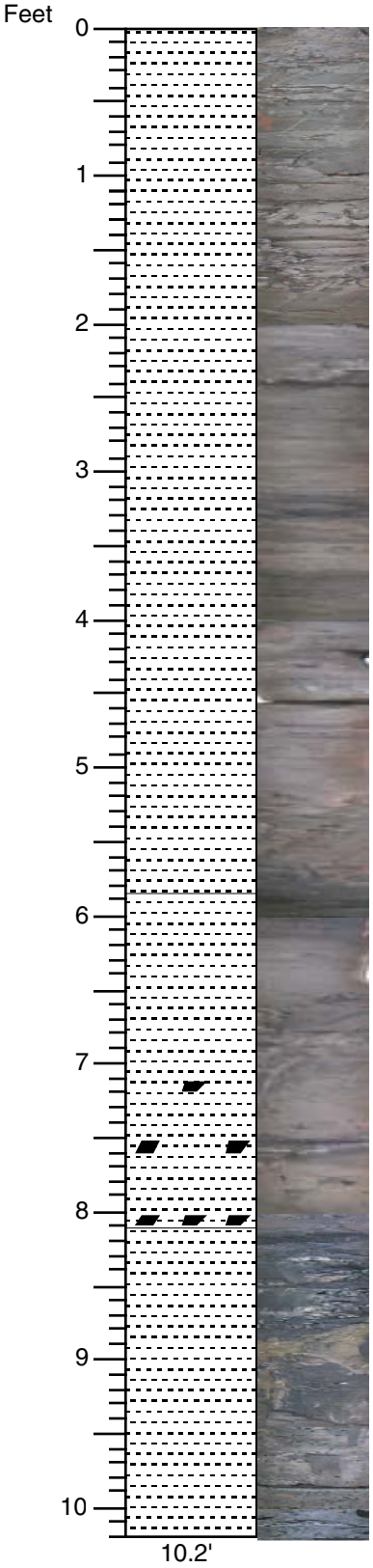
Color change at 4.1

CLAY; slightly silty, scattered laminae; thin black organic layers at 7.2, and 7.5-7.6 ft; 8.0-8.2 ft sandy clay with mottled clay very dark gray (10YR 2/1); grayish brown (10YR 5/2)

174AXS FM
Core #62

Start depth:	440
Stop depth:	450
Recovery:	9.4
Date:	10/12/01
Described by:	JVB

SAND; fine, some medium, well sorted; brown (7.5YR 4/3)



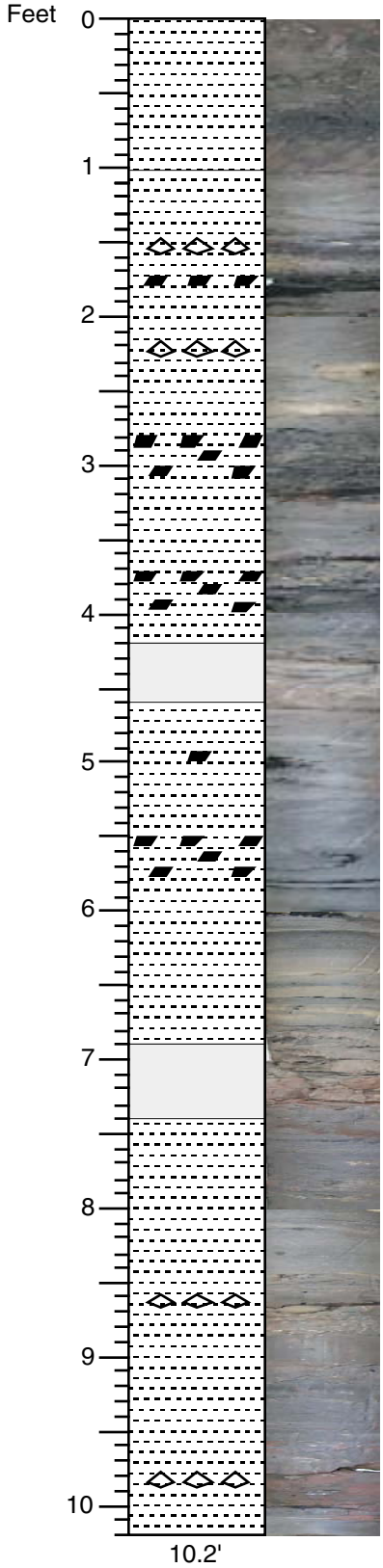
CLAY; slightly silty; slightly micaceous; 0-2.1, 4.05-4.2, 5.2-5.9 ft are siltier; 2.1-4.05, 4.2-5.2 ft are nearly all clay; clay rich intervals are laminated; silty intervals have sphaerosiderite; organics increase down core; gray (7.5YR 7/1) to black (7.5YR 2.5/1) at base

CLAY; slightly silty, slightly micaceous, very organic rich; charcoal gets larger downsection; at the base charcoal chunks are 1-4 cm in diameter

CLAY; organic rich

174AXS FM
Core #63

Start depth:	450 ft
Stop depth:	460 ft
Recovery:	10.2 ft
Date:	10/12/01
Described by:	JVB/JU



CLAY; very organic rich; slightly silty; black (7.5YR 2.5/1)

Gradational contact

CLAY; "fat", trace mica, cemented nodules at 1.5 and 2.2-2.3 ft; lignite at 1.7-1.8, and 2.8-3.1 ft; lignite and pyrite at 3.6-3.9 ft

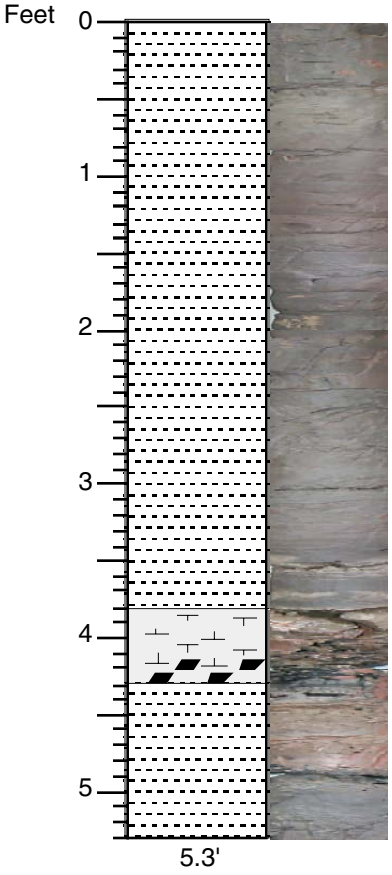
SAND; very fine; clayey

CLAY; slightly silty; abundant lignite fragments, large lignite chunk at 5.0 ft, lignite more abundant between 5.5-6.0 ft

SAND; very fine, well sorted, silty, some lignite fragments, not micaceous

CLAY; cemented nodules and fine to very fine sand at 8.6-8.7 ft; cemented nodules at 9.8 ft

174AXS FM
Core #64
Start depth: 460 ft
Stop depth: 470 ft
Recovery: 10.2 ft
Date: 10/12/01
Described by: JVB/JU



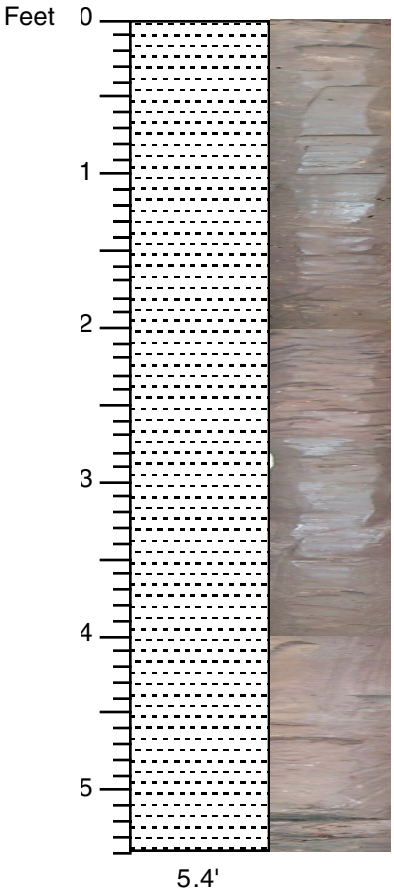
CLAY; slightly silty, slightly micaceous; laminations between 3-3.3 ft

SANDSTONE; fine to very fine; abundant lignite at base

CLAY; slightly silty, slightly micaceous

174AXS FM
Core #65

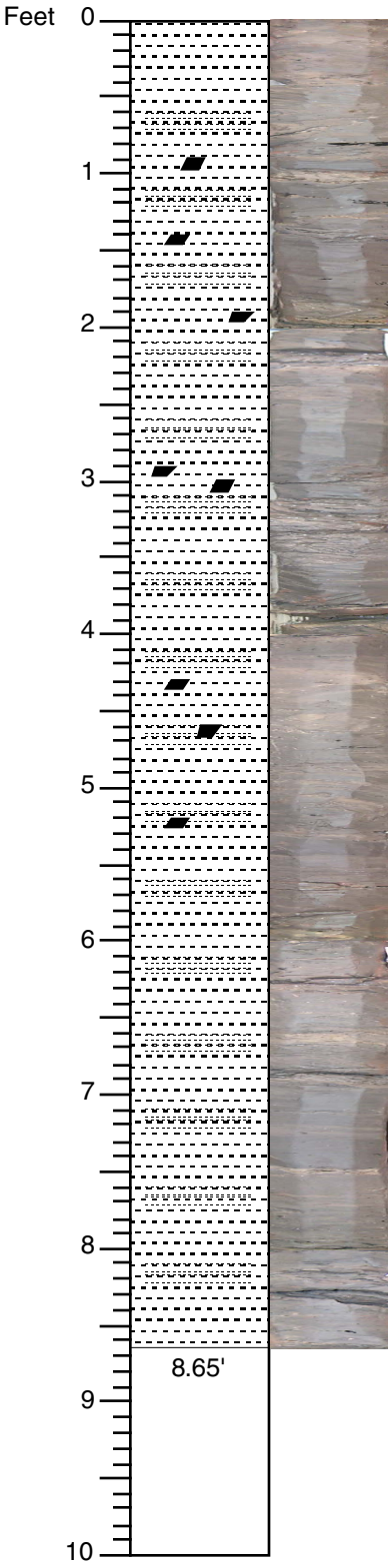
Start depth:	470 ft
Stop depth:	475 ft
Recovery:	5.3 ft
Date:	10/12/01
Described by:	JVB



CLAY; silty; very fine sand laminae at 0.3, 1.3, and 2.7 ft; faint lamination evident due to variable siltiness/sandiness; faint intermittent mottling may reflect root traces; brownish tint – probably recent organic content; dark gray (7.5YR 4/1), pale yellow (5Y 7/4), very dark gray (GLEY 1 3/N)

174AXS FM
Core #66

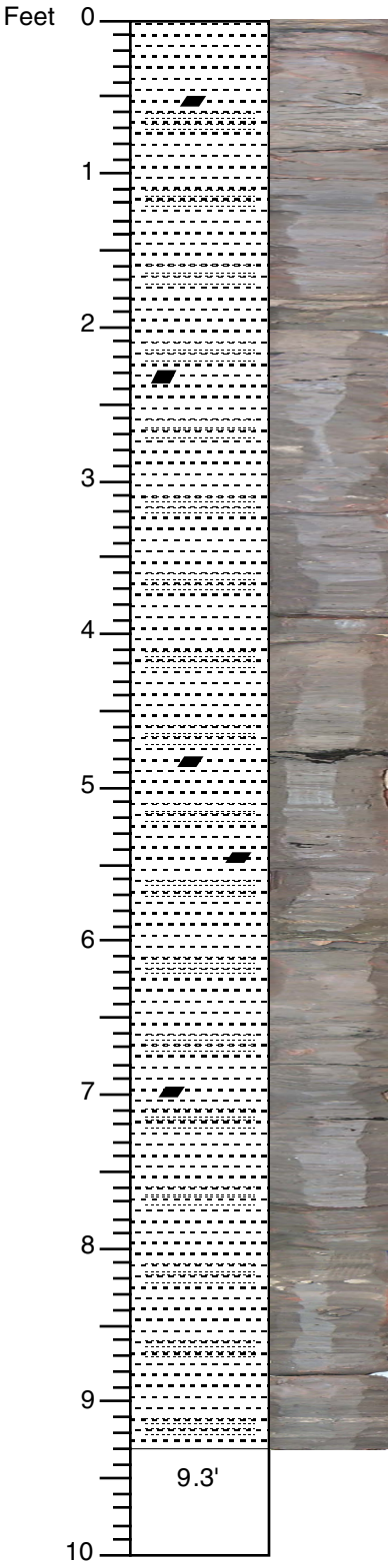
Start depth:	475 ft
Stop depth:	480 ft
Recovery:	5.4 ft
Date:	10/13/01
Described by:	JCH/AK



CLAY; silty with interlaminated very fine to fine silty SAND, containing scattered dark grains and mica flakes, moderate sorting, laminae 1-3 mm in 8-9 cm groups; scattered charcoal fragments and dispersed large and small fine plant debris; irregularly cemented silt zones at 1.0-1.1, and 7.5-7.6 ft; sandy zones at 0.7-0.8 (not laminated), 0.9-0.95, 1.45-1.5, 2.0-2.1, 2.2-2.35, 2.4-2.5, 3.0-3.1, 3.15-3.2, 3.25-3.6, 4.25-4.35, 4.6-4.7 (not laminated, irregular), 4.85-5.2 (interlaminated with clay), 5.3-5.45, 6.15-6.3, 6.6-6.7 (with clay laminations), 6.7-6.85 (soft, cleaner), 6.85-7.0, and 8.15-8.25 ft; most are thinly laminated, somewhat irregular, but several zones are very irregular in shape and not laminated (0.6-0.7, 4.6-4.7 ft) and may be root or burrow fills; clay is gray (2.5Y 5/1), and dark gray (2.5Y 4/1), banded sands are ~light grayish brown (2.5Y 6/2), cemented silts are light brownish gray (2.5Y 6/2) to light gray (2.5Y 7/2)

174AXS FM
Core #67

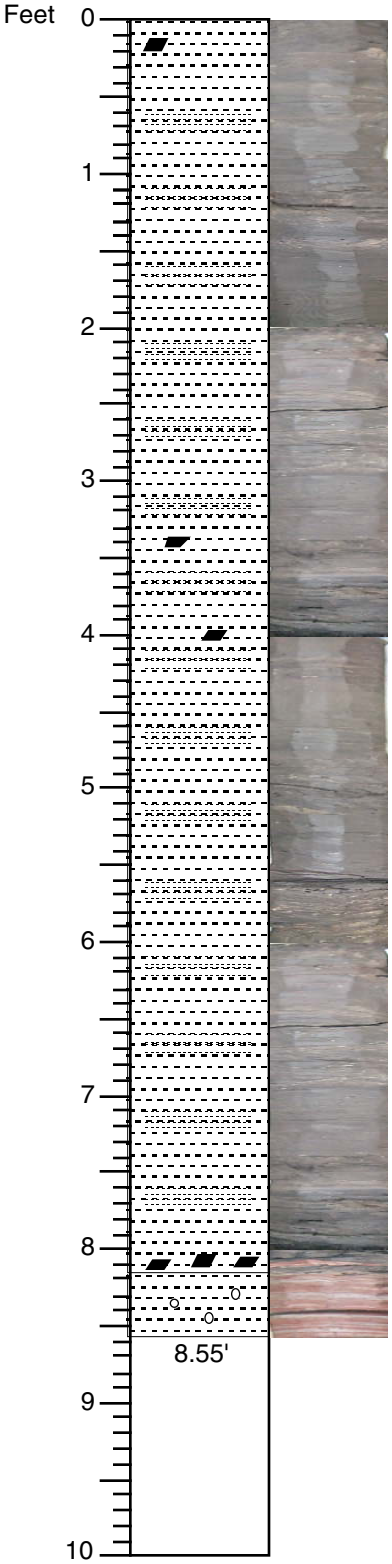
Start depth:	480 ft
Stop depth:	490 ft
Recovery:	8.65 ft
Date:	10/13/01
Described by:	PPMcL/JCH/AK



CLAY; silty, dark gray (2.5Y 4/1) and gray (2.5Y 5/1), with lesser interlaminated silty very fine (and some fine) SAND, gray (2.5Y 6/1); similar to core 67; charcoal/lignite at 0.5, 2.3, and 3.0 ft; round horizontal/subhorizontal structures, possible burrows at 2.75, and 8.15 ft, both are sand filled and ~1 cm in diameter, smaller possible burrows at 4.45 and 4.65 ft; sandy intervals generally composed of ~2 mm sand laminations in groups ~1-4 cm thick, occur at ~0.1, 0.5, 0.65-0.9, 1.3, 1.45, 1.65, 1.8-1.85, 2.0-2.15 (fining upward), 3.1-3.2, 3.4-3.5 (interlaminated with clay), 4.65-4.7, 5.15-5.35, 5.85-6.0, 6.7-6.9, 7.4, 7.5, 7.6, 7.9, 8.5-8.55, 9.1, and 9.2 ft; the very fine sand/silt at 0.1 ft is partly cemented, fine plant debris scattered through core

174AXS FM
Core #68

Start depth:	490 ft
Stop depth:	500 ft
Recovery:	9.3 ft
Date:	10/13/01
Described by:	PPMcL/JCH/AK

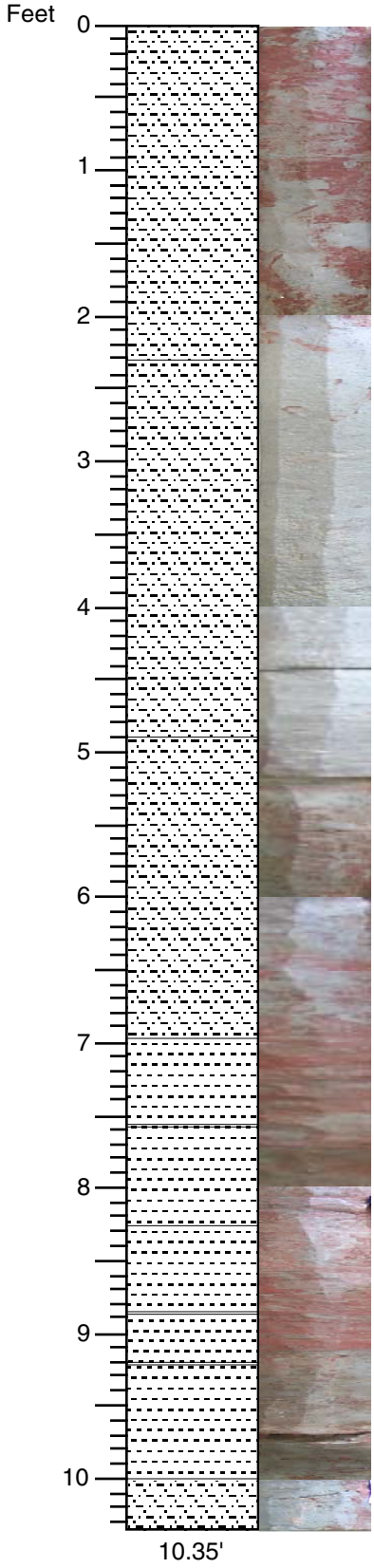


CLAY; silty with interlaminated thin silty (and occasionally clayey) SAND; common dispersed plant debris, charcoal fragments at ~0.2, 3.4, and 4.0 ft, and a bed of lignite/charcoal at 8.0 ft; round partly cemented silty concretions (?silt filled burrows) at 0.25, 1.45, 3.0 (small), and 5.15 ft, mostly ~1 cm diameter, subhorizontal; sandier zones at 0.5, 0.65, 0.9, 1.05-1.1, 1.2-1.3, 1.4-1.45, 1.25-1.35, 2.55-2.7 (clayey), 2.8-2.9 (clayey), 3.55-3.8 (fining upward), 4.35-4.65, 4.85-5.2 (clayey and lignitic), 5.6-6.25 (with abundant clay laminations), 6.7-7.5 (with abundant clay laminations), 7.65-8.15 (mixture of clay, silt, sand and organics); sand is micaceous, also dispersed in silty clays, clay is mostly gray (2.5Y 5/1-6/1), concretions are light brownish gray (2.5Y 6/2)

Abrupt contact
CLAY; silty, banded, greenish gray (GLEY 2 10BG 6/1) and red (2.5YR 5/6), with siderite nodules ~1 mm diameter

174AXS FM
Core #69

Start depth:	500 ft
Stop depth:	510 ft
Recovery:	8.55 ft
Date:	10/13/01
Described by:	PPMcL/JCH/AK



SILT; very clayey, mottled, light bluish gray (GLEY 2 5B 7/1), with red (10R 4/6) to dark red (10R 3/6), red mottled zones are vertical to subvertical (some possibly horizontal), 4 mm to 40 mm wide, with finer gray mottling in some of the red zones contains ~1 mm diameter sphaerosiderite nodules

SILT; clayey, siltier downward, some very fine mica, common ~1 mm sphaerosiderite, more common than above, increasing downward; overall homogenous

174AXS FM
Core #70

Start depth:	510 ft
Stop depth:	520 ft
Recovery:	10.35 ft
Date:	10/13/01
Described by:	PPMcL/JH/AK

Transitional contact

SILT; very clayey, less micaceous, sphaerosiderite only in transitional top, extensively (wormy) mottled, mottling includes dark olive gray (5Y 3/2), red (10R 4/6), dark red (10R 3/6), light bluish gray (GLEY 2 5B 7/1), olive (5Y 5/6); mottles 1-10 mm diameter; banded from 5.2-5.3 ft; bigger mottles above it

CLAY; slightly silty; banded (band sets up to 30 mm wide), with wormy mottling; colors more red, as above but includes light olive brown (2.5Y 5/6); transitional contact

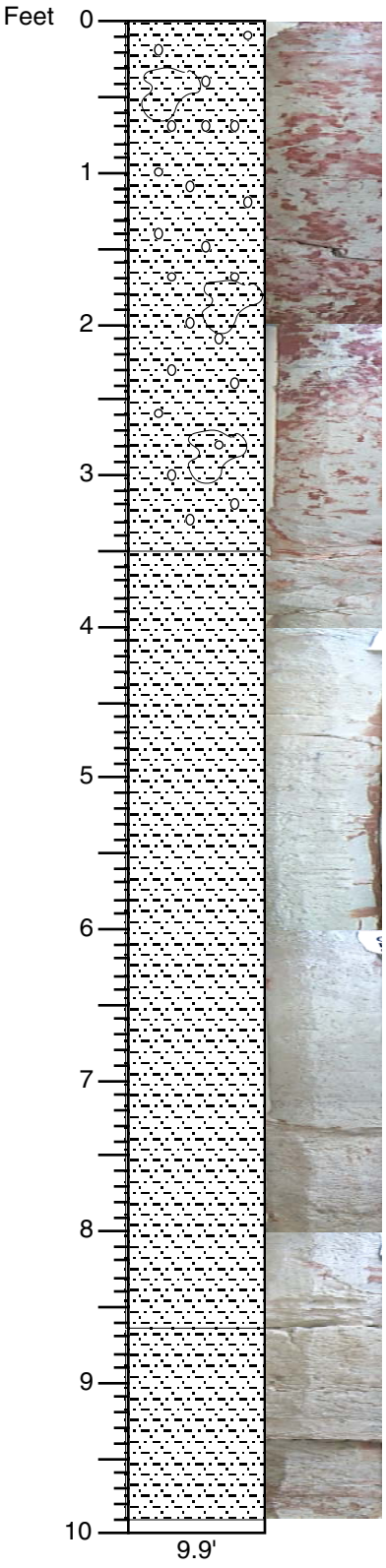
CLAY; slightly silty, as above but more mottled with lesser banding, more gray overall

CLAY; slightly silty, same as above, but even more extensively mottled, red mottling predominates with band on 8.65 ft

CLAY; slightly silty, banded, similar to 7.0-7.55 ft, slightly micaceous

CLAY; slightly silty, mottled, mostly dark grayish brown (2.5Y 4/2), with ~3 mm diameter discrete red (10R 4/6) mottles (roots) and other more blurred ones

SILT; clayey, gray (10YR 5/1) with small ~2 mm red mottle



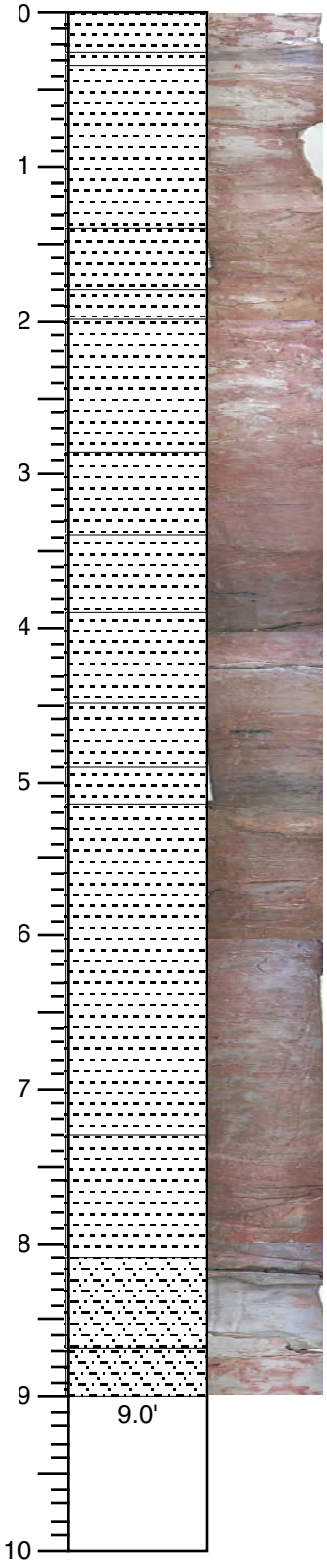
SILT; slightly clayey and slightly sandy; unlaminated/unbedded, mottled with red (2.5YR 4/6) to dark red (2.5YR 3/6) on light bluish gray (GLEY 2 5B 7/1), micaceous, abundant sphaerosiderite, some red mottles are 1-10 mm subcircular red areas with very thin light gray and red banded rims loot like root fills; other red mottles are mote diffuse, may be alteration, a few small dark dusky red blebs, scattered 3-4 mm olive-colored concretions (similar to sphaerosiderite nodules in color/texture), 1.5-2.5 ft is ~40% red; 0-1.5 ft is ~25% red 2.5-3.5 ft is ~≤10% red; at very bottom banded; just above it subvertical mottles

SILT; very slightly sandy and clayey at top; sand decreases and clay increases in a mottled pattern toward base; slightly micaceous; abundant ~1 mm sphaerosiderite nodules; unbedded/unlaminated, homogenous

174AXS FM
Core #71

Start depth:	520 ft
Stop depth:	530 ft
Recovery:	9.9 ft
Date:	10/13/01
Described by:	PPMcL/AK

SILT; clayey, lightly mottled at top to clearly mottled at base; mottling is more weak red (10R 5/4) in bottom half, more common olive yellow (5Y 5/6), contains common sphaerosiderite, slightly micaceous



CLAY; silty, light gray (10R 7/1), scattered mottles, sphaerosiderite nodules associated with mottles

CLAY; silty, reddish gray (10R 6/1) with some thin lighter and darker colored banding

CLAY; silty; light gray (10R 7/1) to red (10R 4/6) very mottled

CLAY; silty; red (10R 4/6) with light gray mottles and abundant sphaerosiderite nodules

CLAY; silty; light gray (10R 7/1) with few light gray mottles

CLAY; silty; red (10R 4/6) with some gray mottles and abundant sphaerosiderite

CLAY; silty; red, gray mottles much less common, no sphaerosiderite

CLAY; silty, mottled red and light gray , laminae of lignite from 3.55-3.9 ft

CLAY; silty, light gray with few red mottles, mottles less common down core

CLAY; silty, mottled red and light gray; laminae of lignite common

CLAY; silty, dark reddish gray (10R 4/1) grading down to dark olive gray

CLAY; silty, mottled, red to light to dark reddish gray some scattered sphaerosiderite nodules

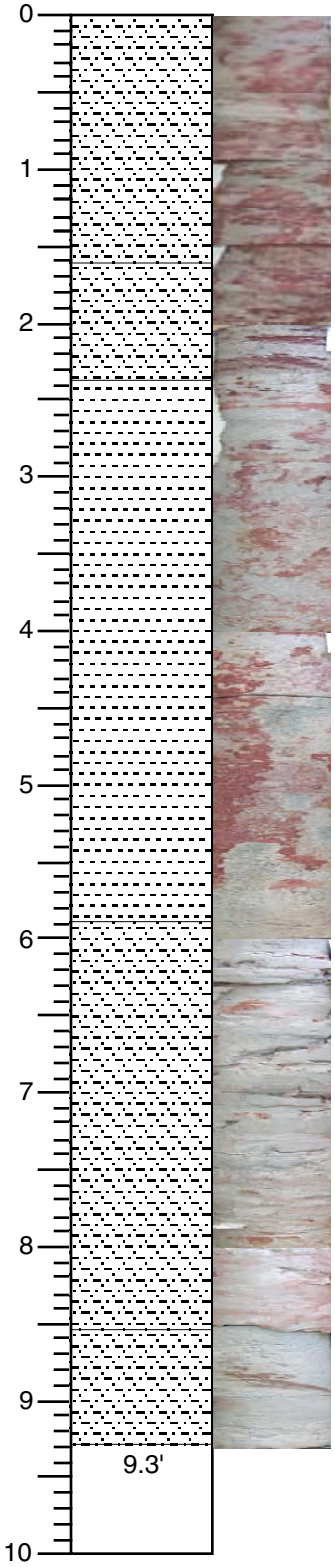
CLAY; silty, red (10R 4/6) grading down with light to dark gray mottles; from 7.3-7.35 ft faint silt laminae, by 7.9 ft gray with red mottles, some sphaerosiderite nodules

SILT; clayey, light gray (10R 7/1)

SILT; as above, with pale red (10R 6/4) mottles

174AXS FM
Core #72

Start depth:	530 ft
Stop depth:	540 ft
Recovery:	9.0 ft
Date:	10/15/01
Described by:	KWR



SILT, clayey to silty CLAY; light gray (10R 7/1) with pale red (10R 6/4) mottles

SILT, clayey to silty CLAY; as above, with dusky red (10R 3/3) plinthic zones and abundant sphaerosiderite nodules

CLAY; silty, light gray (10R 7/1), with scattered pale red mottles, abundant to common sphaerosiderite nodules, from 5.65-5.9 ft no red mottles but with sphaerosiderite

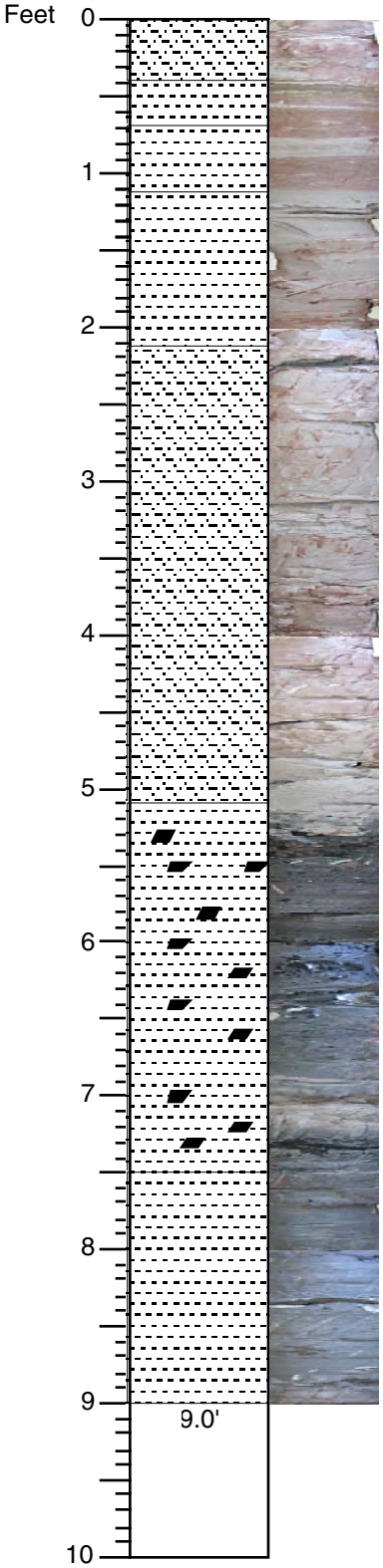
Moderately sharp contact

SILT; slightly clayey, very slightly sandy, very fine, light gray; 7.1-7.5 ft silty clay laminations, few to common sphaerosiderite nodules below 7.5 ft

SILT; clayey, slightly sandy; light gray, few dusky red mottles, few sphaerosiderite nodules

174AXS FM
Core #73

Start depth:	540 ft
Stop depth:	550 ft
Recovery:	9.3 ft
Date:	10/15/01
Described by:	KWR



SILT; clayey, light gray (10R 7/1), with pale red (10R 6/4) mottles

CLAY; silty, nearly horizontal color banding, light gray, pale red and olive brown

CLAY; as above, light gray grading down to pale red, less obvious banding

CLAY; as above, with few pale red mottles

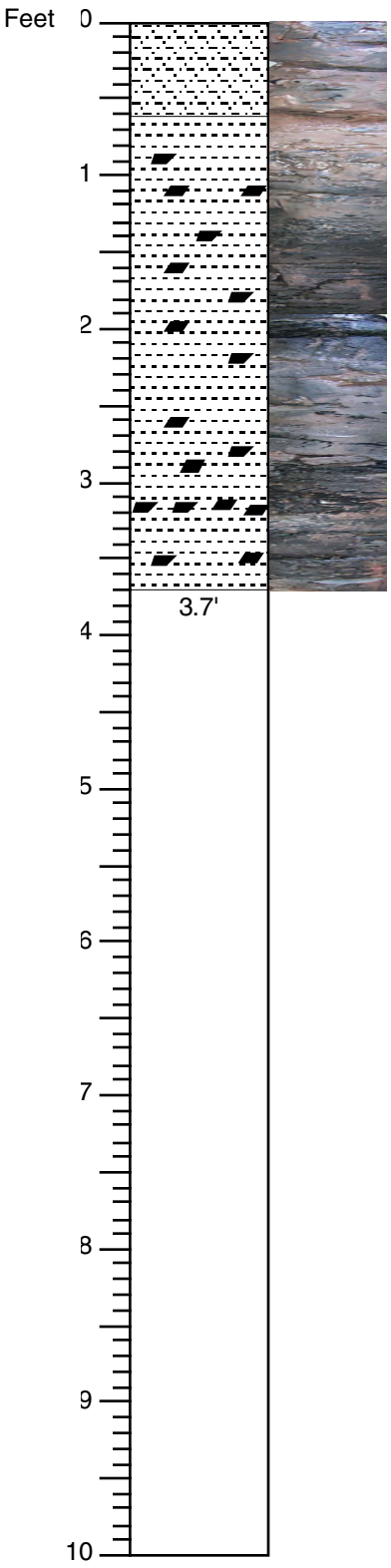
SILT; moderately clayey, slightly to moderately very fine sandy, light gray; scattered pale red mottles, by 3.1 ft few scattered very fine, silty sand laminae; sand lamination at 4.8-4.9 ft

Sharp contact
CLAY; silty, dark gray (2.5Y 4/1), with scattered chunks and laminae of lignite (5.85-7.1 ft; few silt laminae

CLAY; silty more silt than above, slightly to moderately very fine sandy; dark gray (2.5Y 4/1)

Core #74

Start depth:	550 ft
Stop depth:	560 ft
Recovery:	9.0 ft
Date:	10/15/01
Described by:	KWR

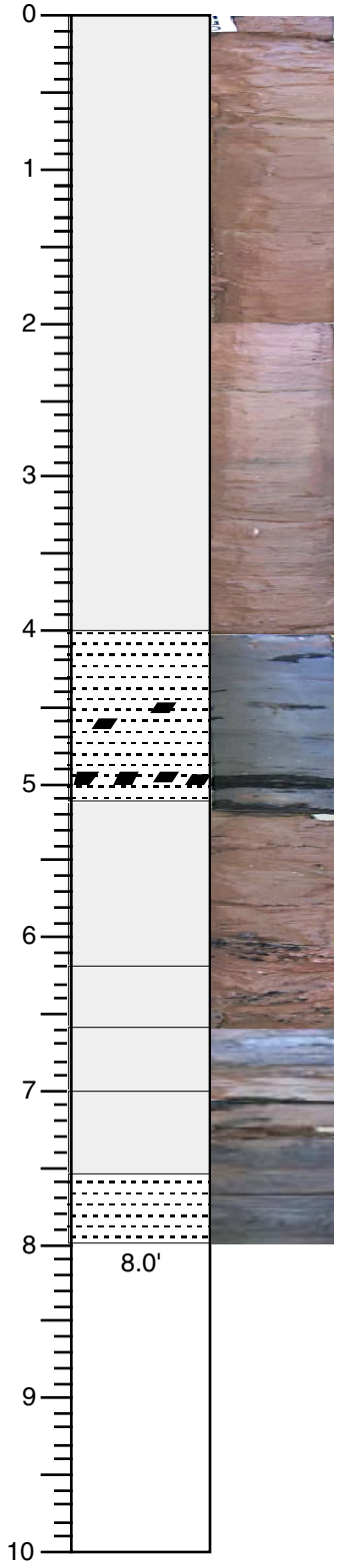


SILT; clayey to clay SILT; dark gray; scattered pieces of lignite, may be contamination

SAND; very fine to fine; lignite laminations; lignite bed from 3.05-3.15; dark gray (2.5Y 4/1), to black

174AXS FM
Core #75

Start depth:	560 ft
Stop depth:	570 ft
Recovery:	3.7 ft
Date:	10/15/01
Described by:	KWR



SAND; very fine to fine, coarsens down to fine, some medium; slightly silty; pale red (10R 6/2); finely laminated, horizontal laminations, some mica, some ohm's

Very sharp contact
CLAY; silty, gray (GLEY 1 5/1), scattered chunks of lignite, lignite bed at 4.9-5.0 ft, hard

Very sharp contact
SAND; fine to very fine, some medium, pale red (10R 6/2), scattered pieces of lignite

SAND; very fine to fine, silty, few silty clay laminae; gray

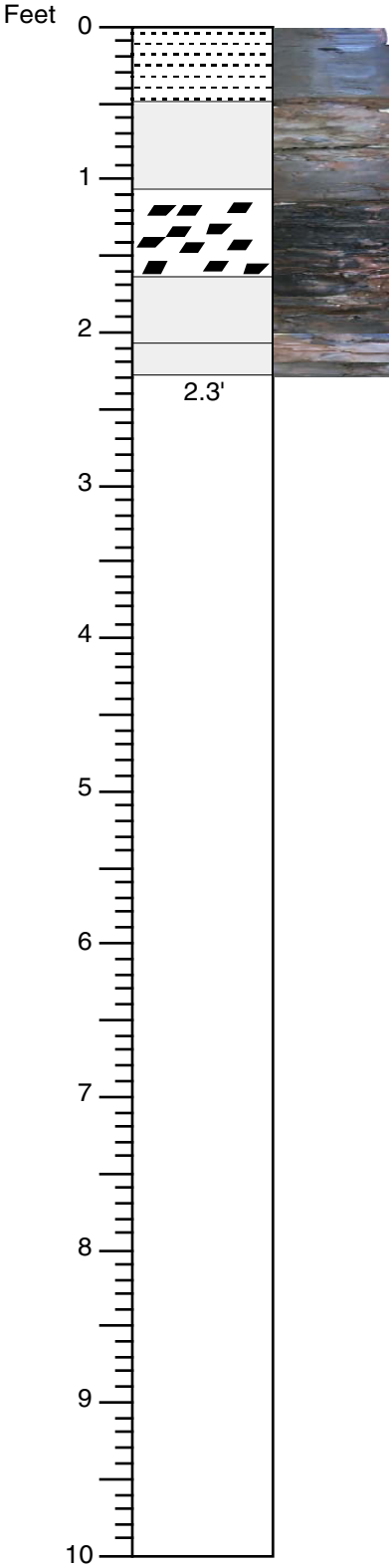
SAND; very fine to fine; pale red, silty , scattered pieces of lignite

SAND; silty, very fine, moderately clayey, a few coarse grains; gray (GLEY 15/)

CLAY; silty, very fine sandy; hard, gray

174AXS FM
Core #76

Start depth:	570 ft
Stop depth:	580 ft
Recovery:	8.0 ft
Date:	10/15/01
Described by:	KWR



CLAY; silty, gray (GLEY 1 5/1), a few pieces of lignite; hard

SAND; very fine, silty, very slightly clayey; a few lignite grains

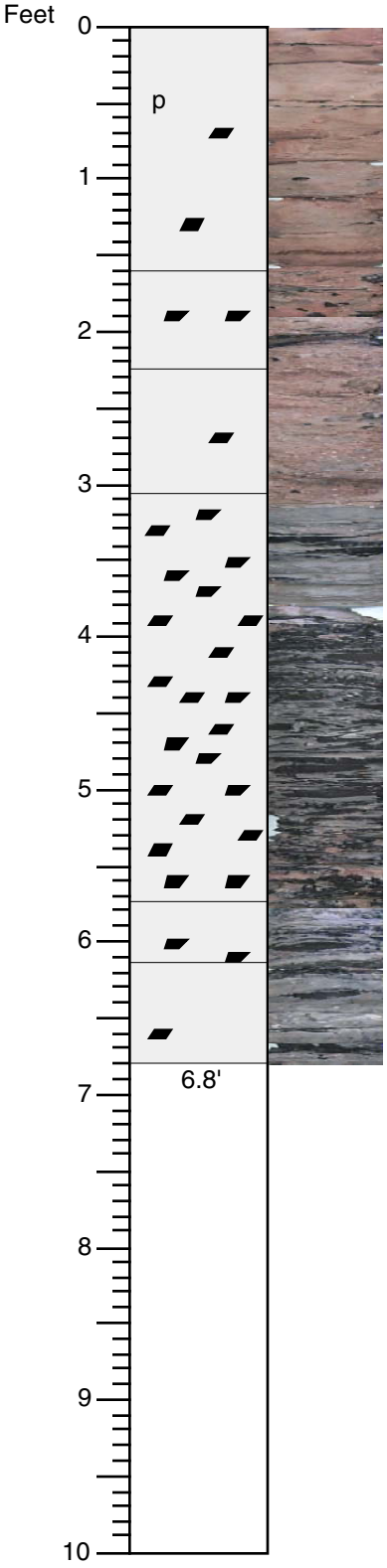
LIGNITE; with thin laminae of silty clay; black

SAND; very fine, silty, slightly clayey, gray-black

SAND; very fine, slightly silty, pale red (10R 6/2)

174AXS FM
Core #77

Start depth:	580 ft
Stop depth:	590 ft
Recovery:	2.3 ft
Date:	10/15/01
Described by:	KWR



SAND; medium, subrounded, good sorting, grayish brown (10YR 5/2) but mud has been intruded and color is difficult to determine; few large grains, few thin beds, few mica, rare ohm, rare pyrite (1.65 ft)

SAND; very coarse, subangular, fair sorting, grayish brown (10YR 5/2) but intruded with mud, abundant lignite as large as 40 mm

SAND; very coarse, gravelly with granules to 2.5 mm; abundant disseminated lignite; few gray clay clasts at base; grayish brown (10YR 5/2) but invaded with mud

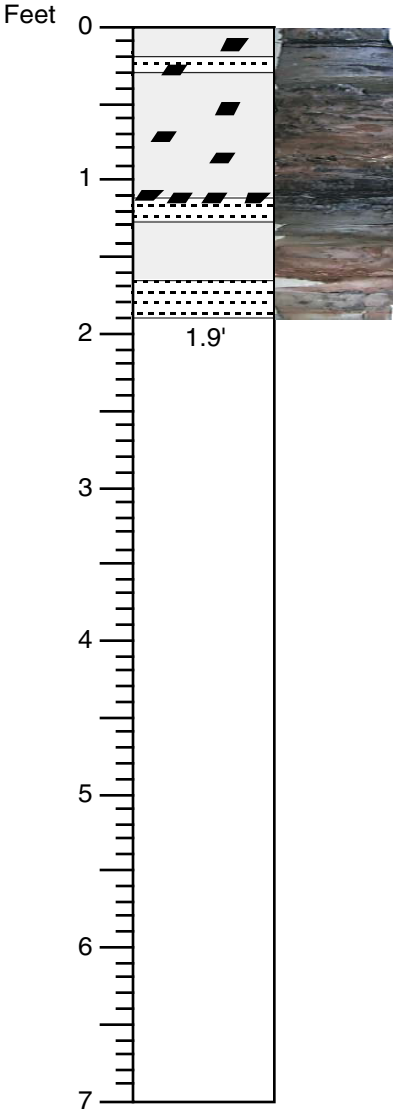
SAND; very fine, slightly silty, subangular, fair sorting, rare mica, abundant ignite with areas up to 50-70% lignite, lignite is interlaminated with sand (1-10 mm laminae), laminae are horizontal to 20-30˚; gray (10YR 5/1)

SAND; very fine, very silty, subangular, fair sorting, abundant lignite as laminae and disseminated, gray (10YR 5/1)

SAND; very fine, very silty and clayey, subangular, poor sorting, abundant lignite as laminae and disseminated, some wavy laminae in the sand, gray (10YR 5/1)

174AXS FM
Core #78

Start depth:	590 ft
Stop depth:	598 ft
Recovery:	6.8 ft
Date:	10/16/01
Described by:	TMcK



SAND; very fine, clayey, silty; subangular, fair sorting; abundant lignite in cross-beds, common mica; gray (10YR 5/1)

CLAY; silty, very fine sandy, common mica, abundant lignite

SAND; medium to fine; subrounded fair sorting; abundant disseminated lignite; 0.9-1.15 ft is mostly bedded lignite; dark grayish brown (10YR 4/2) but intruded with mud

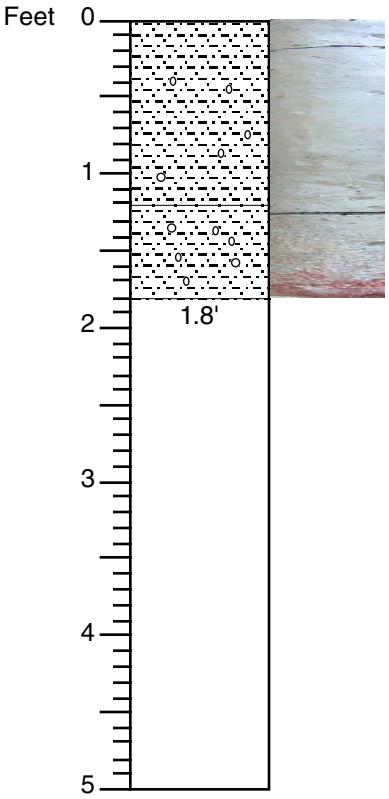
CLAY; common disseminated lignite; dark gray (10YR 4/1)

SAND; medium to fine; subrounded, fair sorting; grayish brown (10YR 5/2) but invaded with mud

CLAY; dense, silty, rare red mottling at base; light gray (10YR 7/1)

174AXS FM
Core #79

Start depth:	598 ft
Stop depth:	605 ft
Recovery:	1.9 ft
Date:	10/16/01
Described by:	TMcK



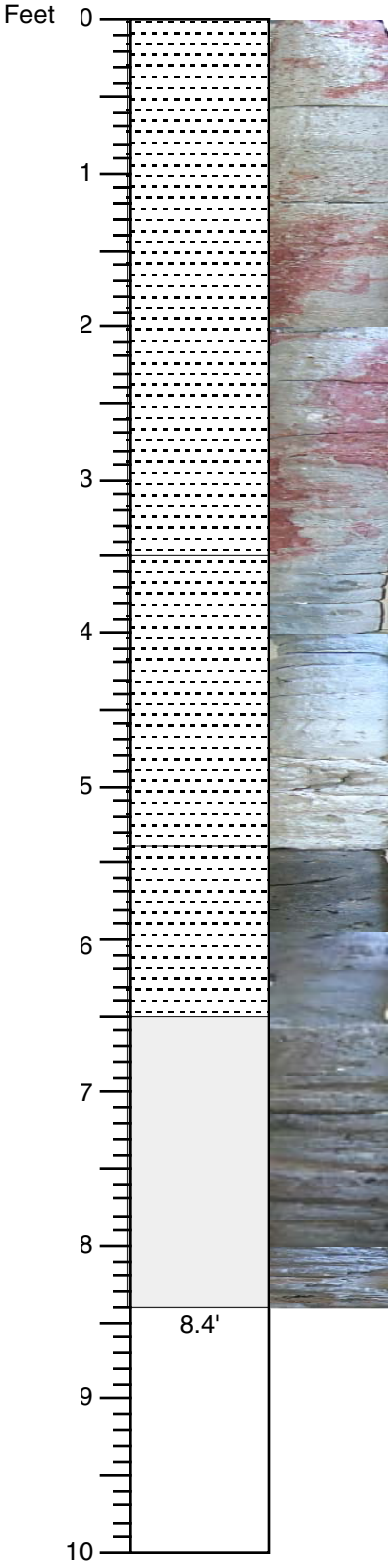
SILT; sandy; gray (10YR 6/1), abundant mica; abundant coarse sand sized nodules, reddish brown (2.5YR 5/4); nodules do not fizz under hand lens when crushed, (siderite?)

SILT; sandy, clayey, gray (10YR 6/1); abundant mica; very abundant nodules as above; red mottling, reddish brown (2.5YR 4/4) in bottom 0.2 ft

I took nodules crushed and reacted it with HCl under binocular scope, some very minor fizz.; easily crushed; outer surface has many small convex "half bubbles" but overall shape is still spheroid, inner color is light yellow green

174AXS FM
Core #80

Start depth:	605 ft
Stop depth:	610 ft
Recovery:	1.8 ft
Date:	10/16/01
Described by:	TMcK



CLAY; light gray (10YR 7/1) with dark reddish brown (2.5YR 2.5/4) mottles, irregular mottling; abundant mica, abundant very coarse sand-sized sphaerosiderite nodules, light brownish gray (10YR 6/2)

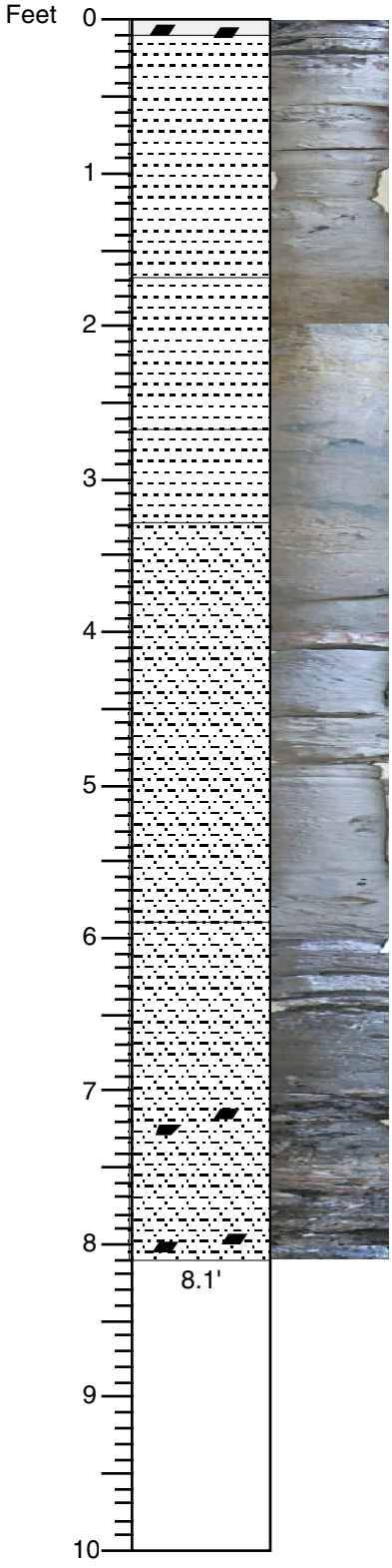
CLAY; silty, gray (10YR 6/1); abundant mica; abundant sphaerosiderite nodules, not mottled

CLAY; silty, dark gray (10YR 4/1); abundant mica, common disseminated lignite

SAND; very fine; silty, clayey; poorly sorted, subangular; dark gray (10YR 4/1); with interbeds (10-30 mm) of SAND; fine to medium, subrounded, fair sorting; gray (10YR 5/1); few lignite, large lignite twig at base still has dark brown color in interior

174AXS FM
Core #81

Start depth:	610 ft
Stop depth:	620 ft
Recovery:	8.4 ft
Date:	10/16/01
Described by:	TMcK



SAND; very fine; silty, clayey; poor sorting, subangular, abundant lignite, dark gray (10YR 4/1)

CLAY; stiff; gray (5YR 5/1)

CLAY; brown (10YR 5/3); with light olive brown (2.5Y 5/3) mottles and rootlet-like structures, minor wavy sand laminae washouts

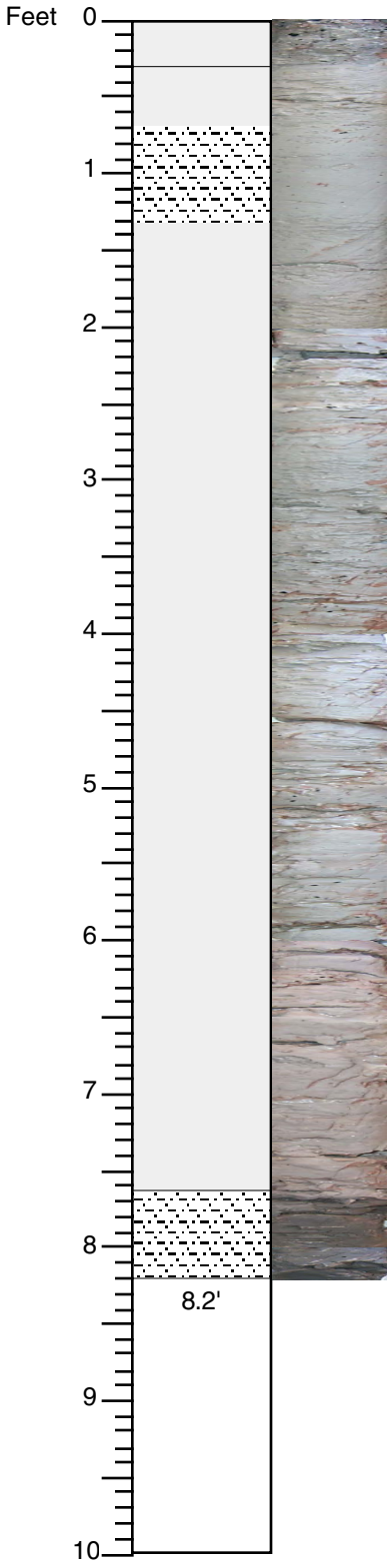
CLAY; brown (10YR 5/3); with dark gray (2.5Y 4/1) mottles; minor wavy sand laminae washouts

SILT; clayey, very fine sandy, common mica, few interbeds of very fine to fine sand; gray (10YR 5/1)

SILT; with interbedded CLAY; silty and SAND; very fine to fine and SAND; gravelly, up to 10 mm pebbles, common lignite at 7-8.1 ft, common mica, pebbles are quartz, subrounded, beds are 10-100 mm thick

174AXS FM
Core #82

Start depth:	620 ft
Stop depth:	630 ft
Recovery:	8.1 ft
Date:	10/16/01
Described by:	TMcK



SAND; slightly silty; gray (GLEY 1 6/N)

Irregular contact – contains white blebs (8 mm) possibly ripped up from below; hints of laminations at base

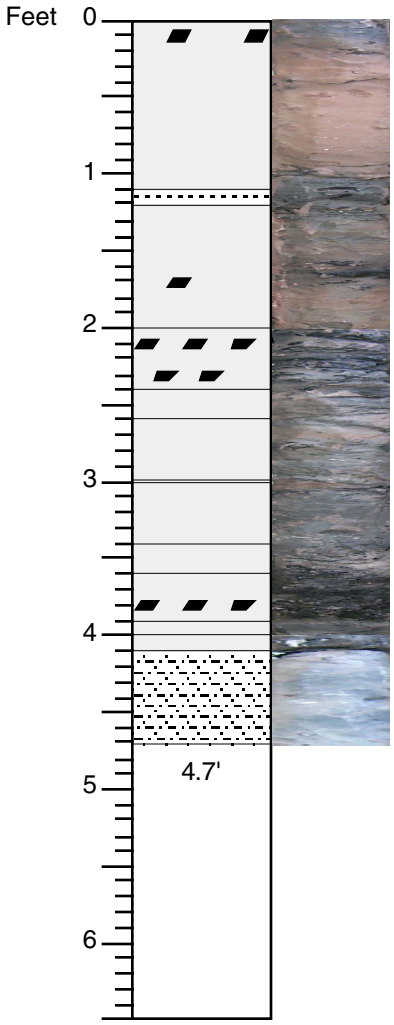
SAND; silty, very fine, alternating with clayey silt, slightly micaceous, hints of cross-laminations, 1-2% ohm; charcoal on outside with contamination, light gray (GLEY 1 7/N)

Sharp irregular contact

SAND; very fine, clayey, ?organics, slightly micaceous, clay drape, dark gray (GLEY 1 4/N)

174AXS FM
Core #83

Start depth:	630 ft
Stop depth:	640 ft
Recovery:	8.2 ft
Date:	10/17/01
Described by:	JVB/DHM



SAND; fine, some very fine and medium, moderately well sorted, clean, subangular, micaceous, ohm, very slightly silty, top 0.23 ft is siltier with abundant fine plant debris; light brown (7.5YR 6/3) possibly intruded by drilling mud, upper part is gray (2.5Y 5/1)

CLAY; very silty; micaceous, abundant plant debris and woody (charcoal?) fragments up to 30 mm long including a small twig; dark gray (GLEY 1 4/N)

SAND; medium to fine, fairly clean, slightly silty; moderately well sorted, subangular; micaceous, ohm, gray (10YR 5/1) and light brown (7.5YR 6/3) with black plant debris; fines upward

SAND, as above, but with much more abundant charcoal/plant fragments, probably 30-40% of the volume, at least 30 mm for the longest fragments, ~2.1 ft with inclined lamination/bedding

SAND; very fine to fine; very silty; and clayey; similar to 3.0-3.45 ft

SAND; medium to fine, similar to 1.2-2.0 ft, fines upward, dispersed fine plant/charcoal fragments, a few fragments up to 5-10 mm, mica

SAND; very fine to fine; very clayey and silty; very dark gray (GLEY 1 3/N), subangular-subrounded, darks (organics or ohms), slightly micaceous

SAND; medium, some fine; fairly clean, slightly silty, mostly quartz, some mica, abundant small charcoal/plant debris, gray (2.5Y 5/1)

SAND; medium, some fine; very rich in fine organic debris at top to charcoal/wood fragments near base, not much clay/silt; black (GLEY 1 2.5/N)

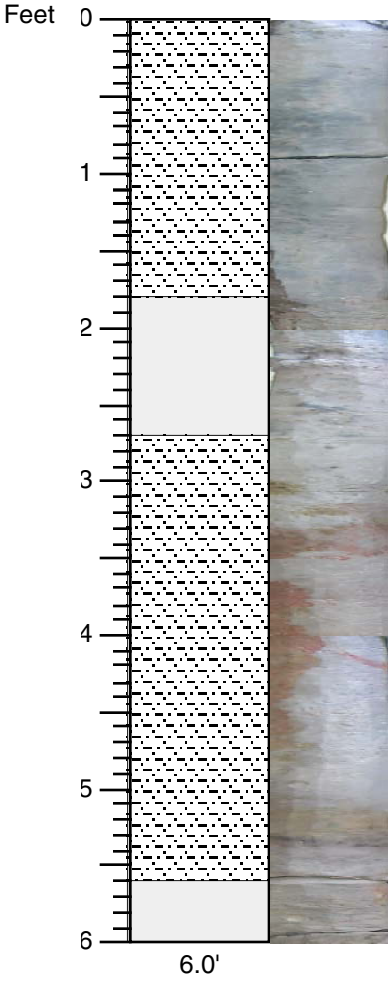
SAND; medium; very clayey and silty; in upper 3/4 with lower 1/4 CLAY, slightly silty, micaceous

SAND; medium, some fine; moderately well sorted, subangular, common plant debris including charcoal/wood; gray (2.5Y 5/1)

SILT; clayey, including very fine dark grains and mica, irregularly mottled with several dark discrete bordered areas (halos?, weathered crystals?), hard; gray (GLEY 5/N), mottling slightly darker and lighter, paleosol?

174AXS FM
Core #84

Start depth:	640 ft
Stop depth:	646.5 ft
Recovery:	4.7 ft
Date:	10/17/01
Described by:	PPMcL/JVB/DHM



SILT; hard, clayey, including very fine dark grains and mica, gray (GLEY 2 5/N) and irregular lighter and darker mottles

SAND; poorly sorted, mostly fine to medium but with very fine to coarse; very silty, subangular, some granules, mica and ohms, gray (GLEY 1 6/N); some darker gray clayey blebs

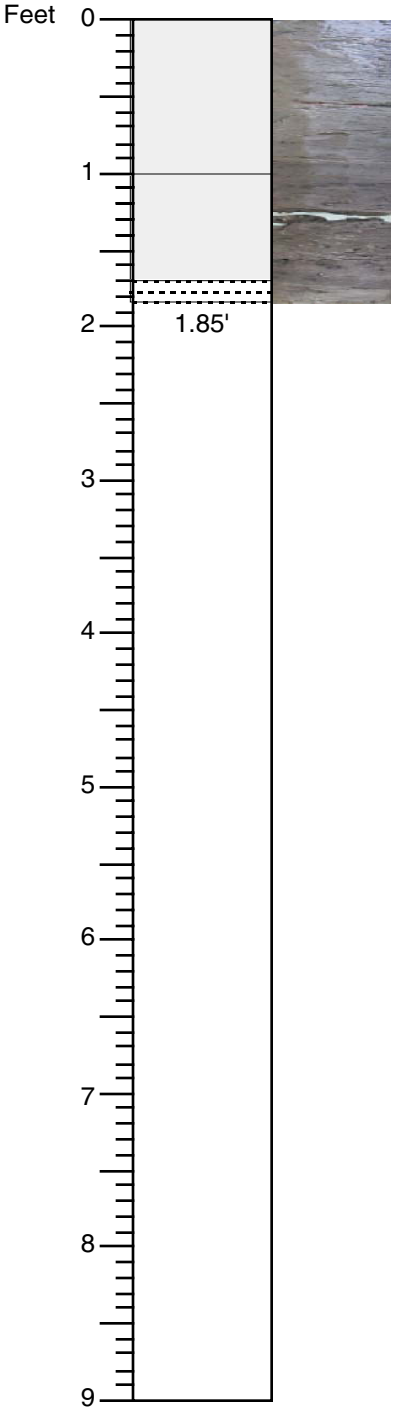
SILT; hard, clayey, including very fine dark grains and mica, mottled, gray (GLEY 1 5/N), with red olive brown mottled zones that in places are 1/2 of the core width (~30 mm) and vertical-subvertical; sphaerosiderite nodules scattered throughout, ~0.75-1.5 mm diameter; in upper 0.2 ft the nodules have hollow cores and radial whitish rims (weathered?), and no mottling; nodules most common in ~0.3 ft below that; no nodules in bottom 0.4 ft, which is more extensively olive and with some darker gray-purple (possibly organic?); the red is reddish brown (2.5YR 4/4), olive is (5Y 5/4), purple is dark reddish gray (2.5YR R/1)

SAND; very fine to fine, ohms, mica, silty, gray (GLEY 1 6/N)

Note: Some of this core represents core from the previous run

174AXS FM
Core #85

Start depth:	646.5 ft
Stop depth:	651 ft
Recovery:	6.0 ft
Date:	10/17/01
Described by:	PPMcL/JVB/DHM



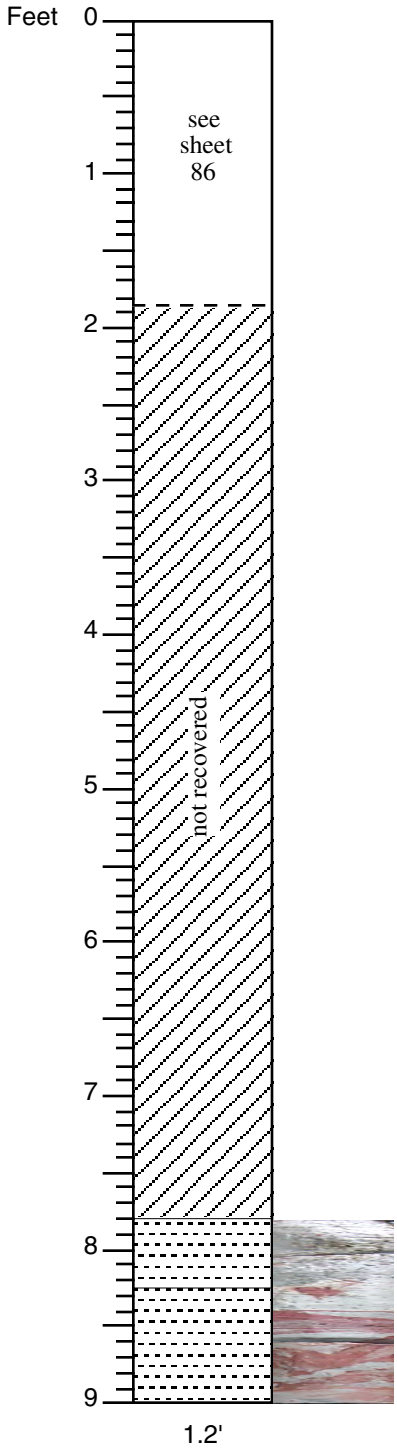
SAND; very fine, some fine; silty, clayey laminations(?) common, micaceous; at top gray (GLEY 1 5/N); clayier in lower part

SAND; very fine; silty, micaceous, with common plant material/small charcoal fragments, very dark gray (10YR 3/1)

Irregular contact
CLAY; silty, slightly mottled in gray tomes, average light greenish gray (GLEY 1 10Y 7/1); a few ~1 mm sphaerosiderite nodules

Note: ~7 ft of core left in the hole, based on rind in core barrel probably red, hard, paleosol

174AXS FM
Core #86
Start depth: 651 ft
Stop depth: 660 ft
Recovery: 1.85 ft
Date: 10/17/01
Described by: PPMcL/JVB/DHM



Note: This is the bottom part of core 86. It is likely the upper part of this core was destroyed and the recovered portion represents the bottom of the core

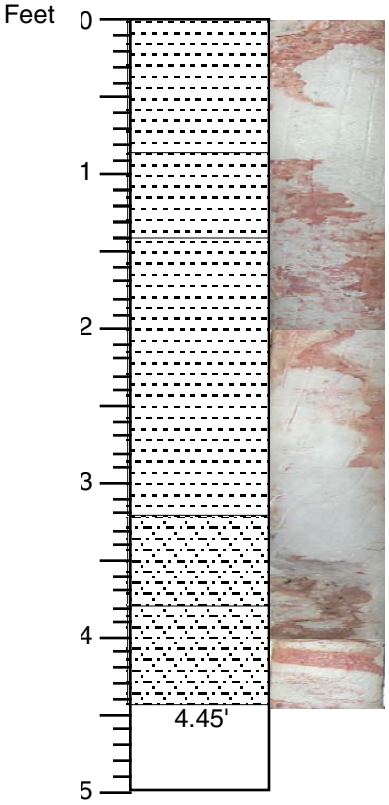
174AXS FM
Core #86A

Start depth:	651 ft
Stop depth:	660 ft
Recovery:	1.2 ft
Date:	10/17/01
Described by:	PPMcL/JVB/DHM

658.8

CLAY; silty, gray (GLEY 1 6/N) with abundant sphaerosiderite nodules to ~2 mm and a few small deep red balls, slightly micaceous, a few darks

CLAY, slightly silty, mottled dark red (10R 3/6), and gray (GLEY 1 6/N), with banding ~0.65-0.8 ft; a few small sphaerosiderite nodules, slightly micaceous; "veiny" texture/pattern to some of the red, like it is crack fill



CLAY; silty, trace of fine to medium sand, gray (5Y 7/1), with mottles (10R 5/6) and (5YR 7/6); mottles show net-like texture, mottles appear to be burrowed downward (roots?), thin downward, sharp break at bottom, slightly sandier at base

CLAY; trace silt and fine sand, gray (5Y 7/1), with mottles (10R 4/6), (2.5YR 6/6); mottles are blocky (5-10 mm) to branching and thinning downward

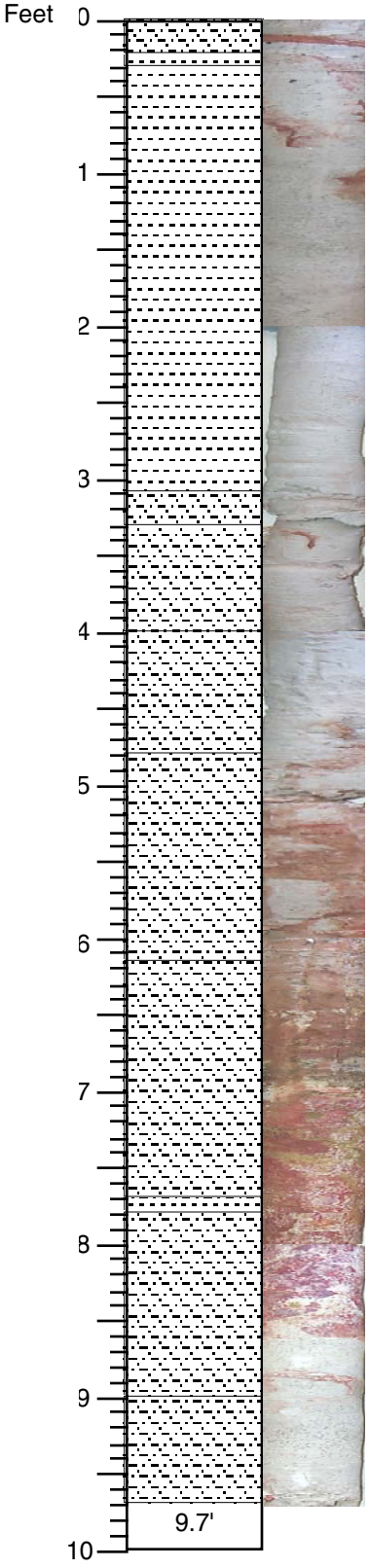
CLAY; silty, light gray (5G 7/1), with mottles (10R 4/6), (5YR 6/6); mottles thin downward (roots?), and have net-like internal texture; scattered fine concretions

SILT; fine to medium sand, clayey; with blebs (0.1-0.25 ft), silt and clay; light gray (5G 7/1), mottles (10R 4/6), 5YR 6/6), many fine to medium sphaerosiderite nodules; core partially missing

CLAY, silty, trace of fine sand; light gray (7.5YR 8/1) and (5YR 7/1), mottles (10R 5/8) and (2.5YR 6/8); most intense at top and thin downward; internal net-like texture scattered fine to medium sphaerosiderite nodules, (10R 5/8), in lower half

174AXS FM
Core #87

Start depth:	660 ft
Stop depth:	665 ft
Recovery:	4.45 ft
Date:	10/18/01
Described by:	ASA



SILT and CLAY; trace of fine to medium, subangular sand; light gray (5G 7/1), scattered lignite

Laminae of CLAY and SILT (10R 5/8) and 10YR 7/1)

CLAY; silty, trace of fine to medium sand; light gray (5G 7/1), with burrow mottle (10R 6/6) at top, scattered fine to medium lignite, and fine concretions

174AXS FM
Core #88
Start depth: 665 ft
Stop depth: 675 ft
Recovery: 9.7 ft
Date: 10/18/01
Described by: ASA

SILT; clayey, tract of fine sand, softer (10YR 7/1)

SILT; slightly fine sandy; (10YR 7/1); burrow mottle at 3.3 ft, (10R 5/8); other laminae and mottles (10R 6/4); irregular basal contact

SILT; slightly fine to medium sandy, trace clay; light gray (10YR 8/1); burrow mottles (10R 6/8), with internal net texture and scattered microsphaerosiderite

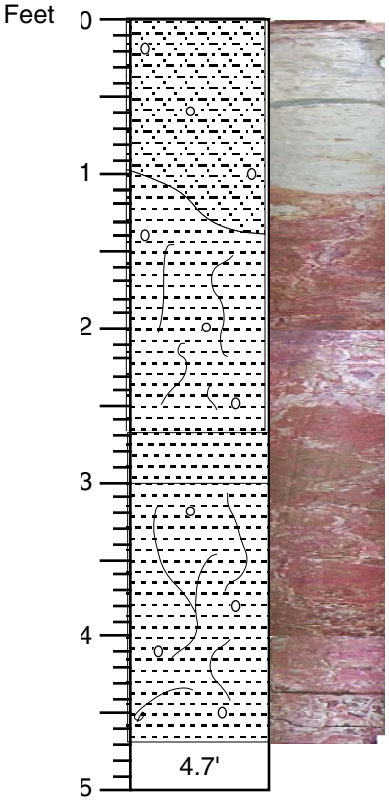
SILT; slightly fine sandy; burrow mottles (10YR 7/1), (10R 5/8), (10YR 6/8), scattered microsphaerosiderite

SILT; clayey, few laminae with silt and clay and; SILT; fine sandy; laminated and mottled; (5G 7/1), (5YR 7/6), (10G 3/1), many microsphaerosiderite concretions, scattered lignite and mica

Sharp basal contact
CLAY; silty, (10R 3/3)

SILT; clayey, fine to medium sandy, intensely mottled, fractured or burrowed; (10R 5/4), (2.5Y 5/4), (2.5Y 7/1); fracturing decreases downward, many microsphaerosiderite concretions; net textures; fractures filled with (2.5Y 5/4)

SILT; trace of fine sand and clay; light gray (10YR 7/1), ((5G 7/1); few horizontal burrow mottles, internal net texture (10R 5/6), scattered microsphaerosiderite concretions



SILT; slightly clayey, trace fine sand, light gray (10YR 7/1); slightly micaceous, scattered microsphaerosiderite concretions (10R 7/4), scattered lamellae of clay (5YR 8/1)

Sharp color break

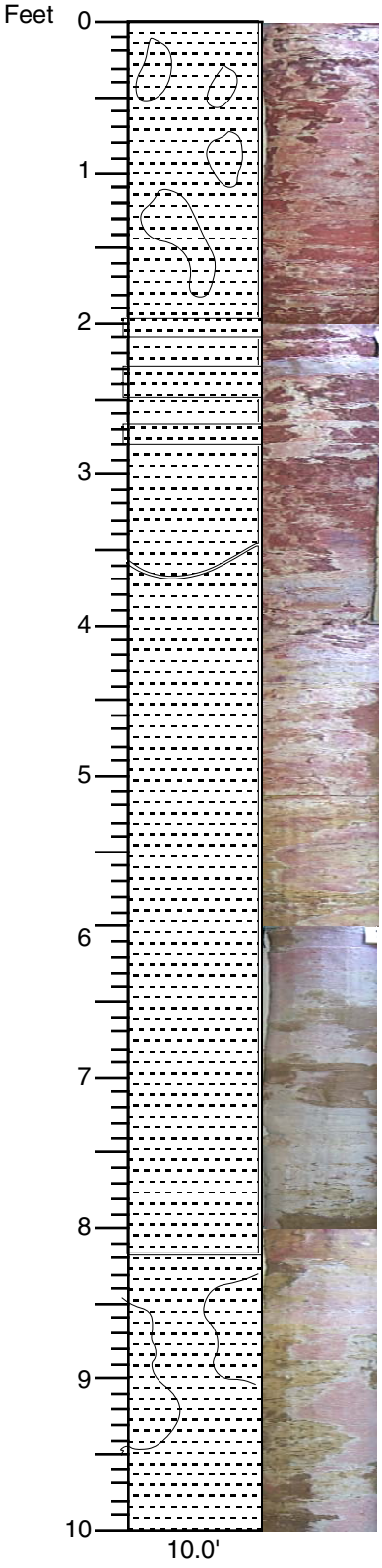
CLAY; slightly silty; intensely burrowed, fractured and mottled, (10R 5/6), 10YR 3/4), (10R 7/2); fractures filled with (7.5YR 5/6), scattered microsphaerosiderite concretions

CLAY; red (10R 4/6); mottles strong brown (7.5YR 5/6)

CLAY; trace silt; red (10R 4/6), with burrow mottles (10R 8/1); concretions red brown (5YR 5/4), dark red (10R 3/6), olive brown (2.5Y 5/6)

174AXS FM
Core #89

Start depth:	675 ft
Stop depth:	680 ft
Recovery:	4.7 ft
Date:	10/18/01
Described by:	ASA



CLAY; trace silty; intensely burrow mottled; dark red (10R 3/6), white 10R 8/1); some of the red material is partially cemented

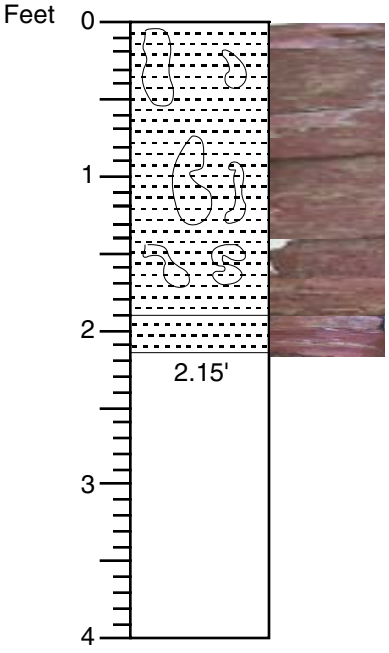
Bleached zones; red gray (10R 6/1) to pink (10R 8/3) edges diffuse change outward b zone has central lamina that looks to be a healed fracture

CLAY; trace of silt; intensely mottled, pale red (10R 6/3); pink (10R 8/3); few mottles are pale yellow (5Y 7/4); more pale yellow mottles with depth; becoming olive gray (4/2) with depth; net-like textures, ?rootlets

174AXS FM
Core #90

Start depth:	680 ft
Stop depth:	690 ft
Recovery:	10.0 ft
Date:	10/18/01
Described by:	ASA

CLAY; trace of silt; mottled light gray (10YR 7/1); pale olive (5Y 6/3); pale red (10R 7/3); few laminae of clayey silt; very few concretions; mottles larger than above

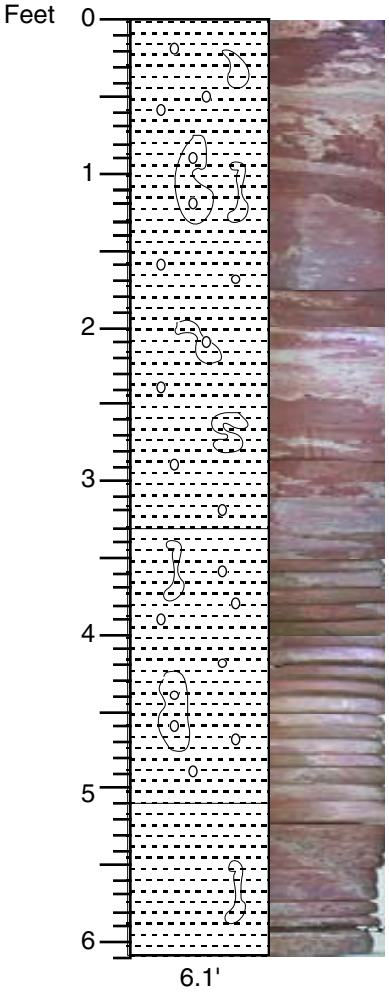


CLAY; variegated, with mottles of dark yellowish brown (10YR 4/4) and weak red (10R 4/4) and light olive brown (2.5Y 5/4); paleosol(?) and possible root traces 0.35-0.4, 0.63-0.75, 1.12-1.23 ft; micaceous, small amount of very fine to fine quartz scattered throughout; root trace color is gray (5YR 6/1)

CLAY; 1.9 ft: alternating banding of paleosol layers and clay layers; 1.95-2.05 ft: weak red band of clay followed by narrow band of paleosol, then back into clay again at 2.06 ft, bands of clay appear to have soft sediment deformation around ironstone nodules; at base of last clay layer (2.15 ft) are ironstone nodules embedded in the clay, bands of clay appear to have soft sediment deformation around ironstone nodules; nodule color is weak red (10R 4.4)

174AXS FM
Core #91

Start depth:	690 ft
Stop depth:	694 ft
Recovery:	2.15 ft
Date:	10/20/01
Described by:	SJB/JU



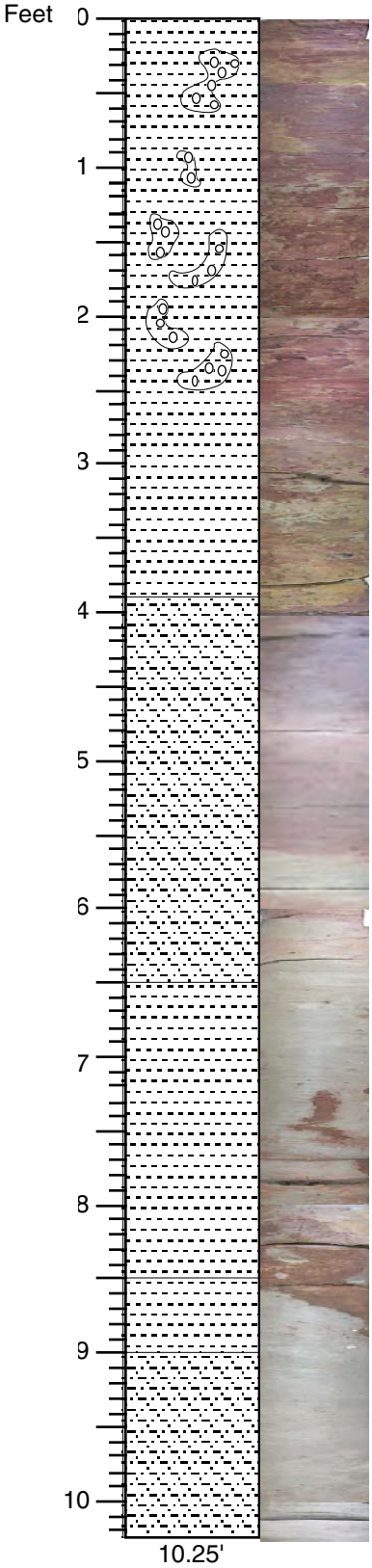
CLAY; variegated, primarily dusky red (10R 3/3), weak red (10R 5/2), yellowish brown (10YR 5/4); nodules appear in red sections, white halos around possible root traces

CLAY; siltier than above but still just slightly silty; clay clasts at 4.5, and 4.65 ft; 4.95 ft iron oxide fragment that may be possible organic replacement

CLAY; less silt than above; possible root structure; granules or nodule clusters between 5.55-5.65 ft

174AXS FM
Core #92

Start depth:	694 ft
Stop depth:	700 ft
Recovery:	6.1 ft
Date:	10/20/01
Described by:	SJB/JU



CLAY; variegated, slightly silty; colors of mottles include: weak red (10R 5/2), brown (10YR 5/3), dark red (10R 3/4), dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6); mottled areas with ironstone concretions are concentrated between 1.2-2.6 ft; 2-3 mm thick silt layer with blocky angular greenish ripups at 2.8 ft

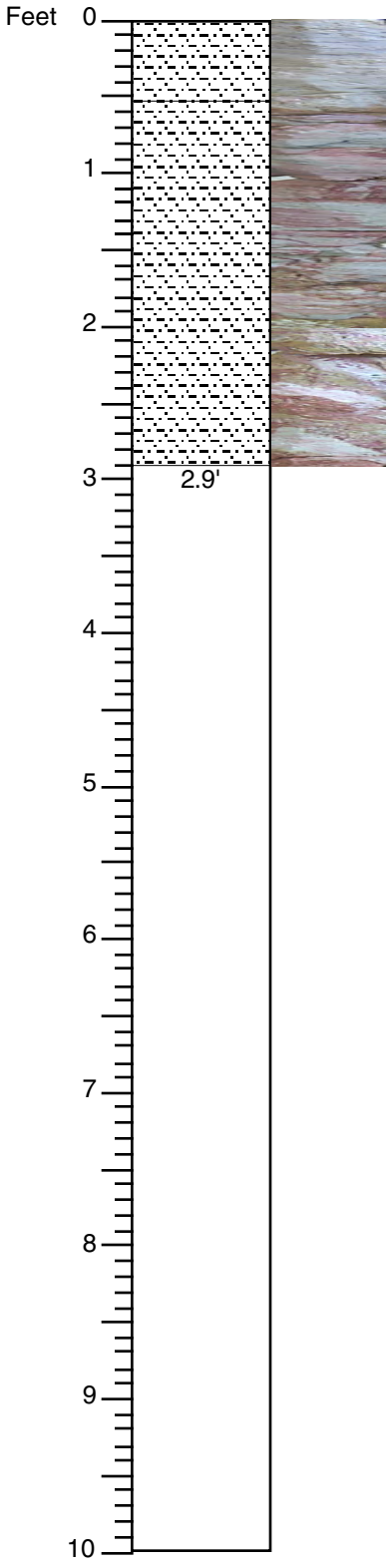
174AXS FM
Core #93
Start depth: 700 ft
Stop depth: 710 ft
Recovery: 10.25 ft
Date: 10/20/01
Described by: SJB/JU

SILT; clayey; almost uniform in color, weak red (10R 4/2); top of section is mottled with the yellowish brown (10YR 5/6); small halos of lighter clay surround flecks of ironstone or organic material between 4.7-5.4 ft; silt gets less clayey with depth; at the bottom the color is primarily light brownish gray (10YR 6/2); alternating clay and silt layers with little organic blebs at the base

CLAY; slightly silty, primarily light gray with mottles of dark red and yellowish brown; basal 0.4 ft has a coating of iron stain; dark yellowish brown (10YR 3/6)

CLAY; silty; gray (10YR 6/1)

SILT; slightly clayey, uniform, medium gray, some organic flecks; slightly more clayey in the bottom 0.2 ft

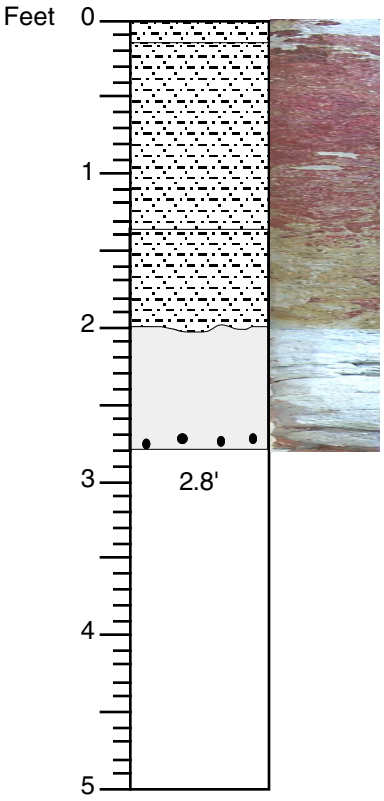


SILT; very slightly clayey, micaceous, scattered siderite nodules <1 mm, especially concentrated at 0.3-0.4 ft, scattered thin olive mottling on overall gray (GLEY 1 N6/ and N5/)

SILT; very clayey, very sandy, with sand ranging from fine to very coarse, scattered fairly evenly through the silt; sand is very angular; extensively and irregularly mottled, although core may be somewhat twisted; most common color is weak red (10R5/2), followed by gray (GLEY 1 N/6), pale olive (5Y 6/4), especially in lower half, dusky red (10R 3/4), and bluish gray (GLEY 2 5PB 5/1); some shaped like root zone halos, some as big masses of color, some as small almost dendritic patterns; little sphaerosiderite (perhaps some at ~2 ft), but in olive zones there are some small crusty concretion–like zones (limonite after siderite?)

174AXS FM
Core #94

Start depth:	710 ft
Stop depth:	720 ft
Recovery:	2.9 ft
Date:	10/20/01
Described by:	PPMcL/PJS



SILT; clayey, sandy, as below but gray (GLEY 1 N6/), with red and olive mottles

Irregular contact

SILT; clayey, very sandy, fine to occasionally coarse, predominantly dusky red (10R 3/4), and dark red (10R 3/6), hard with extensive wormy (but occasionally <3 cm)gray (GLEY 1N6?) mottling, some dusky red (10R 3/2); gets more gray downward

Transitional contact

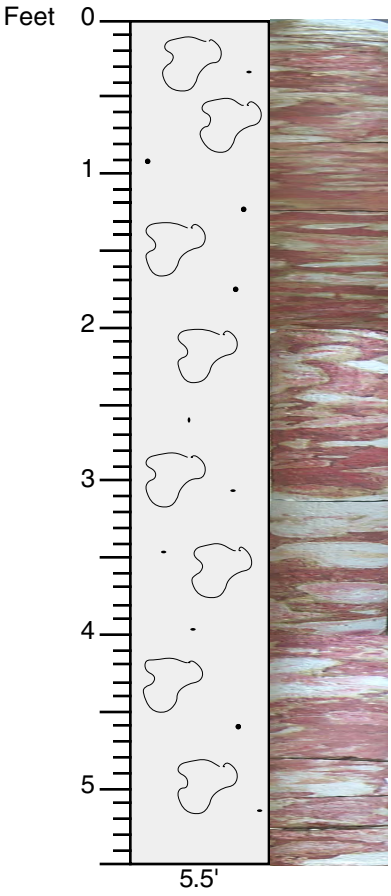
SILT; clayey, sandy, hard; fine to medium sand, rare coarse sand; mottled, mostly olive (5Y 5/4), also gray (GLEY 1 N6/) and dark red (10R 3/6)

Irregular contact

SAND; very fine, very silty, almost sandy silt; very micaceous, abundant ohm, faint laminations in places, coarsening downward to medium with a few scattered coarser grains, including angular pebbles up to 1 cm diameter maybe less silty and cleaner at base, gray (GLEY 1 N6/), with some darker, more ohm-rich zones, dark bluish gray GLEY 2 5PB 3/1)

174AXS FM
Core #95

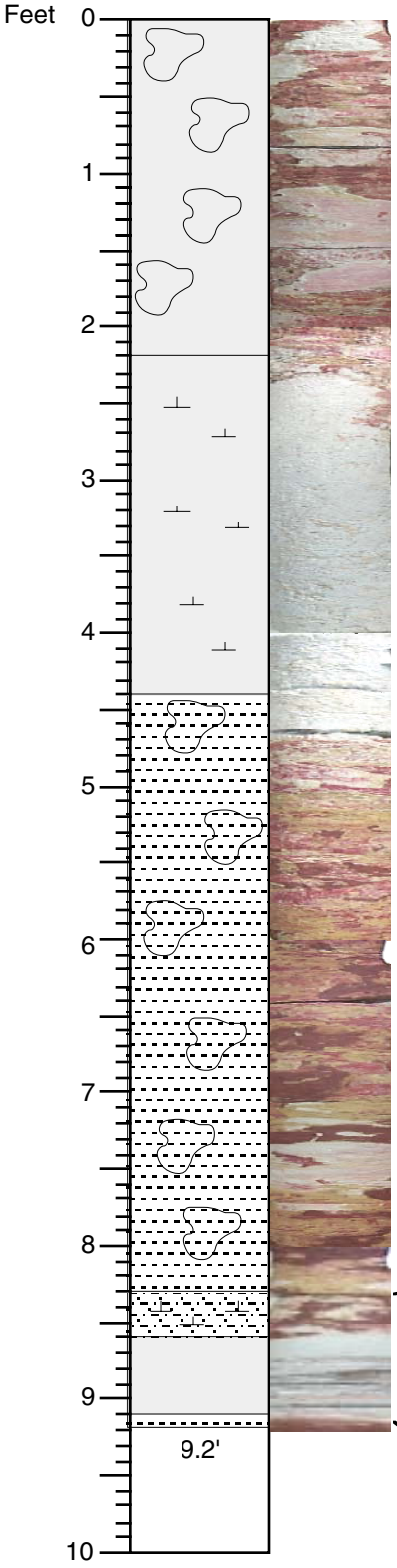
Start depth:	720 ft
Stop depth:	725 ft
Recovery:	2.8 ft
Date:	10/20/01
Described by:	PPMcL/PJS



SAND; medium; ranges from fine to coarse with scattered very coarse grains and granules; angular to subangular; very silty, maybe a sandy silt, very hard, micaceous; spectacularly mottled, mottling can be characterized as large gray (GLEY 1 N6/) mottles, mostly 1-5 cm diameter, superimposed on red (10R 4/6) to dark red (10R 3/6) base lithology; the gray mottles frequently have olive (5Y 5/4) rims from 1-10 mm wide; outside of the rims, the red zones commonly have dusky red (10R 3/4) irregular rims; also commonly, the interior of the gray mottles may have a weak red (10R 5/4) core; a spectacular case of mottling likely due to repeated alternations between oxidizing and gleying conditions reflecting wet/dry climate cycles in a long lived soil zone; possible some siderite or siderite concretion after products(?) in olive lithology

174AXS FM
Core #96

Start depth:	725 ft
Stop depth:	730 ft
Recovery:	5.5 ft
Date:	10/20/01
Described by:	PPMcL/PJS



SAND/SANDSTONE, very silty, (or SILT/SILTSTONE, very sandy), hard; spectacular mottling; same description as core 96, but larger and more common gray zones below 1.0 ft, with intensity of red fading at bottom ("wormier" texture)

Gradational contact

SAND/SANDSTONE; very silty, hard, light gray (GLEY 1 7N/), sand averages medium with abundant fine and coarser grains to very coarse

Gradational contact (mixed downward)

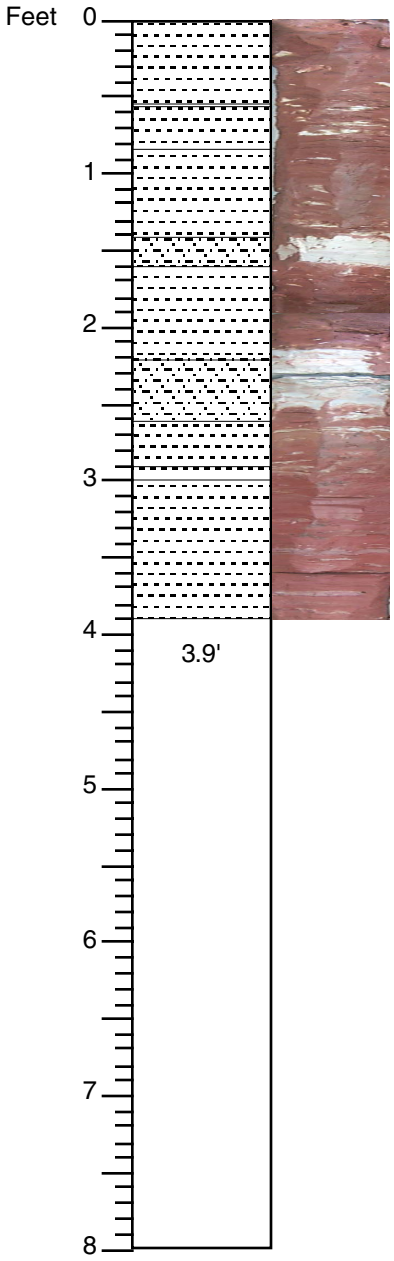
CLAY; hard, intensely mottled, silty; top is somewhat sandy due to likely downward working of sand by soil processes; otherwise a mix of deep red colors, dusky red (10R 3/4), red (10R 4/8), and extensive olive yellow (5Y 6/6) patches, with isolated light gray zones (GLEY 1 N7/) at 6.6-7.3, and 7.7-8.3 ft; dusky red clay areas are discrete (mostly) an clayier, and may possibly be physically slumped pieces (within soil or colluvium) rather than alteration zones; they are similar to 9.1-9.2 ft clay

174AXS FM
Core #97

Start depth:	730 ft
Stop depth:	740 ft
Recovery:	9.2 ft
Date:	10/20/01
Described by:	PPMcL

SILT/SILTSTONE; hard, slightly sandy, micaceous, light bluish gray (GLEY 2 5B 8/1)
Sharp contact, significant contrast
SAND and CLAY; interlaminated, soft, sand is mostly medium, poorly sorted some very coarse, some very clayey, some fairly clean; light gray (GLEY 1 7N/); clay is very soft white (GLEY 1 N8/)

CLAY, soft, silty, dusky red (10R 3/4); with olive (5Y 4/3), small mottles and thin crack/rootlet fill



CLAY; slightly silty, trace fine to medium sand, dusky red (10R 3/3); few blebs (.01-.03) lenticular-rounded silt, trace clay pinkish white (5YR 8/2); few nodules/concretions; dusky red (10R 3/2)

CLAY; trace silt, dusky red (10R 3/3); thinly bedded (0.01-0.03 ft) with silt, clayey; white (10R 8/1); hint of lamination in clay beds; soft sediment deformation as wavy laminae and beds, amplitudes of millimeters; gypsum or other sulfo-salt

CLAY; trace silt to slightly silty; color and texture laminated dusky red (10R 3/3); weak red (10R 4/4); few lenses and laminae of clayey silt; white (10R 8/1); soft sediment deformation as above

SILT; trace clay, with laminae of silt and clay; white (10R 8/1), light gray (10R 7/1), pale red (10R 7/3)

CLAY; trace silt; few laminae, clay silty; dusky red 910R 3/3), pale red (10R 7/3)

SILT; fine sand, trace clay, trace mica, white (10R 8/1); few laminae, clay silty; pink (10R 8/3)

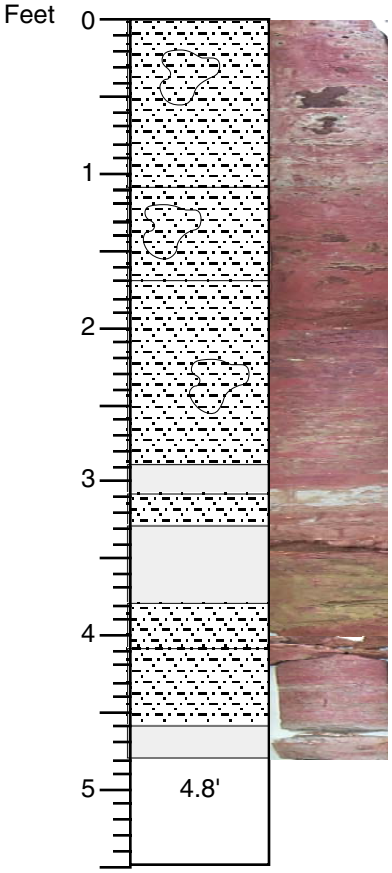
CLAY; trace silt to silty; laminated; dark red (10R 3/6); pale red (10R 7/2); dusky red (10R 3/3)

CLAY, trace of silty, finely laminated with CLAY; soft sediment deformation on millimeter scale waves, (10R 3/6), (10R 7/2), (10R 8/1)

CLAY, trace silt, red (10R 4/4), laminated to thin bedded; few thin beds of clayey silt; pale red (10R 7/3), (10R 8/1), (10R 7/2), few fine to medium nodules; dusky red (10R 3/3)

174AXS FM
Core #98

Start depth:	740 ft
Stop depth:	748 ft
Recovery:	3.9 ft
Date:	10/22/01
Described by:	ASA



SILT; sandy, fine, trace of clay; slightly micaceous, mottled, pale red (10R 6/3), light red (10R 7/6), pink (10R 8/2); concretions and nodules are dusky red (10R 3/2), olive brown (2.5Y 5/4); partially lithified

SILT; slightly fine sandy and clayey; red (10R 4/8), lithified, many concretions and fine nodules, dusky red (10R 3/2), to olive (5Y 35/5); possible root casts

SILT; fine sandy, trace of clay; mottled, root casts, red (10R 4/6), dusky red (10R 3/3), olive lined mottles (5Y 5/5); slightly micaceous, faintly laminated, partially lithified

SAND; fine, silty, light gray (10R 7/1), burrow mottles, pink (5Y 7/4), weak red (10R 5/3), micaceous, bottom surface burrowed, partly lithified
SILT, and clay, fine sandy, softer; red (10R 4/6)
SAND; fine, silty slightly micaceous; olive yellow (6/6)

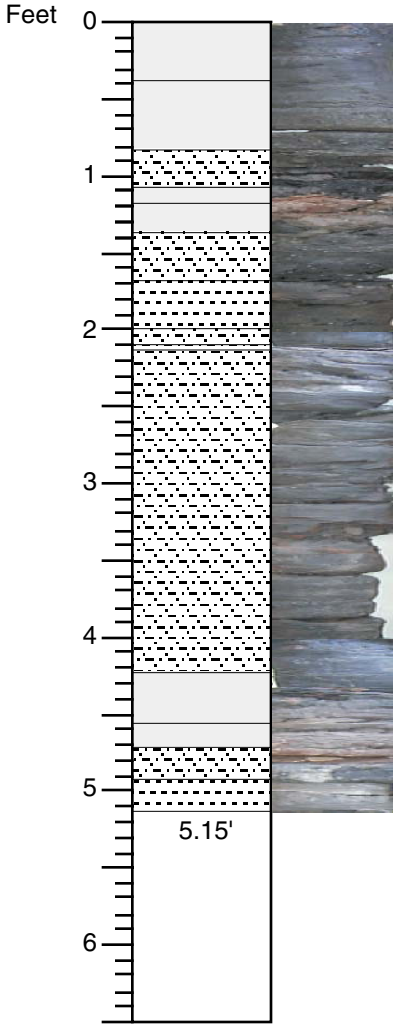
SILT; fine sandy; many nodules, partly lithified; red (10R 5/6)

SILT; trace fine sand, mottled; (10R 5/6) (10R 8/1) (10YR 7/4), mottles are millimeter scale, partly lithified, faintly laminated, slightly micaceous, few fine nodules

SAND; fine, and silt, faintly laminated and mottled, slightly micaceous (10R 7/1), 10R 6/6)

174AXS FM
Core #99

Start depth:	748 ft
Stop depth:	753.5 ft
Recovery:	4.8 ft
Date:	10/22/01
Described by:	ASA



SAND; fine, silty, clayey; CLAY; trace of silt; SILT; clayey, fine sand; burrowed mixture, dark gray (GLEY 1 N4/), (GLEY 1 N5/)

SAND; fine to coarse, silty, trace clay, a few mud-filled burrows; gray (GLEY 1 N6/), dark gray (GLEY 1 N5/)

SILT; laminated, fine sand, organic rich; SAND; medium to coarse, silty, lignitic; black (N 2.5/1), gray (GLEY 1 N5/)

SAND; medium to fine, trace silt; ?rip-up clast; blebs of sandy silt; pale red (10R 7/2)

SAND; fine, silty; lignite fragments, light gray (GLEY 1 N7/)

SILT and CLAY; fine to coarse sand, lignitic, slightly micaceous, more coarse sand at base; gray (GLEY 1 N5/)

CLAY; silty, trace of fine to coarse sand, slightly micaceous; gray (GLEY 1 N5/); few laminae; (GLEY 1 N3/)

SILT; fine sand; SILT; clayey; SAND, fine, silty; thin bedded and laminated; scattered small burrows (0.01-0.02 ft), light gray (GLEY 1 N7/); slightly micaceous, fines upwards; gray (GLEY 1 N6/), dark gray (GLEY 1 N5/)

SILT; fine sand; scattered mica, burrowed; red gray (10R 6/1)

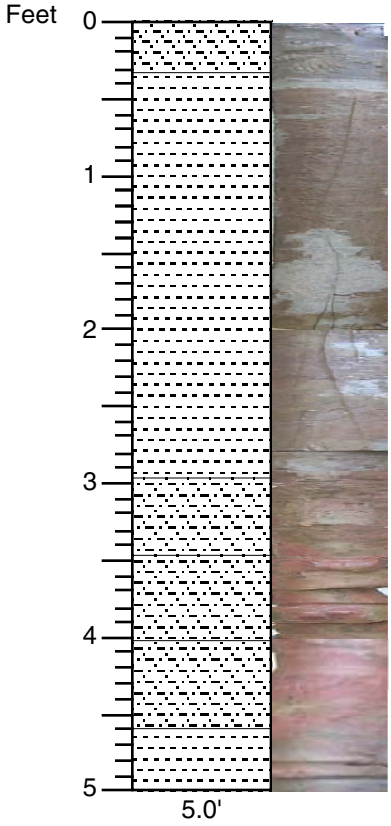
SAND and SILT; laminated

SAND; fine, silty, some mica; light red-brown (5Y 5/4)

SILT and SAND; medium to coarse; clayey, micaceous, light gray (GLEY 1 N7/), dark gray (GLEY 1 N4/)

174AXS FM
Core #100

Start depth:	753.5 ft
Stop depth:	760 ft
Recovery:	5.15 ft
Date:	10/22/01
Described by:	ASA



CLAY and SILT; gray (GLEY 1 N5/), with medium to coarse clasts?; (GLEY 1 N7/), (10R 7/1), (10R 6/3)

CLAY; trace of silt, scattered angular coarse quartz grains, waxy, olive (2.5Y 5/5), with large mottles (10YR 8/1)

SILT; clayey, scattered angular coarse quartz grains, variegated, light red (10R 6/6), olive brown (2.5Y 5/3)

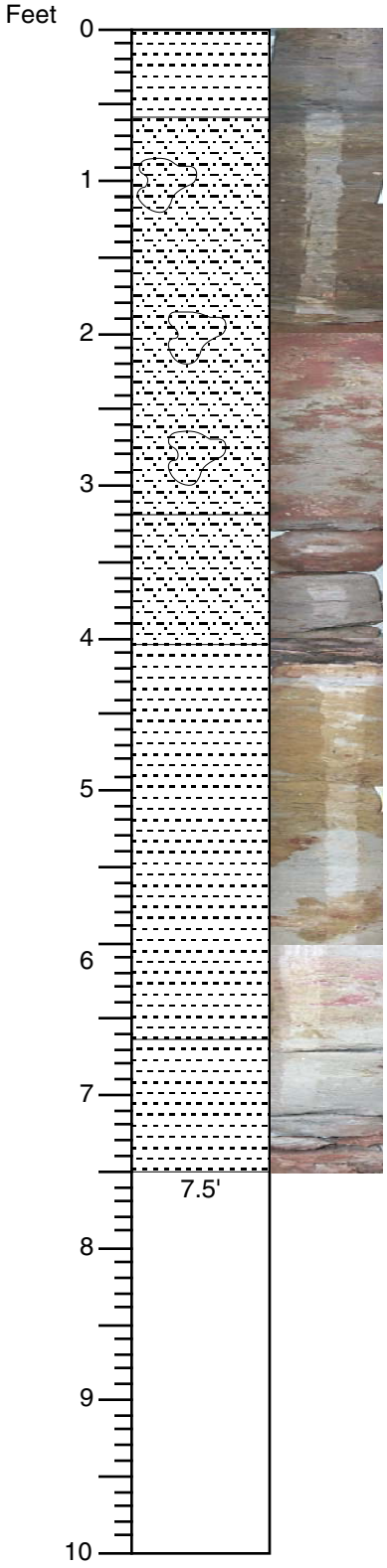
CLAY and SILT; variegated, trace of sand, (10R 6/6), (2.5Y 5/3)

CLAY and SILT; trace of sand, mostly (10R 6/6), with small mottles (2.5Y 5/3), (10R 7/1); scattered nodules (2.5Y 4/3)

CLAY, silty, variegated (10R 7/12), (10R 6/3), rare (2.5 Y 5/3), scattered nodules (2.5Y 5/3)

174AXS FM
Core #101

Start depth:	760 ft
Stop depth:	765 ft
Recovery:	5.0 ft
Date:	10/22/01
Described by:	ASA



CLAY; dark reddish brown (5YR 4/3), grading to dark gray (5YR 4/1), dark organic specks throughout; black (5YR 2.5/1) laminations from 0.55-0.65 ft

SILT; tough (clinks when tapped), from 0.65-1.8 ft, brown (10YR 4/3), with black organic flecks concentrated at ~1.0 ft and black organic "wisps" concentrated from 1.6-1.8 ft; 1.8-2.8 ft becoming mottled dark red (10R 3/6); 2.8-3.25 ft primarily gray (10YR 6/1); fine to medium quartz grains scattered throughout; silt is tough and dry

SILT; clayey; mottled with dark red clay pods from 3.25-3.5; becoming clayier as abrupt change occurs at 4.1 ft; from 3.9-4.1 ft section looks soft and mangled; grayish brown (10YR 5/2)

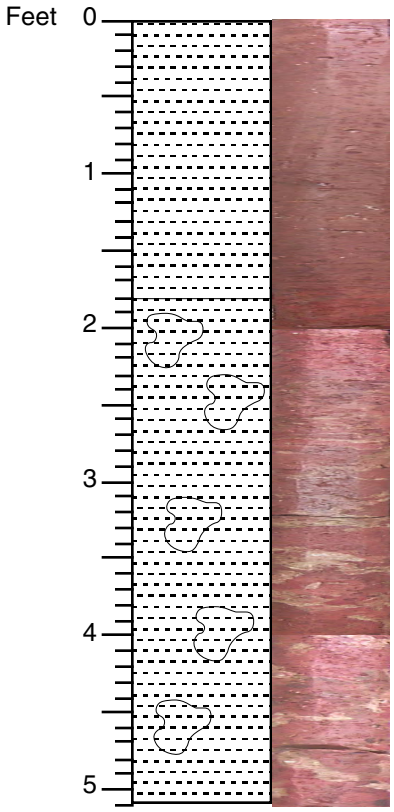
CLAY; slightly silty; abrupt color change from grayish brown to olive yellow (2.5Y 6/6), and light bluish gray (GLEY 27/10B); dark red scattered clay pods throughout; heavily "cracked" from 4.9-5.2 ft, several "cracks" run horizontal so these may not be root traces; color change at 5.2 ft to primarily light bluish gray (GLEY 2 7/10B, with olive yellow patches; increasing sand content down to 3.65 ft; light red streaks appearing from 6.0-6.5 ft

CLAY; sandy; light gray, small organic pod at 7.05 ft; massive, no apparent structures; becoming micaceous and softer from 7.35-7.5 ft

174AXS FM
Core #102

Start depth:	765 ft
Stop depth:	775 ft
Recovery:	7.5 ft
Date:	10/22/01
Described by:	SJB

Core 103 (775-780 ft) NO RECOVERY

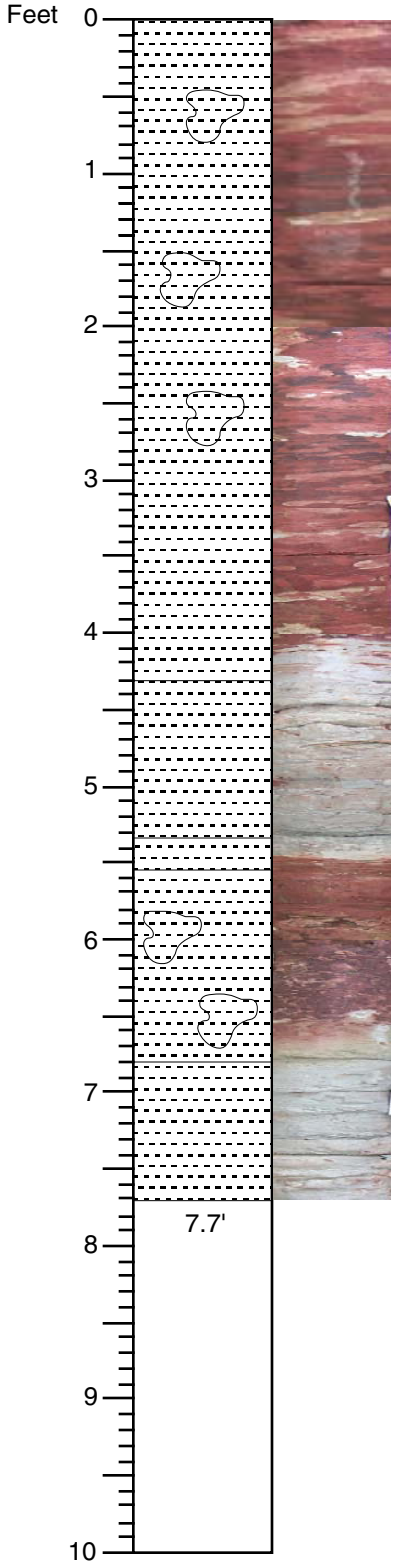


CLAY; slightly silty, dark red (2.5YR 3/4); uniform in color until 1.8 ft where mottling starts and becomes more pronounced with depth; mottling color primarily yellowish brown (10YR 5/6), and dark red (10R 3/4)

CLAY; silty, continuing to end of core, becoming increasingly silty with depth; some sand ranges from fine to medium; white clay pods from 1.2-1.32 ft and at 3.45 ft; upper 2 ft has scattered, dark, pebble-sized two dimensional features that may be weathered mineral zones, they do not penetrate the core but can be wedged out with a spatula

174AXS FM
Core #104

Start depth:	780 ft
Stop depth:	785 ft
Recovery:	5.1 ft
Date:	10/23/01
Described by:	SJB



CLAY; silty to SILT; clayey; intensely mottled; primarily red (2.5YR 4/8), with mottles of very dusky red (2.5YR 2.5/2), pink (2.5YR 8/3), dark red (2.5YR 3/6), and light bluish gray (GLEY 2 8/5B), and olive yellow (2.5Y 6/6); fine to medium ohm and quartz scattered throughout, a few coarse grains; deep red clay pods throughout

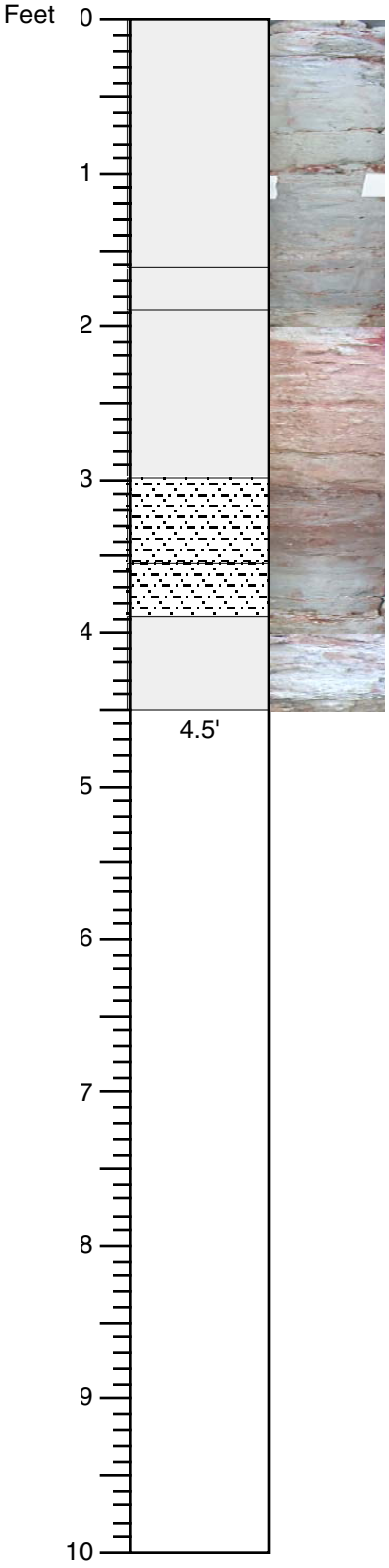
CLAY; silty, with abundant clayey fine to coarse quartz sand in places; uniformly white (2.5Y 8/1)

CLAY; white (7.5YR 8/1)
CLAY; silty to silty clay; intensely mottled down to 6.8 ft; dark reddish brown (5YR 3/3); red (2.5Y 6/6), granule pod at 5.85 ft

CLAY; sandy to SAND, clayey; fine to medium quartz and ohm; light gray (10YR 7/1)

174AXS FM
Core #105

Start depth:	785 ft
Stop depth:	795 ft
Recovery:	7.7 ft
Date:	10/23/01
Described by:	SJB



SAND; very fine, silty, slightly clayey; light gray (GLEY 1 7/N), structureless, few medium to coarse grains

SAND; very fine silty, slightly to moderately clayey, gray (GLEY 1 6/N)

SAND; very fine to fine, grading down to medium to coarse by 2.1 ft, grading down to coarse to very coarse by 2.5 ft; light greenish gray (GLEY 18/1 10Y), stained red by drilling mud; some angular to subangular granules 2.6-3.0 ft

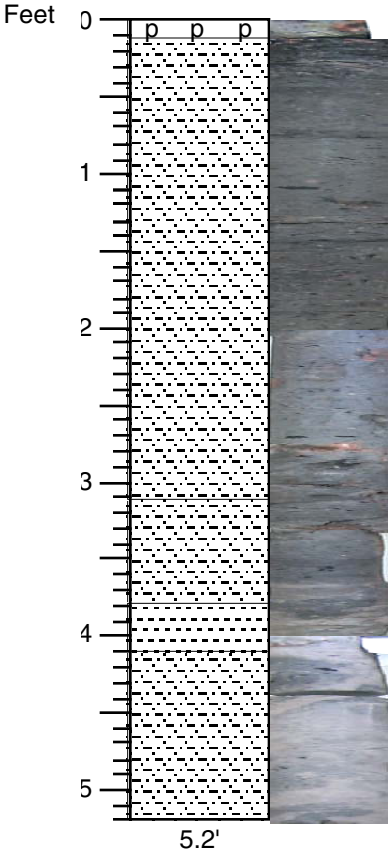
SILT; clayey, slightly sandy, very fine to fine; very hard; red (10R 4/6)

SILT; clayey, slightly sandy to sandy, very fine; not as hard as above; light gray (5Y 7/1)

SAND; very fine to coarse, slightly silty, grades down to medium to very coarse; white (2.5Y 8/1)

174AXS FM
Core #106

Start depth:	795 ft
Stop depth:	805 ft
Recovery:	4.5 ft
Date:	10/23/01
Described by:	KWR



PYRITE; large piece, 0.0-0.1 ft

SILT; clayey; very dark gray (GLEY 1 3/N); lignite bed from 0.1-0.4 ft; lignitic laminations from 0.8-1.4 ft; scattered lignite pieces throughout; some 15 mm long

SILT; clayier than above, scattered lignite; dark bluish gray (GLEY 2 3/1 10B)

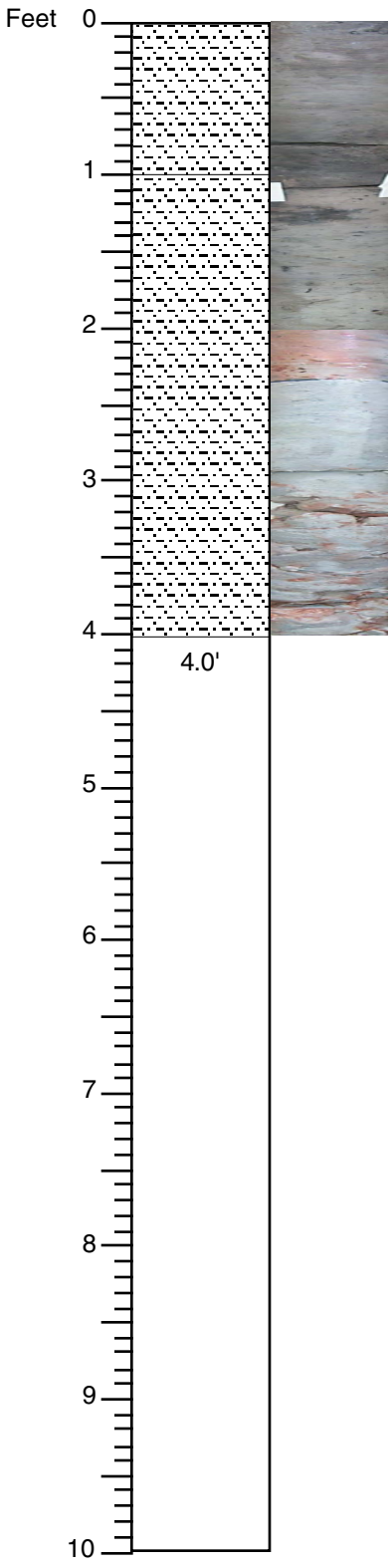
CLAY; silty, gray (5YR 5/1)

SILT; clayey; gray (5YR 5/1)

Medium to coarse quartz grains throughout core

174AXS FM
Core #107

Start depth:	805 ft
Stop depth:	810 ft
Recovery:	5.2 ft
Date:	10/23/01
Described by:	SJB

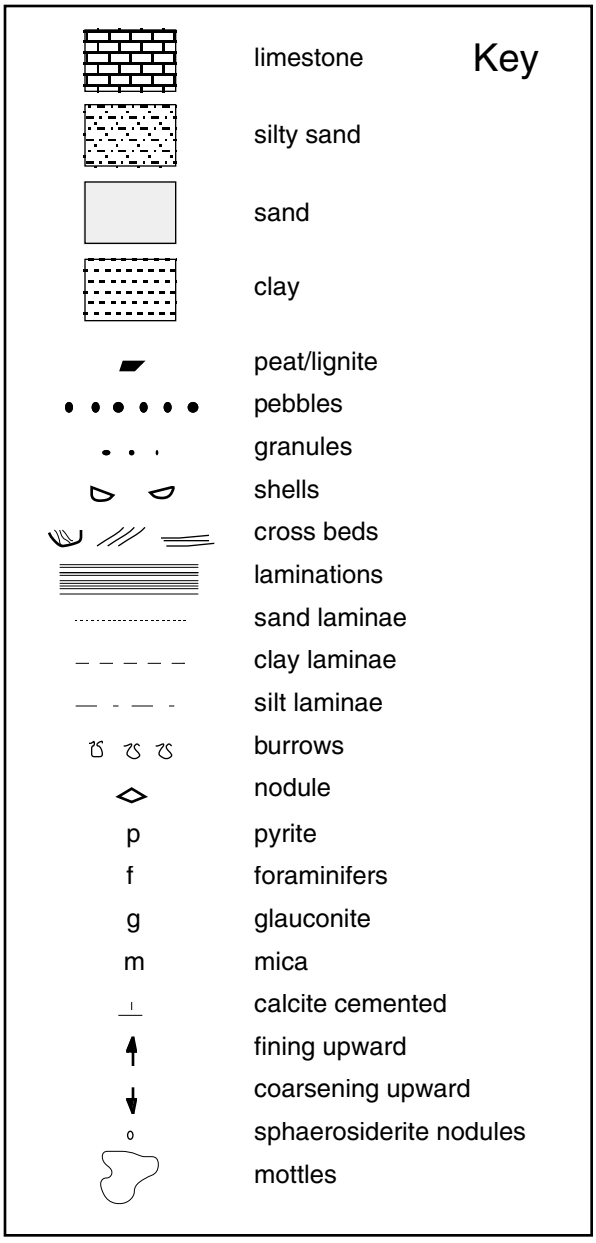


SILT; clayey to CLAY; silty; 0-0.75 ft: gray (GLEY 1 5/N); 0.75-1.05 ft: very dark gray (GLEY 1 3/N); 1.05-4.0 ft: light gray (GLEY 1 7/N); organic wisps scattered in top 1.8 ft of core; blue discolored zone at 2.4 ft

SAND; clayey; light gray (GLEY 1 7/N), very fine to fine with some medium; few ohm, structureless

174AXS FM
Core #108

Start depth:	810 ft
Stop depth:	820 ft
Recovery:	4.0 ft
Date:	10/23/01
Described by:	SJB


Key
limestone
silty sand
sand
clay
peat/lignite
pebbles
granules
shells
cross beds
laminations
sand laminae
clay laminae
silt laminae
burrows
nodule
p
pyrite
f
foraminifers
g
glauconite
m
mica
calcite cemented
fining upward
coarsening upward
sphaerosiderite nodules
mottles