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Preliminary Physical Stratigraphy and Geophysical Data From the USGS Dixon Core, Onslow County, North Carolina

By Ellen L. Seefelt, Wilma Aleman B. Gonzalez, Jean M. Self-Trail, Robert E. Weems, Lucy E. Edwards, Herbert A. Pierce, and Colleen T. Durand

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Acknowledgments

The Dixon corehole was drilled by Eugene F. Cobbs III, David Queen, and Jeffery Grey (U.S. Geological Survey) using a hydraulic, rotary, wireline-coring rig. We thank Kathleen Farrell and the North Carolina Geological Survey for use of their core storage facilities in Raleigh, N.C. Partial funding for this core was supplied by the Onslow County Water and Sewer Authority. Reviews by Gregory Gohn and Stacey Verardo of the USGS are gratefully acknowledged.

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Conversion Factors

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)

Preliminary Physical Stratigraphy and Geophysical Data From the USGS Dixon Core, Onslow County, North Carolina

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Introduction

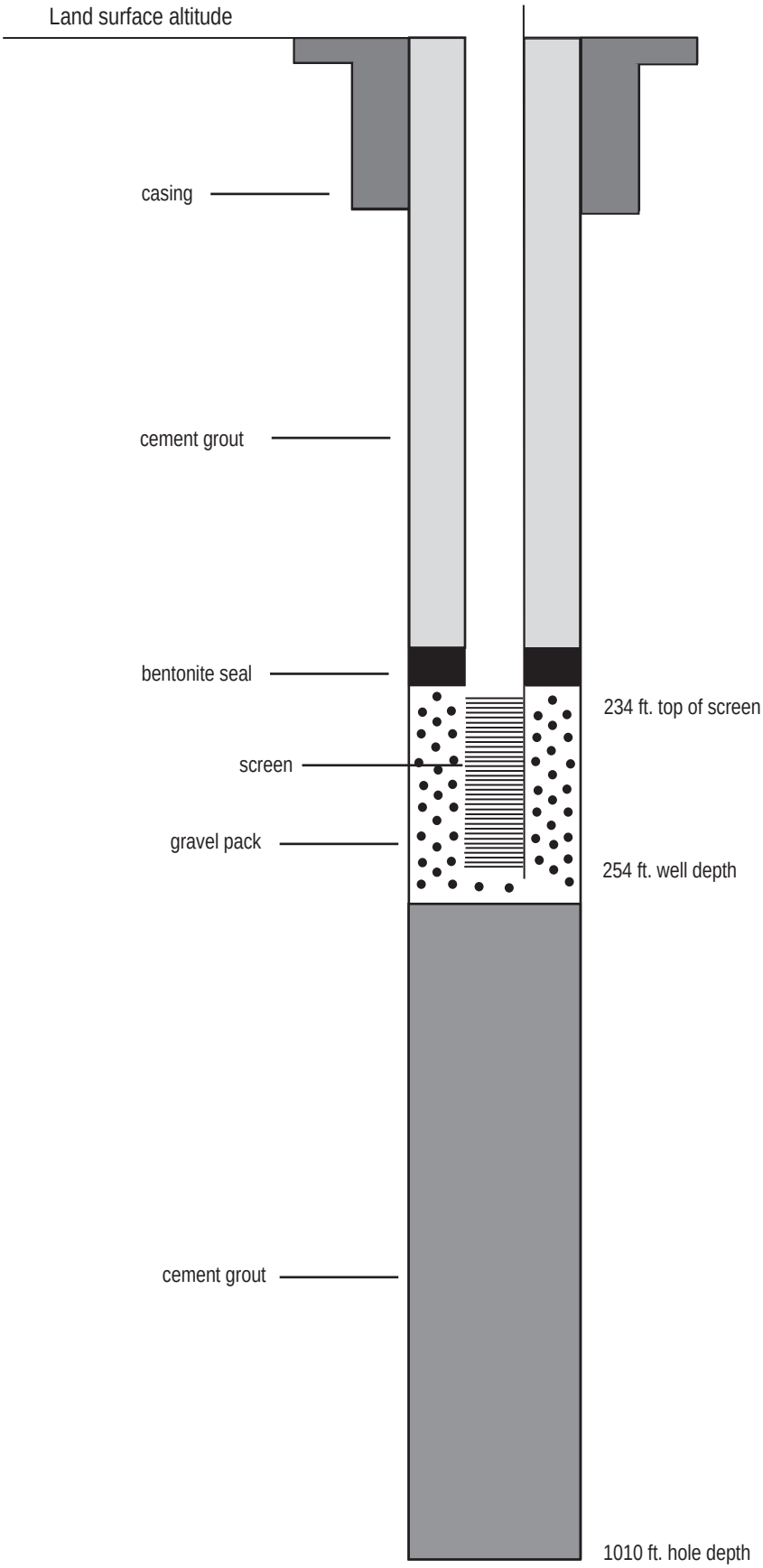
In October through November 2006, scientists from the U. S. Geological Survey (USGS) Eastern Region Earth Surface Processes Team (EESPT) and the Raleigh (N.C.) Water Science Center (WSC), in cooperation with the North Carolina Geological Survey (NCGS) and the Onslow County Water and Sewer Authority (ONWASA), drilled a stratigraphic test hole and well in Onslow County, N. C. (fig. 1). The Dixon corehole was cored on ONWASA water utility property north of the town of Dixon, N. C., in the Sneads Ferry 7.5-minute quadrangle at latitude 34˚33'35" N, longitude 77˚26'54" W (decimal degrees 34.559722 and -77.448333). The site elevation is 66.0 feet (ft) above mean sea level as determined using a Paulin precision altimeter. The corehole attained a total depth of 1,010 ft and was continuously cored by the USGS EESPT drilling crew. A groundwater monitoring well was installed in the screened interval between 234 and 254 ft below land surface (fig. 2). The section cored at this site includes Upper Cretaceous, Paleogene, and Neogene sediments. The Dixon core is stored at the NCGS Coastal Plain core storage facility in Raleigh.

The Dixon corehole is the fourth and last in a series of planned North Carolina benchmark coreholes drilled by the USGS Coastal Carolina Project. These coreholes explore the physical stratigraphy, facies, and thickness of Cretaceous, Paleogene, and Neogene Coastal Plain sediments in North Carolina. Correlations of lithologies, facies, and sequence stratigraphy can be made with the Hope Plantation corehole, N.C., near Windsor in Bertie County (Weems and others, 2007); the Elizabethtown corehole, near Elizabethtown, N.C., in Bladen County (Self-Trail and others, 2004b); the Smith Elementary School corehole, near Cove City, N.C., in Craven County (Harris and Self-Trail, 2006; Crocetti, 2007); the Kure Beach corehole, near Wilmington, N.C., in New Hanover County (Self-Trail and others, 2004a); the Esso#1, Esso #2, Mobil #1, and Mobil #2 cores in Albermarle and Pamlico Sounds, N.C. (Zarra, 1989); and the Cape Fear River outcrops in Bladen County, N.C. (Farrell, 1998; Farrell and others, 2001). This report contains the lithostratigraphic summary recorded at the drill site, core photographs, geophysical data, and calcareous nannofossil biostratigraphic correlations (tables 1 and 2).

Explanation

City | Drill site | Dixon drill site | State capital | Coastal Plain | County boundary | State boundary

Figure 1. Map of eastern North Carolina showing the location of the Dixon corehole in Onslow County.



Land surface altitude: 66 feet

Altitude of measuring point: 68.5 feet

Height of mearsuring point: 2.5 feet above land surface

Borehole diameter: 4.75 inches

Casing diameter/type: 2 inches

Surface casing depth: 2 feet

Type of grout: Portland type I

Depth of grout: 260 to 1010 feet

Top of filter pack depth: 225 to 260 feet

Type of filter pack sand: #2

Screen slot number: 0.10 inches

Screen diameter: 2 inches

Screen interval top: 234 feet

Screen interval bottom: 254 feet

Well depth: 254 feet

Hole depth: 1010 feet

Figure 2. Diagram showing monitoring well construction for the Dixon Well.

Physical Stratigraphy and Lithology

Detailed lithologic descriptions were created at the drill site and are recorded in appendix 1. Sediment colors were based on The Geological Society of America Rock Color Chart (Goddard and others, 1995). All recorded colors represent wet samples. Stratigraphic nomenclature was based on Brown and others (1972), Sohl and Owens (1991), Gohn (1992), Prowell and others (2003), and Self-Trail and others (2004a).

The Dixon corehole drilled 1,010 ft through Upper Cretaceous, Paleogene, and Neogene sediments (fig. 3). The three oldest formations are assigned to the Upper Cretaceous Santonian Stage; from oldest to youngest, they are the Pleasant Creek, Shepherd Grove, and Caddin Formations. The recovered section of the Pleasant Creek Formation is 200.0 ft thick, occurring from 1,010.0 ft to 810.0 ft, and comprises mainly silty sand with interbedded clays and sand. This formation is assigned to calcareous nannofossil Zone CC16. The base of the Pleasant Creek was not reached. The Shepherd Grove Formation occurs from 810.0 ft to 791.2 ft (18.8 ft.) and consists of a basal glauconitic sand that fines upward to sandy silt and then to a sandy clay at the top. This formation is assigned to calcareous nannofossil Zone CC17. The Caddin Formation is 15.7 ft thick, occurring from 791.2 ft to 775.5 ft, and consists of 4.5 ft of sandy clay at the base that grades upward into a highly bioturbated sandy silt. This formation is assigned to calcareous nannofossil Zone CC18a.

The Campanian Stage is represented by five geologic formations. From oldest to youngest, they are the Cane Acre, Coachman, Bladen, and Donoho Creek Formations and an unnamed unit at the top. The Cane Acre Formation occurs from 775.5 ft to 627.1 ft (148.4 ft thick), with the basal section consisting of 96.5 ft of interbedded silty clay, silty sand, and sandy silt. This section grades across a short interval into 30.0 ft of interbedded silt and sand, ending with 21.9 ft of sand at the top. The Cane Acre Formation is assigned to calcareous nannofossil Zone CC19. The Coachman Formation is 12.9 ft thick and occurs from 627.1 ft to 614.2 ft. The Coachman Formation consists of interbedded sand and faintly laminated clayey silt and is assigned to calcareous nannofossil Zone CC20. The Bladen Formation occurs from 614.2 ft to 585.1 ft and consists of a fine sand that grades upward into a clayey silty sand. The Bladen Formation is assigned to calcareous nannofossil Zone CC21. The Donoho Creek Formation, which occurs from 585.1 ft to 570.3 ft, comprises clayey silt with faint, low-angle cross bedding. It is uncharacteristically thin at Dixon and is overlain by sediments rarely cored in North Carolina or South Carolina. The Donoho Creek is assigned to calcareous nannofossil Zone CC22c; the section at 574.4 ft is provisionally assigned to Zone CC23. The youngest unit of the Campanian Stage consists of a 55.5 ft thick unnamed unit that occurs from 570.3 ft to 514.8 ft. This unit starts with a basal sand that grades to interbedded sand and clayey silt and to pebbly sand with a calcite-cemented quartz gravel at the top. The unit corresponds to the calcareous nannofossil Zones CC23 and CC24, and indicates fairly continuous sedimentation across the Campanian/Maastrichtian boundary. These units, with the exception of the unnamed unit, belong in the Black Creek Group of Gohn (1992).

The Peedee Formation is Maastrichtian in age and corresponds to nannofossil Zones CC25a, CC25b, CC26a, and CC26b. The Peedee Formation is 155.5 ft thick, occurring from 514.8 ft to 359.3 ft and consisting predominantly of fine sand interspersed with semi-indurated zones. The basal sample at 510.3 ft most likely contains reworked fossils from the unnamed unit below. Rounded quartz granules and pebbles in a fine matrix occur from the base of the Peedee to 469.0 ft. The Peedee is rich in

phosphate (up to 15%) from 446 ft to 429 ft. Micrite zones are common throughout, and minor unconformities are identified at 497.6 ft, 422.4 ft, and 416.7 ft.

The Yaupon Beach Formation is Danian in age and corresponds to calcareous nannofossil Zones NP1 and NP2. The Yaupon Beach Formation is an interbedded sand and sandstone (82.4 ft thick) that occurs from 359.3 ft to 276.9 ft. It is the basal formation of the Beaufort Group (Harris and Laws, 1994).

The Castle Hayne Formation is Eocene in age, occurs from 276.9 ft to 233.3 ft, and consists of 43.6 ft of interbedded limestone and marl with a 0.8-ft-thick vuggy limestone made of 20% shell molds from 276.6 ft to 275.8 ft. A 0.2 ft-thick pebble and phosphate bed overlies this layer of vuggy limestone. Near the top of this formation (from 237.6 ft to 235.0 ft) is a 2.6 ft dolomite layer. A 0.7 ft bioturbated zone is present at the contact of the Castle Hayne Formation and the overlying River Bend Formation.

The River Bend and Belgrade Formations (Ward and others, 1978) are Oligocene in age. The River Bend Formation is 139.2 ft thick, occurs from 233.3 ft to 94.1 ft, consists of an 8.3-ft-basal sandstone from 233.3 ft to 225.0 ft, and is overlain by a very fine to fine sand. Two silty intervals occur between 229.0 ft and 228.6 ft and between 199.0 ft to 189.0 ft. A 2.1 ft thick sandy limestone occurs near the top of this formation from 105.1 ft to 103.0 ft. The top of the River Bend Formation is capped by a cemented zone and is overlain by the Belgrade Formation, a 22.7 ft thick sand showing faint wavy laminations.

The Oligocene Belgrade Formation is overlain by the Miocene Pungo River Formation (Kimrey, 1964). The Pungo River Formation consists of a fining upward sequence, grading from sand at the base to clay at the top, with 3.4 ft of shelly sand located at the contact with the Belgrade Formation below. The Pungo River attains a total thickness of 22.4 ft, and is present from 71.4 to 49.0 ft.

The Pleistocene Chuckatuck Formation overlies the Pungo River Formation. It is a 45.0-ft-thick section of interbedded sand, silt, and clay occurring from 49.0 to 4.0 ft.

In drilling the Dixon core, a thorough run log was maintained, recording the daily ongoing drilling process involving depth, recovery and core loss (appendix 2).

The Dixon core was sampled for calcareous nannofossil and dinoflagellate microfossil abundances and strontium age analysis (fig. 3; appendix 3). Sequence-stratigraphic analyses of the Cretaceous sediments are in progress (Diaz, 2009).

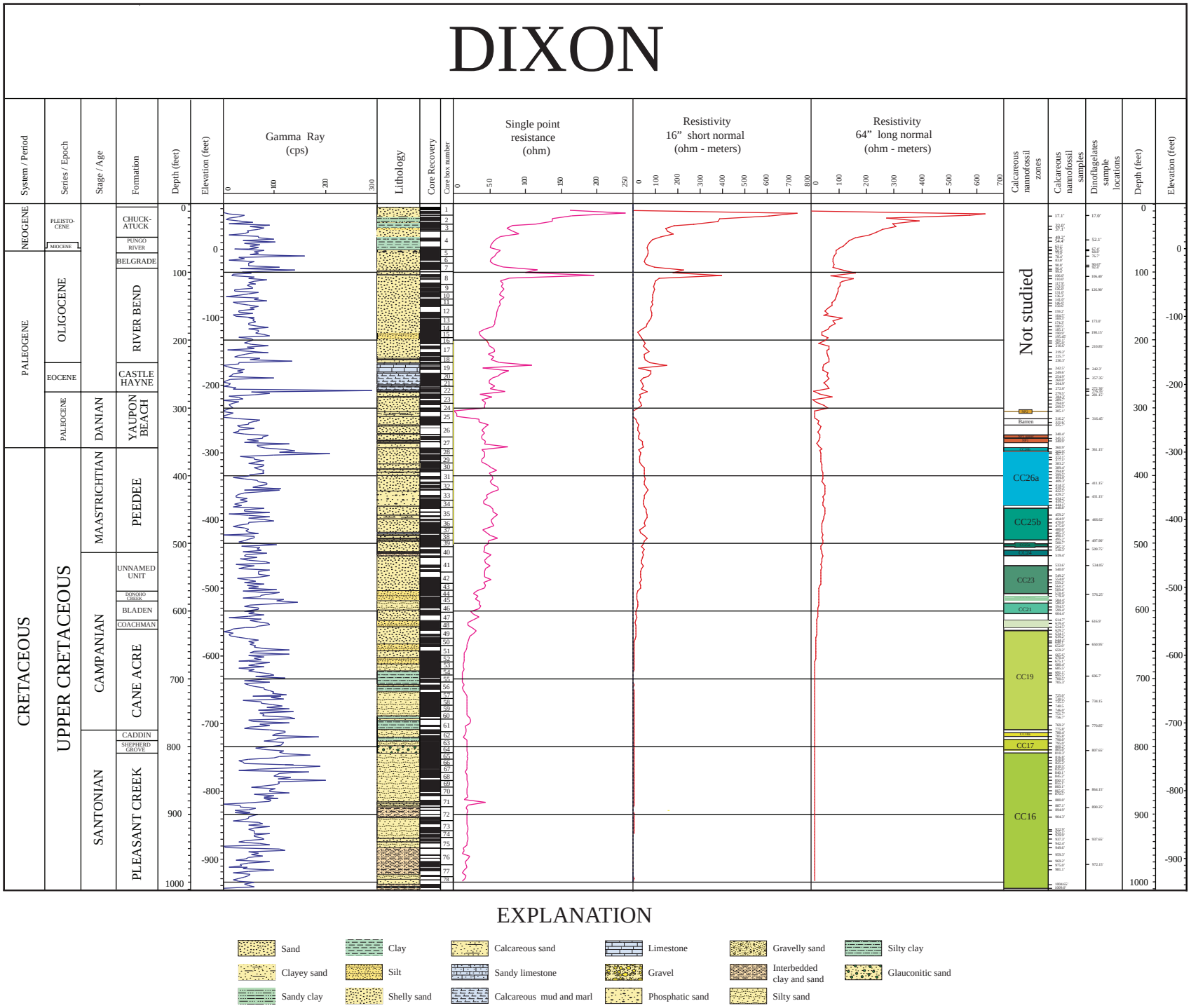


Figure 3. Plot showing the correlations between lithologic, paleontologic, and geophysical data in the Dixon corehole.

Hydrogeology and Geophysical Logging

Geophysical logs collected at the Dixon, N. C., site, were acquired using Century Geophysics 8044C and 9512C probes. Both probes collected multiparameter logs recorded from the bottom up during retrieval from the corehole. The 9512C probe collected natural gamma (counts per second [cps]) and resistivity (ohm-meters data). The 8044C collected fluid parameters, specific conductivity, resistivity, and rock parameters: single-point resistivity (ohms); self-potential (milli-volts); 16N, 64N, and lateral resistivities (ohm-m) and temperature (degrees Fahrenheit). Owing to the thin mud cake and limestone ledges encountered in the hole, the logs were collected in segments and assembled afterward during computer processing. The two natural gamma logs allow for accurate alignment of the data collected by the two probes. The total logged interval is from 1,010 ft to 0 ft in depth (fig. 3).

Hydrogeologic data were not collected from the Dixon corehole. However, a groundwater monitoring well was installed by the USGS drill crew at 254 to 234 ft from the surface. Additional information regarding the monitoring well is summarized in figure 2.

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Table 1. Calcareous nannofossil occurance chart of the Late Cretaceous.

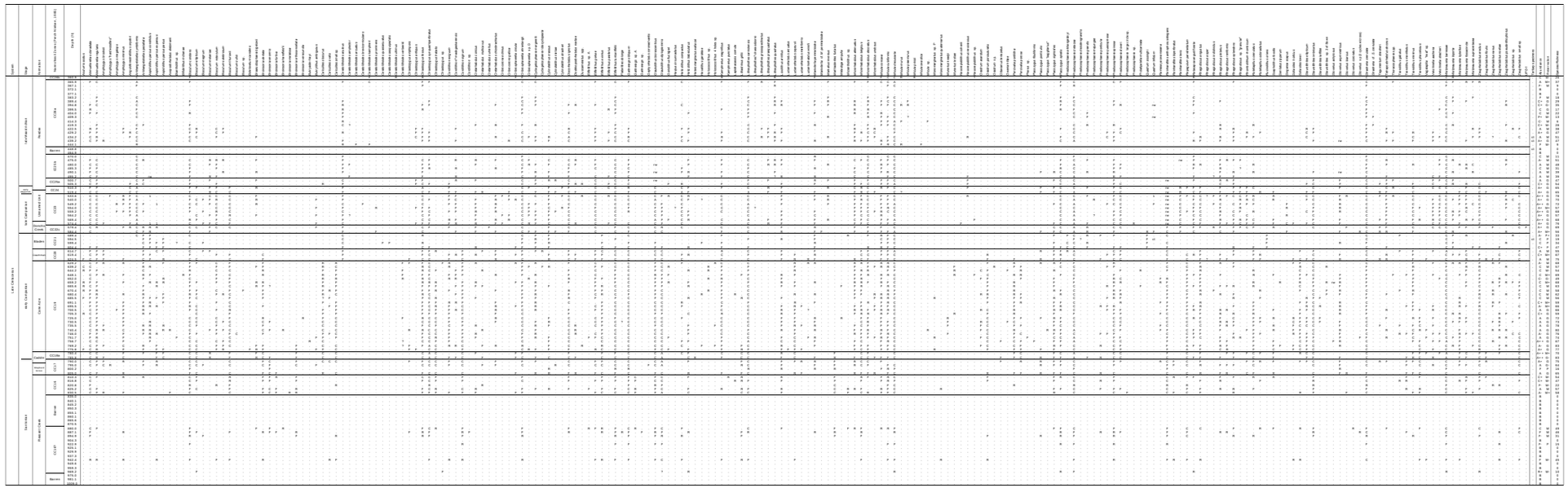


Table 2. Calcareous nannofossil occurance chart of the Paleogene.

System	Formation	Zone	Depth (ft)	*Braarudosphaera bigelowii*	*Coccolithus pelagicus*	*Cruciplacolithus asymmetricus*	*Cruciplacolithus intermedius*	*Cruciplacolithus primus*	*Cruciplacolithus tenuis*	*Cruciplacolithus* sp.	*Cyclagelosphaera alta*	*Cyclagelosphaera reinhardtii*	*Cyclagelosphaera* sp.	*Futyania petalosa*	*Goniolithus fluckigeri*	*Lanternithus duocavus*	*Markalius apertus*	*Markalius inversus*	*Micrantholithus aequalis*	*Micrantholithus* aff *Mc. aequalis* (small)	*Micrantholithus pinguis* (small)	*Neobiscutum parvulum*	*Neochiastozygus modestus*	*Neochiastozygus primitivus*	*Neochiastozygus* sp.	*Neocrepidolithus neocrassus*	*Placozygus sigmoides*	*Prinsius dimorphosus*	*Thoracosphaera* spp.	*Thoracosphaera* "spikey" sp.	Cretaceous forms	Abundance	Preservation
Paleogene	Yaupon Beach	NP 2	305.1	F	C	F	F	C	R	.	.	F	.	F	F	.	.	F	F	.	F	R	C	F	.	.	F	R	C	.	rw	C	G
		Barren	316.2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	B	
			321.6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	B	
			325.7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	B	
		NP 1	340.4	C	.	.	.	C	.	.	F	.	.	R	.	R	?	F	.	.	.	F	.	F	.	R	F	.	F	.	rw	C	G
		NP 1	345.5	C	.	.	.	C	.	.	.	R	.	F	.	.	.	F	.	.	.	F	.	F	.	.	.	.	C	.	rw	F	G
		NP 1	349.9	C	.	.	.	C	.	C	.	F	F	.	.	.	.	R	.	F	F	F	.	R	F	.	R	.	C	R	rw	F+	G

Slide abundance: C=common, 1-9 specimens per field of view (FOV); F=frequent, one specimen per 1-10 FOV; B=Barren. Preservation: G=good. Species abundance: C=common, one specimen per 1-10 FOV; F=Frequent, one specimen per 11-100 FOV; R=Rare, one specimen per >100 FOV; rw=reworked speciment; ?=questionable occurrence.

Appendix 1.—Dixon Lithologic Log

Common lithologic abbreviations include: vf (very fine), f (fine), m (medium), c (coarse), and vc (very coarse) sand; HCL (hydrochloric acid); tr (trace = <1%).

0.0– 4.0 ft: **No Recovery**

Chuckatuck Formation

4.0–10.0 ft: **Run 1**

4.0–4.55 ft: SAND, m-vf, slightly silty, angular, quartz, pale-yellowish-brown (10*YR* 6/2); angular quartz pebbles adhering to outside; no fizz. Box 1.

4.55–8.4 ft: SAND, m-vf, < 5% angular to sub-angular, quartz, conspicuous rusty- silt clay, trace opaques, massive, not indurated, very loose, dusky-yellowish-brown (10*YR* 2/2); no acid fizz; contact with overlying sediments sharp. Box 1.

8.4–10.0 ft: No recovery.

10.0–15.0 ft: **Run 2**

10.0–13.8 ft: SAND, m-f, well-sorted, angular to subangular, quartz, 1% opaque in sand size, rusty colored silt and clay in solution, moderate-brown (5*YR* 3/4) to dark-yellowish-brown (10*YR* 4/2) and yellowish-brown (10*YR* 2/2); massive, not indurated, very loose, no acid fizz. Box 1.

13.8–15.0 ft: No recovery.

15.0–19.0 ft: **Run 3**

15.0–16.0 ft: SAND, f-vf, well-sorted, subangular to subround, quartz,1–2% opaques in sand size (opaques include lithic fragments), dusky-yellowish-brown (10*YR* 2/2) at top (laminated zone); massive, except top 0.1 ft laminated and clayey, no acid fizz; sharp contact at 16 ft. Box 1.

16.0–17.25 ft: CLAYEY SAND to SANDY CLAY (grades rapidly downward), vf–silt, quartz, 1 % opaque vf–silt, mica, moderate-yellowish-brown sand down to olive-gray-clay (10*YR* 5/4 to 5*Y* 4/1); wavy laminations, no acid fizz. Box1 and Box 2.

17.25–19.0 ft: No recovery.

19.0–26.0 ft: **Run 4**

19.0–20.0 ft: SANDY CLAY, vf–silt (coarsening downward), angular quartz, 1% opaques, olive-gray (5*Y* 4/1); massive, no acid fizz. Box 2.

20.0–24.0 ft: SAND, vf, well-sorted, subangular to angular quartz, < 1% opaques, mica (tr), light-olive-gray (5*Y* 5/2) with zones of darker streaks, olive-gray (5*Y* 4/1);

massive, with 1 or 2 zones of wavy, clay laminations, otherwise very loose, no acid fizz. Box 2.

24.0–26.0 ft: No recovery.

26.0–35.0 ft: Run 5

26.0–28.6 ft: SAND, silty, clayey, f (locally medium) quartz, < 1% opaques, subangular, olive-gray (5*Y* 4/1); massive, no acid fizz. Box 2.

28.6–30.0 ft: CLAY, gradational, silty, slightly sandy, vf quartz, dark-greenish-gray (5*GY* 4/1); massive, faint indications of irregular bedding. Box 2 and Box 3.

30.0–34.4 ft: CLAY, silty, slightly sandy, vf, subangular quartz, 1 % opaques, mica (tr), dark-greenish-gray (5*GY* 4/1) to medium-gray (*N*5); massive (has sandier and clayier zones), no acid fizz. Box 3.

34.4–35.0 ft: No recovery.

35.0–39.0 ft: Run 6

35.0–38.75 ft: SILT, sandy, clayey, sand is vf–f, quartz subangular, phosphate and pyrite present, 1 % opaques in vf–silt, medium-gray (*N*5); appears massive but includes irregular zones that are sandier vs. clayer, no acid fizz. Box 3.

38.75–39.0 ft: No recovery.

39.0–49.0 ft: Run 7

39.0–40.05 ft: SAND, f–vf, slightly clayey, subangular to subround quartz, < 1% opaques, gray (*N*5); massive but coarsens downward slightly, no acid fizz. Box 3 and Box 4.

40.05–49.0 ft: No recovery.

Pungo River Formation

49.0–59.0 ft: Run 8

49.0–54.5 ft: CLAY, silty, slightly sandy, vf, angular to subangular quartz, mica (tr) (white and brown), < 1% opaques, between medium-bluish-gray (5*B* 5/1) and dark-greenish-gray (5*G* 4/1); subhorizontal zones of sandier layers, no acid fizz. Box 4.

54.5–59.0 ft: No recovery.

59.0–67.5 ft: Run 9

59.0–63.1 ft: No recovery.

63.1–66.2 ft: CLAY, silty, slightly sandy, vf, angular to subangular quartz, mica (tr), < 1% opaques, dark-greenish-gray (5*B* 4/1); wavy laminations and zones of clay, no acid fizz. Box 4.

66.2–67.5 ft: SAND, silty and clayey, vf to m, subangular quartz, 1-2% opaques, including glauconite, dark-greenish-gray (5*GY* 4/1) darkening downward to greenish-black

(5*GY* 2/1); coarsens downward, silt to f, moldic at base, faint laminations, echinoid spine. Box 4 and Box 5.

67.5–72.5 ft: **Run 10**

67.5–68.0 ft: SAND, silty (coarsening up to pebbly (up to 1/2 cm)); dark-greenish-gray, (5*GY* 4/1) to greenish-black (5*GY* 2/1). Box 5.

68.0–71.4 ft: SHELLY SAND, slightly silty, poorly sorted, vf–vc, subround to subangular 1-2% opaques including glauconite, fossils (shell fragments, foraminifera, ostracodes), more concentrated at top, acid fizz on fossils, dark-greenish-gray (5*G* 4/1) to olive-gray (5*Y* 4/1); appears massive but faint wavy laminations. Box 5.

Belgrade Formation (Haywood Landing Member)

71.4–72.5 ft: Reattributed from Run 11. Lithology as below. Box 5.

72.5–79.0 ft: **Run 11**

72.5–79.0 ft: SAND, silty, vf–vc, mostly fine subangular quartz, 1–2% opaques including glauconite, fossils (shell fragments, echinoderm spines), olive-gray (5*Y* 4/1); massive to faintly bedded, acid fizz on fossils. Box 5 and Box 6.

79.0–85.5 ft: **Run 12**

79.0–83.9 ft: SAND, silty, vf–f subangular to subround quartz, ~ 2% dark opaques, including glauconite, fossils (shells fragment, echinoid spines, barnacle fragments, foraminifera (sand size fragments)), dark-greenish-gray (5*GY* 4/1); bedding has a faint sub-horizontal wavy laminate, acid fizz on fossils. Box 6.

83.9–85.5 ft: No recovery.

85.5–94.5 ft: **Run 13**

85.5–89.95 ft: SAND, silty, f–vf, subangular to subround quartz, 1–2 % dark opaques including glauconite, fossils (foraminifera, small shell fragments), dark-greenish- gray (5*GY* 4/1) with wisps of clay at base, medium-dark-gray *(N*4); bedding has a faint subhorizontal wavy lamination, acid fizz on fossils. Box 6 and Box 7.

89.95–91.3 ft: SAND, very silty, vf, subangular to subround quartz, 1–2% opaques including glauconite, fossils (abraided rounded shell fragments, rare foraminifera), greenish-gray (5*GY* 6/1); faint subhorizontal wavy laminations. Box 7.

91.3–94.1 ft: SAND, very silty, clayey, vf (up to m phosphate) quartz, subround to subangular, 1–2% opaques, clear acicular grains, fossils (abraided shell fragments and punky shell), light-olive-gray (5*Y* 6/1); faint wavy laminations and thin clay stringers. Box 7.

River Bend Formation

94.1–94.5 ft: SANDSTONE, in CaCO3 tight cement, mostly m quartz, 1–2 % opaques, fossils (bivalve molds and shell present), indurated; light-olive-gray (5*Y* 6/1). Box 7.

94.5–99.0 ft: Run 14

94.5–95.7 ft: SANDSTONE, in $CaCO_3$ tight cement, mostly m quartz, 1–2% opaques, fossils (bivalve molds abundant, shell present locally), massive, indurated; light-olive-gray (5*Y* 6/1). Box 7.

95.7–97.1 ft: SAND, CaCO3-rich, m quartz, up to coarse phosphate, subround to subangular, 1–2% opaques including phosphate, fossils (shell fragments, foraminifera, echinoid spines), olive-gray (5*Y* 4/1); no bedding obvious, loosely indurated (patchy), moderate acid fizz. Box 7.

97.1–97.2 ft: SANDSTONE, in $CaCO_3$ tight cement, mostly m quartz, 1–2% opaques, fossils (bivalve molds present), olive-gray (5*Y* 4/1); indurated, moderate acid fizz. Box 7.

97.2–99.0 ft: No recovery.

99.0–103.0 ft: Run 15

99.0–100.0 ft: SAND, $CaCO_3$-rich, m quartz up to vc phosphate, subangular to subround in coarser sizes, 1–2% opaques, fossils (pebble-size shell fragments), light-olive-gray (*5Y* 6/1); massive, indurated, moderate acid fizz. Box 7 and Box 8.

100.0–103.0 ft: No recovery.

103.0–109.0 ft: Run 16

103.0–105.1 ft: SANDY LIMESTONE, moldic, minor original shell; sand is quartz, mostly fine, subangular to subround, 1–2% opaques, includes black glauconite, fossils (bivalve molds), medium-dark-gray (*N*4); appears massive, indurated, possible alignment of shells, acid fizz if scratched. Box 8.

105.1–107.3 ft: SAND, (with variable $CaCO_3$ cement), f quartz, well-sorted, 1–2% opaques, phosphate, glauconite (green and black), amber colored frains, fossils (some shell fragments, possible branching algae), light-olive-gray (5*Y* 6/1); massive, wisps that are clayer and subhorizontal loose to partially indurated. Box 8.

107.3–109.0 ft: No recovery.

109.0–116.0 ft: Run 17

109.0–110.7 ft: SAND, vf–f, quartz, slightly silty, very well-sorted, subangular to subround, ~ 2% opaques, ~ 5% phosphate and glauconite with mica (tr), fossils (shell fragments in sand size, abraided), olive-gray (5*Y* 4/1); moderate acid fizz, not

indurated, faint horizontal laminations; slight color variation at top (light-olive-gray (5*Y* 5/2). Box 8.

110.7–116.0 ft: No recovery.

116.0–123.0 ft: Run 18

116.0–118.5 ft: SAND, very slightly silty, vf to dominantly f, phosphate subround to round, glauconite subangular to round, ~5% phosphate and glauconite (more glauconite than phosphate) with mica (tr), ~ 10% shell fragments and foraminifera; olive-gray (5*Y* 4/1), conspicuously bioturbated and color mottled yellowish-brown (10*YR* 5/2); moderate acid fizz. Box 8 and Box 9.

118.5–122.1 ft: SAND, very slightly silty, vf to dominantly f, phosphate subround to round, glauconite subangular to round, ~5% phosphate and glauconite (more glauconite than phosphate) with mica (tr), ~ 10% shell fragments and foraminifera, olive-gray (5*Y* 4/1) and yellowish-brown (10*YR* 5/2); moderate acid fizz, not indurated (but held a fracture), the fracture has an inclination of 60^{o} and a clay smear; core is conspicuously bioturbated and color mottled. Box 9.

122.1–123.0 ft: No recovery.

123.0–129.0 ft: Run 19

123.0–128.9 ft: SAND, vf to mostly f, very slightly silty, 1% carbonate sand, quartz sand mostly subangular to some round, phosphate (2-5%) and glauconite mostly subangular to round but some platy, sparse foraminifera and m-c shell fragments, olive-gray (5*Y* 4/1) locally burrow mottled to light-olive-gray (5*Y* 5/2); moderate acid fizz, faint local subhorizontal bedding. Box 9.

128.9–129.0 ft: No recovery.

129.0–139.0 ft: Run 20

129.0–137.2 ft: SAND, vf to mostly f, 2–5% phosphate and glauconite, sparse silvery mica, 2% carbonate sand, olive-gray (5*Y* 4/1); weak acid fizz, faint subhorizontal bedding and scattered burrows. Box 10.

137.2–139.0 ft: No recovery.

139.0–149.0 ft: Run 21

139.0–149.0 ft: SAND, vf to f, 2–3% phosphate and glauconite, ~ 1% carbonate, sparse foraminifera and ostracodes, olive-gray (5*Y* 4/2) with mottled light-olive-gray (5*Y* 5/2); very faint subhorizontal bedding and abundant burrows, mostly faint, weakly cemented at 142.4–142.5 ft, uncemented burrows at 143.1 and 148.2 ft: weak to moderate acid fizz. Box 10 and Box 11.

149.0–159.0 ft: **Run 22**

149.0–150.9 ft: SAND, vf to f, mostly subangular to rare rounded, ~ 5% phosphate and glauconite, 1–2% carbonate (carbonate sand mostly foraminifera), teleost fish vertebra and small teleost tooth present; light-olive-gray (5*Y* 5/2). Box 11 and Box 12.

150.9–159.0 ft: No recovery.

159.0–169.0 ft: **Run 23**

159.0–168.9 ft: SAND, vf to f, subangular to subround, 2–5% phosphate and glauconite, 2–5% carbonate including large foraminifera to 3mm, slightly silty and clayey, fish spine chips, light-olive-gray (5*Y* 5/2) to very-light-olive-gray (5*Y* 6/2); weak to moderate acid fizz. Box 12 and Box 13.

168.9–169.0 ft: No recovery.

169.0–179.0 ft: **Run 24**

169.0–174.0 ft: SAND, vf to f, subangular to subround, 1–2% phosphate and glauconite, small fish vertebra, 5–10% carbonate (about half foraminifera), sparse silvery mica, silty and clayey; very faint layering to massive, light-olive-gray (5*Y* 5/2) to very-light-olive-gray (5*Y* 6/2); at 173.3 –173.6 ft abundant foraminifera up to 3mm and echinoid spines, no silt, very-light-olive-gray (5*Y* 6/2); moderate acid fizz. Box 13.

174.0–179.0 ft: SAND, subangular to subround, ~5% phosphate and glauconite, ~15% carbonate (mostly foraminifera), silvery mica increasing in abundance but still less than 1%, silty and clayey, light-olive-gray (5*Y* 5/2) to very-light-olive-gray (5*Y* 6/2); very faint layering to massive. Box 13 and Box 14.

179.0–189.0 ft: **Run 25**

179.0–186.2 ft: SAND, vf to f, subangular to subround, 1–2% phosphate and glauconite, 5–10% carbonate fraction primarily from foraminifera, sparse silvery mica, light-olive-gray (5*Y* 5/2) to very-light-olive-gray (5*Y* 6/2); faint but persistent layering, weak to moderate acid fizz. Box 14.

186.2–189.0 ft: SAND, mostly vf to f, silty and clayey, 2–5% phosphate and glauconite, 2–5% carbonates (mostly foraminifera), grayish-olive (10*Y* 4/2); faint but well developed bedding (flaser bedding?); excess core due to expansion; possible confining unit. Box 14 and Box 15.

189.0–199.0 ft: **Run 26**

189.0–199.0 ft: SILT, clayey, vf to f sandy, sand fraction 1–2% phosphate and glauconite, 2–5% carbonates (mostly foraminifera), grayish-olive (10*Y* 4/2); much denser than

above, bedding faint but still discernable; excess core due to expansion. Box 15 and Box 16.

199.0–209.0 ft: **Run 27**

199.0–206.6 ft: SAND, vf (quartz) to f (carbonate), about 70% carbonate and 1–2 % phosphate and glauconite, slightly silvery mica (2–3%), foraminifera abundant, silty and slightly clayey (much less than above); grayish-olive (10*Y* 4/2); bedding discontinuous but pervasive. Box 16 and Box 17.

206.6–209.0 ft: No recovery.

209.0–219.0 ft: **Run 28**

209.0–213.3 ft: SAND, vf (quartz) to f (carbonate), silty, not clayey, foraminifera, siliceous sponge spicules, quartz subangular, sparse silvery mica, 1–2 % phosphate and glauconite, grayish-olive (10*Y* 4/2); faintly bedded. Box 17.

213.3–219.0 ft: No recovery.

219.0–225.0 ft: **Run 29**

219.0–224.0 ft: SAND, vf to sparse f, subangular to round, 2–5% phosphate and glauconite (numerous fish spine fragments), no carbonate except for sparse calcite-cemented nodules, sparse silvery mica, even finest vf fraction is rounded and slightly frosted dune sand?; grayish-olive (10*Y* 4/2) to 221.0 ft then color rapidly goes to grayish-olive-green (5*GY* 3/2). Box 17 and Box 18.

224.0–225.0 ft: No recovery.

225.0–229.0 ft: **Run 30**

225.0–228.6 ft: SANDSTONE, vf to f, subround to round, matrix not calcareous, ~ 1% phosphate and glauconite, ~1% foraminifera, grayish-olive (10*Y* 3/2); faintly bedded, burrows abundant. Box 18.

228.6–229.0 ft: SILT, clayey, vf sandy (subround to round), slightly calcareous, indurated non-calcareous lumps, grayish-olive (10*Y* 3/2). Box 18.

229.0–231.5 ft: **Run 31**

229.0–231.4 ft: SANDSTONE, dominantly fine but vf to m, sparsely micaceous, not calcareous, 2–5% phosphate sand (vf to f) round, quartz subangular to round, phosphate granules appear near base, olive-gray (5*Y* 4/2); wispy very low angular bedding (discontinuous). Box 18.

231.4–231.5 ft: No recovery.

231.5–235.0 ft: **Run 32**

231.5–233.3 ft: SANDSTONE, f to m, 15–20% phosphate and glauconite sand, basal 0.4 has abundant phosphate pebbles up to _ cm across; olive-gray (5*Y* 4/2) to 232.0 ft, then grayish-olive (10*Y* 3/2) to 232.75 ft, then grayish-olive (10*Y* 4/2). Box 18 and Box 19.

Castle Hayne Formation

233.3–234.0 ft: CHURNED or bioturbated zone, lime mud with calcite chunks and phosphate nodules to _ cm, glauconite (15%), greenish-gray (5*G* 6/1). Box 19.
234.0–234.2 ft: LIMESTONE with oyster, 15% chlorite, greenish-gray (5*G* 6/1). Box 19.
234.2–235.0 ft: No recovery.

235.0–236.0 ft: **Run 33**

235.0–236.0 ft: DOLOMITE, sparse oysters 5–10% glauconite, ~5% phosphate, abundant rip-up clasts, very dense, no pore space, hard ground, some burrows lined with phosphate and glauconite, some cherty zones; yellowish-gray (5*Y* 8/1). Box 19.

236.0–239.0 ft: **Run 34**

236.0–237.6 ft: DOLOMITE sparse oysters, ~5% phosphate, 5–10% glauconite; abundant rip-up clasts, very dense, no pore space, hard ground, some burrows lined with phosphate and glauconite, burrows end just above hard zone, phosphatized hard ground at 236.9 ft: some cherty zones, snail mold and clams at 237.2 ft: yellowish-gray (5*Y* 8/1). Box 19.
237.6–239.0 ft: No recovery.

239.0–249.0 ft: **Run 35**

239.0–243.6 ft: LIMESTONE (contains echinoid spines, bryozoans, sparse large oysters), 15–20% void space, light-greenish-gray (5*Y* 8/1) grading to dusky-yellowish-green (5*GY* 6/2) about 240.5 to 242.7 ft then back to light-greenish-gray (5*Y* 8/1); hard ground, with glauconite coating overgrown by bryozoans at 243.3 ft, dense limestone with no pore space from 243.3 to 243.6 ft. Box 19.
243.6–249.0 ft: No recovery.

249.0–254.0 ft: **Run 36**

249.0–253.25 ft: MARL, lime sand, dominantly fine, 1–2% subangular quartz sand, vf–f, bryozoans abundant and clam fragments, massive texture with some burrows, 2% phosphate, 10% glauconite, occasional granules of calcite, phosphate and glauconite, sponge spicules abundant, silty but not clayey, yellowish-gray (5*Y*

7/1); top of the run at 249.0 to 249.2 ft could be the base of the hardground which is very dense mostly fossil fragments but moderately abundant foraminifera. Box 20.

253.25–254.0 ft: Reattributed core, as above, from Run 37. Box 20.

254.0–259.0 ft: Run 37

254.0–259.0 ft: MARL, as above, except matrix is vf–f, mottled grayish-yellowish-green (5*GY* 7/2); burrows filled with clayey silt (very fizzy). Box 20 and Box 21.

259 0–269.0 ft: Run 38

259.0–266.0 ft: MARL, as above, except matrix is vf–f, mottled grayish-yellowish-green (5*GY* 7/2); burrows filled with clayey silt (very fizzy). Box 21.

266.0–268.4 ft: LIMESTONE, f –m, abundant shell fragments and echinoid spines, 15% phosphate and glauconite (mostly), yellowish-gray (5*Y* 7/1); abrupt transition from above, ~ 15% unconnected void space. Box 21.

268.4–269.0 ft: No recovery.

269.0–271.0 ft: Run 39

269.0–269.5 ft: LIMESTONE, silty, f–m, abundant shell fragments (c and larger) and echinoid spines, 15% phosphate and glauconite (mostly), yellowish-gray (5*Y* 7/1); ~ 15% unconnected void space. Box 22.

269.5–270.5 ft: MARL, vf–m, silty, ~ 10% glauconite and lesser phosphate, 1–2% subangular quartz, some foraminifera, echinoid fragments, light-greenish-gray (5*GY* 8/1); much less shell fragments, clams and larger, more silty. Box 22.

270.5–271.0 ft: No recovery.

271.0–279.0 ft: Run 40

271.0–274.8 ft: MARL, vf–m, silty, ~ 10% glauconite and lesser phosphate, 1–2% subangular quartz, some foraminifera, echinoid fragments, light-greenish-gray (5*GY* 8/1); much less shell fragments, c and larger, more silty, very fizzy. Box 22.

274.8–275.4 ft: HARDGROUND, dark-yellowish-brown (10*YR* 4/2), on dense limestone very-light-gray (*N* 8); very fizzy. Box 22.

275.4–275.6 ft: HARDGROUND, dark-yellowish-brown (10*YR* 4/2), on dense limestone very-light-gray (*N* 8); very fizzy. Box 22.

275.6–275.8 ft: PEBBLE BED, phosphate to 5cm, quartz to 1cm (yellow), round, olive-black (5*Y* 2/1). Box 22.

275.8–276.6 ft: VUGGY LIMESTONE, 20% shell molds but no transmissivity, very fizzy, olive-gray (5*Y* 4/1). Box 22.

276.6–276.9 ft: LIMESTONE, ~ 15% vuggy, bryozoan and echinoid spines, yellow-gray (5*Y* 7/2); no basal lag bed, much less recrystallized than above, very fizzy, burrows of Castle Hayne Fm. Box 22.

Yaupon Beach Formation

276.9–277.0 ft: SAND, vf–f, silty but not clayey, sparse silvery mica, faint acid fizz, olive-gray (5*Y* 4/1). Box 22.

277.0–279.0 ft: No recovery.

279.0–289.0 ft: Run 41

279.0–283.5 ft: SAND, vf–f, silty, not clayey, sparse silvery mica, small foraminifera, and thin, small pelecypod shells present, sand angular to subangular, olive-gray (5*Y* 3/1); faint to moderate acid fizz, washing revealed low angular cross-bedding, laminae defined by < 1mm thick clayey sands. Box 22 and Box 23.

283.5–284.2 ft: SANDSTONE, f–m, calcite-cemented (very fizzy), m–fraction, subround to round, shell molds present, medium-olive-gray (5*Y* 5/1). Box 23.

284.2–286.3 ft: SAND, vf–f, slightly silty, sparse silvery mica, small foraminifera (faint acid fizz), subangular to subround sand, 1–2% phosphate (mostly fish bone fragments), olive-gray (5*Y* 4/1); no distinct bedding. Box 23.

286.3–289.0 ft: No recovery.

289.0–299.0 ft: Run 42

289.0–296.85 ft: SAND, as above, vf–f, slightly silty, sparse silvery mica, small foraminifera (faint acid fizz), subangular to subround sand, 1 –2% phosphate (mostly fish bone fragments), sparse thin pelecypod shells, olive-gray (5*Y* 4/1); no distinct bedding. Box 23 and Box 24.

296.85–299.0 ft: No recovery.

299.0–305.5 ft: Run 43

299.0–305.2 ft: SAND, as above, vf–f, slightly silty, sparse silvery mica, small foraminifera (faint acid fizz), subangular to subround sand, 1–2% phosphate (mostly fish bone fragments), sparse thin pelecypod shells, olive-gray (5*Y* 4/1); faint low angle cross-bedding back at about 302 ft. Box 24.

305.2–305.5 ft: SANDSTONE, f, shelly, calcareous. Box 25.

305.5–313.5 ft: Run 44

305.5–306.3 ft: SANDSTONE, f to m, shell molds abundant, vuggy, but not interconnected. Box 25.

306.3–313.5 ft: No recovery.

313.5–319.0 ft: **Run 45**

313.5–319.0 ft: SAND, vf (but some f), grades down to vf–f, subangular, 1–2% fish bone fragments, much better layered than above and wavy to planar, very silty but only slightly clayey, vf silvery mica abundant, not fizzy, dense but not lithified; olive-black (5*Y* 2/1). Box 25.

319.0–329.0 ft: **Run 46**

319.0–324.3 ft: SAND, vf -f, subangular, very silty but only slightly clayey, vf grades down to vf–f silvery mica abundant, 1–2% fish bone fragments, much better layered than above and wavy to planar, olive-black (5*Y* 2/1); not fizzy, dense but not lithified. Box 25 and Box 26.

324.3–325.3 ft: SAND, f, vuggy but not interconnected, dense, silty, rapid gradation to sandstone, olive-black (5*Y* 2/1). Box 26.

325.3–326.1 ft: SANDSTONE, f, less vuggy, silty, olive-black (5*Y* 2/1). Box 26.

326.1–326.3 ft: SAND, vf, silty and clayey, olive-gray (5*Y* 4/1). Box 26.

326.3–326.7 ft: SANDSTONE, lime cemented, very dense, vf grading down to fine, light-gray (*N*7). Box 26.

326.7–326.9 ft: SAND, f –c, silty, vf silvery mica, olive-gray (5*Y* 3/1). Box 26.

326.9–329.0 ft: No recovery.

329.0–339.0 ft: **Run 47**

329.0–329.2 ft: SAND, as above, f –c, silty, vf silvery mica, olive-gray (5*Y* 3/1). Box 26.

329.2–339.0 ft: No recovery.

339.0–341.5 ft: **Run 48**

339.0–339.5 ft: SANDSTONE, lime cemented, f –m, shells, ~1% phosphate, quartz subangular to round, very-light-gray (*N*8); burrows obvious, little or no pore space. Box 26.

339.5–341.0 ft: SAND, vf–m, poorly sorted, silty, slightly clayey, 1–2% fish fragments, quartz subangular, sparse shells and foraminifera (maybe on surface), olive-black (5*Y* 2/1). Box 26.

341.0–341.5 ft: No recovery.

341.5–348.5 ft: **Run 49**

341.5–348.2 ft: SAND, mostly f but some m–c, subangular, thin pelecypod shells and fragments scattered throughout, silty, slightly clayey, sparse foraminifera, olive-gray (5*Y* 4/1). Box 26 and Box 27.

348.2–348.5 ft: No recovery.

348.5–359.0 ft: **Run 50**

348.5–349.3 ft: SANDSTONE, lime cemented, mostly f, subangular, shells present, light-gray (*N*7). Box 27.

349.3–350.0 ft: SAND, same as at 341.5–348.2, mostly f but some m-c, subangular, thin pelecypod shells and fragments scattered throughout, silty, slightly clayey, sparse foraminifera, probably condensed, olive-gray (5*Y* 4/1). Box 27.

350.0–350.6 ft: SANDSTONE, same as the footage at 348.5–349.3, lime cemented, mostly f, subangular, shells present, light-gray (*N*7). Box 27.

350.6–350.8 ft: SAND, same as the footage at 349.3–350.0, mostly f but some m-c, subangular, thin pelecypod shells and fragments scattered throughout, silty, slightly clayey, sparse foraminifera, condensed, olive-gray (5*Y* 4/1). Box 27.

350.8–351.1 ft: SANDSTONE, same as the footage at 348.5–349.3, lime cemented, mostly f, subangular, shells present, light-gray (*N*7). Box 27.

351.1–351.2 ft: SAND, same as the footage at 349.3–350.0, mostly f but some m-c, subangular, thin pelecypod shells and fragments scattered throughout, silty, slightly clayey, sparse foraminifera, condensed, olive-gray (5*Y* 4/1). Box 27.

351.2–352.05 ft: SANDSTONE, same as the footage at 348.5–349.3, lime cemented, mostly f, subangular, shells more abundant, light-gray (*N*7). Box 27.

352.05–359.0 ft: No recovery.

359.0–369.0 ft: **Run 51**

359.0–359.3 ft: SANDSTONE, same as the footage at 351.2–352.05 (probably same bed), lime cemented, mostly f, subangular, shells more abundant, light-gray (*N*7). Box 27.

Cretaceous/Paleogene (K/P) Boundary
Peedee Formation

359.3–366.5 ft: SAND, vf (mostly) to m, f-m subangular to round, vf angular to subangular, silty, clayey, sparsely shelly, 1-2% phosphate and glauconite, olive-black (5*Y* 2/1). Box 27 and Box 28.

366.5–367.5 ft: SAND, vf–m, lime-cemented, faintly laminated, some shell, olive-gray (5*Y* 4/1). Box 28.

367.5–368.4 ft: SAND, vf–c but mostly vf–f, silty, clayey, vf –f subangular to subround, m-c subround to round, 1–2% phosphate and glauconite, olive-black (5*Y* 2/1). Box 28.

368.4–369.0 ft: No recovery.

369.0–379.0 ft: **Run 52**

369.0–377.4 ft: SAND, vf–c (but mostly vf–f, silty), clayey, vf –f subangular to subround, m–c subround to round, m–c fraction decreases in abundance downward, 1–2% phosphate and glauconite, olive-black (5*Y* 2/1); faintly laminated, starting at 374.8 ft, additional sandy lenses start to come in to base ~0.1 ft thick, sparse shells present. Box 28 and Box 29.

377.4–377.6 ft: Reattributed core, as above, from Run 53.
377.6–379.0 ft: No recovery.

379.0–389.0 ft: Run 53

379.0–383.0 ft: SAND, as above, vf–c but mostly vf–f, silty, clayey, vf –f subangular to subround, sparse m–c subround to round, 1–2% phosphate and glauconite, sparse shells present, olive-black (5*Y* 2/1); faintly laminated, sandy lenses ~0.1 ft thick. Box 29 and Box 30.
383.0–383.6 ft: SANDSTONE, same as at 366.5–367.5 ft, vf–m, lime-cemented, faintly laminated, some shell, olive-gray (5*Y* 4/1). Box 30.
383.6–388.2 ft: SAND, as above, vf–c but mostly vf–f, silty, clayey, vf –f subangular to subround, sparse m–c subround to round, 1–2% phosphate and glauconite, sparse shells present; olive-black (5*Y* 2/1); faintly laminated, sandy lenses ~0.1 ft thick. Box 30.
388.2–389.0 ft: No recovery.

389.0–399.0 ft: Run 54

389.0–390.4 ft: SAND, vf–c but mostly vf–f, silty, clayey, vf –f subangular to subround, m–c fraction increases again to ~5-10%, subround to round, 1–2% phosphate and glauconite, sparse shells present, olive-black (5*Y* 2/1); faintly laminated, sandy lenses ~0.1 ft thick. Box 30.
390.4–390.7 ft: MICRITE, vf–f, quartz sandy, sparse foraminifera, very fizzy, olive-gray (5*Y* 4/1). Box 30.
390.7–392.1 ft: SAND, as at 389.0–390.4 ft, vf–c but mostly vf–f, silty, clayey, vf –f subangular to subround, m–c fraction increases again to ~5-10%, subround to round, 1–2% phosphate and glauconite, sparse shells present, olive-black (5*Y* 2/1); faintly laminated, sandy lenses ~0.1 ft thick. Box 30.
392.1–393.4 ft: SAND, same as at 366.5–367.5 ft, vf–m, lime-cemented, faintly laminated, some shell, olive-gray (5*Y* 4/1). Box 30 and Box 31.
393.4–395.0 ft: SAND, as at 389.0–390.5 ft, vf–c but mostly vf–f, silty, clayey, vf –f subangular to subround, m–c fraction increases again to ~5-10%, subround to round, 1–2% phosphate and glauconite, sparse shells present, olive-black (5*Y* 2/1); faintly laminated, sandy lenses ~ 0.1 ft thick. Box 31.
395.0–395.2 ft: SANDSTONE, calcite–cemented, like 366.5–367.5 ft, olive-black (5*Y* 2/1). Box 31.
395.2–399.0 ft: No recovery.

399.0–409.0 ft: Run 55

399.0–399.6 ft: SANDSTONE, as at 366.5–367.5 ft, vf–m, CaCo3-cemented, faintly laminated, some shell, olive-gray (5*Y* 4/1). Box 31.
399.6–405.0 ft: SAND, mostly vf–f, subangular to angular, silty, clayey, 2–5% phosphate increasing downward and 15–20% in basal foot, subangular to round, moderate

abundance of shell fragments, some m-c quartz ~5%, mostly subround to round, olive-black (5*Y* 2/1); faint layering locally visible. Box 31.

405.0–409.0 ft: No recovery.

409.0–414.0 ft: Run 56

409.0–413.6 ft: SAND, vf–c, granular, very poorly sorted, angular (vf) to round (c, granules), ~20% phosphate, mostly subround to round, silty, some glauconite ~1%, dark-greenish-gray (5*G* 4/1). Box 31 and Box 32.

413.6–414.0 ft: No recovery.

414.0–419.0 ft: Run 57

414.0–416.7 ft: SAND, as above, vf–c, granular, very poorly sorted, angular (vf) to round (c, granules), ~20% phosphate, mostly subround to round, silty, some glauconite ~1%, dark-greenish-gray (5*G* 4/1); some zones semi-indurated. Box 32.

416.7–417.8 ft: SAND, mostly c –vc but vf –c, abundant granules and small pebbles to 6 mm, silty, dark-greenish-gray (5*G* 4/1); most granules and pebbles are quartz but some phosphate including snail molds and worn sharks teeth, some blue quartz. Box 32.

417.8–419.0 ft: No recovery.

419.0–429.0 ft: Run 58

419.0–422.4 ft: SAND, as above, 416.7–417.8 ft, but coarsens downward, quartz pebbles up to 1cm, (quartz green, yellow and blue), mostly c –vc but vf –c, abundant granules and small pebbles to 6 mm, silty, dark-greenish-gray (5*G* 4/1); most granules and pebbles are quartz with some phosphate including snail molds and worn shark and *Enchodus* teeth. Box 32 and Box 33.

422.4–422.85 ft: QUARTZ / PHOSPHATE SAND, mostly vf–f but up to m-c subround to round, about 15% phosphate and 1% glauconite, silty matrix, moderate fizz, greenish-gray (5*GY* 5/1). Box 33.

422.85–429.0 ft: No recovery.

429.0–434.0 ft: Run 59

429.0–433.6 ft: QUARTZ / PHOSPHATE SAND, 10–15% phosphate with minor CaCO3 sand, quartz vf–vc but mostly vf–f, m –c subround to round, silty and slightly clayey (matrix calcareous), echinoid spines, mollusk chips, some foraminifera, dark-greenish-gray (5*GY* 4/1); locally faintly laminated. Box 33.

433.6–434.0 ft: No recovery.

434.0–439.0 ft: **Run 60**

434.0–438.7 ft: QUARTZ / PHOSPHATE SAND, 15–20% phosphate with minor CO3 sand, mollusk chips and some whole shells, quartz vf–c but mostly vf–f, subround to round, slightly silty, dark-greenish-gray (5*GY* 4/1); locally faintly laminated; from 434.75 to 435.0 ft is a very calcareous layer, with wavy lamination, greenish-gray (5*GY* 5/1). Box 33 and Box 34.

438.7–439.0 ft: No recovery.

438.7–439.0 ft: Reattributed core from Run 61. Box 34.

439.0–446.0 ft: **Run 61**

439.0–446.0 ft: QUARTZ / PHOSPHATE SAND, 15–20% phosphate, vf–f and subangular to round; not calcareous, quartz vf–f and some subround to round medium, slightly silty, dark-greenish-gray (5*GY* 3/1). Box 34.

446.0–454.0 ft: **Run 62**

446.0–449.8 ft: SAND, QUARTZ / PHOSPHATE, 15–20%, quartz vf–m, vf–f is subangular to subround, m subround to round, phosphate is subangular to round, silty but not clayey, not calcareous, greenish-black (5*GY* 2/1); indurated beds at 449.1 to 449.25 ft and at 449.6 to 449.7 ft, olive-gray (5*Y* 3/1). Box 34 and Box 35.

449.8–454.0 ft: No recovery.

454.0–459.0 ft: **Run 63**

454.0–455.2 ft: SAND, QUARTZ / PHOSPHATE, as above, 15–20%, quartz vf–m, vf–f is subangular to subround, m subround to round; phosphate is subangular to round, silty but not clayey, not calcareous; 11 short indurated zones were recovered, everything in between blew away; indurated zones poorly sorted, mostly vf–m but up to vc, olive-gray (5*Y* 3/1). Box 35.

455.2–459.0 ft: No recovery.

459.0–464.0 ft: **Run 64**

459.0–462.05 ft: SANDSTONE, vf to m, vf angular to subangular, f subangular to subround, m subround to round, 5–10% phosphate, subround to round, some polished pelloids (f), sparse m-vc fish spine fragments, slightly silty, olive-gray (5*Y* 3/1); indurated, vuggy but not interconnected. Box 35.

462.05–464.0 ft: No recovery (probably unlithified sand).

464.0–469.0 ft: **Run 65**

464.0–467.55 ft: SAND, semi-indurated, vuggy, coarser than above (~20% m- granuler, subround to round), vf–f about 80%, subangular to subround, shell hash about 10%, 15-20% phosphate (f–m mostly but up to granule size, subround to round and rather polished), 2–5% of volume rounded and polished quartz and phosphate granules, moderate matrix acid fizz, one fish tooth fragment, olive-gray (5*Y* 3/1). Box 35 and Box 36.

467.55–469.0 ft: No recovery (probably unlithified sand).

469.0–474.0 ft: **Run 66**

469.0–474.0 ft: SAND, as above, except not indurated, quartz up to 8 mm (small pebbles and granules), olive-gray (5*Y* 4/1); some blotchy areas have abundant calcite silt (blotchy areas are rip-up clasts). Box 36.

474.0–479.0 ft: **Run 67**

474.0–479.0 ft: SAND, as above but with increasing silt content and slightly more clayey, olive-gray (5*Y* 4/1). Box 36 and Box 37.

479.0–486.5 ft: **Run 68**

479.0–486.1 ft: SAND, vuggy, coarser than above, ~20% m-granuler, subround to round, vf–f about 80% subangular to subround, shell hash about 10%, 15–20% phosphate, f–m mostly but up to granule size, subround to round and rather polished, 2–5% of volume rounded and polished quartz and phosphate granules, moderate matrix acid fizz, fish tooth fragment, not indurated, quartz clasts up to 8 mm (small pebbles and granules), granules/pebbles drops to 1-2%, some blotchy areas have increased abundant calcite silt (blotchy areas are rip-up clasts), silt content increases and slightly clayey; olive-gray (5*Y* 4/1). Box 37 and Box 38.

486.1–486.4 ft: MICRITE, sandy, vf–m quartz ~30%, phosphate ~5 –10% mostly f and rounded, silvery mica present and small foraminifera moderately common, carbonate silt and clay 60–65%, some echinoid spines, medium-olive-gray (5*Y* 5/1); very fizzy. Box 38.

486.4–486.5 ft: No recovery.

486.5–489.0 ft: **Run 69**

486.5–486.6 ft: MICRITE, sandy, vf–m quartz ~30%, phosphate ~5 –10% mostly f and rounded, silvery mica present and small foraminifera moderately common, carbonate silt and clay 60–65%, some echinoid spines, medium-olive-gray (5*Y* 5/1); very fizzy. Box 38.

486.6–488.7 ft: SAND, vuggy, coarser than above, ~20% m-granuler, subround to round, vf–f about 80% subangular to subround, shell hash about 10%, 15–20% phosphate

(f–m) mostly but up to granule size, subround to round and rather polished, about 2–5% of volume rounded and polished quartz and phosphate granules, moderate matrix acid fizz, fish tooth fragment, not indurated, clasts quartz up to 8mm (small pebbles and granules), granules/pebbles drops to 1-2%, some blotchy areas have increased abundant calcite silt (blotchy areas are rip-up clasts), silt content increases and slightly clayey, olive-gray (5*Y* 4/1). Box 38.

488.7–489.0 ft: MICRITE, sandy, vf–m quartz ~30%, phosphate ~5 –10% mostly f and rounded, silvery mica present and small foraminifera moderately common, carbonate silt and clay 60–65%, some echinoid spines, medium-olive-gray (5*Y* 5/1); very fizzy. Box 38.

489.0–499.0 ft: Run 70

489.0–493.6 ft: SAND, vuggy, coarser than above, ~20% m-granuler, subround to round, vf–f about 80% subangular to subround, shell hash about 10%, 15–20% phosphate f–m mostly but up to granule size, subround to round and rather polished, about 2–5% of volume rounded and polished quartz and phosphate granules, fish tooth fragment, not indurated, clasts quartz up to 8 mm (small pebbles and granules), granules/pebbles drops to 1-2%, some blotchy areas have increased abundant calcite silt (blotchy areas are rip-up clasts), silt content increases and slightly clayey, olive-gray (5*Y* 4/1); moderate matrix acid fizz. Box 38.

493.6–494.0 ft: MICRITE, sandy, vf–m quartz ~30%, phosphate ~5 –10% mostly f and rounded, silvery mica present and small forams moderately common, carbonate silt and clay 60–65%, some echinoid spines, medium-olive-gray (5*Y* 5/1); very fizzy. Box 38.

494.0–496.4 ft: SAND, vuggy, coarser than above, ~20% m-granuler, subround to round, vf–f about 80% subangular to subround, shell hash about 10%, 15–20% phosphate f–m mostly but up to granule size, subround to round and rather polished, about 2–5% of volume rounded and polished quartz and phosphate granules, fish tooth fragment, not indurated, clasts quartz up to 8mm (small pebbles and granules), granules/pebbles drops to 1-2%, some blotchy areas have increased abundant calcite silt (blotchy areas are rip-up clasts), silt content increases and slightly clayey, olive-gray (5*Y* 4/1); moderate matrix acid fizz. Box 38 and Box 39.

496.4–497.6 ft: PEBBLY SAND, quartz pebbles to 12mm, phosphate to 9 mm, mostly quartz pebbles, rounded, sand mostly CaCO3, vf–f (but some quartz too) with smattering of m–vc subround to round quartz, light-olive-gray (5*Y* 6/1). Box 39.

497.6–499.0 ft: SAND, vf–f, angular to subangular, with 1–2% m- c subround to round, 2–5% phosphate (f –m), subround to round, very silty and clayey, scattered small foraminifera, echinoid spines and crinoid columnals, olive-gray (5*Y* 3/1); fizzy matrix. Box 39.

499.0–509.0 ft: Run 71

499.0–506.5 ft: SAND, mostly f but scattered m –c quartz and phosphate, round, silty, clayey, slightly calcareous matrix, olive-gray (5*Y* 3/1); scattered pockets of rounded

quartz granules and pebbles to 11mm, scattered worn shark teeth, belemnite and crinoid columnals, sparse shell fragments. Box 39 and Box 40.

506.5–509.0 ft: No recovery.

509.0–513.0 ft: Run 72

509.0–512.8 ft: SAND, mostly f but scattered m –c quartz and phosphate, round, silty, clayey, slightly calcareous matrix, olive-gray (5*Y* 3/1); scattered more gravelly pockets of rounded quartz granules and pebbles to 11mm, scattered worn shark teeth, belemnite columnals but no visible crinoid columnals, sparse shell fragments. Box 40

512.8–513.0 ft: CALCITE CEMENTED QUARTZ GRAVEL, *Squalicorax kaupi* tooth present, olive-gray (5*Y* 4/1); wore out shoe. Box 40.

513.0–519.0 ft: Run 73

513.0–513.25 ft: CALCITE CEMENTED QUARTZ GRAVEL, *Squalicorax kaupi* tooth present, olive-gray (5*Y* 4/1); wore out drill shoe. Box 40.

513.25–513.8 ft: PEBBLY SAND, quartz and phosphate up to 1cm, sand matrix vf –f, angular to subangular with m –vc subround to round, slightly silty and clayey, 2 –5% phosphate, olive-gray (5*Y* 3/1). Box 40.

513.8–514.5 ft: INTERBEDDED SAND and CLAYEY SILT, sand f, subangular to subround, with 10% round f –m quartz grains, no phosphate; sand is dark-greenish-gray (5*GY* 4/1), clay is olive-black (5*Y* 2/1). Box 40.

514.5–514.8 ft: PEBBLY SAND, quartz and phosphate up to 1cm, sand matrix vf –f, angular to subangular with m –vc subround to round, slightly silty and clayey, 2 –5% phosphate, olive-gray (5*Y* 3/1). Box 40.

Unnamed Unit

514.8–515.15 ft: INTERBEDDED SAND and CLAYEY SILT, sand f, subangular to subround, with 10% round f –m quartz grains, no phosphate; sand is dark-greenish-gray (5*GY* 4/1), clay is olive-black (5*Y* 2/1). Box 40.

515.15–519.0 ft: No recovery.

519.0–529.0 ft: Run 74

519.0–522.45 ft: SAND, vf–f, (with scattered round medium grains), vf–f subangular to subround, sparse foraminifera, 1-2% phosphate, silty and clayey, olive-gray (5*Y* 3/1); faintly planer to wavy lamination. Box 40 and Box 41.

522.45–529.0 ft: No recovery.

529.0–535.25 ft: **Run 75**

529.0–532.9 ft: No recovery.

532.9–534.6 ft: SAND, vf–f, (with scattered round medium grains), vf–f subangular to subround, sparse foraminifera, 1-2% phosphate, silty and clayey, olive-gray (5*Y* 3/1); planer to wavy lamination more obvious. Box 41.

534.6–535.25 ft: SAND, vf–f, angular to subround, 2–5% phosphate/glauconite, sparse silvery mica, rare foraminifera and echinoid spines, abundant clay–silt, vf calcite, medium-olive-gray (5*Y* 5/1); strong reaction to HCL. Box 41.

535.25–539.0 ft: **Run 76**

535.25–535.9 ft: SAND, vf–f, angular to subround, 2–5% phosphate/glauconite, sparse silvery mica, rare foraminifera and echinoid spines, abundant clay–silt, vf calcite, medium-olive-gray (5*Y* 5/1); strong reaction to HCL. Box 41.

535.9–536.95 ft: SAND, vf–f, subangular (with rare round medium grains), ~ 5% phosphate/glauconite, foraminifera moderately abundant, clayey and silty, olive-gray (5*Y* 3/1); weak reaction to HCL, wavy lamination. Box 41.

536.95–539.0 ft: No recovery.

539.0–549.0 ft: **Run 77**

539.0–543.2 ft: SAND, vf –f, subangular to subround, 5–10% phosphate/glauconite, rare foraminifera, clayey and silty, silvery mica present, olive-gray (5*Y* 3/1); fizzy matrix, faint lamination. Box 41 and Box 42.

543.2–549.0 ft: No recovery.

549.0–554.5 ft: **Run 78**

549.0–550.95 ft: No recovery.

550.95–554.1 ft: SAND, vf –f, subangular to subround, 5–10% phosphate/glauconite, rare foraminifera, clayey and silty, silvery mica present, olive-gray (5*Y* 3/1); fizzy matrix, laminations are prominent. Box 42.

554.1–554.5 ft: SAND, vf–f, angular to subround, 2–5% phosphate/glauconite, sparse silvery mica, sparse foraminifera, abundant clay–silt -vf calcite, olive-gray (5*Y* 4/1); strong reaction to HCL. Box 42.

554.5–559.0 ft: **Run 79**

554.5–554.9 ft: SAND, vf–f, angular to subround, 2–5% phosphate/glauconite, sparse silvery mica, sparse foraminifera, burrows visible, abundant clay–silt -vf calcite, olive-gray (5*Y* 4/1); strong reaction to HCL. Box 42.

554.9–559.0 ft: SAND, vf–f, angular to subround, 5–10% phosphate and glauconite, foraminifera moderately abundant, clayey and silty, rare flakes of silvery mica, olive-gray (5*Y*

3/1); bedding prominent (low angle cross-bedding), sparse shell fragments, grades down to olive-black (5*Y* 2/1); fizzy matrix. Box 42.

559.0–569.0 ft: **Run 80**

559.0–569.0 ft: SAND, vf–f, angular to rare subround, 2- 5% phosphate /glauconite, sparse foraminifera and silvery mica, clayey and silty, fizzy matrix, sparse shell fragments, sparse echinoid spines, broken fish vertebra, color ranges from olive-gray (5*Y* 3/1) to olive-black (5*Y* 2/1), back and forth; prominent low angle cross-bedding except at 562.0–566.0 ft which is prominently burrowed. Box 42 and Box 43.

569.0–579.0 ft: **Run 81**

569.0–570.25 ft: SAND, vf–f, angular to subround (with minor medium subangular to round), 5–10% phosphate /glauconite, subround to round, some silvery mica, silty and clayey (but less than above), foraminifera, ostracodes and echinoid spines in sand fraction, olive-gray (5*Y* 3/1); burrowed, calcareous matrix. Box 43 and Box 44.

Donoho Creek Formation

570.25–578.4 ft: SILT, clayey, vf to rare f sandy, angular to subangular (f subangular to subround), sticky and stiff, silvery mica common, moderately abundant foraminifera, olive-black (5*Y* 3/1); 1-2 mm clumps of pyrite present here and there, fizzy matrix, faint low angle cross-bedding. Box 44.

578.4–579.0 ft: No recovery.

579.0–589.0 ft: **Run 82**

579.0–585.1 ft: SILT, as above, vf–f (angular to subround), rare subround to round m grains, very silty and clayey, olive-black (5*Y* 3/1); very dense (almost no pore space) at top but grades down to sand, matrix fizzy, faint low angle cross-bedding. Box 44 and Box 45.

Bladen Formation

585.1–589.0 ft: SAND, SILTY and CLAYEY (but less than above), f –m mostly, but vf–f subangular to subround, and m –vc subround to round, granules of quartz and phosphate present to abundant, 5 –10% phosphate/glauconite that is subround to round, some silvery mica, olive-gray (5*Y* 3/1); calcareous matrix, several large blobs of pyrite up to 25mm across, burrowed and nearly massive texture, excess recovery (0.3 ft) due to core expansion. Box 45.

589.0–599.0 ft: **Run 83**

589.0–597.55 ft: SAND, SILTY and CLAYEY, dense, f –c (subangular to round), 5–10% phosphate/glauconite (subround to round), rare foraminifera, some silvery mica, rare large shells still present and blebs of pyrite to 5mm across, olive-black (5*Y* 2/1); faintly laminated to massive. Box 46.

597.55–599.0 ft: No recovery.

599.0–609.0 ft: **Run 84**

599.0–607.3 ft: SAND, f (subangular to subround) to m (subround to round) and sparse round coarse, 1 –2% phosphate/glauconite, silty and clayey, fizzy matrix, rare quartz granules, somewhat better sorted than above, at 600.9 ft a large shell (*Exogyra*?), local faint lamination, at 604.9 ft a pyrite lense replacement or fracture filling; olive-black (5*Y* 2/1). Box 46 and Box 47.

607.3–607.7 ft: SAND, quartz (mostly f subangular to subround but with rare round m-c), slightly silty, ~1% phosphate/glauconite/pyrite, olive-gray (5*Y* 4/1); much more crumbly than above, no reaction to HCL. Box 47.

607.7–609.0 ft: No recovery, probably sand.

609.0–619.0 ft: **Run 85**

609.0–614.2 ft: No recovery, probably sand.

Coachman Formation

614.2–614.6 ft: SAND, same as above, quartz, mostly f, subangular to subround but with rare round m-c, slightly silty, ~1% phosphate/glauconite/pyrite, olive-gray (5*Y* 4/1); much more crumbly than above, no reaction to HCL, gradational contact at 614.6 ft. Box 47.

614.6–619.0 ft: SILT, very clayey, dense, stiff, vf to rare f sandy (angular to subangular), ~ 1% silt vf sand phosphate/glauconite, silvery mica abundant, olive-black (5*Y* 2/1); low angular cross-bedding fairly prominent. Box 47 and Box 48.

619.0–629.0 ft: **Run 86**

619.0–623.1 ft: SILT, very clayey, grading down to silt, clayey, abundant vf sand, minor fraction f –m subround to round quartz, phosphate and glauconite?, olive-black (5*Y* 2/1); faintly bedded and burrow mottled, lower portion has fizzy matrix. Box 48.

623.1–626.4 ft: SAND, vf–f (angular to subangular) with a m granular fraction (subround to round), ~25% phosphate (round to lumpy), silvery mica present, silty and clayey, olive-black (5*Y* 2/1); matrix fizzy, massive texture. Box 48 and Box 49.

626.4–627.1 ft: SAND, matrix as above but pebbles of rock and shell abundant, clasts up to 15mm; olive-black (5Y 2/1). Sharp, rolling contact. Box 49.

Cane Acre Formation

627.1–629.0 ft: SAND, fine, well-sorted, subround, rare round m grains, ~1% glauconite, greenish-gray (5*GY* 6/1); clean, strong hydrocarbon smell in basal 0.5 ft of this run (628.5–629.0 ft). Box 49.

629.0–634.0 ft: Run 87

629.0–629.9 ft: SAND, f-m, well-sorted, subangular to subround, rare round, rare silvery mica, ~ 1% phosphate/glauconite, greenish-gray (5*GY* 6/1). Box 49.

629.9–634.0 ft: No recovery.

634.0–639.0 ft: Run 88

634.0–638.55 ft: SAND, vf to mostly f, subangular, 1–2% phosphate/glauconite, lightly calcareous matrix, slightly silty and clayey, occasional thin pelecypod shells throughout and small patches of lignite, silvery mica (more abundant than before) and some sand (c), thin 1mm to 1cm clayey sand lenses scattered throughout; 634.5–635.5 ft is partially calcite indurated, sparse burrow mottling, local low angular cross-bedding; clayey lenses are olive-gray (5*Y* 3/1), sands are dark-greenish-gray (5*GY* 4/1), and calcite indurated zone is light-olive-gray (5*Y* 6/1). Box 49.

638.55–639.0 ft: No recovery.

639.0–649.0 ft: Run 89

639.0–645.6 ft: SAND, as above, clayey zones mostly 1 –2mm in this internal, low angle cross-bedding; clayey zones are olive-gray (5*Y* 3/1), sands are dark-greenish-gray (5*GY* 4/1). Box 49 and Box 50.

645.6–646.55 ft: SAND, vf, very silty and clayey, calcareous matrix, silvery mica abundant, faintly laminated; olive-gray (5*Y* 3/1). Box 50.

646.55–647.0 ft: SAND, as at 634.0–638.55 ft, vf to mostly f, subangular, 1–2% phosphate/glauconite, lightly calcareous matrix, slightly silty and clayey, occasional thin pelecypod shells throughout and small patches of lignite, silvery mica (c) more abundant than before, thin 1mm to 1cm clayey sand lenses scattered throughout; partially calcite indurated, sparse burrow mottling, local low angle cross-bedding; clayey lenses are olive-gray (5*Y* 3/1), sands are dark-greenish-gray (5*GY* 4/1), and calcite indurated zone is light-olive-gray (5*Y* 6/1). Box 50.

647.0–647.35 ft: SAND, vf, very silty and clayey, calcareous matrix, silvery mica abundant, laminated; olive-gray (5*Y* 3/1).

647.35–647.75 ft: SAND, as at 634.0–638.55 ft, vf to mostly f, subangular, 1–2% phosphate/glauconite, lightly calcareous matrix, slightly silty and clayey, occasional thin pelecypod shells throughout and small patches of lignite, silvery mica more abundant than before and up to c sand diameter, thin 1mm to 1cm clayey vd sand lenses scattered throughout, is partially calcite indurated, sparse

burrow mottling, local low angular cross-bedding; clayey lenses are olive-gray (*5Y* 3/1), sands are dark-greenish-gray (5*GY* 4/1), and calcite indurated zone is light-olive-gray (5*Y* 6/1). Box 50.

647.75–648.25 ft: SAND, vf, very silty and clayey, calcareous matrix, silvery mica abundant, shelly, faintly laminated; olive-gray (5*Y* 3/1). Box 50.

648.25–649.0 ft: No recovery.

649.0–659.0 ft: Run 90

649.0–653.35 ft: SILT, vf sandy, clayey, matrix calcareous, lignitic, rare ostracodes, sand angular to subangular, faintly laminated; sand olive-gray (5*Y* 3/1) with vf sand filled burrows that are light-olive-gray (5*Y* 6/1). Box 50 and Box 51.

653.35–653.9 ft: Reattributed core from Run 91, lithology as above. Box 51.

653.9–659.0 ft: No recovery.

659.0–669.0 ft: Run 91

659.0–669.0 ft: SAND, vf, silty, clayey, silvery mica abundant, shells and shell molds abundant, calcareous matrix, 1–2% phosphate/glauconite/lignite, rare benthic foraminifera, sand, olive-black (5*Y* 2/1); planar to low angular cross-bedding laminations pervasive, burrows abundant full of vf clean sand, grades down to silt, very clayey, vf sandy, otherwise as above. Box 51 and Box 52.

669.0 -679.0 ft: Run 92

669.0–679.0 ft: SILT, clayey and sandy (vf –f); sand is vf –f quartz, subrounded, at ~10%, concentrated in thin, flattened burrows; shell fragments and small mollusks at ~10%; mica at 5%; pyrite nodules throughout, up to 6cm in length, trace amounts of chlorite and microfossils (ostracodes); olive-gray (5*Y* 4/1), some burrows are slightly indurated, burrowing can be intense; moderate reaction to HCL; faintly laminated and burrowed, slight conchoidal fracture when broken. Box 52 and Box 53.

679.0–689.0 ft: Run 93

679.0 –689.0 ft: SANDY SILT, sand is vf –f, subrounded well–sorted quartz, increasing to 10-15% near base of core; mica at 3 –5 %, with trace amounts or chloritic mica; trace amounts of glauconite, foraminifera and ostracodes; increasing lignite (trace to 1%) near base of core, pieces up to 2cm in length; shell material locally up to 5%, but usually at 1 –2%, dark-greenish-gray (5*GY*4/1); moderate reaction to HCL; massive and burrow mottled, with increasing sand content down section; some burrows are partially indurated, some shell material has nacreous luster; base of core is highly bioturbated! Box 53 and Box 54.

689.0–699.0 ft: **Run 94**

689.0–690.0 ft: SILTY CLAY, as below. Contact at 690.0 ft, sandier, very burrowed above and clay below. Box 54.

690.0–698.6 ft: SILTY CLAY, finely laminated, with conchoidal fracture and very thin, discontinuous sand layers (<1mm), sand (vf), subrounded quartz, well-sorted, occurs in thin layers, and in small burrows, it is occasionally indurated, mica at 1 –2%, trace amounts of chloritic mica, fish scales and benthic foraminifera, shell fragments and ghosts locally up to 3%, very different from silt above, moderate reaction to HCL; olive-gray (5*Y* 4/1). Box 54 and Box 55.

698.6–699.0 ft: No recovery.

699.0–709.0 ft: **Run 95**

699.0–706.4 ft: SILTY CLAY, massive, with conchoidal fracture, only very faint laminations, sand, vf –f, subrounded, well-sorted quartz present in small burrows and blebs, trace amounts of mica, locally up to 3%, benthic foraminifera present, sparse shelly material (approximately 1%), trace amounts of glauconite, dark-greenish-gray (5*GY* 4/1); moderate reaction to HCL. * Top foot of Run 95 is probably the chewed up stem left in the corehole from the previous run. Do Not Sample! Box 55 and Box 56.

706.4–709.0 ft: No recovery.

709.0–719.0 ft: **Run 96**

709.0–711.2 ft: SILTY SAND, f –m, subangular to subrounded, poorly sorted quartz locally with coarse grains of mica (muscovite and chloritic) at 2 –3%, glauconite at ~1%, lignite at 5 –7%, trace amounts of pyrite and amber, scattered shell fragments, with whole oyster shell, rare foraminifera (benthic), occasional phosphate pebbles up to 1cm in length, rare fish scales; color is between olive-gray (5*Y* 4/1) and dark-greenish-gray (5*GY* 4/1); matrix is up to 30% silt and clay, strong reaction to HCL; core is highly bioturbated and massive. Box 56.

711.2–716.2 ft: CLAYEY SILT, conchoidal fracture, faintly laminated, sand (vf), subrounded, well-sorted quartz at < 10% with occasional scattered granules, mica at 2–3%, foraminifera common, shell fragments at 1%, sand is concentrated in thin layers and burrows; strong reaction to HCL, core grades to a silty sand near the base. Reattributed core from Run 97. Box 56.

716.2–719.0 ft: No recovery.

719.0–724.0 ft: **Run 97**

719.0–724.0 ft: SILTY SAND, c–f, poorly–sorted, subrounded to subangular quartz in silty/clayey matrix (up to 30%), mica at 1–2%, phosphate locally up to 10%, foraminifera common, shell fragments sparse and occasional “ghost” mollusks occur, olive-black (5*Y* 2/1); strong reaction to HCL. Box 56 and Box 57.

724.0–729.0 ft: **Run 98**

724.0–729.0 ft: SANDY SILT, massive, with well–defined burrows, sand (20%) (vf –f), well-sorted, subrounded quartz and glauconite (20-30%), with mica at 10%, lignite (2-3%), and microfossils (benthic foraminifera common, rare ostracodes), shell fragments rare, rare sponge spicules, olive-gray (5*Y* 2/1); strong reaction to HCL. Box 57.

729.0–739.0 ft: **Run 99**

729.0–739.0 ft: SANDY SILT, massive with some burrowing, sand (20-30%), is vf–f, subrounded to subangular, well-sorted quartz and glauconite (~15–20%), with mica at 10%, foraminifera common, shell material and fragments locally up to 5%, but more commonly at 1 –2%, pyrite nodules at 1.5 cm scattered throughout, greenish-black (5*GY* 2/1); core reacts strongly to HCL, lignite is rare (<1%). Box 57 and Box 58.

739.0–749.0 ft: **Run 100**

739.0–749.0 ft: SANDY SILT, as above, but with increased foraminifera and pyrite nodules up to 3 cm in length; sand is vc–f, poorly sorted, subangular quartz with granules (up to 2%) and trace amounts of blue quartz, rare ray teeth (broken) and angular quartz; sand content increases down core, becoming coarser near the bottom, bottom foot of core; greenish-black (5*GY* 2/1); core is massive and bioturbatred, showing only occasional faint laminations, strong reaction to HCL. Box 59 and Box 60.

749.0–759.0 ft: **Run 101**

749.0–754.0 ft: SILTY SAND, vc–f, poorly sorted, angular to subangular quartz in silty matrix (20–30%), trace amounts of rose quartz, blue quartz, phosphate, pebbles are rare, granules at 1 –2%, mica at <1%, pyrite nodules common (some up to 3.5 cm in length), benthic foraminifera present, glauconite at 1–2%, olive-black (5*Y* 2/1); small, indurated nodules scattered throughout; very strong reaction HCL; sand is massive, but interbeds with silty clays (see below), small pieces of shark's teeth are present. Box 60.

754.0–757.2 ft: SILTY CLAY, faintly laminated with conchoidal fracture, mica at 2–3%, foraminifera (benthic) present, and coarse, subrounded quartz grains in the matrix, olive-gray (5*Y* 4/1); clay beds up to 1.8 ft in length, more commonly less than 0.2 ft: very strong reaction to HCL. Box 60.

757.2–759.0 ft: No recovery.

759.0–768.0 ft: **Run 102**

759.0–761.2 ft: SILTY SAND, vc–f, subangular to angular, poorly sorted quartz in muddy matrix (~ 30%), trace mounts of phlogopite, phosphate at 1%, rare scattered shell

material, lignite at 1 –2%, olive-black (5*Y* 2/1); sand is massive, small pyrite nodules; moderate reaction to HCL. Box 60 and Box 61.

761.2–761.9 ft: SILTY CLAY, dense, with conchoidal fracture and burrows filled with f –m quartz sand with minor amounts of glauconite and benthic foraminifera, mica at 5–10% and small benthic foraminifera are common, olive-black (5*Y* 2/1); reacts strongly to HCL. Box 61.

761.9–768.0 ft: No recovery.

768.0–775.5 ft: Run 103

768.0–771.7 ft: SILTY CLAY, tight and dry, with conchoidal fracture, sand (15 –20%) is vf –m, rounded to subrounded, well-sorted quartz with glauconite at 10-15% (predominantly medium grained), mica at 2 –3%, common benthic foraminifera, rare shell material; greenish-black (5*GY* 2/1); thin clay layer near base in clay with glauconite grains (moderate-yellowish-brown (10*YR* 5/4). Box 61.

771.7–775.5 ft: No recovery.

Caddin Formation

775.5–779.0 ft: Run 104

775.5–776.5 ft: SANDY SILT, dense, and finely laminated, with clay layer up to 0.2 ft thick, very abundant benthic foraminifera (with occasional ostracodes and rare planktic foraminifera, sand is vf –f, well-rounded well-sorted quartz (at 20–30%) with glauconite at ~10%, shell fragments at 1-2% and echinoid spines at 1 –2%, mica at 1–2%, pyrite present as nodules and disseminated fines, lignite pieces up to 5cm in length, olive-black (5*Y* 2/1); glauconite concentrated in layers; strong reaction to HCL. Box 61 and Box 62.

776.5–779.0 ft: SANDY SILT, as below; reattributed core from Run 105, Do Not Sample!

779.0–784.0 ft: Run 105

779.0–782.5 ft: SANDY SILT, dense, with conchoidal fracture, sand (10-15%) vf–m, subrounded, moderately well-sorted quartz with glauconite at 5 –7%, mica at 2-3%, rare foraminifera, pyrite nodules common, dark-greenish-gray (5*GY* 4/1); core is highly bioturbated, with glauconite concentrated in burrows, scattered shell fragments increase towards bottom; strong reaction to HCL. Box 62.

782.5–784.0 ft: No recovery.

784.0–789.0 ft: Run 106

784.0–786.7 ft: SANDY SILT, dense, highly bioturbated, with sand (vf–f), subrounded, well–sorted quartz and glauconite (20%), trace amounts of pyrite, mica at 2 –5%, common benthic foraminifera, shell fragments locally up to 5%, with whole

shells up to 4.5 cm (articulated?), pyrite nodules up to 2cm, olive-gray (5*Y* 4/1); contact between silt and clay is undulatory and burrowed; strong reaction to HCL. Box 62.

786.7–789.0 ft: SANDY CLAY, dense, with wavy lamination and sand occurring in burrows and thin layers, shell fragments scattered throughout; sand is vf, well-sorted subrounded quartz with glauconite (5 –10%), mica at 5%, large burrows to base of core; strong reaction to HCL; colors between olive-gray (5*Y* 4/1) and olive-black (5*Y* 2/1). Box 62.

789.0–792.5 ft: Run 107

789.0–791.2 ft: SANDY CLAY, dense, with conchoidal fracture, sand (20 –30%) is f –m, rounded to subrounded, well –sorted phosphate (70%), glauconite (< 10%) and quartz, sand content increases down core, becoming a clayey sand at the base, shell fragments are common throughout increasing down core, the basal 0.4 ft is semi-indurated, occasional quartz granules and small pyrite nodules throughout, very strong reaction to HCL; grades from olive-black (5*Y* 2/1) at the top to greenish-black (5*GY* 2/1) at the bottom. Box 62 and Box 63.

Shepherd Grove Formation

791.2–792.5 ft: No recovery.

792.5–799.0 ft: Run 108

792.5–798.2 ft: SANDY SILT, dense, ~60% silt and clay, ~40% sand, f–vf sand, highly bioturbated, sand grains are rounded to subangular, phosphate content is ~10%, glauconite content is ~ 20%, moderately sorted, greenish-black (5*G* 2/1); shell fragments all through the core, pyrite nodules up to 0.5 cm and pyrite disseminated in trace amounts through the core, shell fragments up to 6 mm (*Exogyra*), strong reaction to HCL, highly burrowed *Exogyra* oyster towards the bottom 5 cm in width. *Note: Run 108 was not labeled in box 63. Box 63.

798.2-799.0 ft: SANDY SILT, as above, reattributed core from Run 109, Do Not Sample!

799.0–805.5 ft: Run 109

799.0–805.5 ft: GLAUCONITIC SAND, f –c, moderately sorted, rounded to subangular glauconite (60 –65%), quartz (20 –25%), phosphate (10 –15%), mica at 1 –2%, benthic foraminifera in trace amounts, shell fragments common (with occasional whole shells), clayey matrix at 10%, greenish-black (5*G* 2/1); core is massively bioturbated, basal core is semi–indurated with calcite cement; core reacts weakly to HCL, small rare pyrite nodules. Box 63 and Box 64.

805.5–816.0 ft: **Run 110**

805.5–810.0 ft: GLAUCONITIC SAND, as above, f –c, moderately sorted, rounded to subangular glauconite (60 –65%), quartz (20 –25%), and phosphate (10 –15%), mica at 1 –2%, benthic foraminifera in trace amounts, shell fragments common (with occasional whole shells), clayey matrix at 10%, greenish-black (5*G* 2/1); core is massively bioturbated, basal core is semi–indurated with calcite cement; core reacts weakly to HCL, small rare pyrite nodules; contact is sharp. Box 64 and Box 65.

Pleasant Creek Formation

810.0–815.2 ft: SANDY SILT, bioturbated, with wavy, laminated bedding, faint, minor cross-bedding, and clay–lined burrows, sand (15–20%) is f –c, poorly sorted, with glauconite (~10%), mica at 5%, common pyrite nodules and shell fragments; olive-black (5*Y* 2/1); shallower facies than above, weak reaction to HCL. Box 65.

815.2–816.0 ft: Reattributed core, same as above, from Run 111. Box 65.

816.0–824.0 ft: **Run 111**

816.0–820.0 ft: SANDY SILT, as above, olive-black (5*Y* 2/1); becoming sandier downcore and grading to a silty sand. Box 65 and Box 66.

820.0–822.8 ft: SILTY SAND (at 820.0 ft), sand is vf –m, moderately well-sorted, subrounded to angular quartz in muddy matrix (<10%), glauconite at 1 –2%, lignite at 1 –2%, mica at 1 –2%, sparse shelly fragments and occasional pyrite nodules up to 4 cm in length, olive-gray (5*Y* 4/1); sand becomes very loose at ≈ 818.5 ft, clay matrix is in small layers and stringers; no reaction to HCL; core becomes a sandy silt at 822.8 ft. Box 66.

822.8–824.0 ft: SANDY SILT, as above, olive-black (5*Y* 2/1). Box 66.

824.0–829.0 ft: **Run 112**

824.0–829.0 ft: SANDY SILT, finely laminated, wavy bedding with sand (20%), greenish-black (5*GY* 2/1); vf –f, well-sorted, subangular to subrounded quartz with glauconite (20%) and phosphate (< 5%), mica at 2 –3%, rare benthic foraminifera, whole oyster shells and fragments common, articulated shell, pyrite nodules up to 1.5 cm in length; core is bioturbated and glauconite is commonly concentrated in burrows; strong reaction to HCL; reattributed core from Run 113. Box 66 and Box 67.

829.0–834.0 ft: **Run 113**

829.0–833.3 ft: SANDY SILT, as above, but with decreasing sand content downcore; sand becomes less rich in glauconite (5–10%) and richer in mica (5 –10%); bottom

half foot of core is slightly indurated with calcite cement; greenish-black (5*G* 2/1). Box 67.

833.3–833.9 ft: SILTY SAND, vf–m, moderately sorted, subangular to subrounded quartz and glauconite (20 –30%) in muddy matrix (~10%) clay in thin stringers and as burrow linings, small granules, small pyrite nodules, greenish-black (5*GY* 2/1); sand silt is undulatory and burrowed, no reaction to HCL, reattributed core from Run114. Box 67.

833.9–834.0 ft: No recovery.

834.0–839.0 ft: Run 114

834. 0–836.5 ft: SILTY SAND, vf–m, moderately sorted, subangular to subrounded quartz and glauconite (20 –30%) in muddy matrix (~10%), clay in thin stringers and as burrow linings, small granules, small pyrite nodules, greenish-black (*5GY* 2/1); contact (phosphate at approximately 7–10%) with sandy silt is undulatory and burrowed; no reaction to HCL. Box 67.

836.5–839.0 ft: SANDY SILT, finely laminated, with sand (<20%) vf –f, subrounded, well–sorted quartz and glauconite (< 10%), mica at 10%, small pyrite nodules throughout, no shell material, dark-greenish-gray (5*GY* 4/1); no reaction to HCL; core is bioturbated. Box 67 and Box 68.

839.0–849.0 ft: Run 115

839.0–846.1 ft: SANDY SILT, as above, grading down to silty sand, vf–m, subrounded to subangular, moderately sorted quartz in muddy matrix (20 –30%), glauconite at 15–25%, phosphate at <10%, mica present in 2-3%, greenish-black (5*GY* 2/1); core is highly bioturbated with clay forming in stringers or as clay burrow linings, some wavy bedding, small pyrite nodules throughout, no reaction to HCL and no obvious shell material. Box 68.

846.1–849.0 ft: No recovery.

849.0–859.0 ft: Run 116

849.0 –859.0 ft: SANDY SILT and SILTY SAND, as above, but somewhat interbedded, olive-black (5*GY* 2/1); sparse pieces of lignite. Box 68 and Box 69.

859.0 –869.0 ft: Run 117

859.0–864.0 ft: SANDY SILT, with laminated, wavy bedding, highly bioturbated; pyrite nodules up to 3cm in length, sand (<20%) is vf –f, subangular, well-sorted quartz with mica at 5 –7%, glauconite at 2-3%, chloritic mica at 8–10%, lignite at <1%, no shell material, olive-black (5*Y* 2/1); no rection to HCL, contact with silty sand below is gradational. Box 69 and Box 70.

864.0–866.3 ft: SILTY SAND, wavy bedding, with clay forming in thin stringers and blebs; sand is m–vf, moderately sorted, subangular quartz with 1–2% glauconite, mica at

7–10% and chloritic mica at 7–10%, pyrite nodules up to 1cm in length throughout, greenish-black (5*GY* 2/1); no reaction to HCL. Box 70.

866.3–869.0 ft: No recovery.

869.0–879.0 ft: Run 118

869.0–873.2 ft: SILTY SAND, as above, greenish-black (5*GY* 2/1); grading to a sandy silt (as above), but with increased clay content near the base of the core; pyrite nodules up to 4 cm in length, rare lignite and (one) phosphate granule; no reaction to HCL. Box 70 and Box 71.

873.2–879.0 ft: No recovery.

879.0–881.5 ft: Run 119

879.0–881.5 ft: SANDY SILT, as above, grading to silty sand, f –vc, poorly sorted, rounded to subrounded quartz, with granules of quartz and phosphate, (quartz pebbles increasing towards the base), glauconite at 5%, chloritic mica at 7–10%, phosphate at 1 –2%, trace benthic foraminifera, greenish-black (5*GY* 2/1); basal 0.2 ft.is indurated, with common shell fragments, piece of sharks' tooth at base, pyrite nodules throughout; no reaction to HCL. Box 71.

881.5–889.0 ft: Run 120

881.5–883.7 ft: SANDSTONE, indurated, cemented with calcite, similar in lithology to silty sands above; common shell fragments and rare whole shells, (sand dollar or heart urchin at 882.7 ft); contact with sediment below is sharp. Box 71.

883.7–885.0 ft: SAND, f–m, subangular to subrounded, moderately sorted quartz with very little matrix (< 5%), mottled greenish-gray (5*GY* 6/1) to grayish-green (10*GY* 5/2); faint cross-bedding with m–c grains at the base and fining upwards over cm scales, some layers become clayey, lignite common, non-calcareous; grades to a sand. Box 71.

885.0–886.7 ft: SAND, vc–f, subrounded, poorly sorted quartz, abundant lignite in thin, millimeter thick layer, pyrite nodules, and rare shell fragments, mica at 2 –3 %, pebbles common, dark-greenish-gray (5*GY* 4/1); basal pebble lag has small indurated pebbles and sharp contact with underlying sediments. Box 71.

886.7–887.9 ft: SANDY SILT, massive, with sand (20%), f–c, angular to subangular, poorly sorted quartz with glauconite at 5%, mica at 2 –3%, magnetite (?) at 1%, trace amounts of pyrite, shell fragments rare, olive-gray (5*Y* 4/1); weak reaction to HCL. Box 71.

887.9–889.0 ft: No recovery.

889.0–894.0 ft: Run 121

889.0–891.6 ft: INTERBEDDED SAND and CLAY, sand is vf –m, subangular, moderately sorted quartz, with glauconite at 5%, chloritized mica at 2 –5%, lignite at 5%,

small (< 1cm) pyrite nodules scattered throughout; clay layers typically < than 0.1 ft thick, faintly cross-bedded, clay showing wavy laminations; no reaction to HCL; sand is dark-greenish-gray (5*GY* 4/1), clay is olive-gray (5*Y* 4/1). Box 72.

891.6–894.0 ft: No recovery.

894.0–904.0 ft: Run 122

894.0 –895.9 ft: INTERBEDDED SAND and CLAY, as above, except with an increase in glaucoite up to a 15%, chloritized mica at ~2%, lignite decreased to ~2%, disseminated pyrite throughout the core, shell material present at the bottom of the core, c sand grains present at the bottom, phosphate grains found in trace amounts; sand is dark- greenish-gray (5*GY* 4/1), clay is olive-black (5*Y* 2/1). Box 72.

895.9–904.0 ft: No recovery.

904.0–909.0 ft: Run 123

904.0–905.0 ft: CLAY, dry and crumbly, with sand lenses up to 0.2 ft thick and thin sand laminae < 1mm thick; clay is thinly laminated, slightly wavy sand layers are m-c, subrounded, moderately sorted quartz with glauconite at 1-2%; olive-black (5*Y* 2/1). Box 72.

905.0–908.5 ft: SILTY SAND, f-m, subangular to subrounded, moderately sorted quartz in muddy matrix (10–15%), glauconite at 2-3%, chloritic mica at 1-2%, dark-greenish-gray (5*GY* 4/1); core shows wavy bedding (flaser?) and faint cross-bedding, clay forms in thin stringers and discontinuous layers; no reaction to HCL. Box 72.

908.5–909.0 ft: No recovery.

909.0–919.0 ft: Run 124

909.0–914.0 ft: SILTY SAND as above, f-m, subangular to subrounded, moderately sorted quartz in muddy matrix (10–15%), glauconite at 2-3%, chloritic mica at 1-2%, dark-greenish-gray (5*GY* 4/1); core shows wavy bedding (flaser?) and faint cross-bedding, clay forms in thin stringers and discontinuous layers; no reaction to HCL. Box 72 and Box 73.

914.0–919.0 ft: No recovery.

919.0–929.0 ft: Run 125

919.0–921.5 ft: SILTY SAND, f-vc, poorly sorted, subangular to subrounded quartz in muddy matrix (10–15%) becoming coarser down-section, glauconite at 1–2 %, trace amounts of phosphate, broken sharks tooth, granules near the contact with sediments below, lignite at 2 –5%, small rip-up clay balls at contact, olive-gray (5*Y* 4/1); contact is undulatory; core is finely laminated, wavy bedding, with clay forming in thin stringers, no reaction to HCL. Box 73.

921.5–922.5 ft: SILTY SAND, f –m, subangular to subrounded, well-sorted quartz in muddy matrix (10%), glauconite at 2–3%, mica at 5–10%, lignite at 5%, shell fragments locally up to 5%, olive-gray (5*Y* 4/1); grades down core to a sandy silt. Box 73.

922.5–928.7 ft: SANDY SILT, with increasing mica content, pyrite nodules up to 1cm in length, olive-gray (5*Y* 4/1); sand is massive, sandy silt has discontinuous wavy bedding, with clay forming in thin stringers; no reaction to HCL. Box 73 and Box 74.

928.7–929.0 ft: No recovery.

929.0–935.5 ft: Run 126

929.0–934.8 ft: SILTY SAND, f-m, angular to subangular, well-sorted quartz in muddy matrix (10%), glauconite at 1–2%, lignite at 2–5%, muscovite mica up to 5%, trace chloritic mica, olive-gray (5*Y* 4/1); glauconite and mica increase slightly towards the bottom, and sand becomes slightly coarser; core shows wavy laminations and clay is forming in thin stringers and blebs, lignite becomes coarser downcore; no reaction to HCL. Box 74 and Box 75.

934.8–935.5 ft: No recovery.

935.5–940.0 ft: Run 127

935.5–939.6 ft: SAND, f-m, well-sorted, angular to subangular quartz in muddy matrix (< 5%), glauconite at 5-10%, mica at 3-5%, lignite at 1-2%, dark-greenish-gray (5*GY* 4/1); core is faintly laminated with wavy bedding, clay forming in thin (<1mm) layers; no reaction to HCL. Box 75.

939.6–940.0 ft: No recovery.

940.0–949.0 ft: Run 128

940.0–942.8 ft: SANDY SILT, interbedded with layers, faintly laminated to massive, sand (15–20%) vf-c, poorly sorted, subrounded to subangular quartz with glauconite at 10% near the top of the core, grading to only 1% near base of core, mica at 2-3%, lignite at < 2%, pyrite nodules (< 1cm) scattered throughout, sand layers up to 0.3 ft. in thickness, no reaction to HCL; dark-greenish-gray (5*GY* 4/1) at top grading to olive-gray (5*GY* 4/1) at bottom. Box 75.

942.8–949.0 ft: No recovery.

949.0–959.0 ft: Run 129

949.0–951.5 ft: INTERBEDDED SAND and CLAY, sand is vf-f, subangular, well-sorted quartz with 1% glauconite and mica up to 5%, lignite is concentrated into thin layers, pyrite nodules up to 2 cm in length, dark-greenish-gray (5*GY* 4/1); laminated, wavy bedding, with laminations on a millimeter scale, no reaction to HCL. Box 75 and Box 76.

951.5–959.0 ft: No recovery.

959.0–964.0 ft: **Run 130**

959.0–961.7 ft: INTERBEDDED SAND and CLAY, as above, but with increased clay content and cemented nodules over 6 cm in length, pyrite nodules scattered throughout, no reaction to HCL; sands are grayish-olive-green (*5GY* 3/2), clays are greenish-black (5*GY* 2/1). Box 76.

961.7–964.0 ft: No recovery.

964.0–969.0 ft: **Run 131**

964.0–965.3 ft: INTERBEDDED SAND and CLAY, sand ranges from vf-m, moderately sorted, in a muddy matrix (~5%); sand grains are subrounded to subangular, glauconite ranges ~ 5%–10%, mica ~ 1%, pyrite nodules found in trace amounts, lignite concentrated in thin beds around 965.0 ft: clay is in thin laminations; no reaction to HCL; clays are greenish-black (5*GY* 2/1) and sands are grayish-green (10*GY* 5/2). Box 76.

965.3–969.0 ft: No recovery.

969.0–979.0 ft: **Run 132**

969.0–977.4 ft: INTERBEDDED SAND and CLAY, as above, except with an increase in lignite laminations; clay balls up to 5 cm wide, lignite laminations are present all throughout the core, clay beds up to 5 cm in length, disseminated pyrite through the core, small indurated clasts about 0.5 cm wide at a depth of 976.0 ft down the core; no reaction to HCL; sands are grayish-green (10*GY* 5/2) and clays are dark-greenish-gray (5*GY* 4/1). Box 76 and Box 77.

977.4–979.0 ft: No recovery.

979.0–989.0 ft: **Run 133**

979.0–983.8 ft: INTERBEDDED SAND and CLAY, as above, except with a less finely laminated section starting at 982.2 ft down the core, lignite bed found at 981.0 ft down the core and measures ~0.5 cm, no indurated clasts found in the core; sands are grayish-green (10*GY* 5/2) and clays are dark-greenish-gray (5*GY* 4/1). Box 77.

983.8–989.0 ft: No recovery.

989.0–996.5 ft: **Run 134**

989.0–992.6 ft: SILTY SAND, vf–f, well-sorted, subangular to angular, quartz sand with ~ 2% glauconite, mica up to 2%, lignite up to 2% (except for localized areas), pyrite disseminated through the core in trace amounts, dark-greenish-gray (5*GY* 4/1); core is finely laminated becoming thicker towards the bottom of the core, wavy laminations, silty sand becomes interbedded sand and clay towards the bottom of the core, no reaction to HCL. Box 77 and Box 78.

992.6–996.5 ft: No recovery.

996.5–1,003.5 ft: Run 135

996.5–997.0 ft: SEMI-INDURATED SILTY SAND, as above, silica–cemented, no reaction to HCL; dark-greenish-gray (5*GY* 4/1). Box 78.

997.0–1003.5 ft: No recovery.

1,003.5–1,010.0 ft: Run 136

1,003.5–1,006.7 ft: INTERBEDDED SAND and CLAY, f-m sand, well-sorted, grains are angular to subangular, quartz sand with ~ 10% glauconite, trace amounts of pyrite, lignite ~1- 2%, mica (trace amounts to 1%), phosphate ~ 1%; core shows wavy laminations and sand intervals range to up to 0.2 ft, no reaction to HCL; sharp contact with sediments below; sand is dusky-green (5*G* 3/1), clay greenish-black (5*GY* 2/1). Box 78.

1,006.7–1,008.2 ft: CLAY, dense and sticky, finely laminated (with sand filled burrows), sand intervals contain f-m sand, clay shows slight concoidal fracture; lignite content has increased and is usually concentrated in thin zones, pyrite nodules (up to 4 cm); scattered through the core, dark-greenish-gray (5*GY* 4/1); no reaction to HCL. Box 78.

1,008.2–1,009.9 ft: INTERBEDDED SAND and CLAY, as above, f-m sand, well-sorted, grains are angular to subangular, quartz with ~ 10% glauconite, trace amounts of pyrite, lignite ~1- 2%, mica from trace amounts to 1%, phosphate ~ 1%; core shows wavy laminations and sand intervals range to up to 0.2 ft, no reaction to HCL, sharp contact with sediments below; sand is dusky-green (5*G* 3/1), clay is greenish-black (5*GY* 2/1). Box 78.

1,009.9–1,010.0 ft: No recovery.

Bottom of Hole: Total Depth 1,010.0 ft

Appendix 2.—Dixon Run Log

The log shows date, run numbers, time of extrusion from the inner core barrel, depth, recovery, and any other significant information pertaining to core loss.

Date	Run #	Time	Top depth (ft)	Bottom depth (ft)	Core drilled	Core recovered	Notes
10/16/06	1	3:03pm	4.0	10.0	6.0	4.4	loss @ bottom
10/16/06	2	3:19pm	10.0	15.0	5.0	3.8	loss @ bottom
10/16/06	3	3:35pm	15.0	19.0	4.0	2.25	loss @ bottom
10/16/06	4	4:35pm	19.0	26.0	7.0	5.0	loss @ bottom
10/16/06	5	5:00pm	26.0	35.0	9.0	8.4	loss @ bottom
10/16/06	6	5:35pm	35.0	39.0	4.0	3.75	loss @ bottom
10/17/06	7	8:17am	39.0	49.0	10.0	1.05	loss @ bottom
10/17/06	8	8:35am	49.0	59.0	10.0	5.50	loss @ bottom
10/17/06	9	9:00am	59.0	67.5	8.5	4.40	loss @ bottom
10/17/06	10	9:47am	67.5	72.5	5.0	3.90	loss @ bottom
10/17/06	11	10:30am	72.5	79.0	6.5	7.4	reattributed 0.9ft. to Run 10
10/17/06	12	11:10am	79.0	85.5	6.5	4.9	loss @ bottom
10/17/06	13	11:43am	85.5	94.5	9.0	9.0	0 loss
10/17/06	14	2:30pm	94.5	99.0	4.5	2.7	loss @ bottom
10/17/06	15	3:14pm	99.0	103.0	4.0	1.0	loss @ bottom
10/17/06	16	4:00pm	103.0	109.0	6.0	4.3	loss @ bottom
10/18/06	17	8:45am	109.0	116.0	7.0	1.7	loss @ bottom
10/18/06	18	9:20am	116.0	123.0	7.0	6.1	loss @ bottom
10/18/06	19	10:05am	123.0	129.0	6.0	5.9	loss @ bottom
10/18/06	20	10:35am	129.0	139.0	10.0	8.2	loss @ bottom
10/18/06	21	11:10am	139.0	149.0	10.0	10.0	0 loss
10/18/06	22	11:35am	149.0	159.0	10.0	1.9	loss @ bottom
10/18/06	23	1:00pm	159.0	169.0	10.0	9.9	loss @ bottom
10/18/06	24	1:25pm	169.0	179.0	10.0	10.3	0.3 excess
10/18/06	25	1:55pm	179.0	189.0	10.0	10.4	0.4 excess
10/18/06	26	2:25pm	189.0	199.0	10.0	10.4	0.4 excess
10/18/06	27	3:00pm	199.0	209.0	10.0	7.6	loss @ bottom
10/18/06	28	3:35pm	209.0	219.0	10.0	4.3	loss @ bottom
10/18/06	29	4:12pm	219.0	225.0	6.0	5.0	loss @ bottom
10/18/06	30	4:40pm	225.0	229.0	4.0	4.0	
10/19/06	31	8:30am	229.0	231.5	2.5	2.4	loss @ bottom
10/19/06	32	9:10am	231.5	235.0	3.5	2.7	loss @ bottom
10/19/06	33	9:45am	235.0	236.0	1.0	1.0	
10/19/06	34	10:23am	236.0	239.0	3.0	1.6	loss @ bottom
10/19/06	35	11:15am	239.0	249.0	10.0	4.6	loss @ bottom,last run before pulling rods
10/20/06	36	8:46am	249.0	254.0	5.0	4.25	loss @ bottom

Date	Run #	Time	Top depth (ft)	Bottom depth (ft)	Core drilled	Core recovered	Notes
10/20/06	37	9:18am	254.0	259.0	5.0	10.25	reattributed .6ft. to Run 36
10/20/06	38	10:00am	259.0	269.0	10.0	9.4	loss @ bottom
10/20/06	39	10:50am	269.0	271.0	2.0	1.5	loss @ bottom
10/20/06	40	11:45am	271.0	279.0	8.0	6.0	loss @ bottom
10/20/06	41	1:30pm	279.0	289.0	10.0	7.3	loss @ bottom
10/20/06	42	2:05pm	289.0	299.0	10.0	7.85	loss @ bottom
10/20/06	43	2:45pm	299.0	305.5	6.5	6.6	
10/20/06	44	3:30pm	305.5	313.5	8.0	0.8	loss @ bottom
10/20/06	45	4:20pm	313.5	319.0	5.5	5.5	
10/20/06	46	5:00pm	319.0	329.0	10.0	7.95	last run of the day
10/21/06	47	8:25am	329.0	339.0	10.0	0.2	first run of the day, barrel didn't latch right
10/21/06	48	9:42am	339.0	341.5	2.5	2.0	0.5 ft. loss @ bottom
10/21/06	49	10:58am	341.5	348.5	7.0	6.7	loss @ bottom
10/21/06	50	11:52am	348.5	359.0	10.5	4.05	loss @ bottom, hard rock interval
10/21/06	51	12:55pm	359.0	369.0	10.0	9.4	loss @ bottom
10/21/06	52	2:00pm	369.0	379.0	10.0	8.4	1.4 ft. loss @ bottom
10/21/06	53	2:50pm	379.0	389.0	10.0	9.2	reattributed 0.2 ft. to Run 52, loss @ bottom
10/21/06	54	3:45pm	389.0	399.0	10.0	6.2	loss @ bottom
10/21/06	55	4:48pm	399.0	409.0	10.0	6.0	loss @ bottom
10/22/06	56	8:50am	409.0	414.0	5.0	4.6	loss @ bottom
10/22/06	57	9:41am	414.0	419.0	5.0	3.8	loss @ bottom
10/22/06	58	10:50am	419.0	429.0	10.0	3.8	loss @ bottom
10/22/06	59	11:35am	429.0	434.0	5.0	4.6	loss @ bottom
10/22/06	60	12:50pm	434.0	439.0	5.0	4.7	
10/22/06	61	1:50pm	439.0	446.0	7.0	7.4	reattributed 0.3 ft. to Run 60
10/22/06	62	2:40pm	446.0	454.0	8.0	3.8	loss @ bottom
10/22/06	63	3:25pm	454.0	459.0	5.0	1.2	loss throughout- between indurated pieces
10/23/06	64	8:40am	459.0	464.0	5.0	3.05	loss @ bottom,.
10/23/06	65	9:52am	464.0	469.0	5.0	3.55	reattributed 0.25 ft to Run 64
10/23/06	66	10:50am	469.0	474.0	5.0	5.2	
10/23/06	67	12:10pm	474.0	479.0	5.0	5.1	
10/23/06	68	1:20pm	479.0	486.5	7.5	7.4	loss @ bottom
10/23/06	69	2:15pm	486.5	489.0	2.5	2.8	
10/23/06	70	3:00pm	489.0	499.0	10.0	10.2	
10/23/06	71	4:15pm	499.0	509.0	10.0	7.5	loss @ bottom
10/23/06	72	5:00pm	509.0	513.0	4.0	4.0	
10/24/06	73	9:00am	513.0	519.0	6.0	2.15	loss @ bottom, including possible contact
10/24/06	74	10:08am	519.0	529.0	10.0	3.45	loss @ bottom
10/24/06	75	11:10am	529.0	535.25	6.25	2.35	loss @ top
10/24/06	76	11:55am	535.25	539.0	3.75	1.7	loss @ bottom
10/24/06	77	2:15pm	539.0	549.0	10.0	4.2	loss @ bottom
10/24/06	78	3:13pm	549.0	554.5	5.5	3.55	loss @ top
10/24/06	79	3:56pm	554.5	559.0	4.5	4.5	
10/24/06	80	4:58pm	559.0	569.0	10.0	10.0	

Date	Run #	Time	Top depth (ft)	Bottom depth (ft)	Core drilled	Core recovered	Notes
10/25/06	81	9:08am	569.0	579.0	10.0	9.9	loss @ bottom
10/25/06	82	10:30am	579.0	589.0	10.0	10.3	
10/25/06	83	11:20am	589.0	599.0	10.0	8.55	loss @ bottom
10/25/06	84	12:25pm	599.0	609.0	10.0		
10/25/06	85	1:40pm	609.0	619.0	10.0	4.8	loss @ top
10/25/06	86	3:10pm	619.0	629.0	10.0	10.0	
10/25/06	87	4:15pm	629.0	634.0	5.0	0.9	loss @ bottom
10/26/06	88	9:12am	634.0	639.0	5.0	4.55	loss @ bottom
10/26/06	89	10:25am	639.0	649.0	10.0	9.25	loss @ bottom
10/26/06	90	11:47am	649.0	659.0	10.0	4.35	loss @ bottom
10/26/06	91	3:15pm	659.0	669.0	10.0	10.0	reattributed 0.55 ft. to Run 90
10/29/06	92	10:05am	669.0	679.0	10.0	10.2	0.2 ft. core expansion
10/29/06	93	11:25am	679.0	689.0	10.0	10.1	0.1 ft. core expansion
10/29/06	94	12:45pm	689.0	699.0	10.0	9.6	0.4 ft. loss @ bottom
10/29/06	95	3:55pm	699.0	709.0	10.0	7.4	2.6 ft. loss @ bottom
10/30/06	96	2:00pm	709.0	719.0	10.0	2.2	7.8 ft. loss @ bottom
10/30/06	97	3:00pm	719.0	724.0	5.0	10.0	reattributed 5.0 ft. to Run 96
10/30/06	98	4:00pm	724.0	729.0	5.0	5.1	0.1 ft. core expansion
10/30/06	99	4:45pm	729.0	739.0	10.0	10.3	0.3 ft. core expansion
10/31/06	100	10:30am	739.0	749.0	10.0	10.4	0.4 ft. core expansion
10/31/06	101	11:35am	749.0	759.0	10.0	8.2	1.8 ft. loss @ bottom
10/31/06	102	1:10pm	759.0	768.0	9.0	2.9	6.1 ft. loss @ bottom
10/31/06	103	2:15pm	768.0	775.5	7.5	3.7	3.8 ft. loss @ bottom
10/31/06	104	3:15pm	775.5	779.0	3.5	1.0	2.5 ft. loss @ bottom
10/31/06	105	4:30pm	779.0	784.0	5.0	6.3	1.3 ft. recovered from previous run
11/1/06	106	9:40am	784.0	789.0	5.0	5.1	0.1 ft. core expansion
11/1/06	107	10:53am	789.0	792.5	3.5	2.2	1.3 ft. loss @ bottom
11/1/06	108	12:05pm	792.5	799.0	6.5	5.7	0.8 ft. loss @ bottom
11/1/06	109	2:00pm	799.0	805.5	6.5	7.4	0.9 ft. recovered from previous run
11/1/06	110	3:15pm	805.5	816.0	10.5	9.7	0.8 ft. loss @ bottom
11/1/06	111	4:20pm	816.0	824.0	8.0	8.8	0.8 ft. recovered from previous run
11/2/06	112	8:05am	824.0	829.0	5.0	0.0	core slid out of barrel
11/2/06	113	9:15am	829.0	834.0	5.0	9.3	0.7 ft. loss @bottom, +5.0 ft. from previous run
11/2/06	114	10:00am	834.0	839.0	5.0	5.6	0.6 ft. recovered from previous run
11/2/06	115	11:10am	839.0	849.0	10.0	7.1	2.9 ft. loss@bottom
11/2/06	116	12:00pm	849.0	859.0	10.0	10.2	0.2 ft. core expansion
11/2/06	117	2:00pm	859.0	869.0	10.0	7.3	2.7 ft. loss @ bottom
11/2/06	118	3:00pm	869.0	879.0	10.0	4.2	5.8 ft. loss @ bottom
11/2/06	119	4:00pm	879.0	881.5	2.5	2.6	0.1 ft. core expansion
11/3/06	120	8:20am	881.5	889.0	7.5	5.9	1.6 ft. loss @ bottom
11/3/06	121	9:55am	889.0	894.0	5.0	2.6	2.4 ft. loss @ bottom
11/3/06	122	12:00pm	894.0	904.0	10.0	1.9	8.1 ft. loss @ bottom
11/3/06	123	2:45pm	904.0	909.0	5.0	4.5	0.5 ft. loss @ bottom
11/3/06	124	4:00pm	909.0	919.0	10.0	5.0	5.0 ft. loss @ bottom

Date	Run #	Time	Top depth (ft)	Bottom depth (ft)	Core drilled	Core recovered	Notes
11/4/07	125	9:00am	919.0	929.0	10.0	9.7	0.3 ft. loss @ bottom
11/4/07	126	10:00am	929.0	935.5	6.5	5.8	0.7 ft. loss @ bottom
11/4/07	127	12:17pm	935.5	940.0	4.5	4.1	0.4 ft. loss @ bottom
11/4/07	128	1:50pm	940.0	949.0	9.0	2.8	6.2 ft. loss @ bottom
11/4/07	129	3:15pm	949.0	959.0	10.0	2.5	7.5 ft. loss @ bottom
11/4/07	130	4:20pm	959.0	964.0	5.0	2.7	2.3 ft. loss @ bottom
11/5/07	131	9:20am	964.0	969.0	5.0	1.3	3.7 ft. loss @ bottom
11/5/07	132	11:00am	969.0	979.0	10.0	7.4	2.6 ft. loss @ bottom
11/5/07	133	12:25pm	979.0	989.0	10.0	4.8	5.2 ft. loss @ bottom
11/5/07	134	1:40pm	989.0	996.5	7.5	3.6	3.9 ft. loss @ bottom
11/5/07	135	2:50pm	996.5	1003.5	7.0	0.5	6.5 ft. loss @ bottom
11/5/07	136	4:00pm	1003.5	1010.0	6.5	6.4	0.1 ft. loss @ bottom

Appendix 3.—Dixon Sampling Log

The sampling log shows date, sample type, depth, individual who sampled the core, and purpose for which it was sampled (i.e. microfossil, hydrogeology, P/B ratio-foraminfera planktonic to benthic ratio).

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
10/16/06	Half core	16.9	17.1	Durand	Edwards	Dinoflagellates
10/16/06	Spatula	17.1	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Half core	52.0	52.2	Durand	Edwards	Dinoflagellates
10/17/06	Half core	67.3	67.5	Durand	Edwards	Dinoflagellates
10/17/06	Half core	68.7	68.9	Durand	Edwards	Dinoflagellates
10/17/06	Half core	76.6	76.8	Durand	Edwards	Dinoflagellates
10/17/06	Spatula	67.0	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	68.4	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	73.4	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	63.2	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	78.4	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Half core	92.3	92.5	Durand	Edwards	Dinoflagellates
10/17/06	Spatula	54.4	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	49.2	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	83.0	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	32.0	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	37.1	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Spatula	90.8	.	Seefelt	Self-Trail	Nannofossils
10/17/06	Half core	106.25	106.55	Durand	Edwards	Dinoflagellates
10/17/06	Spatula	32.0	.	Wrege	Weems	Water
10/17/06	Spatula	94.4	.	Wrege	Weems	Water
10/17/06	Spatula	104.0	.	Wrege	Weems	Water
10/18/06	Spatula	96.4	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	99.4	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	106.0	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	110.0	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	117.9	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	121.0	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Half core	126.75	127.05	Durand	Edwards	Dinoflagellates
10/18/06	Spatula	126.0	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	131.0	.	Seefelt	Self-Trail	Nannofossils

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
10/18/06	Spatula	136.2	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	141.0	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Spatula	146.0	.	Seefelt	Self-Trail	Nannofossils
10/18/06	Half core	172.9	173.2	Durand	Edwards	Dinoflagellates
10/18/06	Half core	190.0	190.3	Durand	Edwards	Dinoflagellates
10/18/06	Half core	210.7	211.0	Durand	Edwards	Dinoflagellates
10/18/06	Spatula	117.7	117.8	Wrege	Weems	Water
10/18/06	Spatula	189.1	189.2	Wrege	Weems	Water
10/19/06	Spatula	150.6	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	159.2	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	164.5	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	169.3	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	174.3	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	180.5	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	185.1	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	190.9	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	195.45	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	201.1	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	205.0	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	210.6	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	219.2	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	225.7	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	230.3	.	Seefelt	Self-Trail	Nannofossils
10/19/06	Spatula	173.9	.	Diaz	Wrege	Water
10/19/06	Spatula	22.5	.	Diaz	Wrege	Water
10/19/06	Spatula	66.7	66.8	Diaz	Wrege	Water
10/19/06	Half core	80.7	80.8	Diaz	Harris	Strontium
10/19/06	Half core	82.2	82.35	Diaz	Harris	Strontium
10/19/06	Half core	93.45	93.55	Diaz	Harris	Strontium
10/19/06	Half core	99.8	99.95	Diaz	Harris	Strontium
10/19/06	Half core	173.35	173.5	Diaz	Harris	Strontium
10/19/06	Half core	240.5	240.8	Diaz	Harris	Strontium
10/19/06	Half core	199.7	199.8	Wrege	Weems	Water
10/19/06	Natural break	225.0	225.1	Wrege	Weems	Water
10/19/06	Spatula	243.0	.	Wrege	Weems	Water
10/19/06	Dust	242.4	.	Wrege	Weems	Water
10/19/06	Half core	242.2	242.4	Durand	Edwards	Dinoflagellates
10/19/06	Natural break	103.8	.	Wrege	Weems	Water

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
10/20/06	Spatula	242.5	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Half core	257.2	257.5	Durand	Edwards	Dinoflagellates
10/20/06	Natural break	252.8	252.9	Wrege	Weems	Water
10/20/06	Half core	272.15	272.45	Durand	Edwards	Dinoflagellates
10/20/06	Half core	281.0	281.3	Durand	Edwards	Dinoflagellates
0/2/06	Spatula	281.0		Diaz	Wrege	Water
10/20/06	Spatula	249.6	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	254.9	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	260.0	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	264.9	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	272.0	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	279.5	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	284.3	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	289.7	.	Seefelt	Self-Trail	Nannofossils
10/20/06	Spatula	271.8	272.0	Diaz	Wrege	Water
10/20/06	Half core	271.8	272.0	Diaz	Harris	Strontium
10/20/06	Half core	316.3	316.6	Durand	Edwards	Dinoflagellates
10/20/06	Half core	90.55	90.8	Durand	Edwards	Dinoflagellates
10/21/06	Spatula	294.0	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	299.5	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	305.1	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	316.2	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	321.6	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	325.7	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	340.4	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	345.5	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	349.9	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	360.9	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Spatula	365.9	.	Seefelt	Self-Trail	Nannofossils
10/21/06	Whole core	276.25	276.45	Durand	Edwards	Dinoflagellates
10/21/06	Half core	361.0	361.3	Durand	Edwards	Dinoflagellates
10/22/06	Spatula	367.1	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Spatula	372.1	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Spatula	377.1	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Spatula	383.2	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Spatula	389.4	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Half core	411.0	411.3	Durand	Edwards	Dinoflagellates
10/22/06	Spatula	394.8	.	Seefelt	Self-Trail	Nannofossils

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
10/22/06	Spatula	399.5	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Spatula	404.0	.	Seefelt	Self-Trail	Nannofossils
10/22/06	Half core	431.0	431.3	Durand	Edwards	Dinoflagellates
10/22/06	Spatula	409.3	.	Durand	Self-Trail	Nannofossils
10/22/06	Spatula	414.3	.	Durand	Self-Trail	Nannofossils
10/22/06	Spatula	419.3	.	Durand	Self-Trail	Nannofossils
10/23/06	Half core	466.45	466.8	Durand	Edwards	Dinoflagellates
10/23/06	Half core	497.75	498.05	Durand	Edwards	Dinoflagellates
10/23/06	Half core	509.6	509.9	Durand	Edwards	Dinoflagellates
10/23/06	Partial core	512.8	512.9	Weems	Weems	
10/24/06	Spatula	422.5	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	429.2	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	434.2	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	439.2	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	444.1	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	448.8	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	459.2	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	464.9	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	470.0	.	Durand	Self-Trail	Nannofossils
10/24/06	Half core	533.9	534.2	Durand	Edwards	Dinoflagellates
10/24/06	Spatula	475.0	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	480.0	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	485.3	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	490.1	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	495.2	.	Durand	Self-Trail	Nannofossils
10/24/06	Spatula	500.7	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	505.3	.	Durand	Self-Trail	Nannofossils
10/25/06	Half core	576.15	576.35	Durand	Edwards	Dinoflagellates
10/25/06	Spatula	510.3	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	519.4	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	533.6	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	540.0	.	Durand	Self-Trail	Nannofossils
10/25/06	Half core	616.8	617.0	Durand	Edwards	Dinoflagellates
10/25/06	Spatula	549.2	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	554.0	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	559.2	.	Durand	Self-Trail	Nannofossils
10/25/06	Spatula	564.2	.	Durand	Self-Trail	Nannofossils

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
10/25/06	Spatula	569.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	574.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	579.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	584.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	589.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	594.5	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	599.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	604.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	614.7	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	619.4	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	624.5	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	629.2	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	634.1	.	Durand	Self-Trail	Nannofossils
10/26/06	Half core	650.85	651.1	Durand	Edwards	Dinoflagellates
10/26/06	Spatula	639.2	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	644.2	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	648.1	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	652.0	.	Durand	Self-Trail	Nannofossils
10/26/06	Spatula	659.2	.	Self-Trail	Self-Trail	Nannofossils
10/26/06	Spatula	665.6	.	Self-Trail	Self-Trail	Nannofossils
10/28/06	Half core	379.4	379.7	Self-Trail	Aleman	P/B Ratio
10/28/06	Half core	387.0	387.3	Self-Trail	Aleman	P/B Ratio
10/28/06	Half core	470.9	471.2	Self-Trail	Aleman	P/B Ratio
10/28/06	Half core	478.5	478.8	Self-Trail	Aleman	P/B Ratio
10/28/06	Half core	488.4	488.7	Self-Trail	Aleman	P/B Ratio
10/28/06	Half core	498.2	498.5	Self-Trail	Aleman	P/B Ratio
10/28/06	Half core	512.0	512.3	Self-Trail	Aleman	P/B Ratio
10/29/06	Spatula	670.4	.	Self-Trail	Self-Trail	Nannofossils
10/29/06	Spatula	675.1	.	Self-Trail	Self-Trail	Nannofossils
10/29/06	Spatula	680.4	.	Self-Trail	Self-Trail	Nannofossils
10/29/06	Spatula	685.5	.	Self-Trail	Self-Trail	Nannofossils
10/29/06	Half core	696.5	696.9	Self-Trail	Edwards	Dinoflagellates
10/29/06	Spatula	691.1	.	Self-Trail	Self-Trail	Nannofossils
10/29/06	Spatula	695.5	.	Self-Trail	Self-Trail	Nannofossils
10/29/06	Spatula	700.5	.	Self-Trail	Self-Trail	Nannofossils
10/30/06	Spatula	705.3	.	Self-Trail	Self-Trail	Nannofossils
10/30/06	Spatula	725.0	.	Self-Trail	Self-Trail	Nannofossils

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
10/30/06	Half core	734.0	734.3	Self-Trail	Edwards	Dinoflagellates
10/31/06	Spatula	730.5	.	Self-Trail	Self-Trail	Nannofossils
10/31/06	Spatula	735.5	.	Self-Trail	Self-Trail	Nannofossils
10/31/06	Half core	770.7	771.0	Self-Trail	Edwards	Dinoflagellates
10/31/06	Spatula	740.5	.	Seefelt	Self-Trail	Nannofossils
10/31/06	Spatula	746.0	.	Seefelt	Self-Trail	Nannofossils
10/31/06	Spatula	751.7	.	Seefelt	Self-Trail	Nannofossils
10/31/06	Spatula	756.7	.	Seefelt	Self-Trail	Nannofossils
10/31/06	Spatula	769.2	.	Seefelt	Self-Trail	Nannofossils
10/31/06	Spatula	775.8	.	Seefelt	Self-Trail	Nannofossils
11/1/06	Half core	293.5	293.8	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	304.6	304.9	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	314.3	314.6	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	321.2	321.5	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	340.1	340.3	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	349.6	349.9	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	360.2	360.5	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	370.2	370.5	Seefelt	Aleman	P/B Ratio
11/1/06	Half core	380.0	380.2	Harris	Harris	Strontium
11/1/06	Half core	389.55	389.75	Diaz	Harris	Strontium
11/1/06	Half core	469.5	469.7	Diaz	Harris	Strontium
11/1/06	Half core	477.75	477.95	Diaz	Harris	Strontium
11/1/06	Half core	490.4	490.6	Diaz	Harris	Strontium
11/1/06	Half core	502.5	507.7	Diaz	Harris	Strontium
11/1/06	Half core	509.45	509.65	Diaz	Harris	Strontium
11/1/06	Half core	540.45	540.65	Diaz	Harris	Strontium
11/1/06	Half core	555.9	556.1	Diaz	Harris	Strontium
11/1/06	Half core	563.15	563.35	Diaz	Harris	Strontium
11/1/06	Half core	579.4	579.55	Diaz	Harris	Strontium
11/1/06	Half core	580.2	580.4	Diaz	Harris	Strontium
11/1/06	Spatula	587.7	.	Diaz	Harris	Strontium
11/1/06	Half core	597.2	597.4	Diaz	Harris	Strontium
11/1/06	Half core	600.75	600.95	Diaz	Harris	Strontium
11/1/06	Half core	635.9	636.1	Diaz	Harris	Strontium
11/1/06	Half core	643.9	644.1	Diaz	Harris	Strontium
11/1/06	Half core	663.45	663.65	Diaz	Harris	Strontium
11/1/06	Half core	672.2	672.4	Diaz	Harris	Strontium
11/1/06	Half core	684.5	684.7	Diaz	Harris	Strontium
11/1/06	Half core	691.7	691.9	Diaz	Harris	Strontium
11/1/06	Spatula	711.2	.	Diaz	Harris	Strontium
11/1/06	Half core	724.4	724.6	Diaz	Harris	Strontium

Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
11/1/06	Half core	737.35	737.55	Diaz	Harris	Strontium
11/1/06	Half core	745.1	745.2	Diaz	Harris	Strontium
11/1/06	Half core	751.85	752.0	Diaz	Harris	Strontium
11/1/06	Half core	778.65	778.8	Diaz	Harris	Strontium
11/1/06	Spatula	785.3	.	Diaz	Harris	Strontium
11/1/06	Spatula	780.4	.	Seefelt	Self-Trail	Nannofossils
11/1/06	Spatula	785.8	.	Seefelt	Self-Trail	Nannofossils
11/1/06	Spatula	796.8	.	Harris	Harris	Strontium
11/1/06	Spatula	785.9	.	Harris	Harris	Strontium
11/1/06	Spatula	790.0	.	Seefelt	Self-Trail	Nannofossils
11/1/06	Spatula	795.0	.	Seefelt	Self-Trail	Nannofossils
11/1/06	Half core	807.5	807.8	Self-Trail	Edwards	Dinoflagellates
11/2/06	Spatula	800.2	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	805.0	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	810.3	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	816.8	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	820.8	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	825.2	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	830.5	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	835.0	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Half core	535.4	535.7	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	555.5	555.8	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	565.5	565.8	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	575.4	575.7	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	585.3	585.6	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	864.0	864.3	Self-Trail	Edwards	Dinoflagellates
11/2/06	Spatula	840.1	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	845.2	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	850.3	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Spatula	855.1	.	Seefelt	Self-Trail	Nannofossils
11/2/06	Half core	665.3	665.60	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	652.3	652.6	Seefelt	Aleman	P/B Ratio
11/2/06	Half core	642.5	642.80	Seefelt	Aleman	P/B Ratio
11/3/06	Spatula	860.1	.	Seefelt	Self-Trail	Nannofossils
11/3/06	Spatula	865.6	.	Seefelt	Self-Trail	Nannofossils
11/3/06	Spatula	870.5	.	Seefelt	Self-Trail	Nannofossils
11/3/06	Half core	595.3	595.6	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	605.0	605.3	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	615.0	615.3	Seefelt	Aleman	P/B Ratio

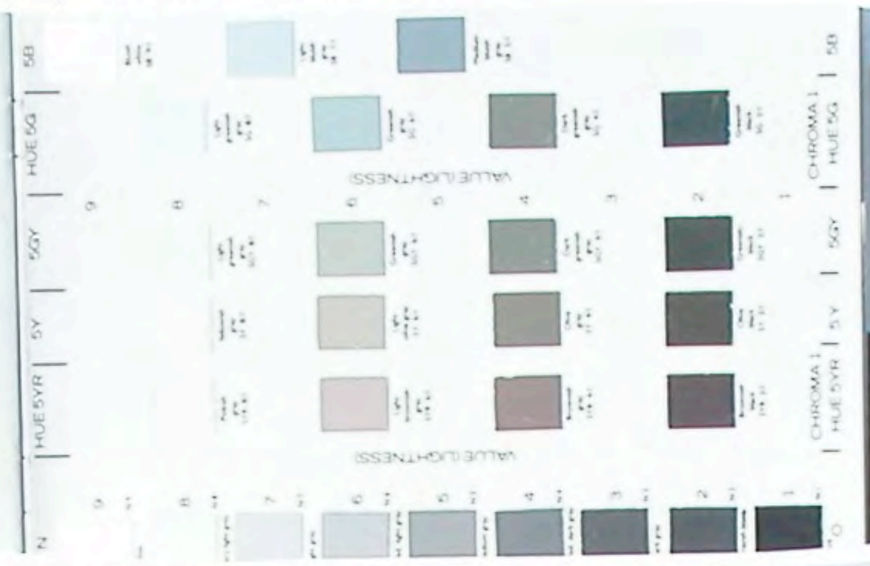
Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
11/3/06	Half core	622.0	622.3	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	634.5	634.8	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	890.1	890.40	Self-Trail	Edwards	Dinoflagellates
11/3/06	Spatula	880.0	.	Seefelt	Self-Trail	Nannofossils
11/3/06	Spatula	887.1	.	Seefelt	Self-Trail	Nannofossils
11/3/06	Half core	886.6	886.9	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	879.2	879.5	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	855.3	855.6	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	845.3	845.6	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	806.3	806.6	Seefelt	Aleman	P/B Ratio
11/3/06	Half core	816.3	816.6	Seefelt	Aleman	P/B Ratio
11/4/06	Spatula	894.9	.	Seefelt	Self-Trail	Nannofossils
11/4/06	Spatula	904.3	.	Seefelt	Self-Trail	Nannofossils
11/4/06	Half core	895.2	895.5	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	864.7	865.0	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	705.4	705.7	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	715.4	715.7	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	695.0	695.3	Seefelt	Aleman	P/B Ratio
11/4/06	Spatula	922.9	.	Seefelt	Self-Trail	Nannofossils
11/4/06	Half core	923.0	923.3	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	685.5	685.8	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	676.1	676.3	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	755.0	755.3	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	937.5	937.8	Self-Trail	Edwards	Dinoflagellates
11/4/06	Half core	745.3	745.6	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	736.0	736.3	Seefelt	Aleman	P/B Ratio
11/4/06	Half core	725.1	725.4	Seefelt	Aleman	P/B Ratio
11/4/06	Spatula	925.1	.	Seefelt	Self-Trail	Nannofossils
11/4/06	Spatula	929.9	.	Seefelt	Self-Trail	Nannofossils
11/5/06	Spatula	937.3	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Spatula	942.4	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Spatula	949.6	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Half core	972.0	972.3	Self-Trail	Edwards	Dinoflagellates
11/5/06	Spatula	969.2	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Spatula	959.0	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Spatula	975.0	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Spatula	981.1	.	Self-Trail	Self-Trail	Nannofossils
11/5/06	Half core	1004.5	1004.8	Self-Trail	Edwards	Dinoflagellates
11/5/06	Spatula	1009.0	.	Self-Trail	Self-Trail	Nannofossils
11/6/06	Half core	768.7	769.0	Aleman	Aleman	P/B Ratio

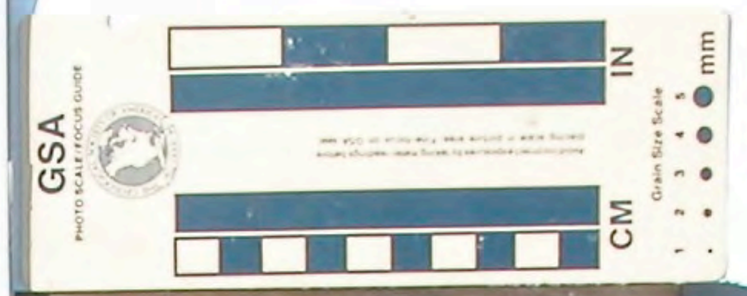
Date	Sample type	Top depth (ft)	Bottom depth (ft)	Taken by	Taken for	Purpose
11/6/06	Half core	779.0	779.3	Aleman	Aleman	P/B Ratio
11/6/06	Half core	789.4	789.7	Aleman	Aleman	P/B Ratio
11/6/06	Half core	799.5	799.8	Aleman	Aleman	P/B Ratio
11/6/06	Half core	837.7	838.0	Aleman	Aleman	P/B Ratio
11/6/06	Half core	826.7	827.0	Aleman	Aleman	P/B Ratio
11/6/06	Half core	879.5	879.7	Self-Trail	Christopher	Pollen
11/6/06	Half core	960.6	960.8	Self-Trail	Christopher	Pollen
11/6/06	Half core	1008.0	1008.2	Self-Trail	Christopher	Pollen
11/6/06	Half core	981.8	982.0	Self-Trail	Christopher	Pollen
11/6/06	Half core	891.0	891.2	Self-Trail	Christopher	Pollen
11/6/06	Half core	403.8	404.0	Diaz	Harris	Strontium
11/6/06	Half core	420.1	420.3	Diaz	Harris	Strontium
11/6/06	Half core	421.6	421.8	Diaz	Harris	Strontium
11/6/06	Spatula	421.5	421.5	Diaz	Wrege	Water
11/6/06	Half core	462.95	463.15	Diaz	Harris	Strontium
11/6/06	Half core	435.35	435.55	Diaz	Harris	Strontium
11/6/06	Half core	343.1	343.3	Diaz	Harris	Strontium
11/6/06	Half core	342.1	342.3	Diaz	Harris	Strontium
11/6/06	Half core	346.5	346.7	Diaz	Harris	Strontium
11/6/06	Half core	361.9	362.1	Diaz	Harris	Strontium
11/6/06	Spatula	805.0	.	Diaz	Harris	Strontium
11/6/06	Half core	814.6	814.75	Diaz	Harris	Strontium
11/6/06	Half core	825.6	825.7	Diaz	Harris	Strontium
11/6/06	Half core	829.5	829.65	Diaz	Harris	Strontium
11/6/06	Half core	880.55	880.7	Diaz	Harris	Strontium
11/6/06	Half core	895.5	895.7	Diaz	Harris	Strontium
11/6/06	Half core	1006.2	1006.35	Diaz	Harris	Strontium

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 1
0-16.35'





END OF CORE 13.8'
LOSS @ BOTTOM 13.8'-15.0'
RUN 3 15.0'

END of CORE 8.4'
Loss @ bottom 8.4-10.0'
Run 2 10.0

Lufkin

Run 1 2.0

0-4 moss

16.35
13.3
11.3
7.85
5.85

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 2
16.35' – 29.50'

29.5 31.5 33.5 35.9 37.9

END of CORE
34.4'
Loss @ Bottom
34.4 – 35.0'
RUN 6
35.0'

END OF CORE
38.75'
LOSS @ BOTTOM
38.75-39.0'
RUN 7
39.0'

31.5 33.5 35.9 37.9 39.95

10/19/06
BOX 3
29.5' – 39.95'

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5
mm

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 4

39.95' — 66.95'

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 5
66.95' - 76.5'

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 6
76.5-87.7'

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

BOX 7
87.7 - 99.2'

End of Core
97.2

Loss Bottom
97.2 - 99.0

RUN 15
99.0

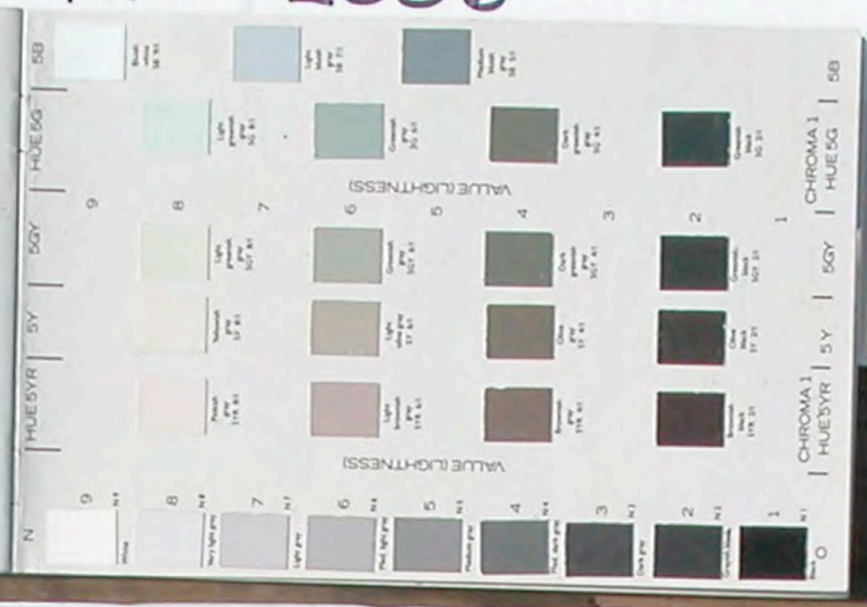
End of Run
End of Core
94.5'

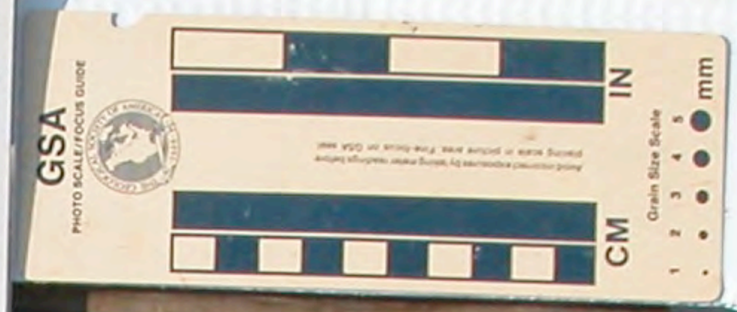
RUN 14
94.5'

99.2
95.6
93.7
91.7
89.7

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

BOX 8
99.2 - 118.5'





118.5
116.5
109.4
105.95
103.95
99.2
110.5
109.1
105.95
103.95

Hydro Sample - 117.7-117.8

End of Core 110.7'
Loss @ Bottom 110.7-116.0
RUN 18 116.0'

END OF CORE 107.3'
Loss @ Bottom 107.3-109.0
RUN 17 109.0

END OF CORE 100.0'
Loss @ Bottom 100.0-103.0
RUN 16 103.0'

Lufkin
1F
2F

118.5 120.5 123.2 125.2 127.2

BOX 9
118.5-129.0'

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

End of Core
122.1
Losse Bottom
122.1-123.0
RUN 19
123.0

End of Core
128.9
Losse Bottom
128.9-129.0
SPACER

120.5 123.2 125.2 127.2 129.0

129.0 130.9 132.9 134.9 136.9

RUN 20
129.0'

BOX 10
129.0-139.5'
10/19/06

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

END OF CORE
137.2

Loss @ Bottom
137.2-139.0

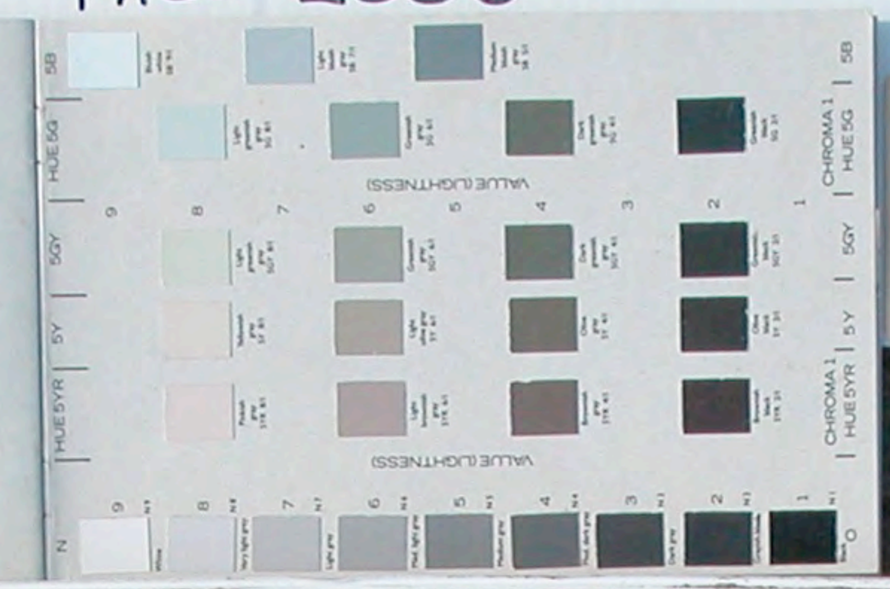
RUN 21
139.0

130.9 132.9 134.9 136.9 139.5

DIXON COREHOLE - 1
ONSLOW CO., NC.
FALL 2006

10/19/06

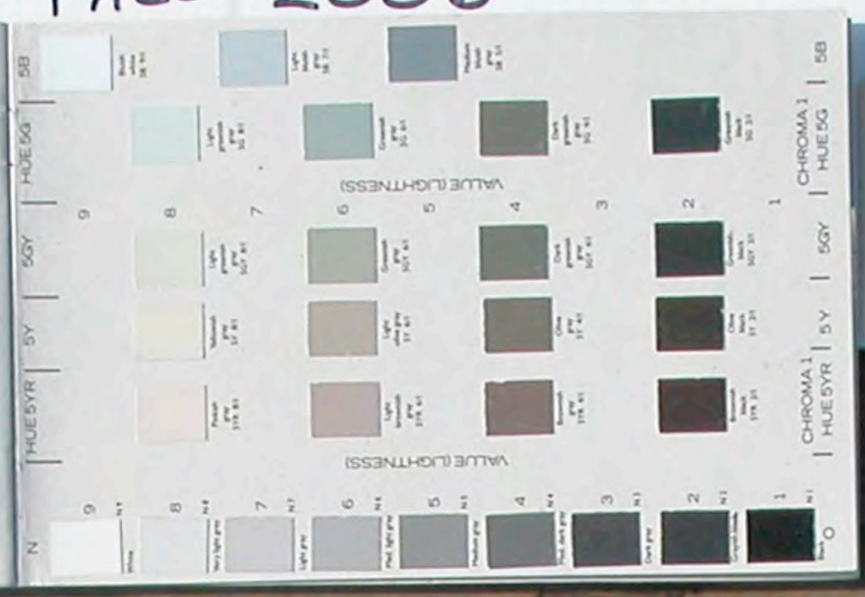
BOX 11
139.5 – 149.4'



DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 12
149.4 - 167.3'



149.4
151.3
153.3
155.3
157.3
159.3
161.3
163.3
165.3
167.3

150.9
END of CORE
Loss @ Bottom
150.9 - 157.0
RUN 23
159.0

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 13
167.3 - 177.2'

177.2 179.3 180.75 182.75 184.75

END OF RUN
179.3
Clay expansion
.3
RUN 25
179.0

BOX 14
177.2-186.75'
10/19/06

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

179.2 180.75 182.75 184.75 186.75

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 15
186.75 - 196.3'

GSA
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IN
CM
Grain Size Scale
mm

196.3
194.3
192.3
190.3
188.75

Hydro 190.1-3
189.4 End of Core RUN 26 189.0
SPACER

196.3 198.3 197.8 201.8 203.8

END OF CORE
199.4
RUN 27
199.0

198.3 199.8 201.8 203.8 205.8

BOX 16
196.3-205.8'
10/19/06

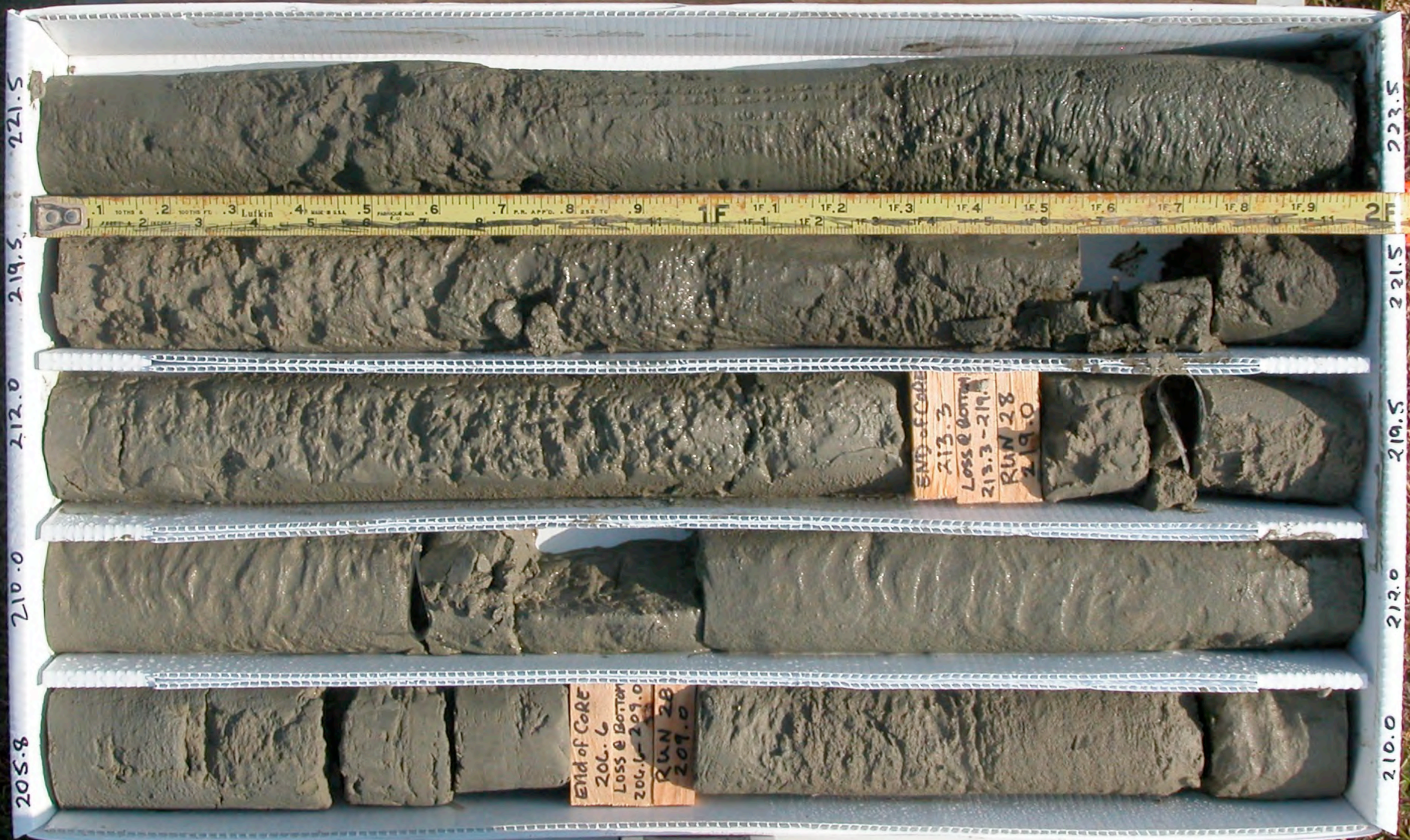
DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5 mm

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06

BOX 17
205.8-223.5'



223.5 226.3 228.2 229.9 231.8

End of CORE
224.0
LOSS @ Bottom
224.0-225.0
RUN 30
225.0
HYDRO
225.0

229.0
RUN 31
229.0

SPACER

END of CORE
231.4
LOSS @ BOTTOM
231.4-231.5
RUN 32
231.5

SPACER

220.3 228.2 229.9 231.8 232.75

BOX 18
223.5-232.75'
10/19/06

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5 mm

232.75 235.0 236.75 239.6 241.8

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

10/19/06
BOX 19
232.75-249.0'

END of RUN
= END of
CORE 236.
RUN 34
236.0

END of CORE
237.6
LOSS @ BOTTOM
237.6-239.0
RUN 35
239.0'

HARRIS - St.
240.5-240.8

END of CORE
234.2
LOSS @ BOTTOM
234.2-235
RUN 33
235.0

SPACER

SPACER

SPACER

END of CORE
243.6
LOSS @ BOTTOM
243.6-249.0

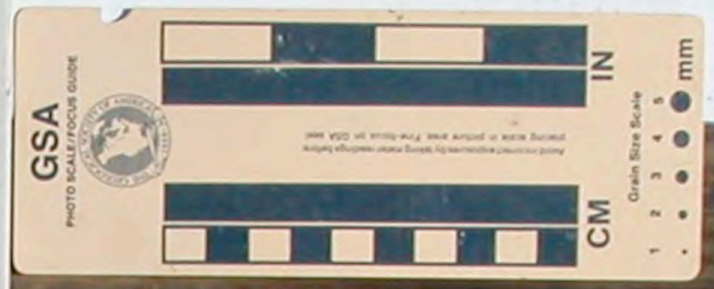
236.75 239.6 241.8 249.0


249.0
251.0
252.9
254.8
256.8
RUN 36
249.0
LOSS @ BOTTOM
253.85 - 254.0
RUN 37
254.0'
254.0'
HYDRO WEDGE
252.8-252.9
SPACER
251.0
252.9
BOX 20
249.0 - 258.8
10/20/06
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006
GSA
PHOTO SCALE/FOCUS GUIDE
CM
IN
Grain Size Scale
mm

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/20/06

Box 21
258.8 – 268.4



268.4 271.15 273.15 275.0 277.0

END of CORE
268.4
LOSS @ BOTTOM
268.4-269.0
RUN 39
269.0'

END of CORE
277.0
LOSS @ BOTTOM
277.0-279.0
RUN 41
279.0

2718-27?.0

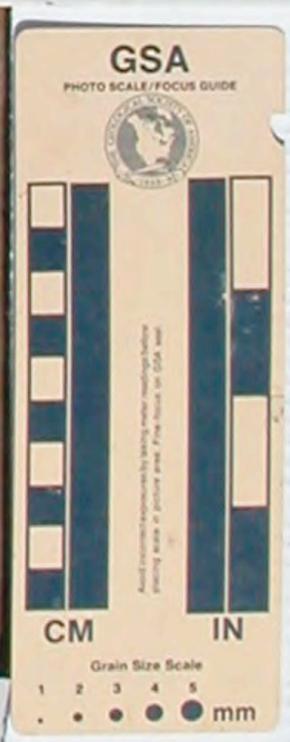
END of RUN
270.5'
LOSS @ BOTTOM
270.5-271.0
RUN 40
271.0'

SPACER
SPACER

271.15 273.15 275.0 277.0 280.8

10/21/06
BOX 22
268.4-280.8'

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006



280.8 · 282.8 284.8 289.3 291.3

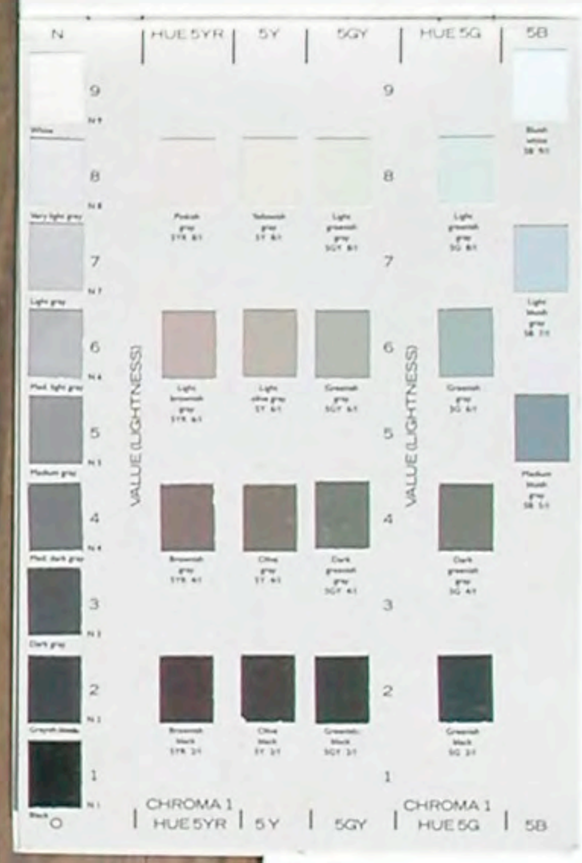
DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

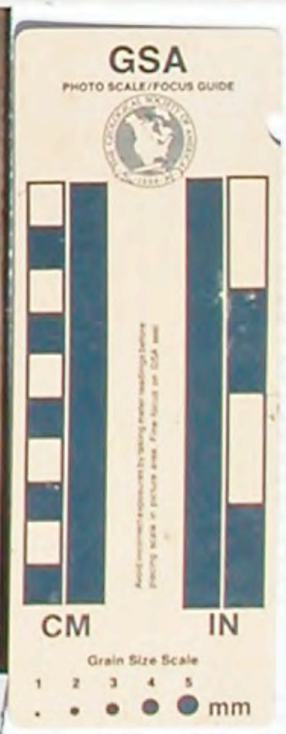
BOX 23
280.8 - 293.3'

10/21/06

END of CORE
286.3
LOSS @ BOTTOM
286.3 - 289.0
RUN 42
289.0

282.8 284.8 289.3 291.3 293.3





293.3 295.3 299.25 301.25 303.2

END OF CORE
296.85

LOSS @ BOTTOM
296.85-299.0

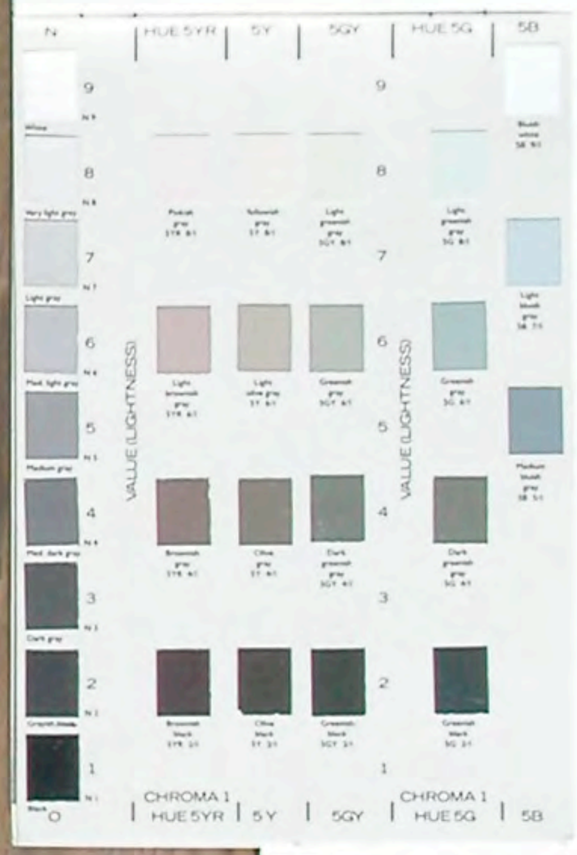
RUN 43
299.0

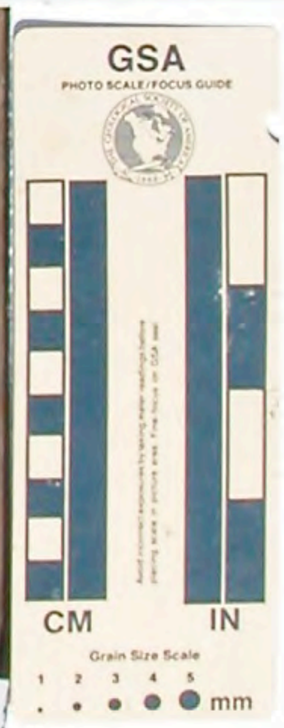
SPACER

295.3 299.25 301.25 303.2 305.2

Box 24
293.3-305.2'
10/21/06

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006



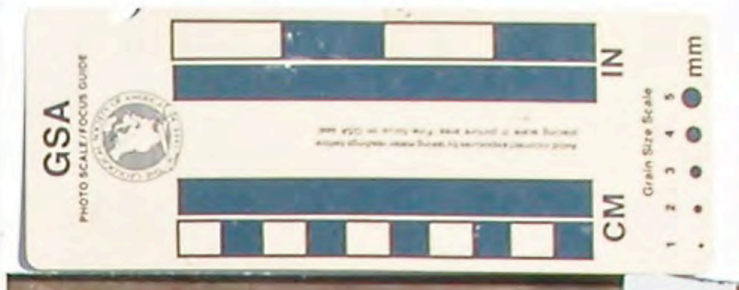


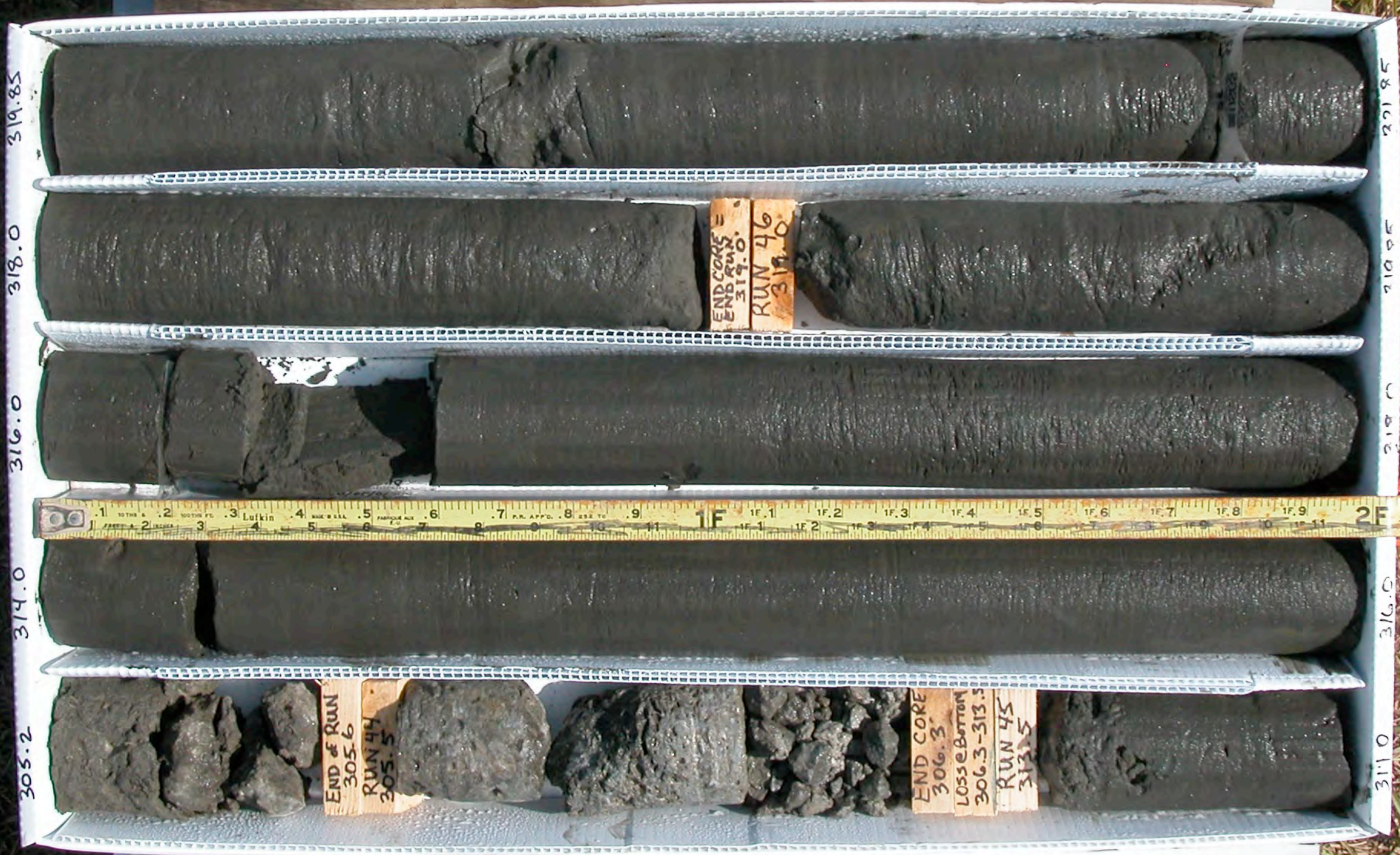
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/21/06

BOX 25

305.2 - 321.85'



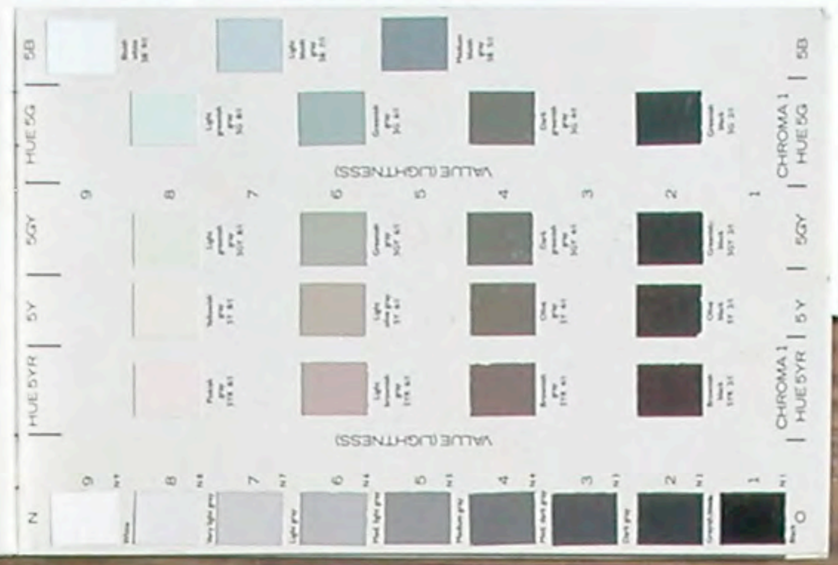


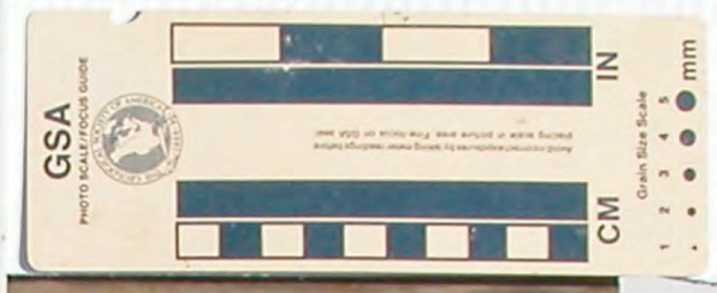
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/21/06

BOX 26

321.85 - 343.3





341.0

END of CORE 341.0

LOSS @ Bottom 341.0 - 341.5

RUN 49 341.5

343.3

339.0

341.0

325.85

END of CORE 326.95

LOSS @ Bottom 326.95 - 329.0

RUN 47 329.0

END of CORE 329.2

LOSS @ Bottom 329.2 - 339.0

RUN 48 339.0

SPACER

SPACER

339.0

325.85

323.85

Lufkin

1F

2F

323.85

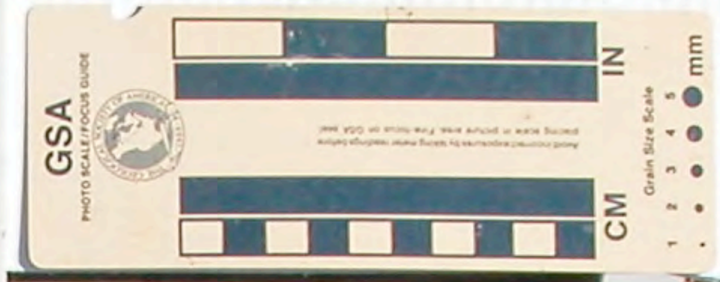
321.85

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/21/06

BOX 27

343.3 - 360.1



351.4
349.5
347.3
345.3
343.3

END of CORE
352.05
LOSS BETWEEN
HARD ROCK
INTERVALS
RUN 51
359.0'

SPACER

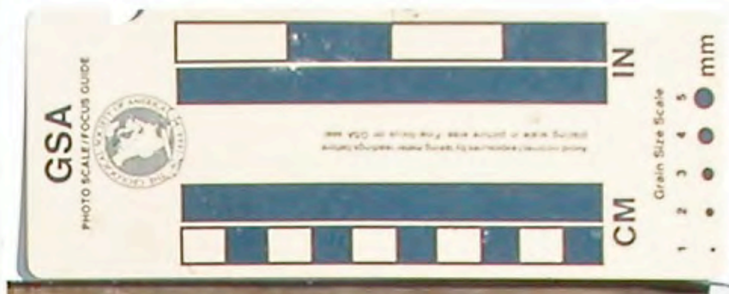
END of Co
348.2
LOSS @ Bott
348.2-348.5
RUN 50
348.5'

351.4
349.5
347.3
345.3

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/21/06

BOX 28
360.1 – 370.5'



END of CORE
368.4

LOSSE BOTTOM
368.4 - 369.0

RUN 52
369.0

368.1
366.1
364.1
362.1
360.1
370.5
368.1
366.1
364.1
362.1

Lufkin
1F
2F

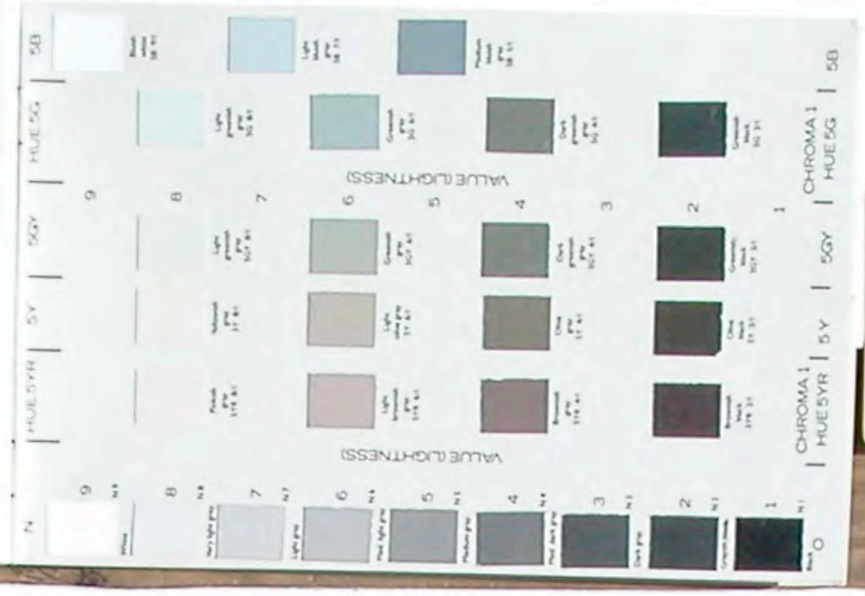
370.5
372.5
374.5
376.5
379.7
372.5
376.5
379.7
381.7
LOSS 377.6–379.0
RUN 53 379.0
Reattributed Core
BOX 29
370.5–381.7'
10/23/06
DIXON COREHOLE - 1
ONSLOW CO, NC
FALL 2006
GSA
PHOTO SCALE/FOCUS GUIDE
CM
IN
Grain Size Scale
mm

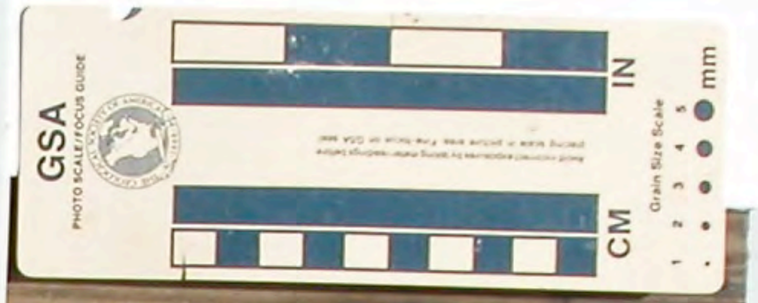
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/23/06

BOX 30

381.7 - 392.3'





390.3

END of Core
388.2
Loss @ Bottom
388.2 - 389.0

387.7

385.7

383.7

381.7

392.3

390.3

387.7

385.7

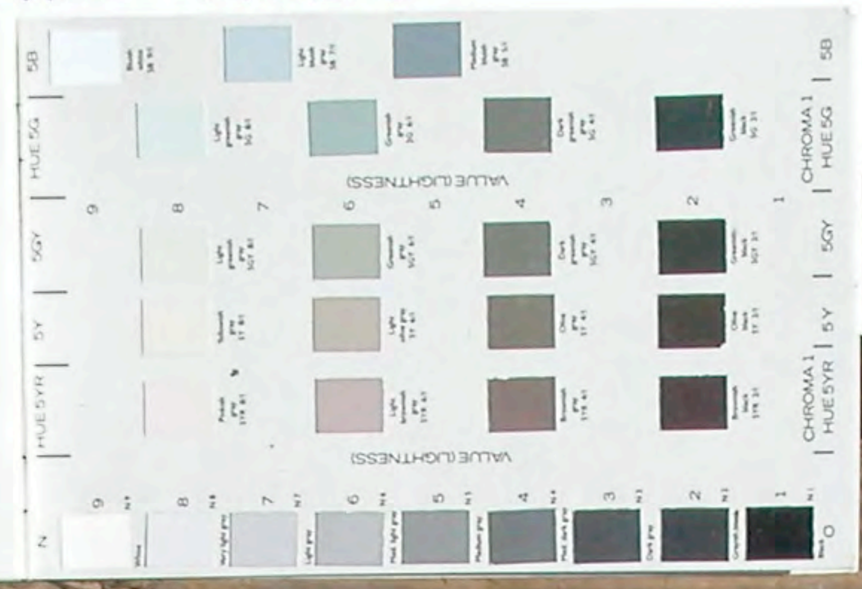
383.7

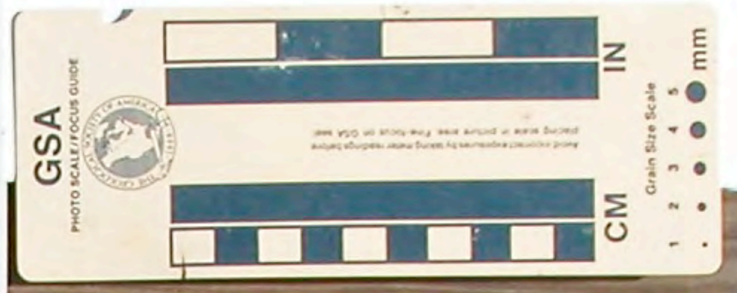
Lufkin

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/23/06

BOX 31
392.3 - 409.6'





END OF CORE
405.0'
LOSS @ BOTTOM
405.0-409.0
RUN 56

END of CORE
395.2'
LOSS BOTTOM
395.2-399.0
RUN 55

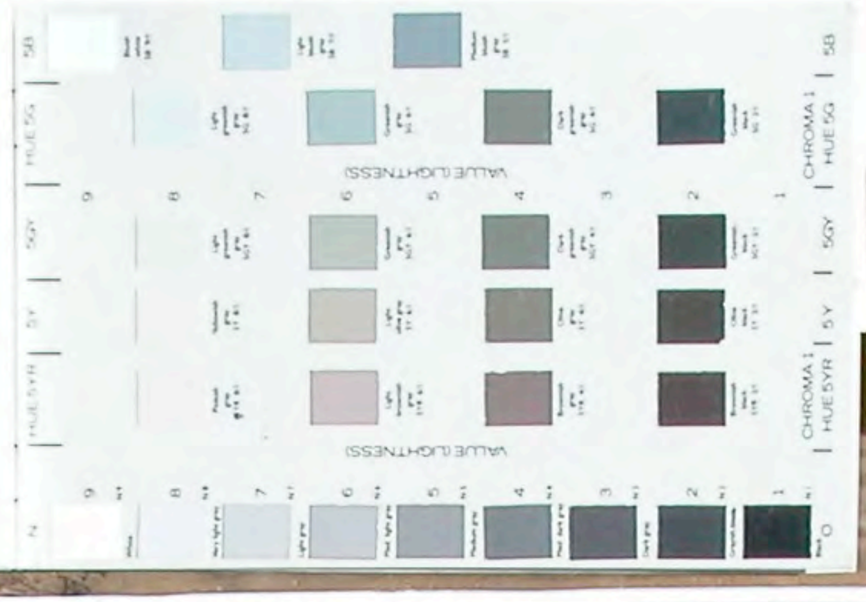
403.8
401.8
399.8
394.2
392.3
409.6
403.8
401.8
399.8
394.2

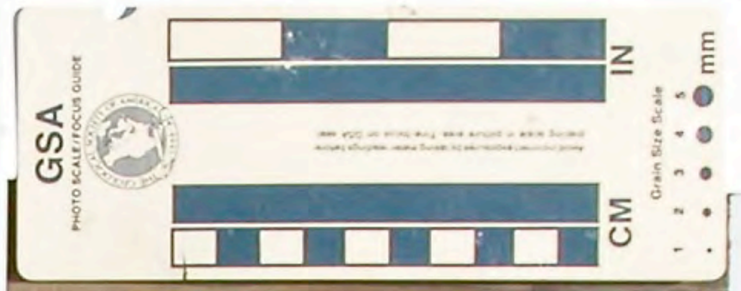
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/23/06

BOX 32

409.6 - 420.8'





END of CORE
417.8'
Loss @ Bottom
417.8-419.0
RUN 58
419.0'

END of CORE
413.6'
Loss @ Bottom
413.6-414.0
RUN 57
414.0'

409.6 - 411.0 - 413.0 - 415.8 - 417.8 & 420.8

420.8 422.8 430.75 432.75 434.95

END of CORE
422.85'
LOSS @ BOTTOM
422.85-429.0
RUN 59
429.0

HYDRO-WRE
421.5-421.55

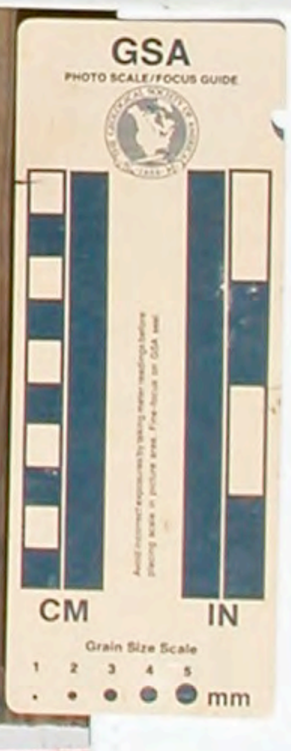
END of CORE
433.6
LOSS @ Bottom
433.6-434.0
RUN 60
434.0

422.8 430.75 432.75 434.95 421.95

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

Box 33
436.95-446.0'

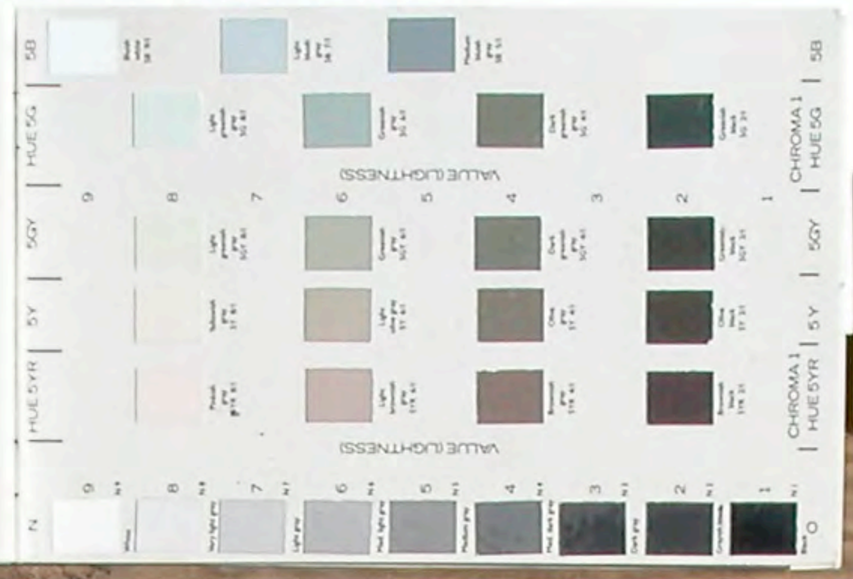
10/23/06

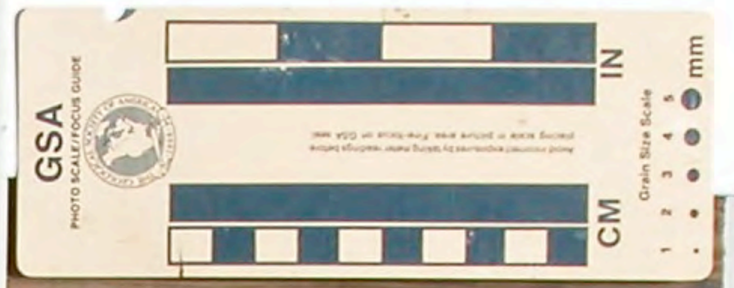


DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/23/06

BOX 34
436.95 - 446.0'

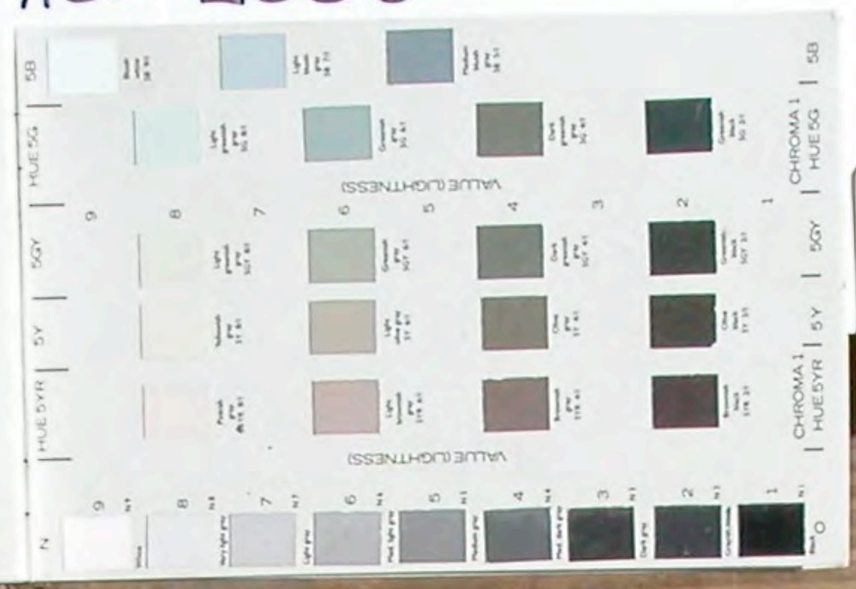


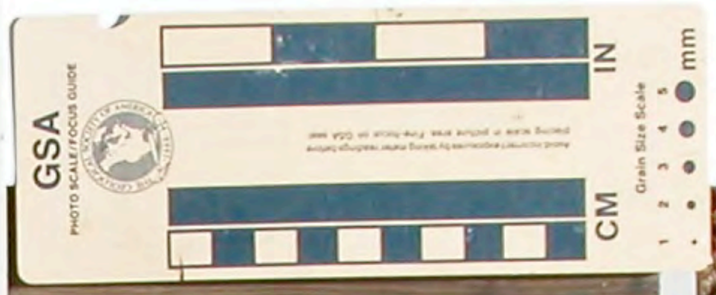


DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/23/06

BOX 35
446.0 - 465.4





461.65

459.65

454.0

448.0

446.0

RUN 65
464.0'

Recovered 1.2' of core and lost 3.8' between individual pieces over full course of run.
RUN 64
459.0'

END of Core
449.8'
Loss @ Bottom
449.8-446.0
RUN 63
454.0

465.4

461.65

454.0

448.0

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

BOX 36
465.4 - 476.35'
10/23/06

465.4 467.4 470.7 472.7 474.35

END of CORE
467.55
LOSS @ BOTTOM
467.55-469
RUN 66
469.0

END of CORE
474.2
RUN 67
474.0

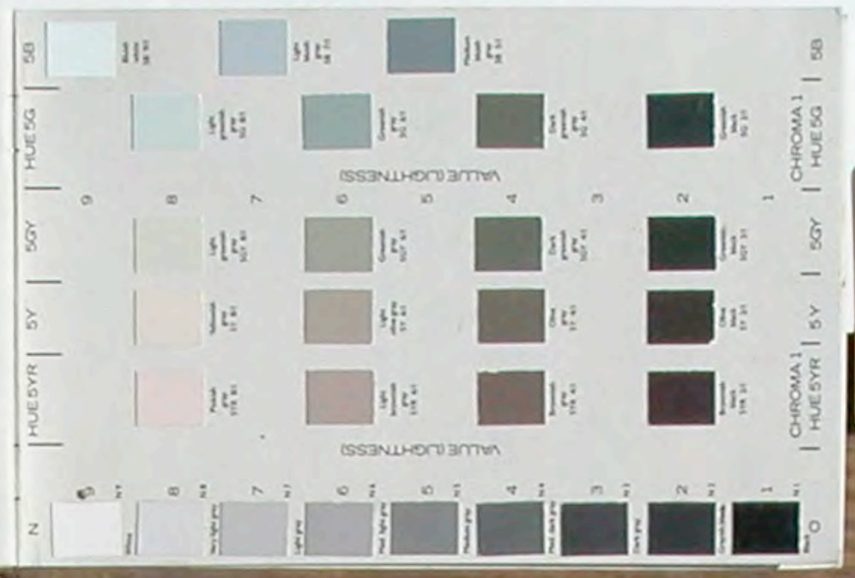
467.4 470.7 472.7 474.35 476.35

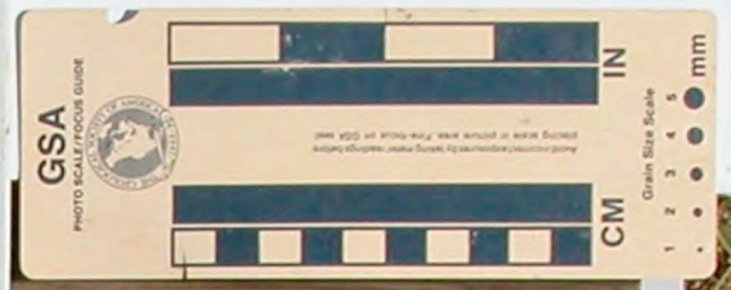
GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5 mm

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/23/06

BOX 37
478.35-485.9'





484.15

482.15

480.15

478.35

476.35

SPACER

END of CORE
479.1
RUN 68
479.0

Lufkin

1F

2F

485.9

484.15

482.15

480.15

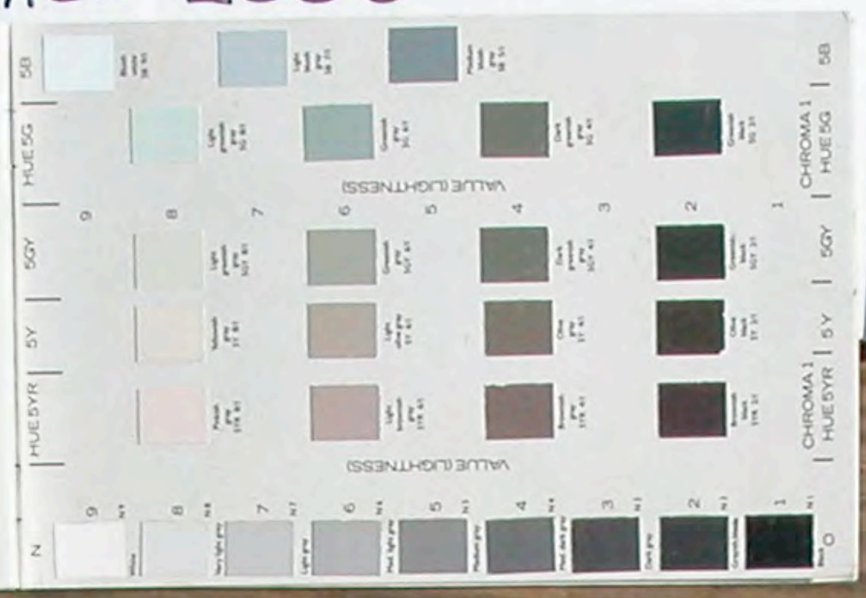
478.35

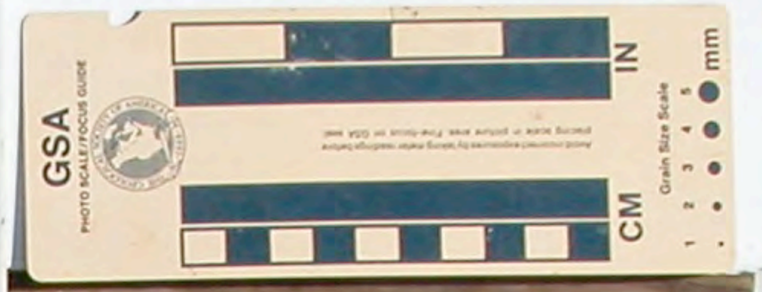
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/24/06

BOX 38

485.9 – 495.4'





493.4

491.4

489.4

487.8

485.9

End of Core
489.2
RUN 70
489.0

END OF CORE
486.4
LOSS @ BOTTOM
486.4-486.5
RUN 69
486.5

493.4

491.4

489.4

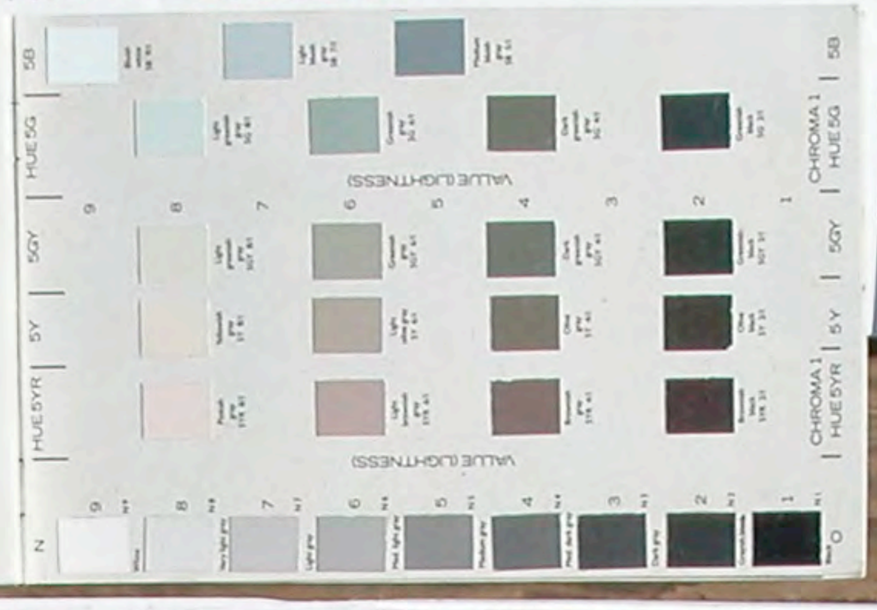
487.8

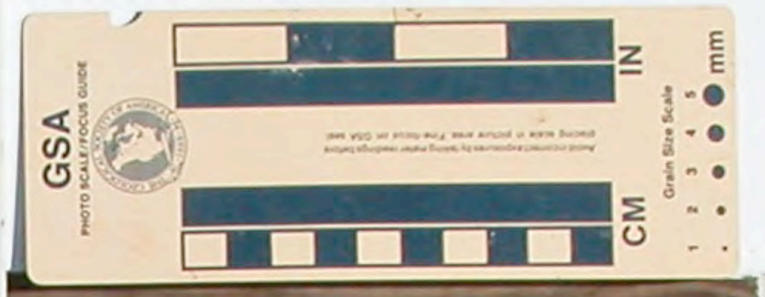
485.9

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/24/06

BOX 39
495.4 - 504.95'





502.95

504.95

500.95

499.0

497.4

496.4

RUN 71
497.0

END of CORE
499.2

SPACER

504.95 509.25 511.25 513.0 515.0

END of CORE
515.15
LOSS @ BOTTOM
515.15-519.0
RUN 74
515.0

BOX 40
504.95-520.7'
10/24/06

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

END CORE
506.5
LOSS @ BOTTOM
506.5-509.0
RUN 72
509.0'

END CORE = END RUN
513.0
RUN 73
513.0'
SPACER

509.25 511.25 513.0 515.0 520.7

GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5
mm

520.7 532.9 534.9 536.85 540.7

END OF CORE
536.95
LOSS @ BOTTOM
536.95-539.0
RUN 77
539.0

END CORE = END RUN
535.25
RUN 76
535.25

END of CORE
522.45
LOSS @ BOTTOM
522.45-529.0
RUN 75
529.0
LOSS @ TOP
529.0-532.9

532.9 534.9 536.85 540.7 54?.7

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

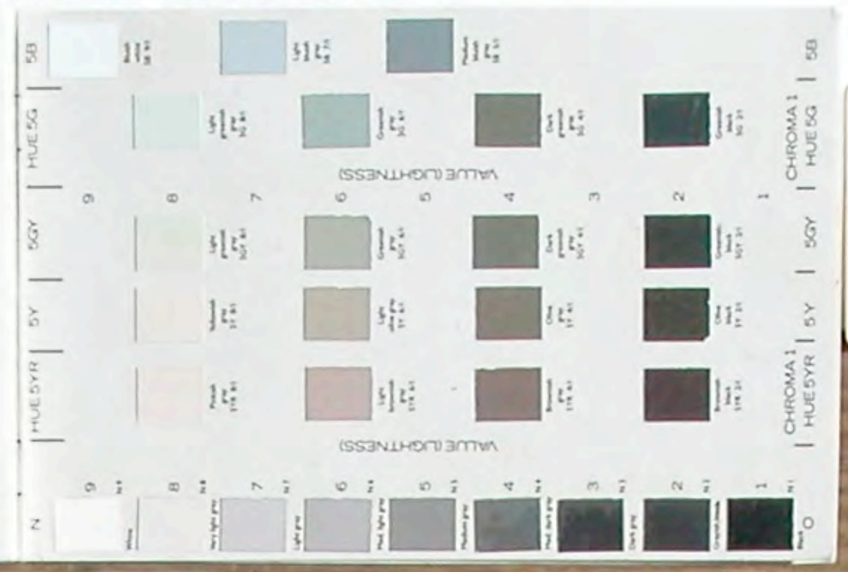
BOX 41
520.7 - 540.7'
10/25/06

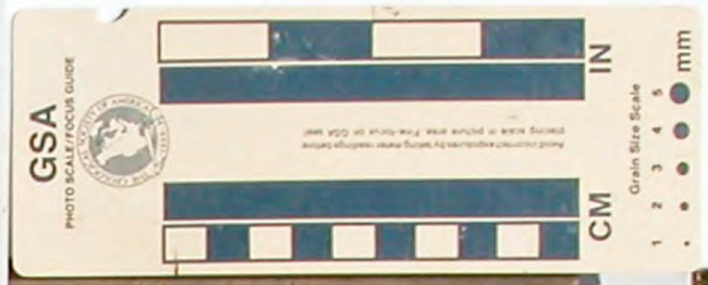
GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5
mm

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/25/06

BOX 42
542.7-559.95'





559.95 561.95 563.95 565.95 567.95

END CORE = END RUN 569.0'

RUN 801 561-P

561.95 563.95 565.95 567.95 569.85

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

BOX 43
559.95-569.85'
10/25/06

GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5 mm

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

10/25/06

BOX 44
569.85-579.75'

569.85

571.85

573.85

575.85

577.85

END of CORE
578.9'
LOSS @ BOTTOM
578.9-579.0
RUN 82
579.0'

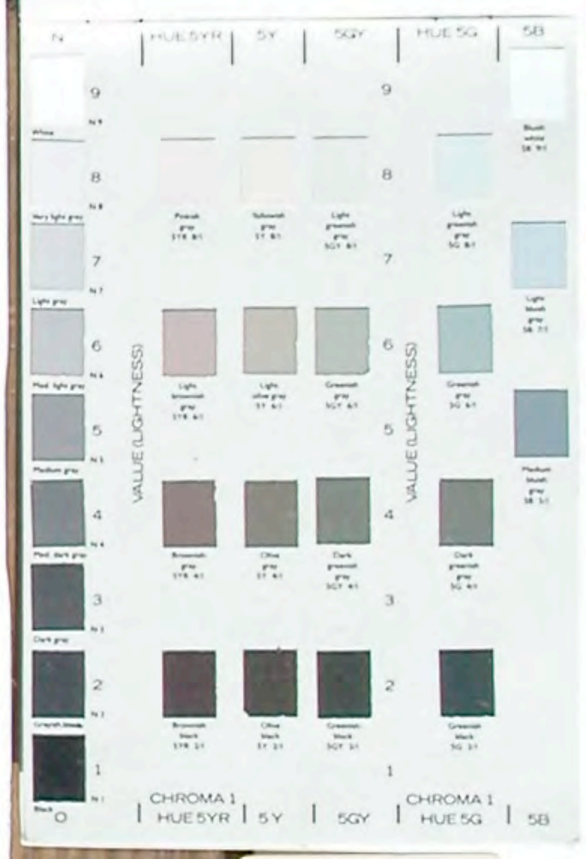
571.85

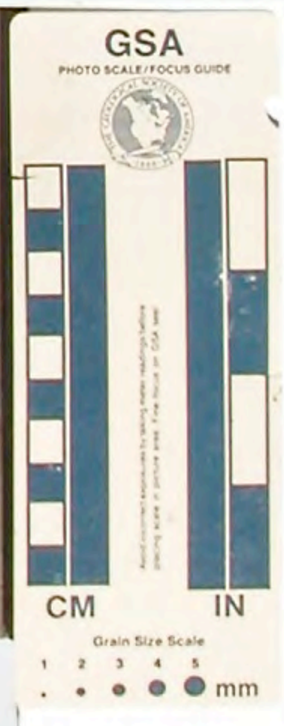
573.85

575.85

577.85

579.75

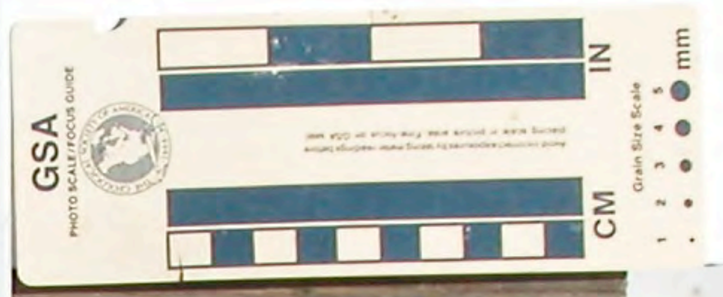




DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/25/06

BOX 45
579.75 - 589.3'



587.3

585.75

583.75

581.75

579.75

SPACER

587.3

585.75

583.75

581.75

579.75

589.0 590.9 592.9 594.9 596.9

END of CORE
589.3
RUN 83
589.0

End of Core
597.55
LOSS @ Bottom
597.55-599.0
RUN 84
599.0

590.9 592.9 594.9 596.9 600.2

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

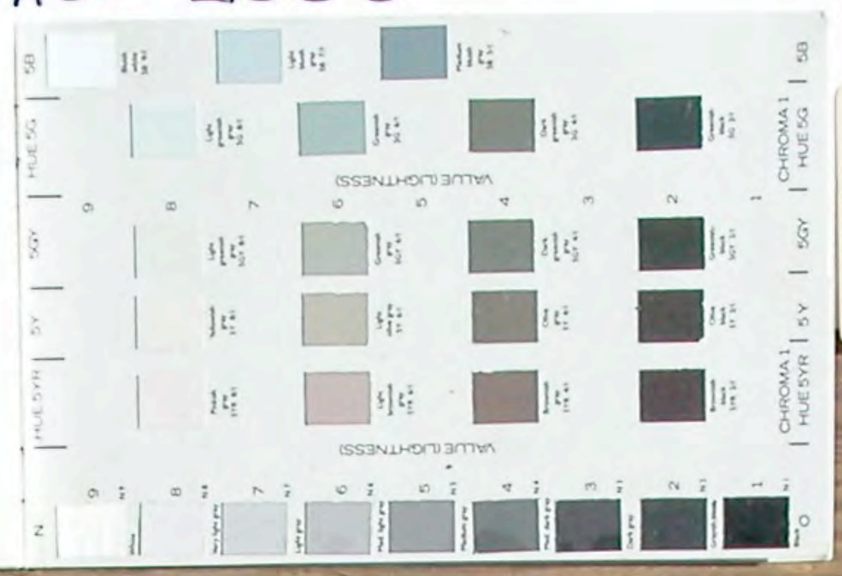
BOX 46
589.0 - 600.2'
10/25/06

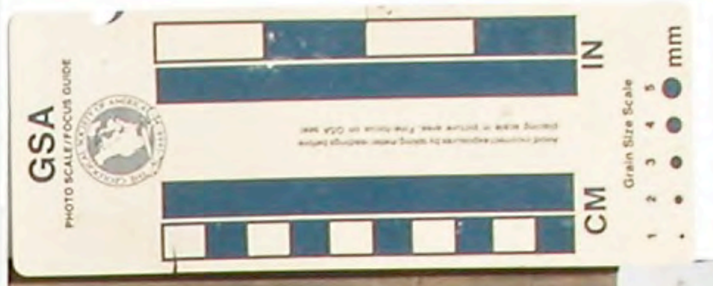
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/25/06

BOX 47

600.2 - 616.45'





616.45

614.45

606.2

604.2

602.2

600.2

End of Core 607.7

Loss @ Bottom 607.7 - 609.0

RUN #5 609.0

Loss @ Top 609.0 - 614.5

Lufkin

1F

2F

616.45

618.45

620.35

622.35

624.35

END CORE - END RUN
619.0'
RUN 86
619.0'

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

10/26/06

BOX 48
616.45-626.35'

618.45 620.35 622.35 624.35 626.35

626.35 628.35 634.15 636.15 638.15

END CORE = END RUN 629.0 RUN 87 629.0'

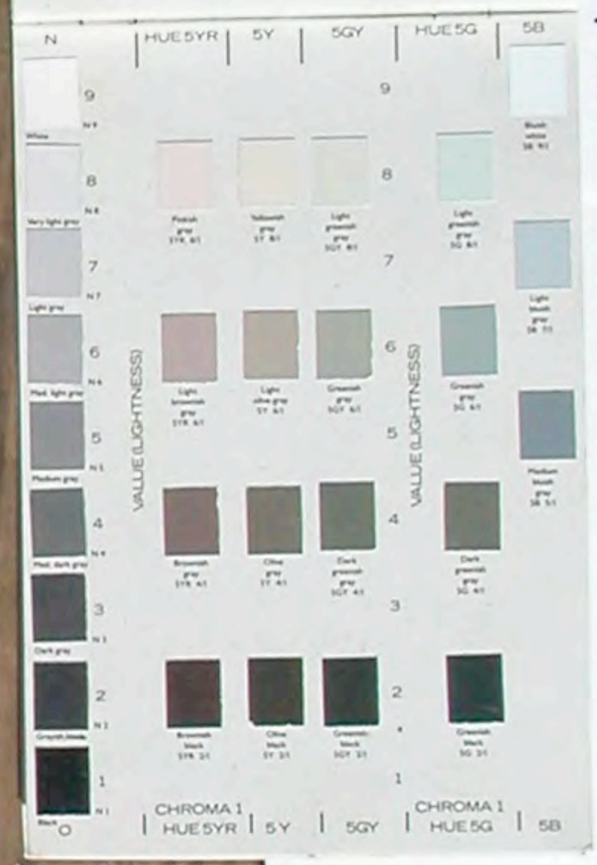
End of Core 638.55 Loss @ Bottom 639.55-639.0 RUN 89 639.0

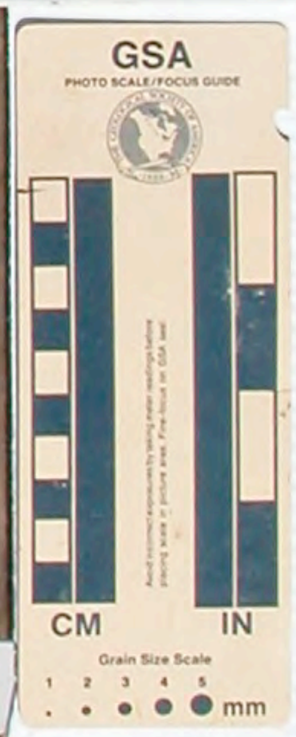
END OF CORE 629.9' LOSS @ BOTTOM 629.9-634.0 RUN 88 634.0'

628.35 634.15 636.15 638.15 640.4

BOX 49
626.35-640.4'
10/26/06

EXXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

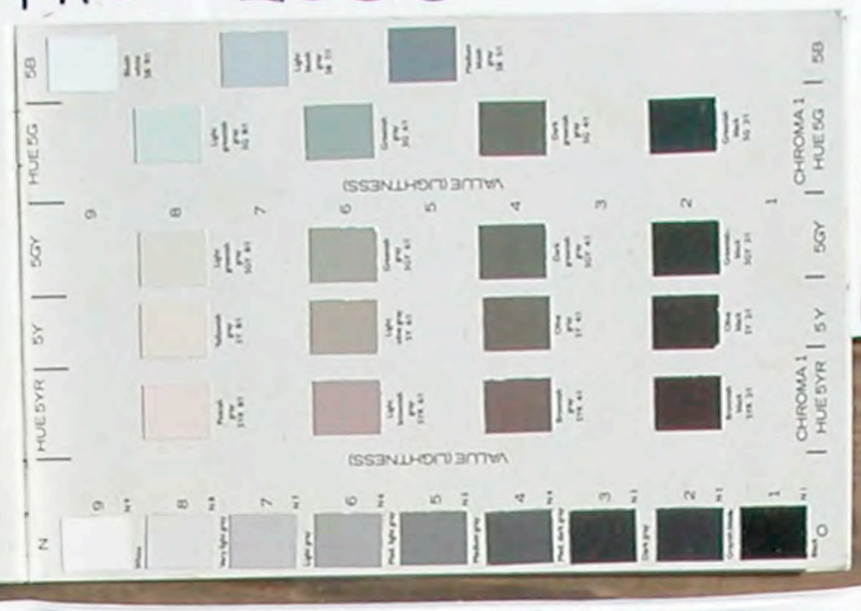


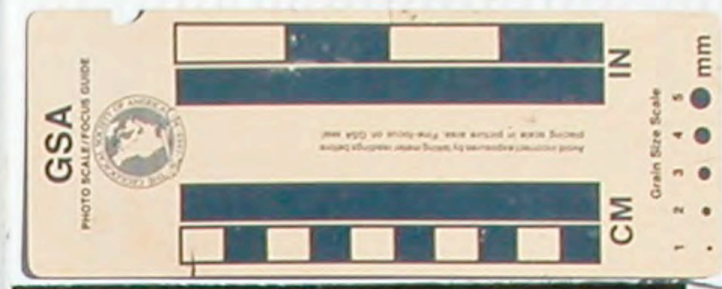


DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/26/06

BOX 50
640.4 – 651.0'





649.0

End of Core
GH 8.25
Losse Bottom
(649.25-649.0)
RUN 90
649.0

651.0

640.4

641.4

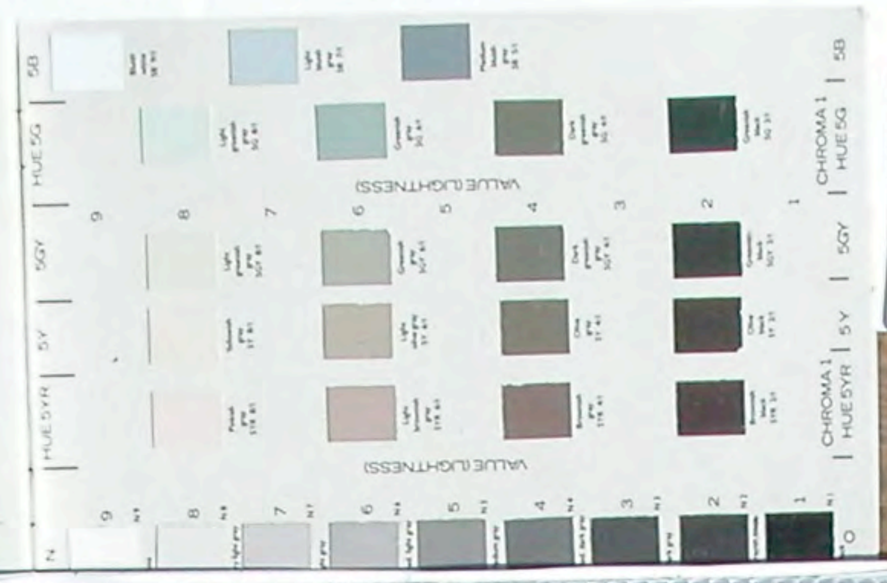
642.4

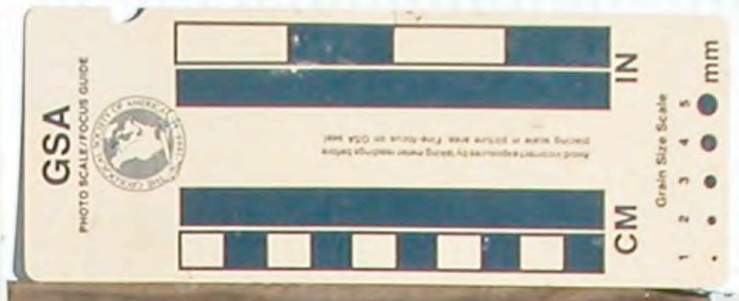
643.4

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/29/06

BOX 51
651.0' - 665.9'



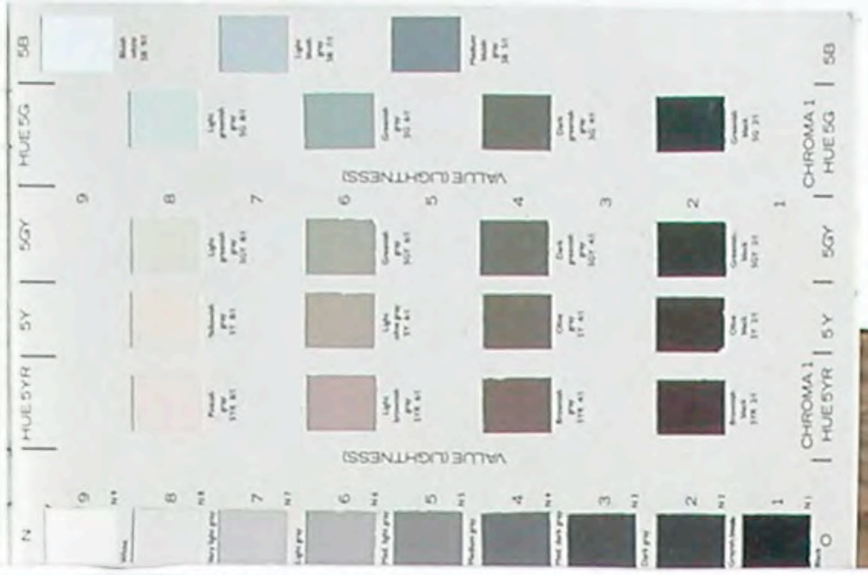


DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/29/06

BOX 52

665.9' - 675.7'

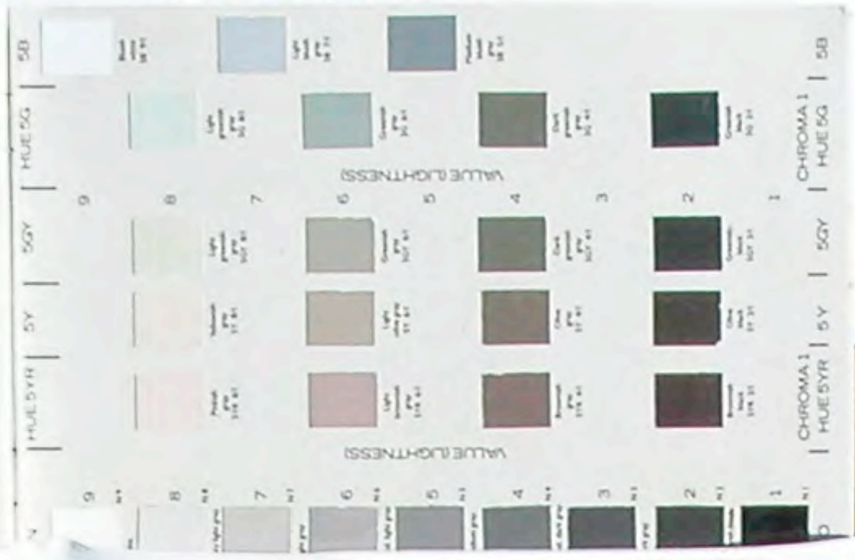


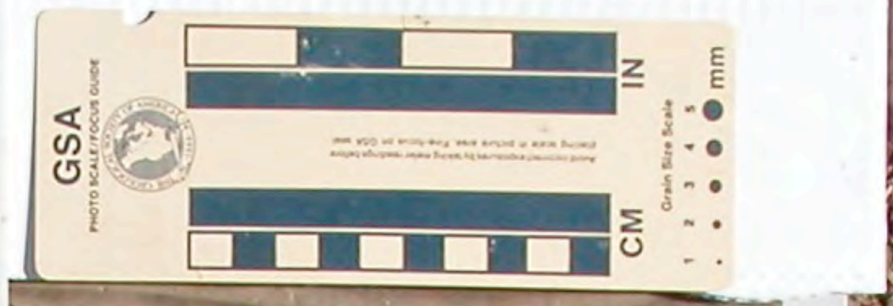
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

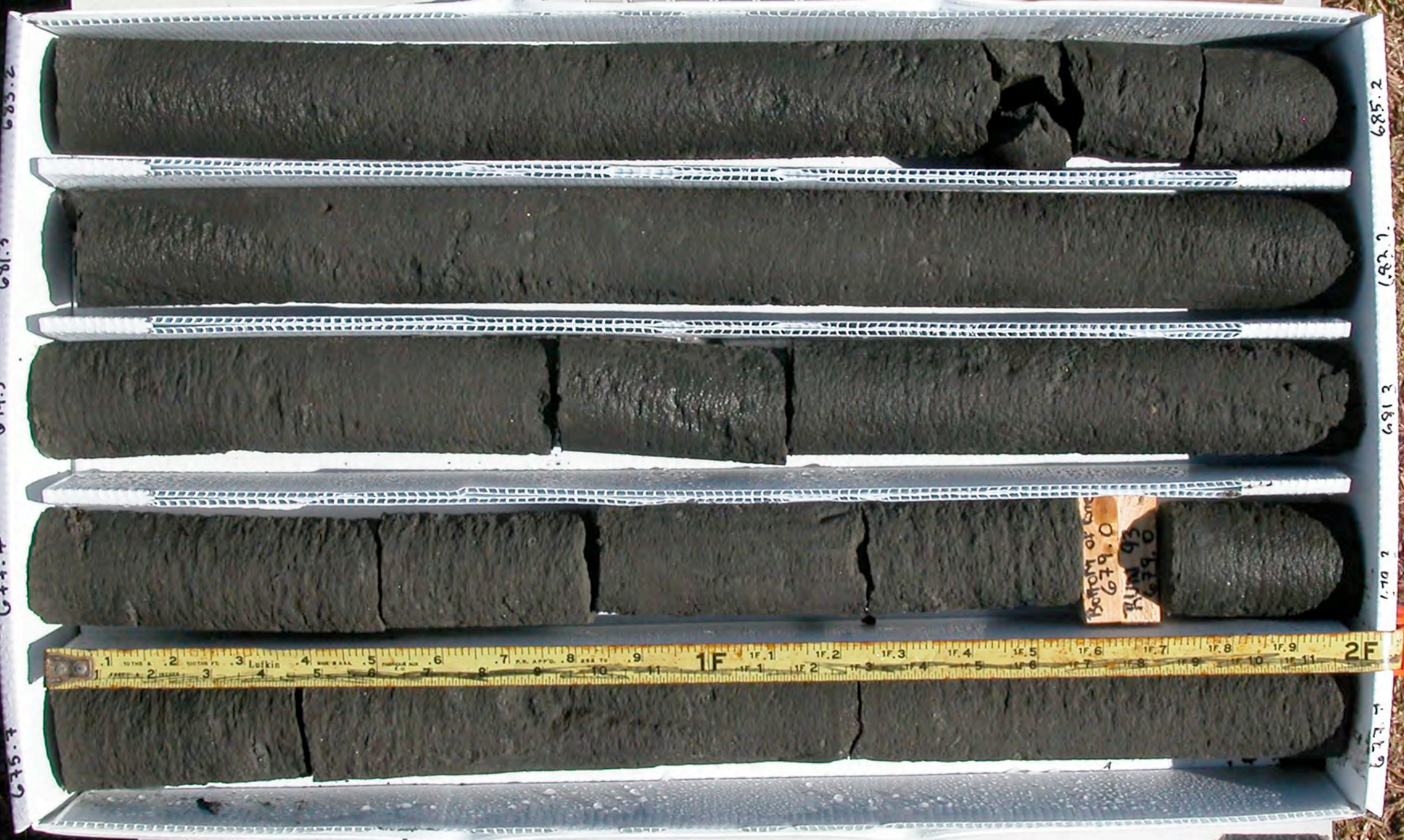
10/29/06

BOX 53

675.7 - 685.2





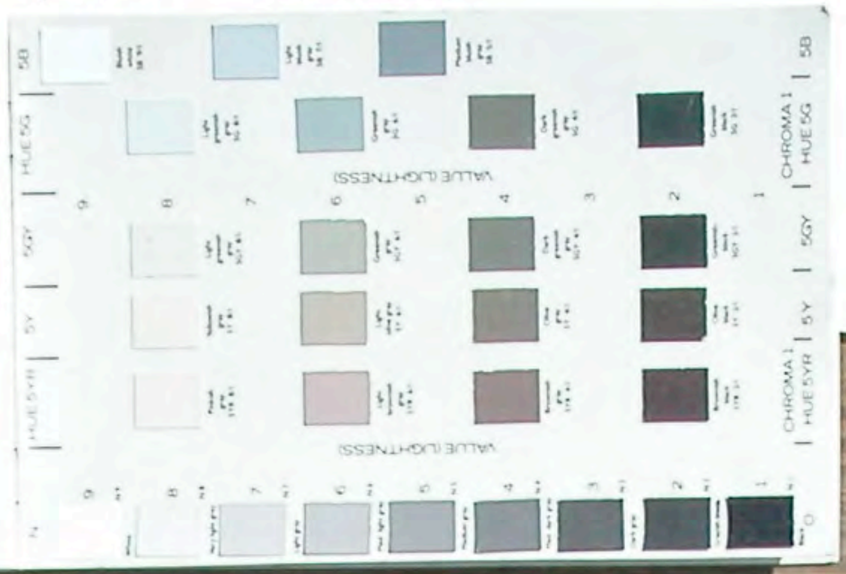


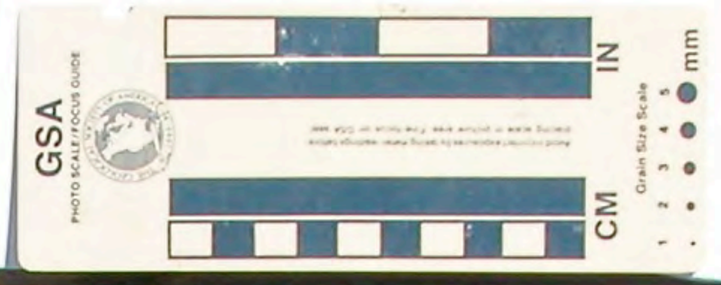
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

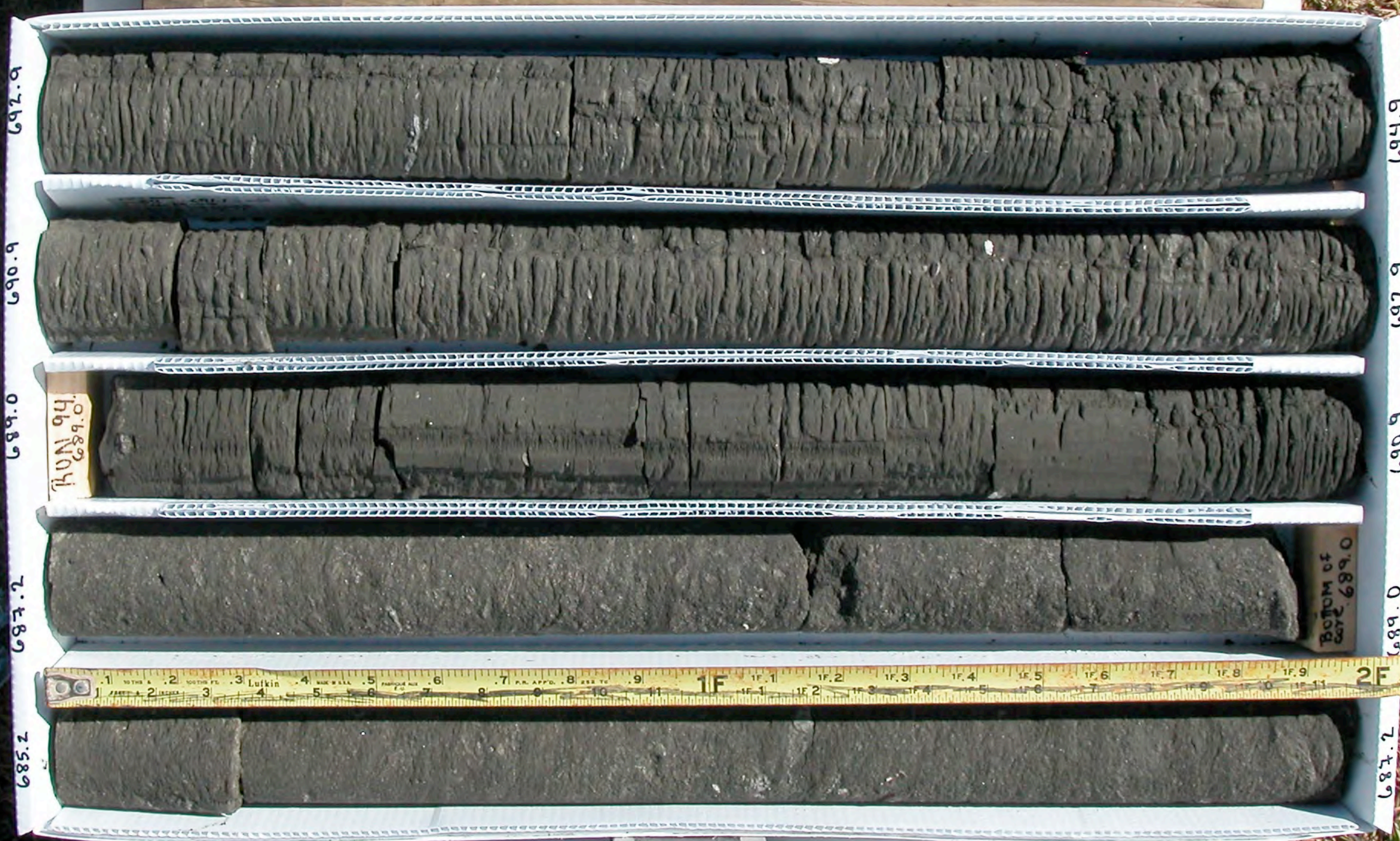
10/29/06

BOX 54

685.2' - 694.9'



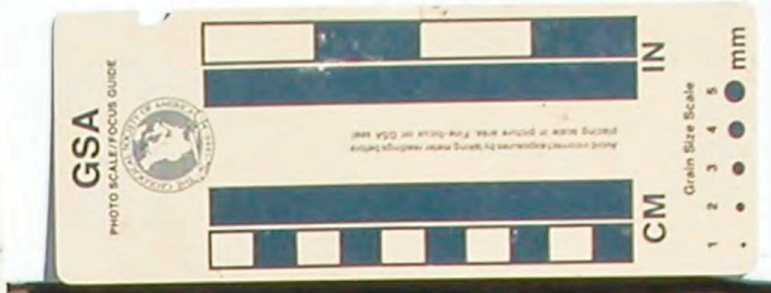




DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/30/06

BOX 55
694.9' - 704.9'



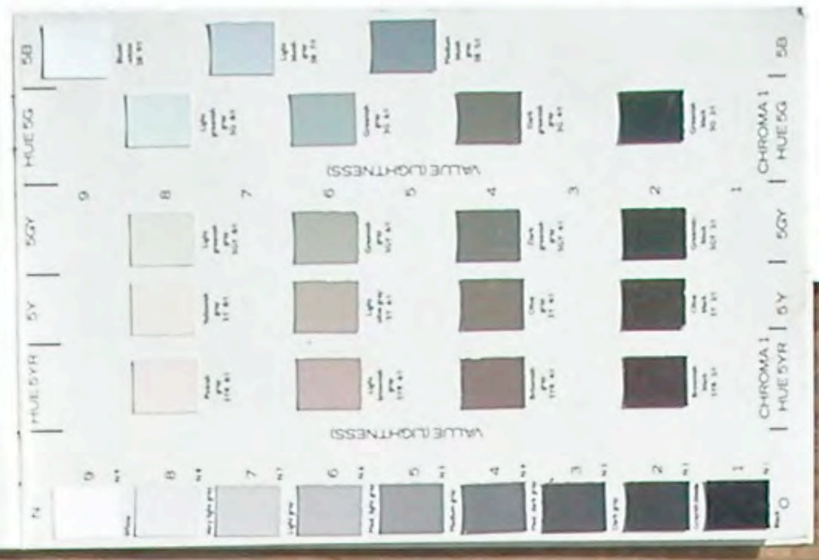
704.9
709.4
711.2
713.1
715.1
RUN 97
719.0
Redistributed
Core 711.2 - 716.2
Box 56
704.9' - 719.8'
10/31/06
DIXON COREHOLE - 1
ONSLOW CO, NC
FALL 2006
LOSS e Bottom
716.2 - 719.0
LOSS e Bott
706.4-709.0
RUN 96
709.0
SPACER
GSA
PHOTO SCALE/FOCUS GUIDE
CM
IN
Grain Size Scale
mm
709.4
711.2
713.1
715.1
719.8

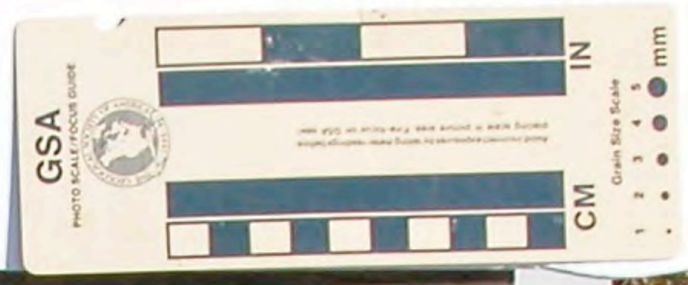
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/31/06

BOX 57

719.8' - 729.2'

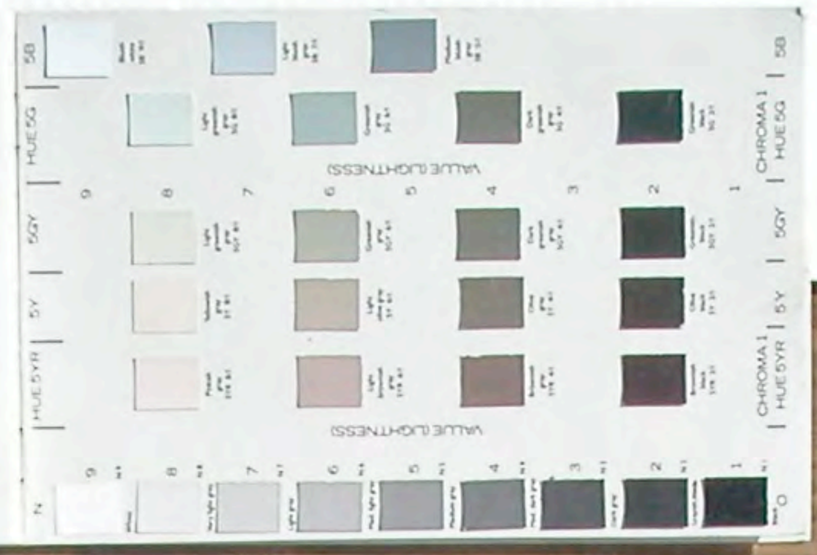


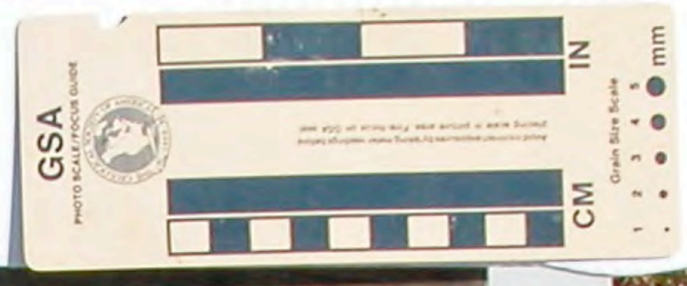


DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/31/06

BOX 58
729.2' - 739.0'





729.2
731.2
733.2
735.2
737.2
739.0

SPACER

EDWARDS
739.0-739.3'

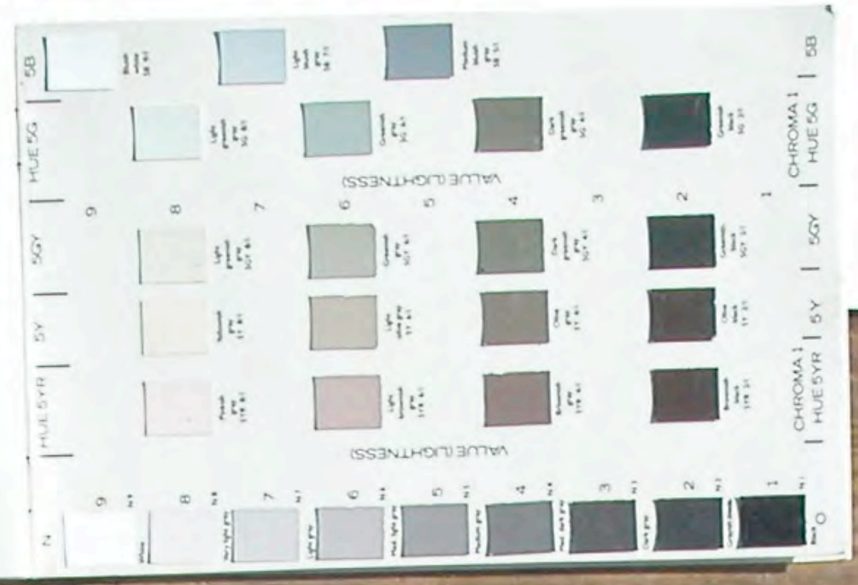
Lufkin
1F
2F

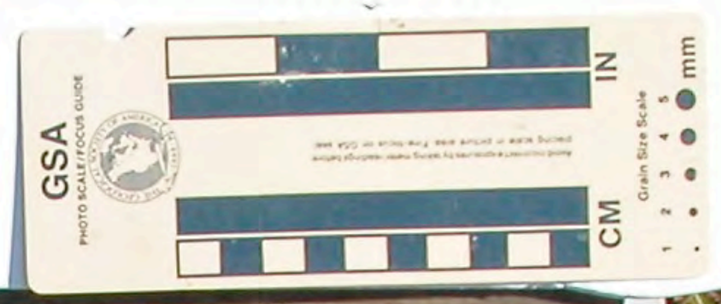
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/31/06

Box 59

739.3 - 738.6





739.6

739.4

739.2

739.0

738.8

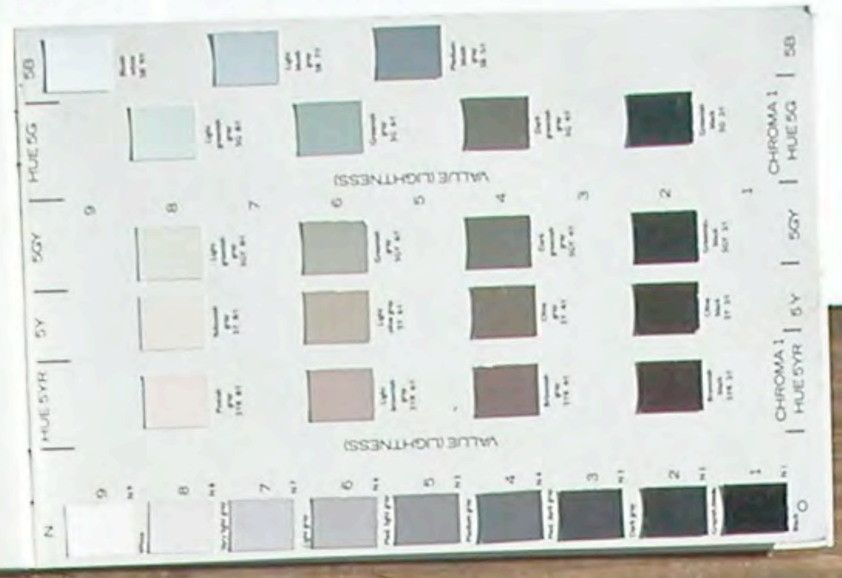
Lufkin
1F
2F
BOTTOM OF CORE 739.3
RUN 20

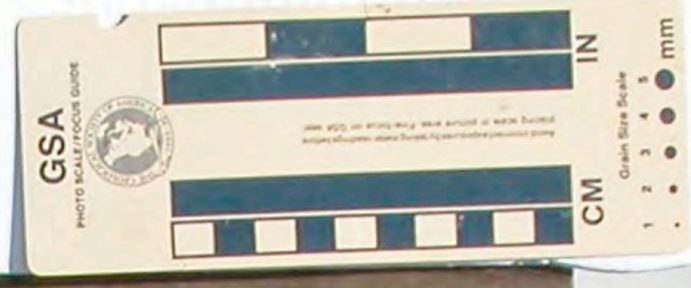
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

10/31/06

BOX 60

748.6' - 759.5'



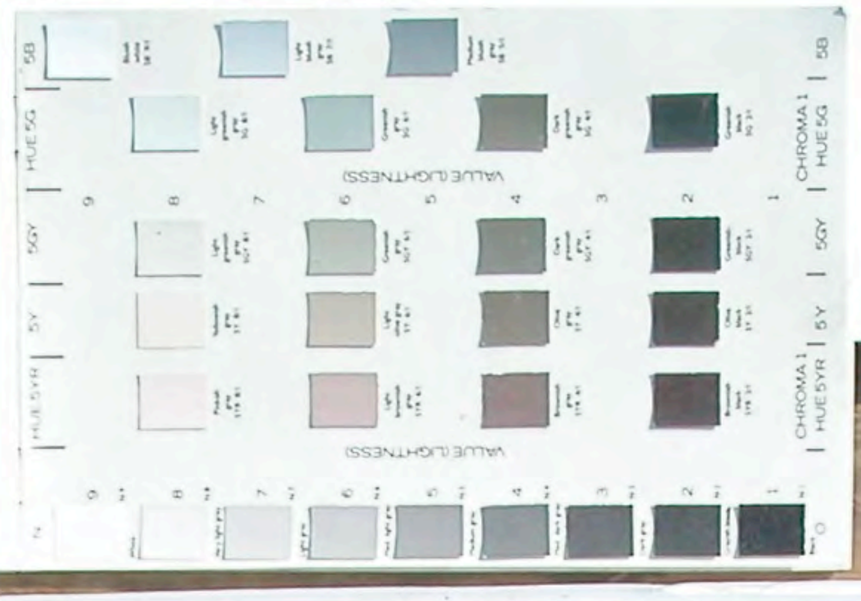


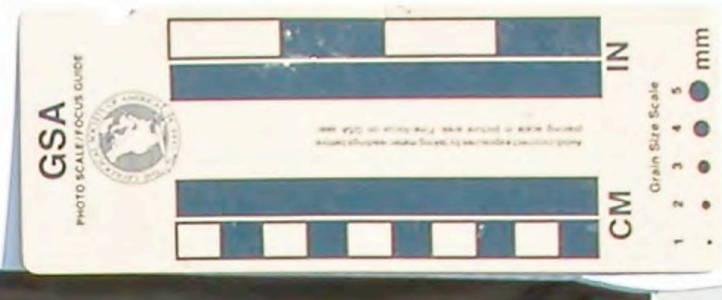
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-1-06

Box 61

759.5' - 778.7'



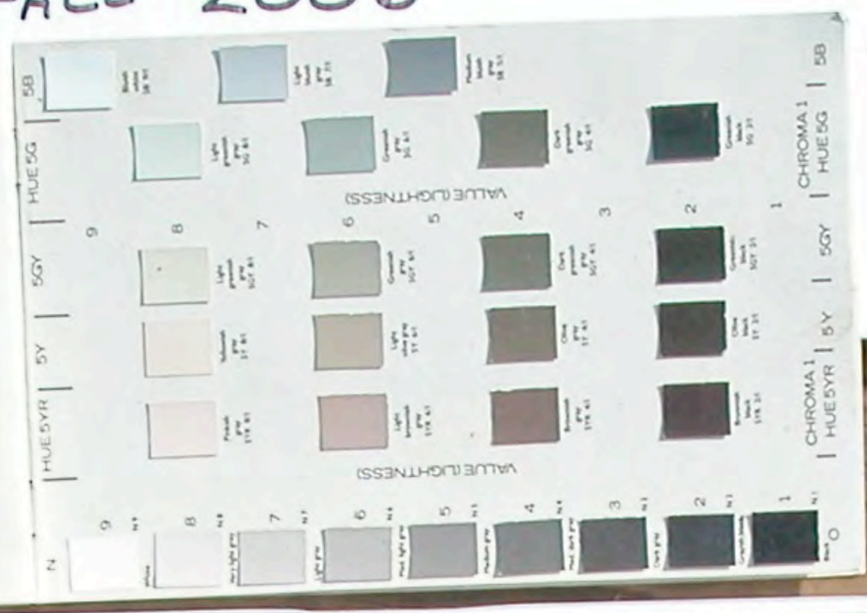


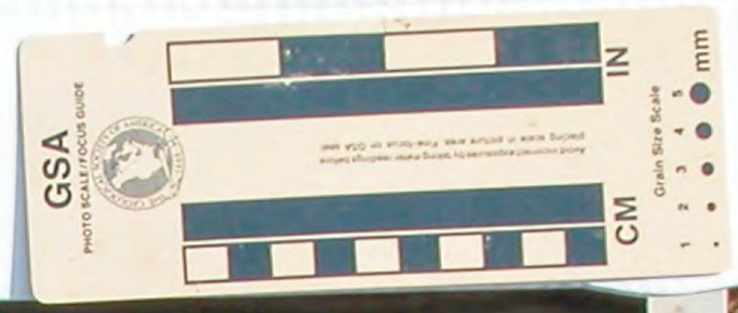
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-1-06

BOX 62

778.7' - 789.4'



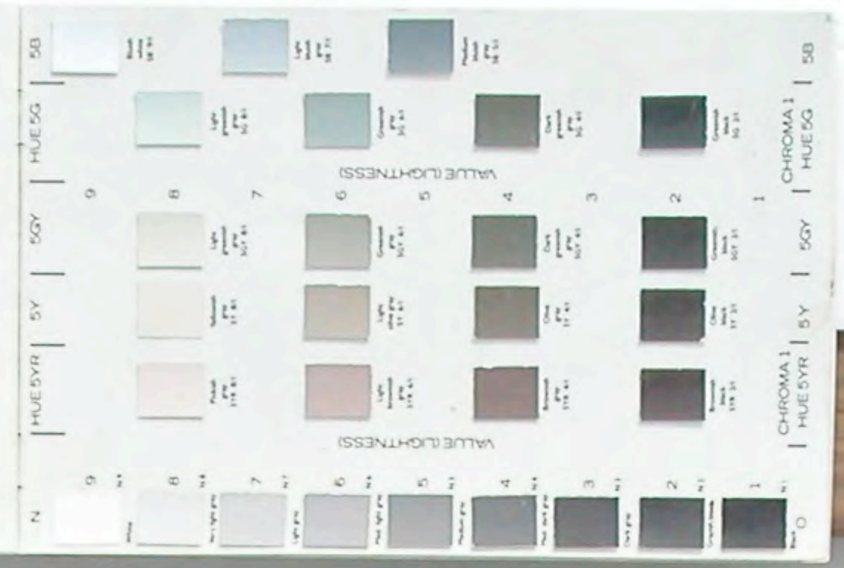


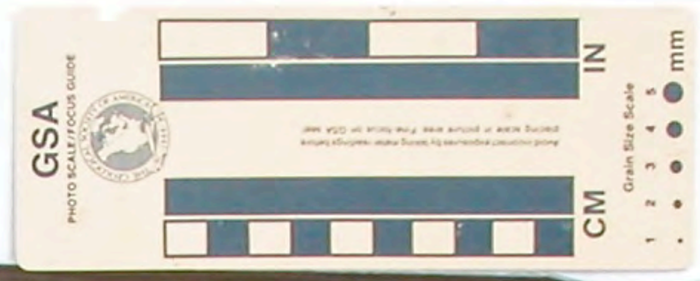
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOK 63

789.4' - 800.0'





RUN #4
789.0
Reattributed Core
789.2 - 799.0

799.0

SPACER

SPACER

Core Bottom
791.2 - 792

Spacer

1F 1F 1 1F 2 1F 3 1F 4 1F 5 1F 6 1F 7 1F 8 1F 9 1F 10 1F 11 2F

789.4
790.5
791.5
792.5
793.5
794.5
795.5
796.5
797.5
798.2

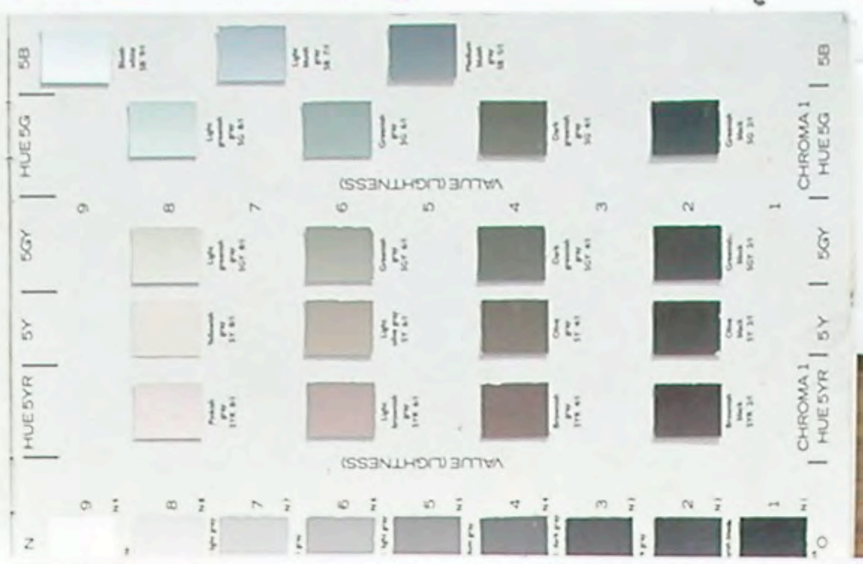

800.0
802.0
804.0
805.5
807.3
RUN 110 805.5
EDWARDS 807.5-807.8
BOX 64
800.0'-809.3'
11-2-06
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006
Bottom of Core 805.5
SPACER
SPACER
GSA
PHOTO SCALE/FOCUS GUIDE
CM
IN
Grain Size Scale
mm
802.0
805.5
807.3
809.3

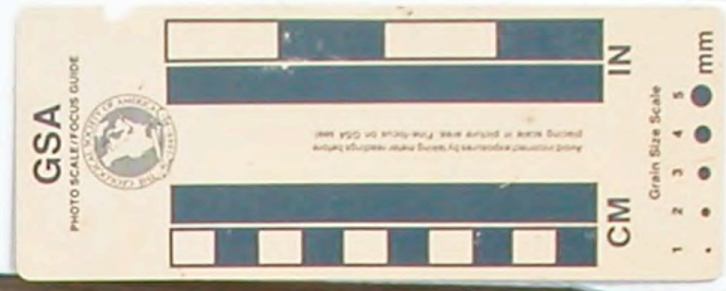
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 65

809.3' - 819.0'





817.0

815.2

813.2

811.3

809.3

RUN 111
816.0
Reattributed core
815.2 - 816.0

816.0

817.0

815.2

813.2

811.3

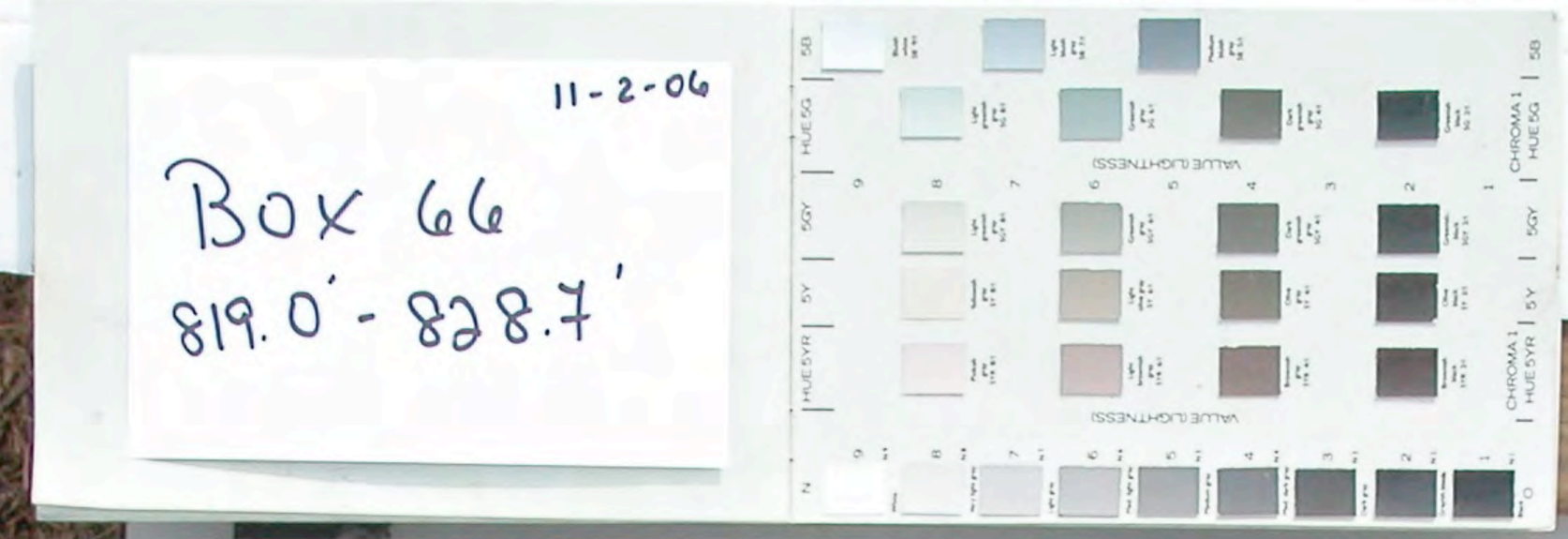
Lufkin

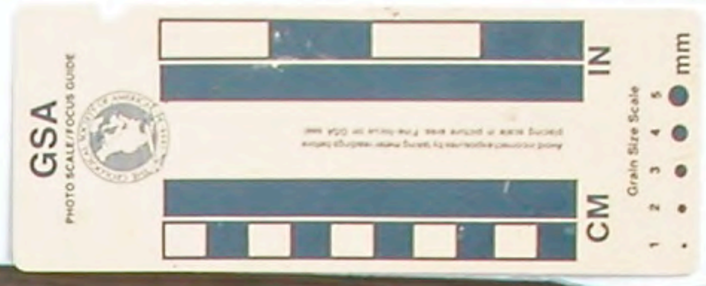
1F 2F

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 66
819.0' - 828.7'





826.7

819.0

824.0

828.7

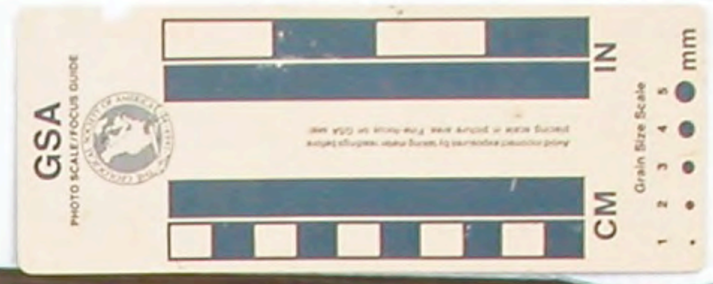
Bottom of Core 824.0
RUN 112 824.0
RUN 113 824.0
Recovered 824.0-828.7

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 67

828.7' - 838.3'



836.3
834.5
832.0
830.0
828.7

Spacer

RUN 114
834.0
Recovered
Core 833.3-832.0

834.0
833.4-834.0

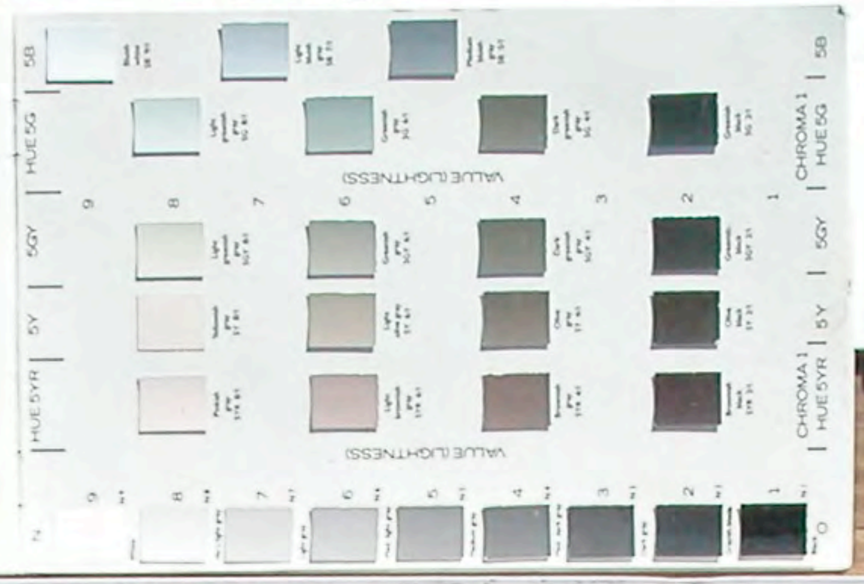
829.0

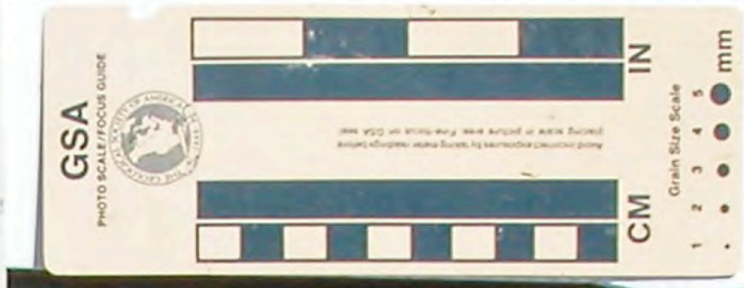
838.3
836.3
834.5
832.0
830.0

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 68
838.3'-850.6'





838.3
840.0
841.9
843.9
845.8
843.9
841.9
840.0
838.3
850.6

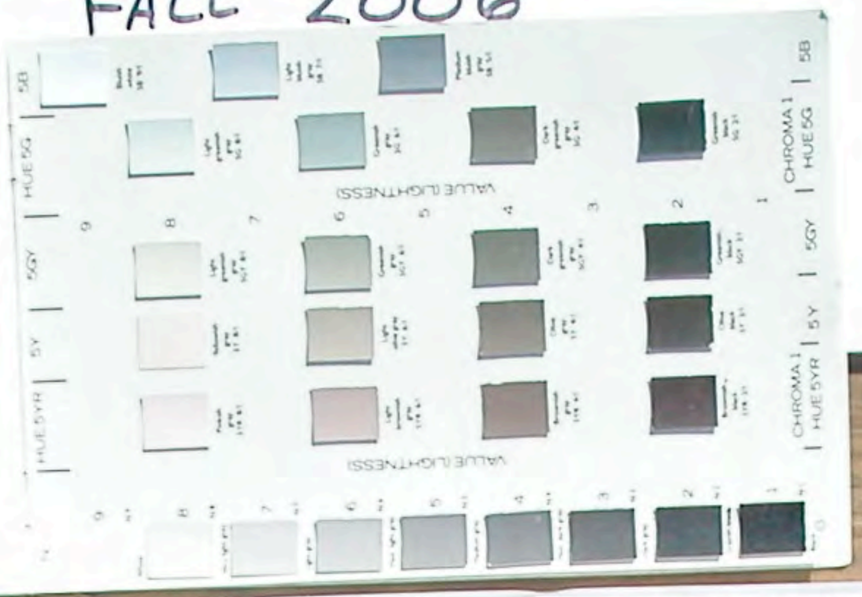
Loss @ Bottom
849.1-849.0
RUN 114
849.0

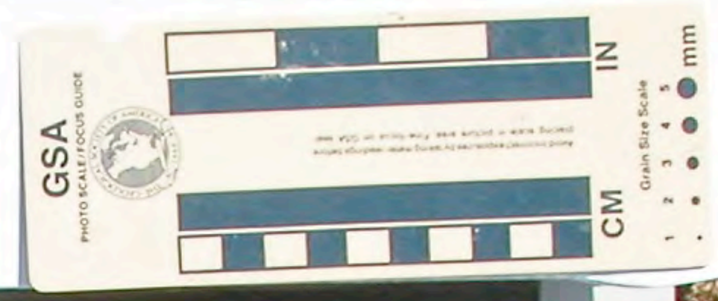
Bottom of Core
839.0
RUN 115
839.0

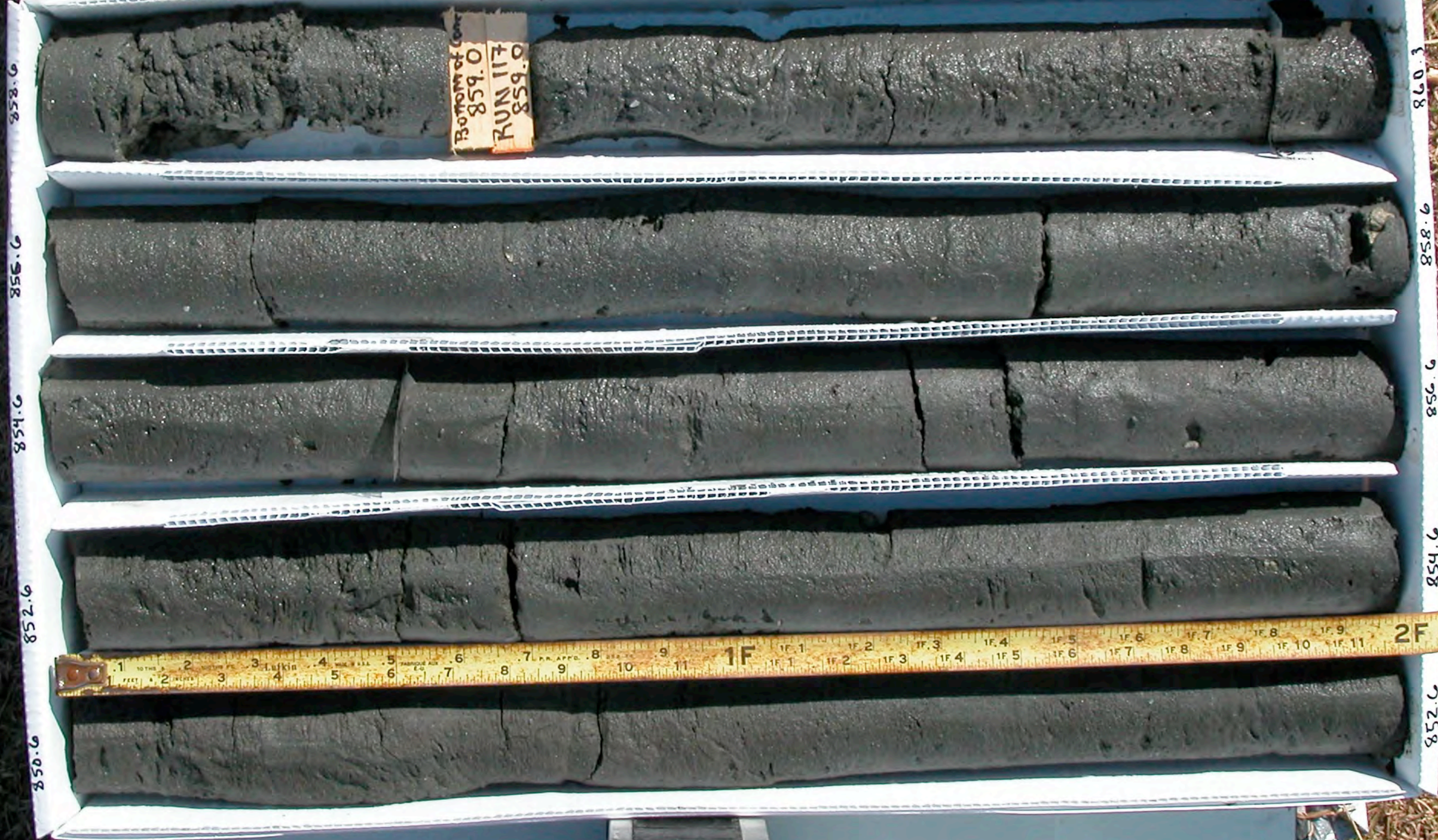
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 69
850.6'-860.3'



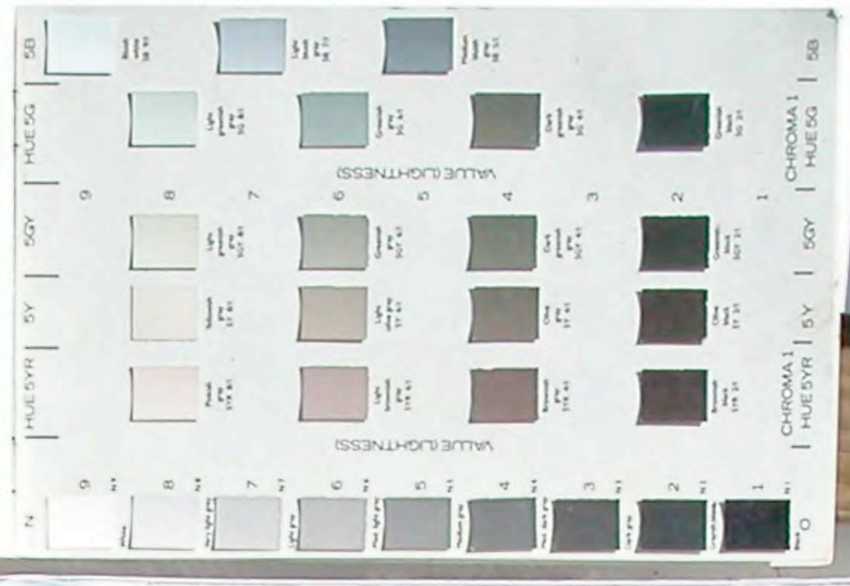


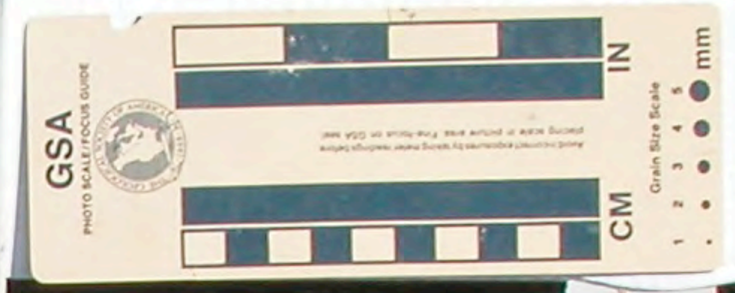


DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 70
860.3'-872.6'





860.3

872.6

866.0

870.0

869.0

866.0

862.3

864.0

860.3

862.3

LOSS @ BOTTOM
867.3-869.0
RUN 115
869.0

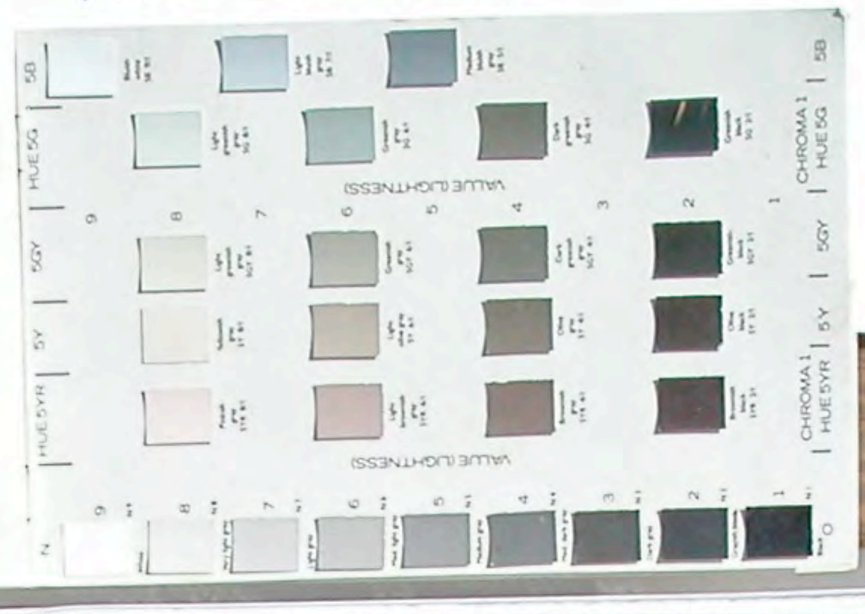
EDWARDS
869.0-869.3

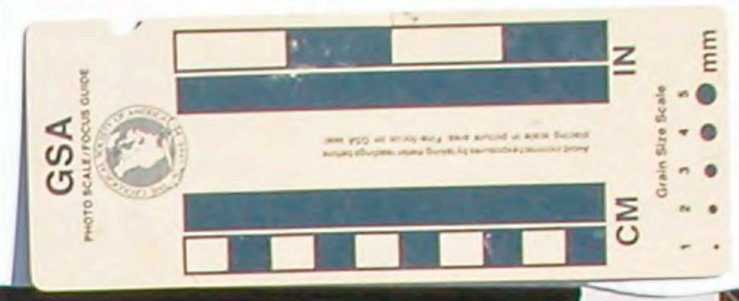
SPACER

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-2-06

BOX 71
872.6 - 889.0'





DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-4-06

Box 72
889.0' - 909.4'

GSA
PHOTO SCALE/FOCUS GUIDE
IN
CM
Grain Size Scale
mm

907.0
905.0
895.0
890.9
889.0

Loss 0.4
908.5 - 909.0
Run 124
909.0

SPACER

Loss 0.4
896.9 - 897.3
Run 123
896.0

Loss 0.4
891.6 - 892.0
Run 122
891.6

Lukin

1F 2F

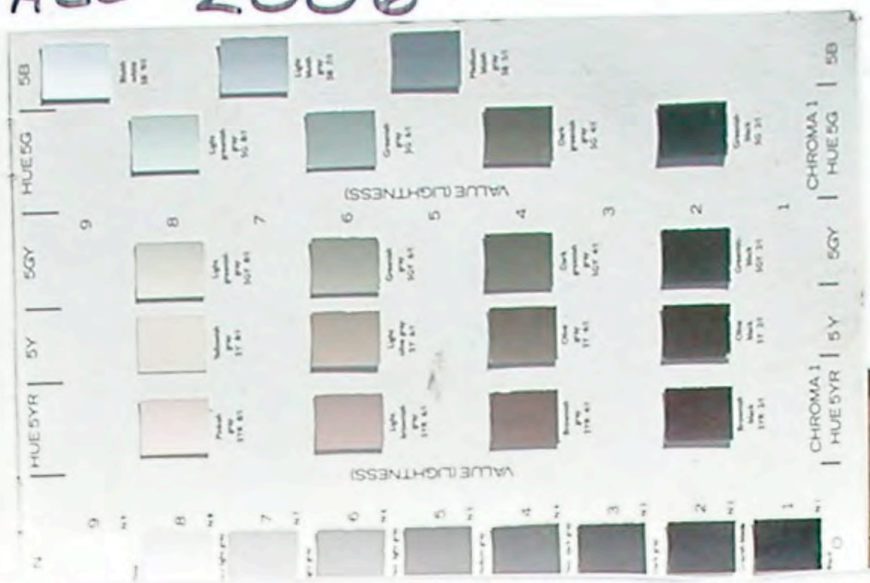
Run 121
889.0

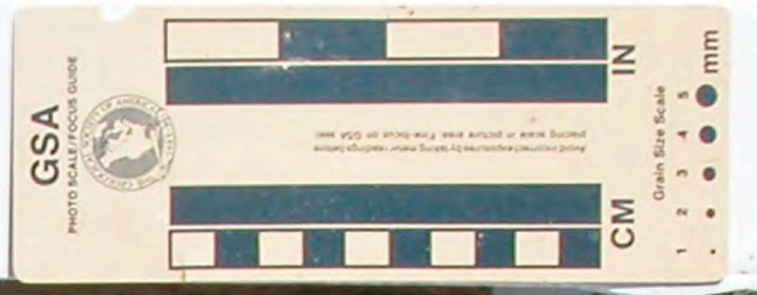
Edwards
890.1 - 890.9

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-4-06

BOX 73
909.4' - 924.1'

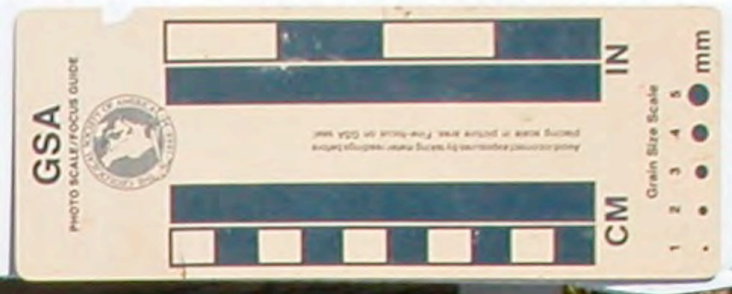




DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-4-06

BOX 74
924.1' - 934.2'



924.1
926.1
928.1
930.2
932.2

LOG BOTTOM 928.7-929.0
RUN 126 929.0

1F 2F

934.2 936.7 938.7 940.9

RUN 129
949.8

Loose Bottom
934.8-935.5
RUN 127
935.5

Loose Bottom
939.6-940.0
RUN 128
940.0

Loose Bottom
942.8-949.0
SPACER

936.7 938.7 940.9 950.9

Box 75
934.2 - 950.9
11-6-06

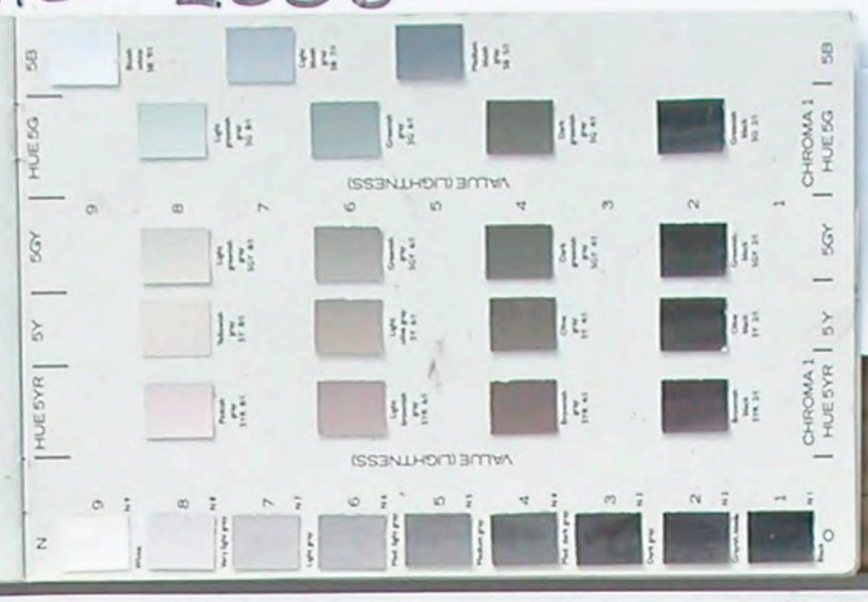
DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

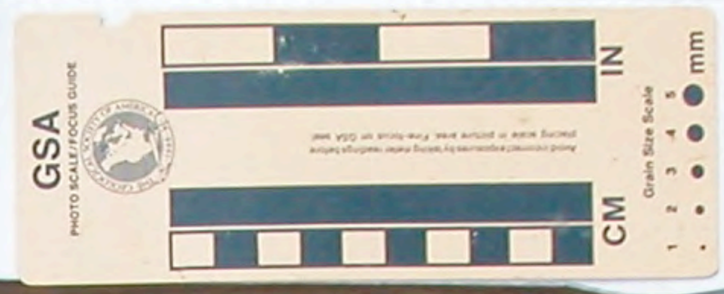
DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-6-06

Box 76

950.9 - 974.0





974.0

Edwards
972.0-972.3

Loss @ Bottom
965.3-969.0
RUN 132
969.0

Loss @ Bottom
961.7-964.0
RUN 131
964.0

Loss @ Bottom
951.5-959.0
RUN 130
959.0

950.9

960.2

964.4

970.0

972.0

DIXON COREHOLE - 1
ONSLOW CO., NC
FALL 2006

11-6-06

Box 77
974.0'-991.4'

991.4 1003.5 1006.4 1007.4 1009.4

RUN 136
1,003.5

Box 78
991.4 - 1010.0
END of Core
11-6-06

DIXON CORE HOLE - 1
ONSLOW CO., NC
FALL 2006

Loss e Bottom
1009.9-1010.0
END OF CORE
TOTAL DEPTH
1010.0 Ft

Loss e Bott
992.6-996.
RUN 13
996.5

EDWARDS
1004.5-1004.8

Loss e Bott
997.0-10
SPACER

1003.5 1005.4 1007.4 1009.4

GSA
PHOTO SCALE/FOCUS GUIDE
CM IN
Grain Size Scale
1 2 3 4 5 mm