LITHOLOGIC WELL LOG PRINTOUT SOURCE - FGS

WELL NUMBER: W-15259 COUNTY - HENDRY
TOTAL DEPTH: 1840 FT. LOCATION: T.45S R.28E S.02
58 SAMPLES FROM 0 TO 1840 FT. LAT = 26D 35M 39S
LON = 81D 29M 29S
COMPLETION DATE: 05/11/82 ELEVATION: 30 FT
OTHER TYPES OF LOGS AVAILABLE - OTHER

OWNER/DRILLER:NRM CORPORATION DUDA WELL
ANALYTICAL LOGGING, INC., DRILLER.

WORKED BY:__JOE AYLOR (6/20/94), 30 FOOT SAMPLE INTERVALS
SFWMD ID# FOR CUTTINGS IS 051-02 (HOLE #NRM-2-2) HENDRY COUNTY.
LOCATED IN THE NW 1/4, SEC 2, T45S, R28E
UTM PLANAR, ZONE 17 X=451071.7, Y=2941415.3
EAST ZONE IN FEET, POLYCONIC PLANAR X=339420; PLANAR Y=821925
WELL IS LOCATED IN THE FELDA 7.5 MINUTE QUADRANGLE.
THE OKEECHOBEE FORMATION IS PROPOSED FOR THE PLIO-PLEISTOCENE INTERVAL (SCOTT, 1992, P. 23, FLORIDA GEOLOGICAL SURVEY SPECIAL PUBLICATION 36).
PLEASE SEE OTHER DESCRIPTION OF THIS WELL.

240.	-	250.	000NOSM	NO SAMPLES
1480.	-	1570.	000NOSM	NO SAMPLES
0.	-	310.	090UDSC	UNDIFFERENTIATED SAND AND CLAY
40.	-	245.	121PCPC	PLIOCENE-PLEISTOCENE
310.	-	700.	122HTRN	HAWTHORN GROUP
700.	-	880.	123SWNN	SUWANNEE LIMESTONE
880.	-	.	124OCAL	OCALA GROUP

0 - 30 LIMESTONE; VERY LIGHT ORANGE TO WHITE
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA

30 - 60 LIMESTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%
OTHER FEATURES: LOW RECRYSTALLIZATION

60 - 90 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, SHELL-20%
CALCILUTITE-20%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, BARNACLES

90 - 150 SAND; WHITE
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRAVEL
ROUNDNESS: ROUNDED TO SUB-ROUNDED; HIGH SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: SHELL-02%, LIMESTONE-02%
PHOSPHATIC SAND-01%
FOSSILS: MOLLUSKS
POORLY SORTED.

150 - 210 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-40%, QUARTZ SAND-05%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, BRYOZOA, MILIOLIDS
35% GRAYISH ORANGE 10YR 7/4 DOLOSTONE, 60% WHITE N9
LIMESTONE.

210 - 240 LIMESTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-50%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS
GASTROPODS.

240 - 250 NO SAMPLES

250 - 310 CALCILUTITE; LIGHT GREENISH GRAY
15% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE

POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ-10%, PHOSPHATIC SAND-02%
OTHER FEATURES: LOW RECRYSTALLIZATION
GASTROPODS, HAWTHORN GROUP

310 - 340 LIMESTONE; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-20%, QUARTZ-10%, CALCILUTITE-05%
PHOSPHATIC SAND-01%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS
POORLY SORTED SANDSTONE, 20% MEDIUM LIGHT GRAY LIMESTONE.

340 - 400 SILT; LIGHT OLIVE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
UNCONSOLIDATED
ACCESSORY MINERALS: QUARTZ-20%, CALCILUTITE-20%
PHOSPHATIC SAND-03%, SHELL-05%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS

400 - 520 SAND; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ROUNDED TO SUB-ROUNDED; HIGH SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-03%
IRON STAIN-03%
FOSSILS: MOLLUSKS, ECHINOID

520 - 550 SILT; LIGHT OLIVE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
UNCONSOLIDATED
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%
SHELL-10%, PHOSPHATIC SAND-03%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS

550 - 640 CALCILUTITE; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%

OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS

640 - 670 CALCILUTITE; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-10%, PHOSPHATIC SAND-02%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, BRYOZOA

670 - 700 SAND; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE
ROUNDNESS: ROUNDED TO SUB-ROUNDED; HIGH SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, BRYOZOA
LOST CIRCULATION MATERIAL, SUWANNEE FORMATION.

700 - 730 LIMESTONE; LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, ECHINOID, BRYOZOA
10% LIGHT GRAY DOLOSTONE, 25% GRAYISH ORANGE PINK
DOLOSTONE.

730 - 820 LIMESTONE; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-10%, QUARTZ-05%, CALCITE-03%
PHOSPHATIC SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: ECHINOID, BRYOZOA

820 - 880 LIMESTONE; WHITE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS

GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ-10%
PHOSPHATIC SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS
NUMMULITES SP., OCALA LIMESTONE.

880 - 970 LIMESTONE; WHITE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-50%, CALCILUTITE-30%, QUARTZ-
05%
PHOSPHATIC SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, MILIOLIDS

970 - 1000 LIMESTONE; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-50%, SPAR-15%, QUARTZ-10%
PHOSPHATIC SAND- %
FOSSILS: MOLLUSKS, BARNACLES, ECHINOID, MILIOLIDS
GASTROPODS, TURRITELLA SP. (?), MILIOLIDS 50%.

1000 - 1030 LIMESTONE; VERY LIGHT GRAY
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-50%, SPAR-15%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, BARNACLES, ECHINOID
BENTHIC FORAMINIFERA, BRYOZOA
MILIOLIDS 5%, GASTROPODS, HETEROSTEGINA SP. (?), OLIVA
SP.

1030 - 1060 LIMESTONE; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-50%, SPAR-15%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: ECHINOID, MILIOLIDS, MOLLUSKS
MILIOLIDS, 50%, GASTROPODS, TURRITELLA SP. (?).

1060 - 1090 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-10%, QUARTZ-05%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, ECHINOID, MOLLUSKS, BRYOZOA
GASTROPODS, 20% LIGHT-GRAY LIMESTONE, NUMMULITES SP.

1090 - 1120 LIMESTONE; VERY LIGHT ORANGE TO LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-15%, QUARTZ-05%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, MOLLUSKS,
BRYOZOA
LEPIDOCYCLINA SP. 10%, CRINOID STEMS 10%, NUMMULITES SP.
MILIOLIDS 40%.

1120 - 1180 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-15%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, MILIOLIDS
NUMMULITES SP. 25%, LEPIDOCYCLINA SP. 5%.

1180 - 1210 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
UNCONSOLIDATED
ACCESSORY MINERALS: SPAR-15%, QUARTZ-05%
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, MILIOLIDS
BRYOZOA
NUMMULITES SP. 20%, LEPIDOCYCLINA SP. 20%, MILIOLIDS 40%.

1210 - 1300 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-40%, SPAR-15%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, BRYOZOA
NUMMULITES SP. 30%, LEPIDOCYCLINA SP. 10%, MILIOLIDS 20%.

1300 - 1360 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-40%, SPAR-25%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, MOLLUSKS
NUMMULITES 30%, MILIOLIDS.

1360 - 1450 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-30%, CALCILUTITE-10%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, BRYOZOA
MILIOLIDS 40%, GASTROPODS, DICTYOCONUS COOKEI 5%
(1360-1420)

1450 - 1480 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-30%
FOSSILS: BENTHIC FORAMINIFERA
LOST CIRCULATION MATERIAL, DICTYOCONUS COOKEI 3%, MILIOLIDS
50%, LEPIDOCYCLINA SP.

1480 - 1570 NO SAMPLES

1570 - 1600 LIMESTONE; GRAYISH ORANGE

20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-40%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA
25% MEDIUM LIGHT-GRAY LIMESTONE, VERY LIGHT-GRAY LIMESTONE
MILIOLIDS.

1600 - 1630 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-20%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS
DICTYOCONUS COOKEI 1%, MILIOLIDS 70%, LIGHT-GRAY LIMESTONE
10%.

1630 - 1840 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: SPAR-40%, CALCILUTITE-40%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS
DICTYOCONUS COOKEI.

1840 TOTAL DEPTH