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PART 2 - APPENDICES

PRELIMINARY ASSESSMENT OF THE GROUNDWATER RESOURCES OF WESTERN COLLIER COUNTY, FLORIDA

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APPENDIX I-1

INTRODUCTION

Introduction

This portion of the appendix contains relevant information on the wells used to develop the geologic and hydrogeologic information presented in this report. Appendix I-2 contains location data on individual control wells, and Appendix I-5 contains the geologic, hydrogeologic, and geophysical information pertinent to selected wells.

Appendix I-2 is a table listing all of the wells used to evalute the geologic and hydrogeologic systems in the study area. The wells are in an alphabetical and numerical order that can be cross referenced to Figure 3 in the text. The first letter or letters are county or well origination designators. The Collier County wells start with a C or GJ, the Hendry County with an He, and the Lee County with an LE or L. The township-range, latitude-longitude, elevation and depth of wells are tabulated from left to right following the well number. All of the wells listed in this appendix have geological descriptions, but only those wells described by the authors and marked under the lithology available column are presented in Appendix I-5. Borehole geophysics was also available from most of these wells. If geophysical logs from a well are presented in Appendix I-5, the geophysics available column is appropriately marked in Appendix I-2.

Appendix I-5 contains the lithologic descriptions, stratigraphic columns, and borehole geophysical surveys of selected wells listed in Appendix I-2. The wells are in the same alphabetical and numerical order that they are listed in Appendix I-2. The lithologic log appears first followed by the stratigraphic column and geophysical logs, if available. The lithologic logs and stratigraphic columns are generated by two programs (LITHOLOGIC and STRATALOG) present on the Cyber Computer System at the District. Figure A-I is a legend for the columnar sections.

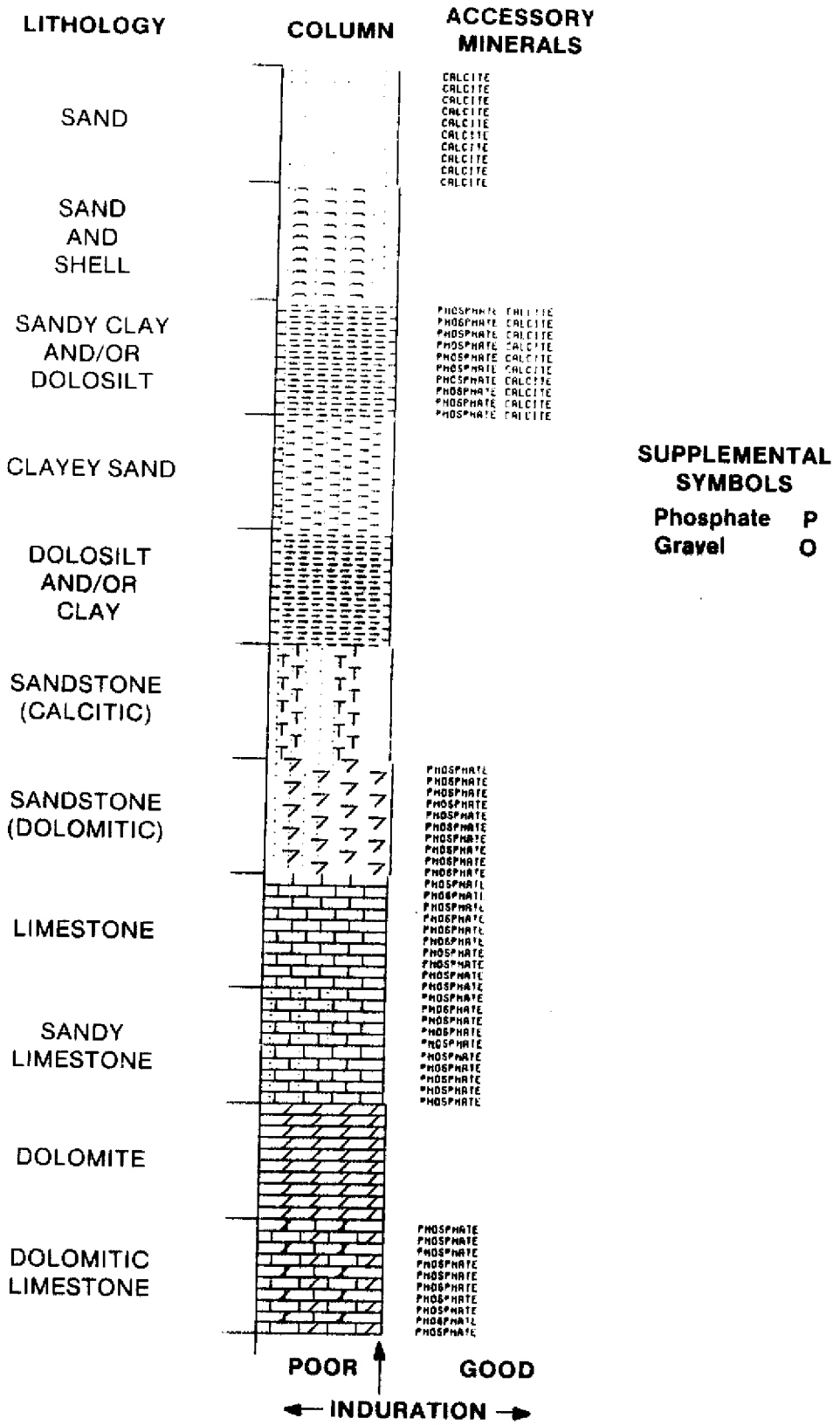

Figure A-1 W2032

APPENDIX I-2

DATA FROM SELECTED HYDROGEOLOGIC CONTROL WELLS

Well #	TWP	RGE	SEC	LATITUDE	LONGITUDE	ELEVATION (NGVD)	DEPTH (FT.)	LITHOLOGY AVAILABLE	GEOPHYSICS AVAILABLE
C2002	50	26	30	26 05 37	81 44 19	4.5	149		
C2003	50	26	23	26 05 49	81 40 21	9.2	183		
C2004	51	26	10	26 03 02	81 41 40	3.2	199		
C2005	51	29	30	26 00 18	81 38 22	3.9	198		
C2008	50	26	34	26 04 35	81 41 17	7.0	180		
C2009	50	26	33	26 04 04	81 42 44	6.0	190		
C2010	51	27	18	26 01 57	81 39 12	5.5	220		
C2014	51	27	8	26 02 58	81 37 20	8.0	198		
C2020	50	26	3	26 09 16	81 41 26	11.0	540	X	X
C2024	50	28	6	26 09 8	81 33 17	13.0	998		X
C2025	50	30	4	26 09 16	81 18 53	13.0	1205		X
C2028	51	26	33	25 58 57	81 42 52	6.0	800	X	X
C2029	51	27	35	25 59 10	81 35 55	6.0	880	X	X
C2030	52	28	13	26 56 23	81 27 25	6.0	1220	x	x
C2031	52	30	7	25 57 30	81 21 11	6.0	880	X	X
C2032	48	27	23	26 17 09	81 35 35	25.0	352	X	X
C2033	49	27	11	26 13 46	81 35 28	14.0	380	X	X
C2034	49	28	6	26 08 37	81 31 27	13.0	340	X	X
C2035	51	27	6	26 03 13	81 38 03	6.0	180	X	X
C2036	50	27	6	26 08 42	81 38 12	11.0	240	X	X
C2037	51	28	6	26 04 31	81 33 15	8.0	200	X	X
C2038	47	27	27	26 21 05	81 36 15	23.0	335	X	X
C2039	49	27	07	26 13 43	81 38 55	13.0	260	X	X
C2040	47	28	24	26 22 15	81 31 06	25.0	520	X	X

Well #	TWP	RGE	SEC	LATITUDE	LONGITUDE	ELEVATION (NGVD)	DEPTH (FT.)	LITHOLOGY AVAILABLE	GEOPHYSICS AVAILABLE
C2041	48	28	23	26 17 33	81 31 07	18.0	380	X	X
C2042	47	30	29	26 21 38	81 20 55	22.0	460	X	X
C2044	51	29	6	26 03 10	81 27 25	15.0	420	X	X
C2045	52	30	34	26 54 03	81 18 12	5.0	140	X	X
C2046	49	28	2	26 15 00	81 31 12	15.0	200	X	X
C2049	48	27	33	26 15 00	81 37 30	15.0	52	X	
C2050	49	26	13	26 12 10	81 39 20	12.0	32	X	
C2051	49	26	3	26 13 58	81 42 15	13.0	37	X	
C2052	48	27	8	26 18 28	81 37 34	15.0	40	X	
C2053	49	25	9	26 13 10	81 48 06	16.0	935	X	
C2054	46	29	31	26 26 02	81 27 01	30.0	340	X	
C2055	47	29	1	26 25 09	81 22 37	30.0	540	X	
C2056	46	29	10	26 29 10	81 25 00	36.0	183	X	
C2057	48	25	24	26 16 22	81 45 15	16.0	225	X	
C2058	46	28	28	26 26 40	81 31 01	21.0	260	X	
C2059	46	29	7	26 28 59	81 27 30	42.0	410	X	
C2060	48	27	7	26 18 41	81 38 32	16.0	390	X	
C2061	48	29	23	26 17 40	81 23 54	18.0	498	X	
C2062	48	28	17	26 17 36	81 32 45	16.0	460	X	
C2063	50	25	12	26 08 16	81 45 23	7.0	60	X	
GJ3	49	26	34	26 09 17	81 41 43	12.0	68		
GJ4	49	26	10	26 13 34	81 41 45	12.0	68		
GJ5	49	26	3	26 14 14	81 41 46	13.0	180		
GJ6	48	26	30	26 16 20	81 44 52	14.0	180		

Well #	TWP	RGE	SEC	LATITUDE	LONGITUDE	ELEVATION (NGVD)	DEPTH (FT.)	LITHOLOGY AVAILABLE	GEOPHYSICS AVAILABLE
GJ7	49	25	12	26 12 46	81 46 02	11.0	180		
GJ11	48	25	33	26 14 48	81 48 55	5.0	160		
GJ12	49	25	9	26 12 44	81 48 16	14.0	70		
GJ15	50	25	23	26 06 29	81 46 43	4.0	100		
GJ17	49	26	17	26 12 35	81 44 07	13.0	100		
GJ19	49	25	26	26 11 04	81 46 15	8.0	140		
HE008	44	29	16	26 38 45	81 26 12	28.0	380	X	X
HE010	45	28	6	26 35 18	81 33 28	28.0	260	X	X
HE011	45	28	10	26 34 30	81 30 30	32.0	200	X	X
HE012	45	28	30	26 38 40	81 20 45	27.0	240	X	X
HE013	45	29	20	26 33 32	81 26 10	34.0	380	X	X
L607	46	25	33	26 25 51	81 49 02				
L612	44	26	28	26 37 00	81 42 54		300		
L613	45	27	07	26 34 59	81 38 45		360		
L617	46	27	30	26 26 59	81 39 36	22.0	340		
LE008	45	25	35	26 31 36	81 46 54	20.0	1126	X	
LE011	47	26	19	26 22 15	81 44 19	15.0	585	X	
LE017	47	26	13	26 23 12	81 42 15	20.0	1460		
LE020	46	26	15	26 28 30	81 42 30	23.0	310	X	
LE027	46	27	8	26 29 00	81 37 57	28.0	382	X	X
LE028	44	26	15	26 38 34	81 40 50	30.0	770	X	X
LE033	47	26	36	26 20 13	81 39 53	20.0	435	X	X

APPENDIX I-3

GEOLOGIC, HYDROGEOLOGIC, AND GEOPHYSICAL DATA FROM SELECTED HYDROGEOLOGIC CONTROL WELLS

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2020

COLLIER CO. T50S R26E SEC 03AB 26 09 16 N 81 41 26 W
TOTAL DEPTH- 540 FT. ELEV.- 11 FT. SAMPLES- 0- 540 FT.
COMPLETED- 80.02.12 DEPTH WORKED FT.

WELL NAME-
COLLIER DEEP WELL C20200,SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
WORKED BY STEVE PEACOCK,REWORKED BY STEVE ANDERSON,QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 170.0 SURFICIAL AQUIFER SYSTEM
0.0- 50.0 WATER TABLE AQUIFER
50.0- 60.0 TAMIAMI CONFINING BEDS
60.0- 170.0 LOWER TAMIAMI AQUIFER
170.0- 230.0 UPPER HAWTHORN CONFINING ZONE
230.0- 240.0 SANDSTONE AQUIFER
240.0- 300.0 MID-HAWTHORN CONFINING ZONE
300.0- 390.0 MID-HAWTHORN AQUIFER
390.0- 540.0 LOWER-HAWTHORN CONFINING ZONE

STRATIGRAPHIC FORMATIONS -

.0- 10.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
10.0- 180.0 TAMIAMI FORMATION
180.0- 540.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2020 . COLLIER CO. T50S, R26E, SEC 03AB

.0- 10.0 SANDSTONE, DARK YELLOWISH ORANGE TO MODERATE YELLOWISH BROWN, 10% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 05% LIMESTONE, ORGANICS,

10.0- 20.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, FOSSIL FRAGMENTS,

20.0- 30.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2020 . COLLIER CO. T50S, R26E, SEC 03AB

30.0- 40.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

40.0- 50.0 LIMESTONE, WHITE TO LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, BRYOZOA,

50.0- 60.0 LIMESTONE, WHITE TO LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, FOSSIL MOLDS, BRYOZOA, BENTHONIC FORAMINIFERA,

60.0- 70.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

70.0- 80.0 LIMESTONE, WHITE TO LIGHT GRAY, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID,

80.0- 90.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 18% QUARTZ SAND, 03% CALCILUTITE, FOSSIL FRAGMENTS, FOSSIL MOLDS, BENTHONIC FORAMINIFERA, BRYOZOA,

90.0- 100.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 18% QUARTZ SAND, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL,

100.0- 110.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 18% QUARTZ SAND, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL,

LITHOLOGIC LOG
W- 2020 . COLLIER CO. T50S, R26E, SEC 03AB

110.0- 120.0 LIMESTONE, WHITE TO LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 18% QUARTZ SAND, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, BENTHONIC FORAMINIFERA,

120.0- 130.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 18% QUARTZ SAND, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, BENTHONIC FORAMINIFERA,

SOME FRAGS APPEAR TO BE REWORKED
TRACE HEAVY MINERALS

130.0- 140.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND,

140.0- 150.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

A LOT OF LOOSE SAND CONTAINED IN SAMPLES

150.0- 160.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, CLAY MATRIX, 20% QUARTZ SAND, 10% CLAY, 02% PHOSPHATIC SAND, COQUINA,

160.0- 170.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, FOSSIL MOLDS,

170.0- 180.0 OOLO-SILT, LIGHT OLIVE GRAY TO LIGHT GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 02% PHOSPHATIC SAND,

180.0- 190.0 DOLO-SILT, LIGHT OLIVE GRAY TO LIGHT GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 02% PHOSPHATIC SAND,

190.0- 200.0 DOLO-SILT, LIGHT OLIVE GRAY TO GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

200.0- 210.0 DOLO-SILT, LIGHT OLIVE GRAY TO GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

210.0- 220.0 DOLO-SILT, LIGHT OLIVE GRAY TO GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 05% SILT, MOLLUSKS, BENTHONIC FORAMINIFERA,

220.0- 230.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 05% PHOSPHATIC SAND, 05% SILT, MOLLUSKS, BENTHONIC FORAMINIFERA,

230.0- 240.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, 05% CLAY,

240.0- 250.0 DOLO-SILT, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% LIMESTONE, 02% QUARTZ SAND, 05% CLAY,

250.0- 260.0 DOLO-SILT, GRAYISH OLIVE GREEN TO DARK GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 02% QUARTZ SAND, 03% SILT, 02% PHOSPHATIC SAND,

260.0- 270.0 DOLO-SILT, GRAYISH OLIVE GREEN TO DARK GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 03% QUARTZ SAND, 03% SILT, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

270.0- 280.0 DOLO-SILT, GRAYISH OLIVE GREEN TO DARK GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 03% QUARTZ SAND, 04% SILT, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

280.0- 290.0 DOLO-SILT, GRAYISH OLIVE GREEN TO DARK GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 03% QUARTZ SAND, 04% SILT, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

290.0- 300.0 SHELL BED, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, UNCONSOLIDATED, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

300.0- 310.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 04% QUARTZ SAND, 03% SILT, 03% CLAY, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

310.0- 320.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 04% PHOSPHATIC SAND, 03% SILT, 03% CLAY, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

320.0- 330.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 04% PHOSPHATIC SAND, 03% SILT, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

330.0- 340.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, 03% SILT, FOSSIL FRAGMENTS, CORAL,

340.0- 350.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, 03% SILT, FOSSIL FRAGMENTS, CORAL,

350.0- 360.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 03% SILT, FOSSIL FRAGMENTS, CORAL, MOLLUSKS,

LITHOLOGIC LOG
W- 2020 . COLLIER CO. 15S, R26E, SEC 03AB

360.0- 370.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 03% SILT, FOSSIL FRAGMENTS, CORAL, MOLLUSKS,

370.0- 380.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% PHOSPHATIC SAND, 04% SILT, 03% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL, MOLLUSKS,

380.0- 390.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL,

390.0- 400.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL, MOLLUSKS,

400.0- 410.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 07% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL, MOLLUSKS, BRYOZOA, BENTHONIC FORAMINIFERA,

410.0- 420.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL, MOLLUSKS, BRYOZOA, BENTHONIC FORAMINIFERA,

420.0- 430.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 35% CALCILUTITE, 20% DOLOMITE, 10% CLAY, 03% PHOSPHATIC SAND,

430.0- 440.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 11% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% CALCILUTITE, 03% PHOSPHATIC SAND, 05% QUARTZ SAND, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS, ALGAE,

LITHOLOGIC LOG
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440.0- 450.0 SANDSTONE, LIGHT GRAY TO LIGHT OLIVE GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 20% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

450.0- 460.0 LIMESTONE, LIGHT GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% CALCILUTITE, 05% CLAY, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

460.0- 470.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

470.0- 480.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% PHOSPHATIC SAND, 07% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

480.0- 490.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

490.0- 500.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, 02% SILT, FOSSIL FRAGMENTS, MOLLUSKS, CORAL, SHARK TEETH,

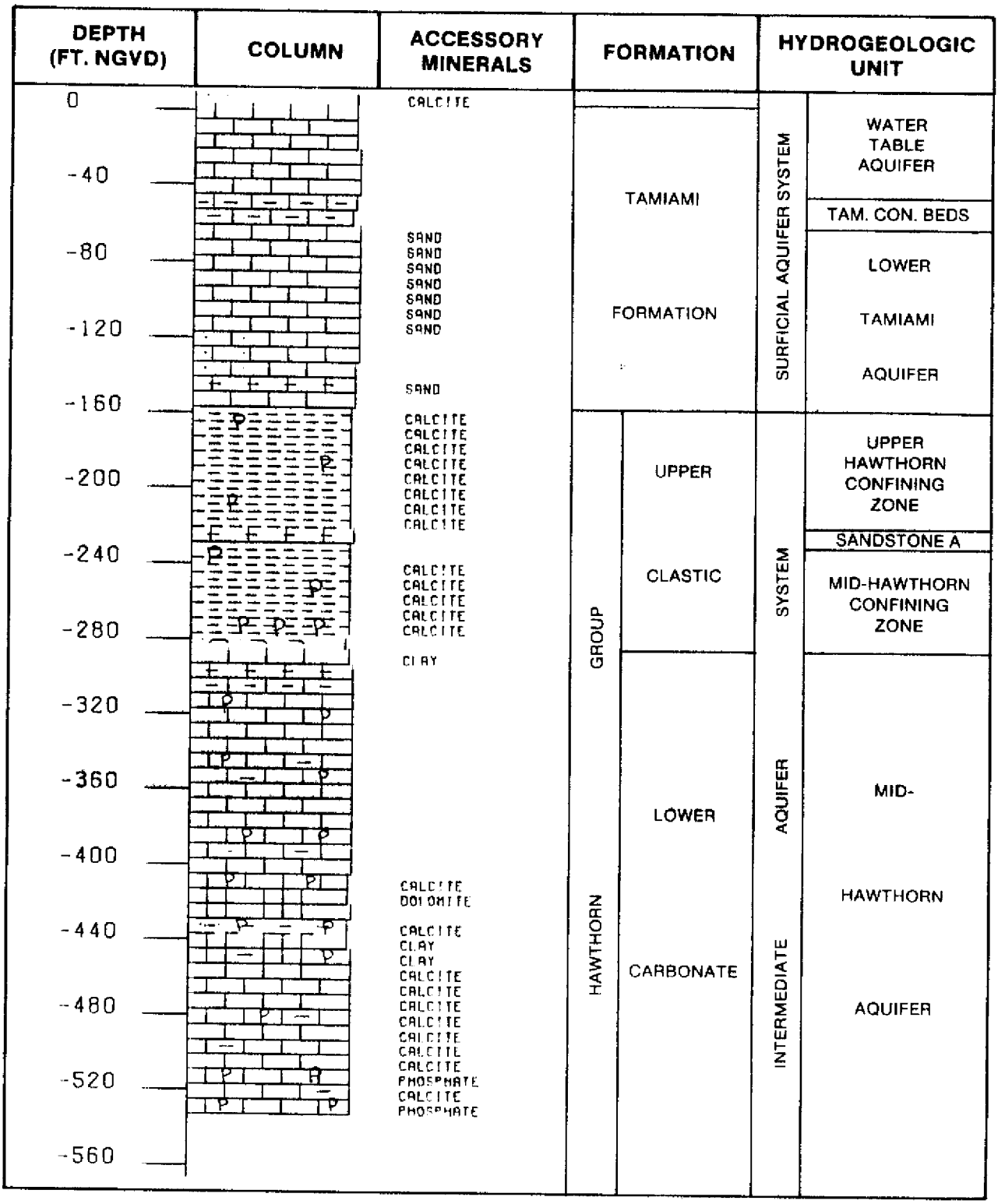
500.0- 510.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, 02% SILT, FOSSIL FRAGMENTS, MOLLUSKS, CORAL, SHARK TEETH,

LITHOLOGIC LOG
W- 2020 . COLLIER CO. T50S, R26E, SEC 03AB

510.0- 520.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 07% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

520.0- 530.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 10% PHOSPHATIC SAND, 05% QUARTZ SAND, 05% SILT, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

530.0- 540.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL, BRYOZOA,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-40
-80
-120
-160
-200
-240
-280
-320
-360
-400
-440
-480
-520
-560
CALCITE
SAND
SAND
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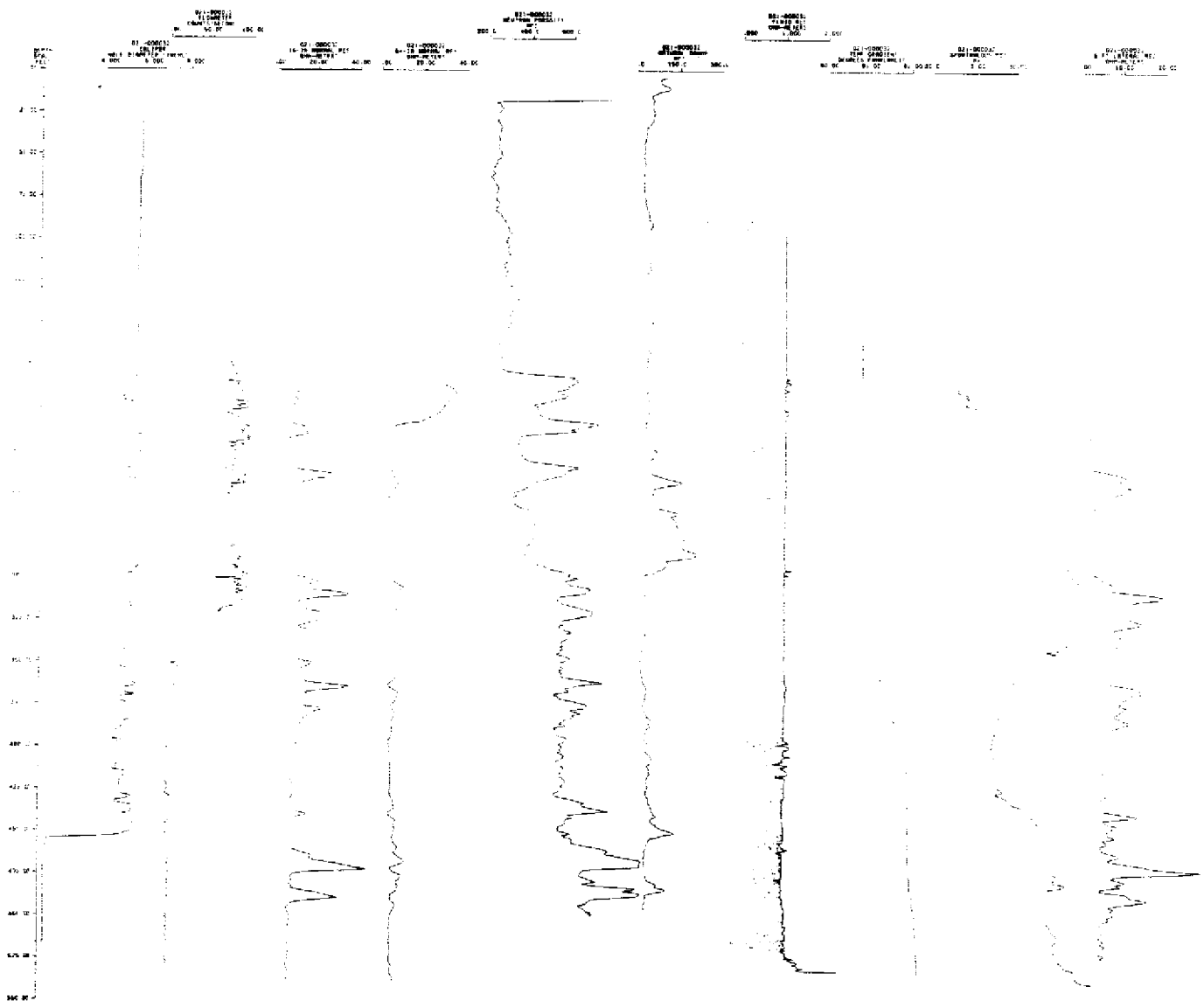
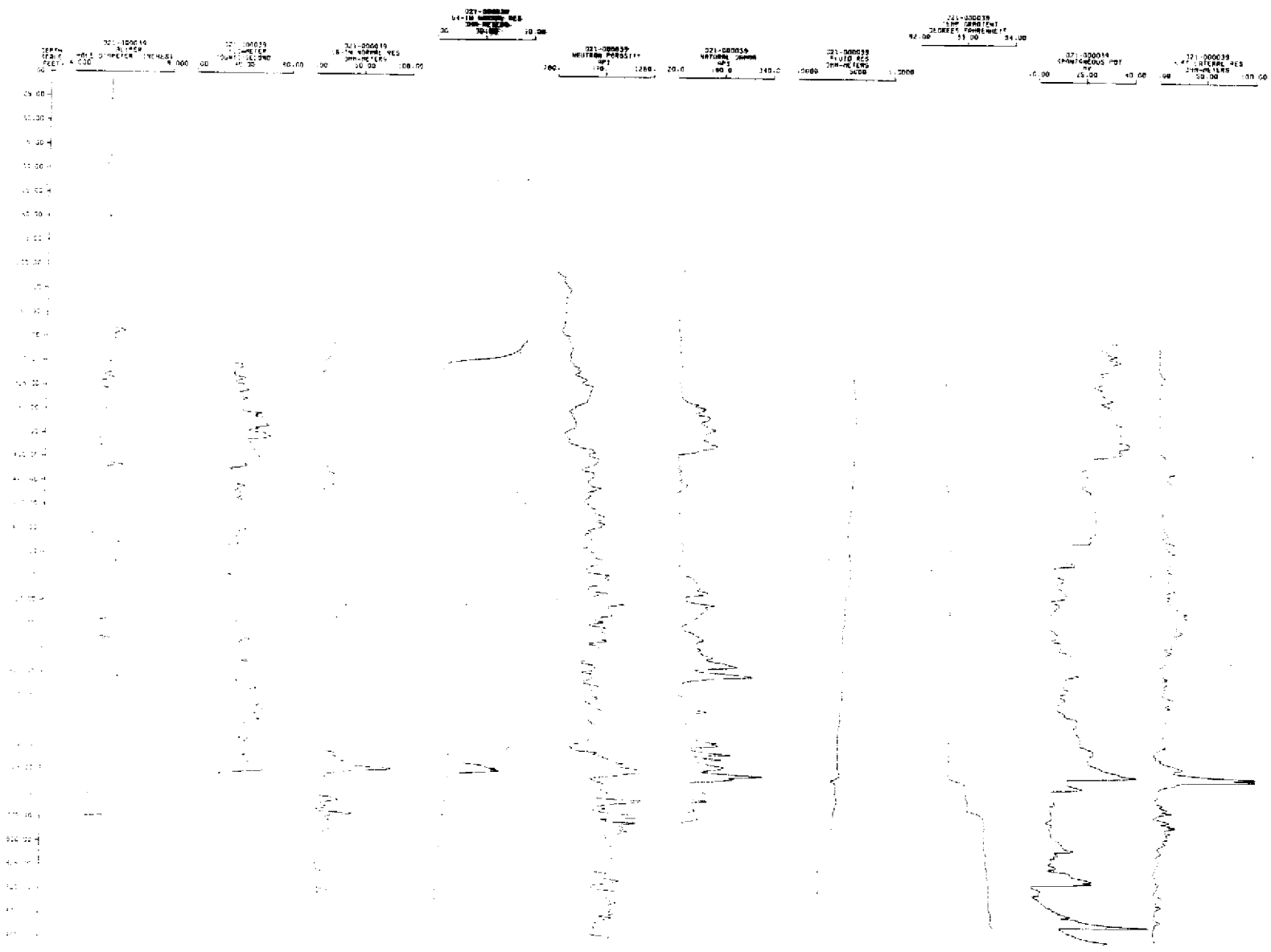
CALCITE
CLAY
CALCITE
DOLOMITE
CALCITE
CLAY
CLAY
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
PHOSPHATE
CALCITE
PHOSPHATE
TAMIAMI
FORMATION
HAWTHORN
GROUP
UPPER
CLASTIC
LOWER
CARBONATE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER TABLE AQUIFER
TAM. CON. BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE A
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

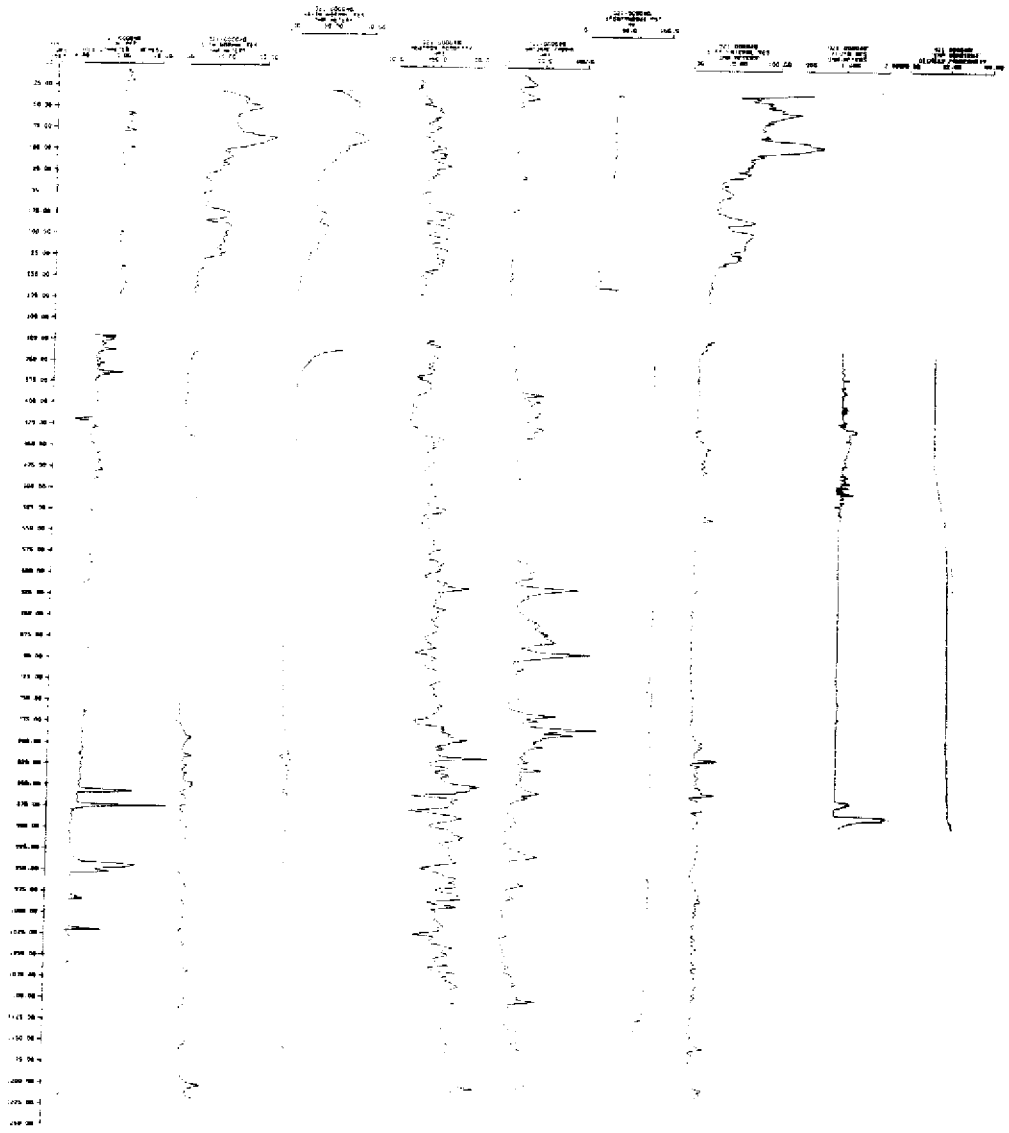
WC2020



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2020



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2024



NOTE: DELETIONS OCCUR ON THE GEOPHYSICAL LOGS BETWEEN DEPTHS OF 275 FEET TO 325 FEET. THESE DELETIONS ARE DUE TO DIFFERENT SAMPLING DATES.

GEOPHYSICAL LOGS, COLLIER COUNTY, C-2025

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2026

COLLIER CO. T51S R26E SEC 33BA 25 58 57 N 81 42 52 W
TOTAL DEPTH- 800 FT. ELEV.- 0 FT. SAMPLES- 0- 800 FT.
COMPLETED- 81.03.19 DEPTH WORKED FT.

WELL NAME-
COLLIER DEEP WELL C2026D,SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
WORKED BY STEVE ANDERSON,05-31-83,QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 190.0 SURFICIAL AQUIFER SYSTEM
0.0- 40.0 WATER TABLE AQUIFER
40.0- 60.0 TAMIAMI CONFINING BEDS
60.0- 220.0 LOWER TAMIAMI AQUIFER
220.0- 360.0 MID-HAWTHORN CONFINING ZONE
360.0- 450.0 MID-HAWTHORN AQUIFER
450.0- 650.0 LOWER HAWTHORN CONFINING ZONE
650.0- 800.0 LOWER HAWTHORN/TAMPA PRODUCING ZONE

STRATIGRAPHIC FORMATIONS -

.0- 40.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
40.0- 200.0 TAMIAMI FORMATION
200.0- 730.0 HAWTHORN FORMATION *
730.0- 800.0 TAMPA LIMESTONE

LITHOLOGIC LOG
W- 2026 . COLLIER CO. T51S, R26E, SEC 33BA

.0- 10.0 SAND, LIGHT BROWN TO MODERATE BROWN, POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, UNCONSOLIDATED,

10.0- 20.0 SAND, LIGHT BROWN TO MODERATE BROWN, POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, UNCONSOLIDATED,

20.0- 30.0 SAND, LIGHT BROWN TO MODERATE BROWN, POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, UNCONSOLIDATED, ORGANICS,

30.0- 40.0 SAND, LIGHT BROWN TO MODERATE BROWN, POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, UNCONSOLIDATED, CALCILUTITE MATRIX,

40.0- 50.0 CALCILUTITE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 05% QUARTZ SAND, FOSSIL FRAGMENTS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
*- 2028 . COLLIER CO. T51S, R26E, SEC 33BA

50.0- 60.0 CALCILUTITE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 05% QUARTZ SAND, FOSSIL FRAGMENTS,

60.0- 70.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

70.0- 80.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

80.0- 90.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

90.0- 100.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,

100.0- 110.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,

110.0- 120.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,

120.0- 130.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,

LITHOLOGIC LOG
W- 2028 . COLLIER CO. 151S, R26E, SEC 33BA

130.0- 140.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,

140.0- 150.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 07% CALCILUTITE, FOSSIL FRAGMENTS,

150.0- 160.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 07% CALCILUTITE, FOSSIL FRAGMENTS,

160.0- 170.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 07% CALCILUTITE, FOSSIL FRAGMENTS,

170.0- 180.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% QUARTZ SAND, 02% PHOSPHATIC SAND, 05% CALCILUTITE, FOSSIL FRAGMENTS,

180.0- 190.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% QUARTZ SAND, 02% PHOSPHATIC SAND, 05% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

INCREASE IN QUARTZ SAND ALMOST TO SANDSTONE

190.0- 200.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, 05% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

200.0- 210.0 SANDSTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 08% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS,

LITHOLOGIC LOG
W- 1020 . COLLIER CO. T51S, R26E, SEC 35BA

210.0- 220.0 SANDSTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 08% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS,

220.0- 230.0 DOLO-SILT, LIGHT OLIVE GRAY TO GREENISH GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

230.0- 240.0 DOLO-SILT, LIGHT OLIVE GRAY TO GREENISH GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

240.0- 250.0 DOLO-SILT, LIGHT OLIVE GRAY TO GREENISH GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 06% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

250.0- 260.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% QUARTZ SAND, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

260.0- 270.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

270.0- 280.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

280.0- 290.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

290.0- 300.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% QUARTZ SAND, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

LITHOLOGIC LOG
W- 2028 . COLLIER CO. T51S, R26E, SEC 33BA

300.0- 310.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 06% CLAY, 15% CALCILUTITE, 04% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

310.0- 320.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 06% CLAY, 15% CALCILUTITE, 04% PHOSPHATIC SAND, 02% SILT, BENTHONIC FORAMINIFERA,

320.0- 330.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 06% CLAY, 15% CALCILUTITE, 04% PHOSPHATIC SAND, 02% SILT, BENTHONIC FORAMINIFERA,

330.0- 340.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% PHOSPHATIC SAND, 02% SILT, BENTHONIC FORAMINIFERA,

340.0- 350.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 04% PHOSPHATIC SAND, 02% SILT, BENTHONIC FORAMINIFERA,

350.0- 360.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

360.0- 370.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

370.0- 380.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

380.0- 390.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

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390.0- 400.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS,

400.0- 410.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

410.0- 420.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

420.0- 430.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

430.0- 440.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

440.0- 450.0 SANDSTONE, LIGHT OLIVE GRAY TO MODERATE YELLOWISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 20% DOLOMITE, 20% CALCILUTITE, 05% SILT, FOSSIL FRAGMENTS,

450.0- 460.0 SANDSTONE, LIGHT OLIVE GRAY TO MODERATE YELLOWISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 20% DOLOMITE, 20% CALCILUTITE, 05% SILT, FOSSIL FRAGMENTS,

460.0- 470.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

470.0- 480.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

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480.0- 490.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

490.0- 500.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

500.0- 510.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 10% CALCILUTITE, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

510.0- 520.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

520.0- 530.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 12% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

530.0- 540.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

540.0- 550.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND,

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550.0- 560.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

560.0- 570.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

570.0- 580.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% CALCILUTITE, 05% DOLOMITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

580.0- 590.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% CALCILUTITE, 05% DOLOMITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

590.0- 600.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% CALCILUTITE, 10% DOLOMITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

600.0- 610.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% CALCILUTITE, 10% DOLOMITE, 03% PHOSPHATIC SAND,

610.0- 620.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% CALCILUTITE, 10% DOLOMITE, 03% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

620.0- 630.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% CALCILUTITE, 10% DOLOMITE, 03% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

630.0- 640.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% CALCILUTITE, 12% DOLOMITE, 03% PHOSPHATIC SAND,

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640.0- 650.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% CALCILUTITE, 12% DOLOMITE, 03% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

ALTERNATING BEDS OF SOFT WHITE LIMESTONE AND HARD GREY LIMESTONE
OCCURANCE OF MIOGYPSINA

650.0- 660.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

660.0- 670.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% SPAR, 05% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

670.0- 680.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% SPAR, 05% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

680.0- 690.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% SPAR, 05% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

690.0- 700.0 DOLOMITE, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% CALCILUTITE, 05% SPAR, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

700.0- 710.0 DOLOMITE, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% CALCILUTITE, 05% SPAR, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 2028 . COLLIER CO. 151S, R26E, SEC 33BA

710.0- 720.0 DOLOMITE, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% CALCILUTITE, 05% SPAR, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

720.0- 730.0 DOLOMITE, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% CALCILUTITE, 05% SPAR, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

730.0- 740.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% CALCILUTITE, 05% SPAR, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

740.0- 750.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% CALCILUTITE, 05% SPAR, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

750.0- 760.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% CALCILUTITE, 05% SPAR, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

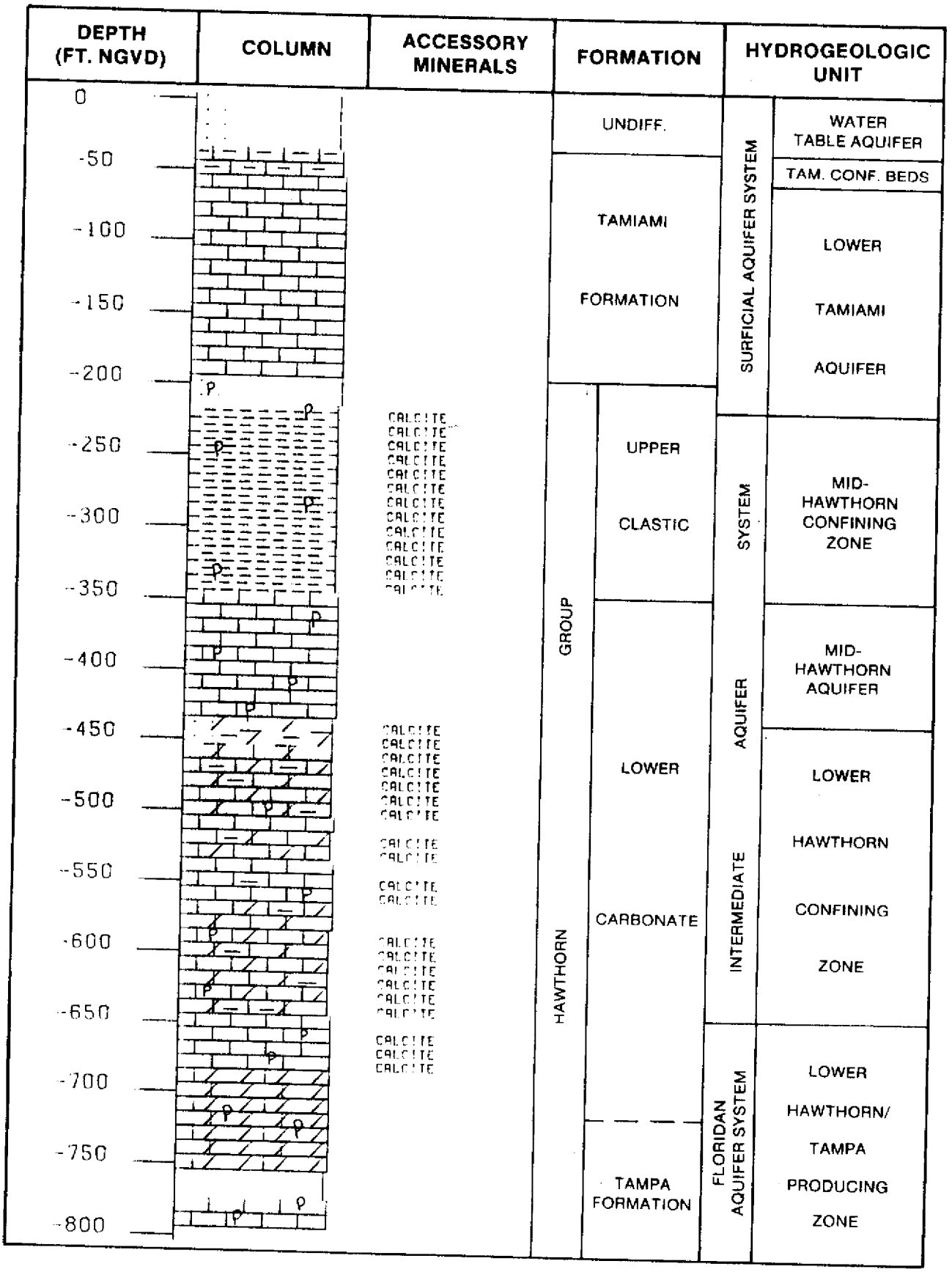
760.0- 770.0 NO SAMPLE,

770.0- 780.0 NO SAMPLE,

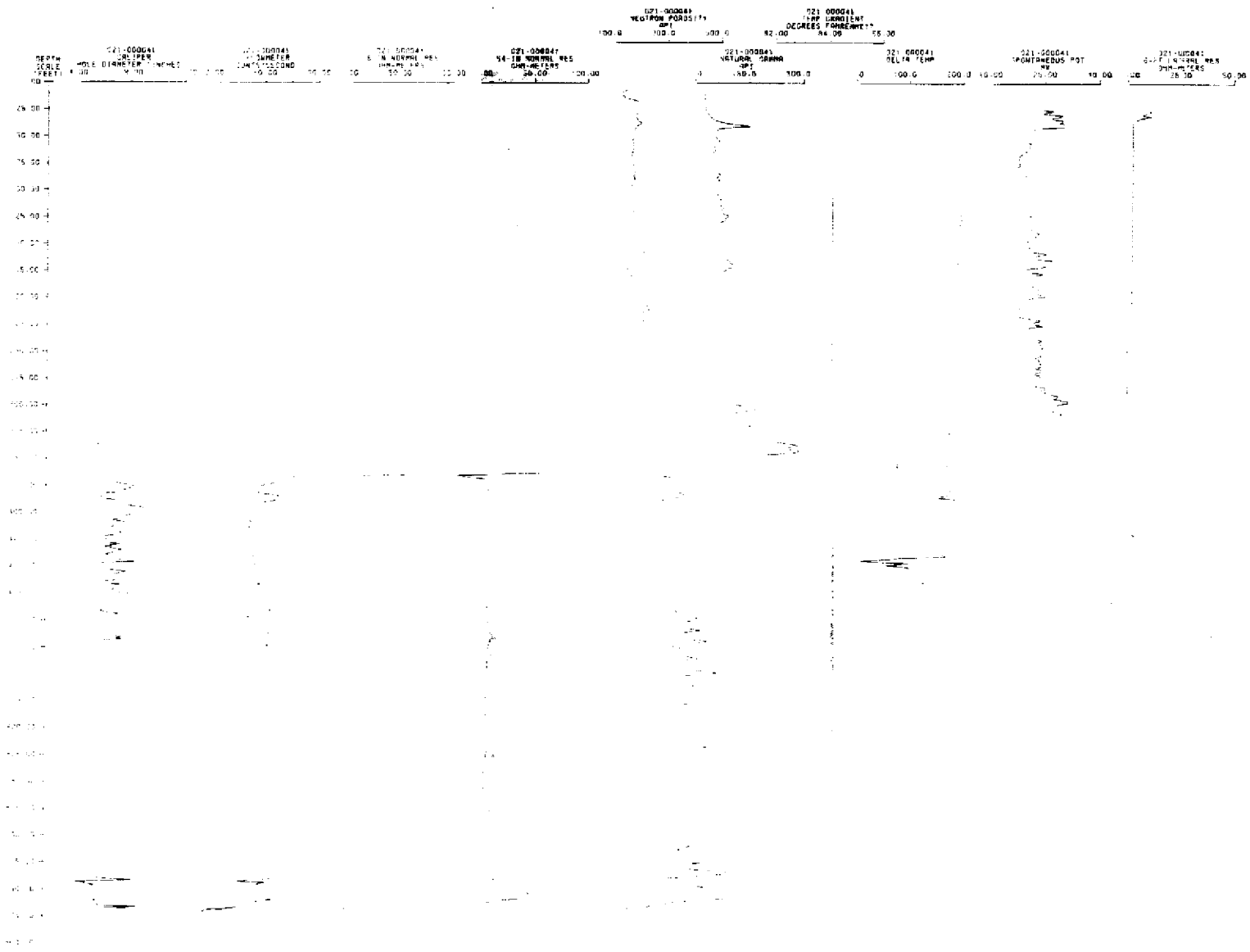
LARGE CAVITY ZONE, NO SAMPLES

780.0- 790.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% SPAR, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

790.0- 800.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% SPAR, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
-500
-550
-600
-650
-700
-750
-800
CALCITE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER CLASTIC
LOWER CARBONATE
TAMPA FORMATION
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
FLORIDAN AQUIFER SYSTEM
WATER TABLE AQUIFER
TAM. CONF. BEDS
LOWER TAMIAMI AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER
LOWER HAWTHORN CONFINING ZONE
LOWER HAWTHORN/ TAMPA PRODUCING ZONE

WC2028



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2028

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2029

COLLIER CO. T51S R27E SEC 36AD 25 59 10 N 81 35 55 W
TOTAL DEPTH- 880 FT. ELEV.- 6 FT. SAMPLES- 0- 880 FT.
COMPLETED- . . DEPTH WORKED FT.

WELL NAME-
COLLIER DEEP WELL C2029D,SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
WORKED BY STEVE ANDERSON,06-08-83,QUALITY (FAIR)

HYDROGEOLOGIC UNITS

0.0-	150.0	SURFICIAL AQUIFER SYSTEM
0.0-	110.0	WATER TABLE AQUIFER
110.0-	120.0	TAMIAMI CONFINING ZONE
120.0-	150.0	LOWER TAMIAMI AQUIFER
150.0-	190.0	UPPER HAWTHORN CONFINING ZONE
190.0-	230.0	SANDSTONE AQUIFER
230.0-	340.0	MID-HAWTHORN CONFINING ZONE
340.0-	460.0	MID-HAWTHORN AQUIFER
710.0-	880.0	LOWER HAWTHORN/TAMPA PRODUCING ZONE

STRATIGRAPHIC FORMATIONS -

.0-	20.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
20.0-	150.0	TAMIAMI FORMATION
150.0-	720.0	HAWTHORN FORMATION *
720.0-	880.0	TAMPA LIMESTONE

LITHOLOGIC LOG
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.0- 10.0 SAND, LIGHT BROWN TO MODERATE BROWN, POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, UNCONSOLIDATED, CALCILUTITE MATRIX,

10.0- 20.0 SAND, LIGHT BROWN TO MODERATE BROWN, POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, UNCONSOLIDATED, CALCILUTITE MATRIX,

20.0- 30.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

30.0- 40.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2029 . COLLIER CO. T51S, R27E, SEC 36AD

40.0- 50.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

50.0- 60.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS,

60.0- 70.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 04% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

70.0- 80.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 04% QUARTZ SAND, FOSSIL FRAGMENTS,

80.0- 90.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS,

90.0- 100.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS,

100.0- 110.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

110.0- 120.0 CALCILUTITE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

120.0- 130.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND,

130.0- 140.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND,

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140.0- 150.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND,

150.0- 160.0 DOLO-SILT, GRAYISH OLIVE, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% QUARTZ SAND, MOLLUSKS,

160.0- 170.0 DOLO-SILT, GRAYISH OLIVE, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% QUARTZ SAND, MOLLUSKS,

170.0- 180.0 DOLO-SILT, GRAYISH OLIVE, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% QUARTZ SAND, MOLLUSKS,

180.0- 190.0 DOLO-SILT, GRAYISH OLIVE, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% QUARTZ SAND, MOLLUSKS,

TRACE AMOUNT OF QUARTZ PEBBLES

190.0- 200.0 SAND, VERY LIGHT GRAY TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: GRANULE, RANGE: MEDIUM TO GRAVEL, ROUNDED, UNCONSOLIDATED, CALCILUTITE MATRIX,

200.0- 210.0 SAND, VERY LIGHT GRAY TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: GRANULE, RANGE: MEDIUM TO GRAVEL, ROUNDED, UNCONSOLIDATED, CALCILUTITE MATRIX,

210.0- 220.0 SAND, VERY LIGHT GRAY TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: GRANULE, RANGE: MEDIUM TO GRAVEL, ROUNDED, UNCONSOLIDATED, CALCILUTITE MATRIX,

220.0- 230.0 SAND, VERY LIGHT GRAY TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: GRANULE, RANGE: MEDIUM TO GRAVEL, ROUNDED, UNCONSOLIDATED, CALCILUTITE MATRIX,

230.0- 240.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 02% QUARTZ SAND, MOLLUSKS,

240.0- 250.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 02% QUARTZ SAND, MOLLUSKS,

250.0- 260.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 02% QUARTZ SAND, MOLLUSKS,

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260.0- 270.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 02% QUARTZ SAND, MOLLUSKS,

270.0- 280.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 02% QUARTZ SAND, 02% QUARTZ SAND, MOLLUSKS,

280.0- 290.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 10% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS,

290.0- 300.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 10% PHOSPHATIC SAND, MOLLUSKS,

300.0- 310.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 10% PHOSPHATIC SAND, MOLLUSKS,

310.0- 320.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 08% PHOSPHATIC SAND, MOLLUSKS,

320.0- 330.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 08% PHOSPHATIC SAND, MOLLUSKS,

330.0- 340.0 DOLO-SILT, LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 08% PHOSPHATIC SAND, MOLLUSKS,

340.0- 350.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% PHOSPHATIC SAND, 03% QUARTZ SAND,

350.0- 360.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% PHOSPHATIC SAND, 03% QUARTZ SAND,

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360.0- 370.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 06% QUARTZ SAND, FOSSIL FRAGMENTS,

370.0- 380.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS,

380.0- 390.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 10% QUARTZ SAND, FOSSIL FRAGMENTS,

390.0- 400.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 12% CALCILUTITE, FOSSIL FRAGMENTS,

400.0- 410.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 12% CALCILUTITE, FOSSIL FRAGMENTS,

410.0- 420.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

420.0- 430.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

430.0- 440.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

440.0- 450.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, FOSSIL FRAGMENTS,

450.0- 460.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, FOSSIL FRAGMENTS,

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460.0- 470.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, 02% PHOSPHATIC SAND, 20% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

470.0- 480.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, 02% PHOSPHATIC SAND, 20% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

480.0- 490.0 LIMESTONE, LIGHT GRAY TO VERY LIGHT ORANGE, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, BRYOZOA,

490.0- 500.0 LIMESTONE, LIGHT GRAY TO VERY LIGHT ORANGE, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

500.0- 510.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

510.0- 520.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

520.0- 530.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

530.0- 540.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

540.0- 550.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

OCCURANCE OF SOFT LIME STRINGERS FOR LAST 50 FEET

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550.0- 560.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

560.0- 570.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 03% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

570.0- 580.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

580.0- 590.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 10% CALCILUTITE, 03% QUARTZ SAND, 05% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

590.0- 600.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 10% CALCILUTITE, 03% QUARTZ SAND, 05% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

600.0- 610.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 10% CALCILUTITE, 03% QUARTZ SAND, 05% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

610.0- 620.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

620.0- 630.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

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630.0- 640.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS,

640.0- 650.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

650.0- 660.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

660.0- 670.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

670.0- 680.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 07% CALCILUTITE, 03% QUARTZ SAND, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

680.0- 690.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 07% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

690.0- 700.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 07% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

700.0- 710.0 DOLO-SILT, LIGHT GRAY TO LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 07% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

710.0- 720.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

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720.0- 730.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

730.0- 740.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

740.0- 750.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

750.0- 760.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

760.0- 770.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

770.0- 780.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

780.0- 790.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

790.0- 800.0 AS ABOVE,

800.0- 810.0 AS ABOVE,

810.0- 820.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA.

LITHOLOGIC LOG
1- 2029 . COLLIER CO. T51S, R27E, SEC 36AD

820.0- 830.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, MOLLUSKS,

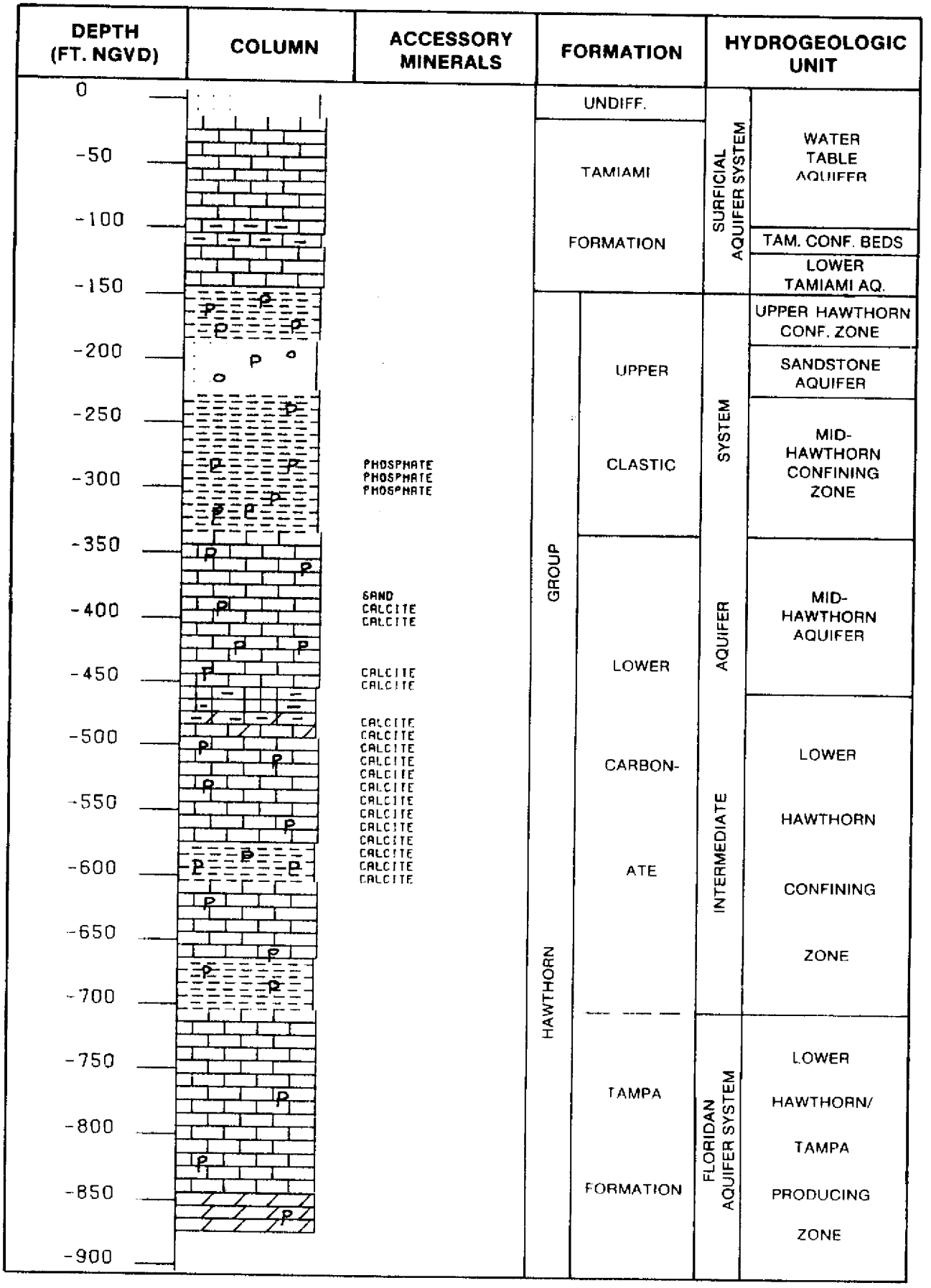
830.0- 840.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

840.0- 850.0 AS ABOVE,

850.0- 860.0 DOLOMITE, VERY LIGHT ORANGE TO LIGHT GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, FOSSIL FRAGMENTS,

860.0- 870.0 DOLOMITE, VERY LIGHT ORANGE TO LIGHT GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, FOSSIL FRAGMENTS,

870.0- 880.0 DOLOMITE, VERY LIGHT ORANGE TO LIGHT GRAY, POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, FOSSIL FRAGMENTS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
-500
-550
-600
-650
-700
-750
-800
-850
-900
PHOSPHATE
PHOSPHATE
PHOSPHATE
SAND
CALCITE
CALCITE
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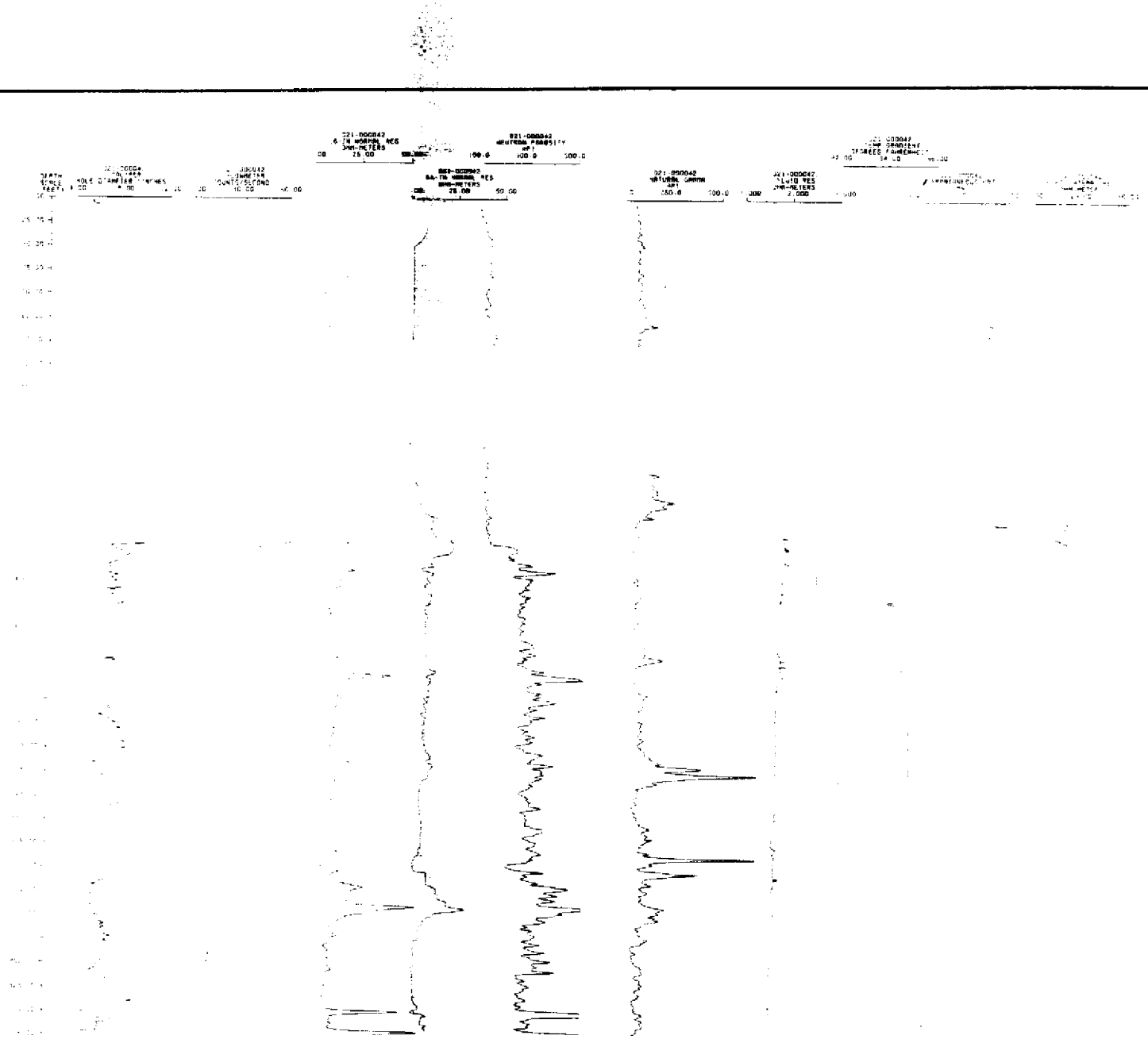
CALCITE
CALCITE
CALCITE
CALCITE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER CLASTIC
LOWER CARBONATE
TAMPA FORMATION
SURFICIAL AQUIFER SYSTEM
FLORIDAN AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAM. CONF. BEDS
LOWER TAMIAMI AQ.
UPPER HAWTHORN CONF. ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER
LOWER HAWTHORN CONFINING ZONE
LOWER HAWTHORN/ TAMPA PRODUCING ZONE

WC 2029



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2029

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2030

COLLIER CO. T52S R28E SEC 138C 26 56 23 N 81 28 08 W
TOTAL DEPTH- 1220 FT. ELEV.- 6 FT. SAMPLES- 0- 1220 FT.
COMPLETED- 80.12.19 DEPTH WORKED FT.

WELL NAME-
COLLIER DEEP WELL C2030D,SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
WORKED BY STEVE ANDERSON,10-10-82,QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 250.0	SURFICIAL AQUIFER SYSTEM
0.0- 90.0	WATER TABLE AQUIFER
90.0- 130.0	TAMIAMI CONFINING BEDS
130.0- 250.0	LOWER TAMIAMI AQUIFER
372.0- 480.0	MID-HAWTHORN AQUIFER
750.0- 950.0	LOWER HAWTHORN/TAMPA PRODUCING ZONE
950.0-1220.0	SUWANNEE AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 153.0	TAMIAMI FORMATION
153.0- 250.0	MIOCENE COARSE CLASTICS
250.0- 750.0	HAWTHORN FORMATION *
750.0- 950.0	TAMPA LIMESTONE
950.0- 1220.0	SUWANNEE LIMESTONE

LITHOLOGIC LOG
W- 2030 . COLLIER CO. T52S, R28E, SEC 138C

.0- 10.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

10.0- 20.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

20.0- 30.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 11% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 01% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2030 . COLLIER CO. T52S, R28E, SEC 13BC

30.0- 40.0 LIMESTONE, VERY LIGHT GRAY TO YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, PIN POINT VUGS, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 01% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

40.0- 50.0 LIMESTONE, VERY LIGHT GRAY TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL MOLDS, MOLLUSKS, CORAL, BRYOZOA,

50.0- 60.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL MOLDS, MOLLUSKS, CORAL, BRYOZOA,

60.0- 70.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE GRAY, 11% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% QUARTZ SAND, 10% DOLOMITE, FOSSIL MOLDS, MOLLUSKS, BRYOZOA,

70.0- 80.0 SANDSTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 16% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS,

SOME FRAGS REWORKED (GOOD POROSITY)
TRACE HEAVY MINERALS

80.0- 90.0 SANDSTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS, CORAL, ECHINOID, BENTHONIC FORAMINIFERA,

10% LIMESTONE CONTAINED IN SAMPLE

90.0- 100.0 SANDSTONE, VERY LIGHT ORANGE TO WHITE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS, BRYOZOA,

LITHOLOGIC LOG
W- 2030 . COLLIER CO. T52S, R26E, SEC 13BC

100.0- 110.0 SAND, LIGHT OLIVE GRAY TO MODERATE LIGHT GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% LIMESTONE, 01% PHOSPHATIC SAND, 02% SILT, MOLLUSKS, FOSSIL FRAGMENTS,

DOLOSILT NOTED IN SAMPLE

110.0- 120.0 SMALL SAMPLE TAKEN, AS ABOVE

120.0- 130.0 LIMESTONE, WHITE TO MODERATE LIGHT GRAY, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 30% DOLOMITE, 02% CLAY, 05% PHOSPHATIC SAND, 08% QUARTZ SAND,

LIMESTONE, VERY LIGHT ORANGE TO WHITE, 17% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

LARGE AMOUNT OF SHELL FRAGS IN SAMPLE

130.0- 140.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, BIOTURBATED, 06% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

LARGE CORAL SAMPLES FOUND

140.0- 153.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND,

153.0- 160.0 SANDSTONE, MODERATE YELLOWISH BROWN TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 05% IRON STAIN, 02% PHOSPHATIC SAND, 03% CALCILUTITE, 03% DOLOMITE, FOSSIL FRAGMENTS, MOLLUSKS,

160.0- 170.0 SANDSTONE, DARK YELLOWISH BROWN TO GRAYISH ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, FISSILE, 05% IRON STAIN, 15% CALCILUTITE, 15% DOLOMITE, FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA,

LITHOLOGIC LOG
W- 2030 . COLLIER CO. T52S, R28E, SEC 13BC

PEBBLE ZONE, APPEARS TO BE REWORKED.
LARGE QUARTZITE PEBBLES

170.0- 180.0 GRAVEL, GRAYISH BROWN TO LIGHT BROWN, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, UNCONSOLIDATED, 03% PHOSPHATIC SAND, 30% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

REWORKED ZONE-OCCURANCE OF PEBBLES,SHELL FRAGS.
PART OF SAMPLE IS WELL ROUNDED PHOSPHATE
LIMESTONE FRAGS IN SAMPLE

180.0- 190.0 SHELL BED, GRAYISH BROWN TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, 35% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

MAINLY SHELL FRAGS
SAMPLE CONTAINED PEBBLE SIZE QUARTZ,
WELL ROUNDED

190.0- 200.0 SAND, VERY LIGHT ORANGE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 15% PHOSPHATIC GRAVEL, 10% LIMESTONE, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

200.0- 210.0 SAND, VERY LIGHT ORANGE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 15% PHOSPHATIC GRAVEL, 10% LIMESTONE, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

210.0- 220.0 SAND, VERY LIGHT ORANGE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 15% PHOSPHATIC GRAVEL, 10% LIMESTONE, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

CONTAINS SHELL FRAGS,LARGE PEBBLE PHOSPHATE
REWORKED MATERIALS AND WELL ROUNDED

220.0- 230.0 SAND, VERY LIGHT ORANGE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, 10% PHOSPHATIC GRAVEL, 10% LIMESTONE, MOLLUSKS, FOSSIL FRAGMENTS,

INCREASE AMOUNT OF SHELL FRAGS.

LITHOLOGIC LOG
W- 2030 . COLLIER CO. T52S, R28E, SEC 13BC

230.0- 240.0 SAND, VERY LIGHT ORANGE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, 10% PHOSPHATIC GRAVEL, 10% LIMESTONE, MOLLUSKS, FOSSIL FRAGMENTS,

240.0- 250.0 SAND, VERY LIGHT ORANGE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, 10% PHOSPHATIC GRAVEL, 10% LIMESTONE, 10% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

FIRST OCCURANCE OF FINE GREEN SAND AND SILT.

250.0- 260.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 15% QUARTZ SAND, 15% SILT, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

260.0- 270.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 15% QUARTZ SAND, 15% SILT, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

270.0- 280.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 15% QUARTZ SAND, 15% SILT, 03% PHOSPHATIC SAND,

280.0- 290.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 15% QUARTZ SAND, 15% SILT, 03% PHOSPHATIC SAND,

290.0- 300.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 15% QUARTZ SAND, 15% SILT, 03% PHOSPHATIC SAND,

300.0- 310.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 09% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 10% QUARTZ SAND, 07% SILT, 01% PHOSPHATIC SAND, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

MAINLY DOLO-SILT, LOW PERCENT OF SAND.
DIATOMS?

LITHOLOGIC LOG
#- 2030 . COLLIER CO. T52S, R28E, SEC 13BC

310.0- 320.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 10% QUARTZ SAND, 07% SILT, 01% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

320.0- 330.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 12% QUARTZ SAND, 08% SILT, 05% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

330.0- 340.0 SANDSTONE, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 20% DOLOMITE, 15% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

340.0- 350.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 06% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

TRACE AMOUNTS OF PYRITE

350.0- 360.0 DOLO-SILT, LIGHT OLIVE GRAY TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 10% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS, CORAL,

INCREASE PHOSPHATE,LARGER SIZE FRAGS.

360.0- 372.0 DOLO-SILT, YELLOWISH GRAY TO LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 15% CALCILUTITE, 10% PHOSPHATIC SAND, SHARK TEETH, MOLLUSKS, FOSSIL FRAGMENTS, ECHINOID,

372.0- 380.0 LIMESTONE, WHITE TO LIGHT GRAY, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, CORAL, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS,

380.0- 390.0 LIMESTONE, WHITE TO LIGHT GRAY, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, CORAL, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS,

90.0- 400.0 LIMESTONE, WHITE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

00.0- 410.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, 01% PYRITE, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

SMALL AMOUNTS OF SHELL IN SAMPLE.

410.0- 420.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

420.0- 430.0 LIMESTONE, WHITE, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

HARD DENSE LIMESTONE,CALCILUTITE

430.0- 440.0 LIMESTONE, WHITE, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

440.0- 450.0 LIMESTONE, WHITE TO LIGHT GRAY, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

450.0- 460.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

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460.0- 470.0 LIMESTONE, WHITE TO LIGHT GRAY, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

TRACE AMOUNT OF PHOSPHATE.

470.0- 480.0 LIMESTONE, WHITE TO LIGHT GRAY, 11% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% CALCILUTITE, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL,

480.0- 490.0 DOLO-SILT, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 40% CALCILUTITE, 05% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

490.0- 500.0 DOLO-SILT, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 40% CALCILUTITE, 05% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

500.0- 510.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS, CORAL, BENTHONIC FORAMINIFERA,

510.0- 520.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 25% DOLOMITE, 02% PHOSPHATIC SAND, 01% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

520.0- 530.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 25% DOLOMITE, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

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530.0- 540.0 LIMESTONE, WHITE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 35% DOLOMITE, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS, CORAL,

540.0- 550.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

550.0- 560.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% QUARTZ SAND, 02% SILT, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

560.0- 570.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% QUARTZ SAND, 02% SILT, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, CORAL,

570.0- 580.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% QUARTZ SAND, 02% SILT, MOLLUSKS, FOSSIL FRAGMENTS, CORAL,

580.0- 590.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% SPAR, 02% QUARTZ SAND, 02% SILT, MOLLUSKS, FOSSIL FRAGMENTS, CORAL,

590.0- 600.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% SPAR, 10% CLAY, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

CLAY AND MICRITE INCREASE.

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600.0- 610.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% SPAR, 10% CLAY, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

610.0- 620.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% SPAR, 10% CLAY, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

620.0- 630.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% SPAR, 10% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

630.0- 640.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% SPAR, 10% CLAY, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, CORAL,

640.0- 650.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 11% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 40% CALCILUTITE, 02% PHOSPHATIC SAND, 01% QUARTZ SAND, 05% SPAR, MOLLUSKS, FOSSIL FRAGMENTS,

650.0- 660.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 11% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 40% CALCILUTITE, 02% PHOSPHATIC SAND, 01% QUARTZ SAND, 05% SPAR, MOLLUSKS, FOSSIL FRAGMENTS, ECHINOID, CORAL,

660.0- 670.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 11% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 40% CALCILUTITE, 02% PHOSPHATIC SAND, 01% QUARTZ SAND, 05% SPAR, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, CORAL,

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670.0- 680.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 05% SILT, MOLLUSKS, FOSSIL FRAGMENTS, CORAL, BENTHONIC FORAMINIFERA,

MIOGYPSINA SP.?

680.0- 690.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 05% SILT, MOLLUSKS, FOSSIL FRAGMENTS, CORAL, BENTHONIC FORAMINIFERA,

690.0- 700.0 DOLO-SILT, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 02% CLAY, 05% SILT, MOLLUSKS, FOSSIL FRAGMENTS, CORAL, BENTHONIC FORAMINIFERA,

700.0- 710.0 SILT, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 02% CLAY, 05% SILT, MOLLUSKS, FOSSIL FRAGMENTS, CORAL, BENTHONIC FORAMINIFERA,

710.0- 720.0 DOLO-SILT, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 01% CLAY, 06% SILT, MOLLUSKS, FOSSIL FRAGMENTS,

720.0- 730.0 DOLOMITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 11% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% CALCILUTITE, 05% SPAR, MOLLUSKS, FOSSIL FRAGMENTS, ECHINOID, CORAL, BRYOZOA,

730.0- 740.0 DOLO-SILT, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 02% CLAY, <5% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

740.0- 750.0 DOLO-SILT, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 03% CLAY, <5% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

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750.0- 760.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% SPAR, 02% SILT, 04% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

760.0- 770.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% SPAR, 02% SILT, FOSSIL FRAGMENTS, BRYOZOA,

770.0- 780.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% SPAR, 02% SILT, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

780.0- 790.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% SPAR, 02% SILT, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA,

790.0- 800.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% SPAR, 02% SILT, FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA,

CALCITE XLS. AND TRACE PHOSPHATE

800.0- 810.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA,

810.0- 820.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% QUARTZ SAND,

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820.0- 830.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

830.0- 840.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% SILT, 03% QUARTZ SAND,

840.0- 850.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% SILT, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

850.0- 860.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: VERY FINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% SILT, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, ECHINOID, MOLLUSKS,

860.0- 870.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: VERY FINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% SPAR, 02% SILT, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

870.0- 880.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 09% POROSITY, INTERCRYSTALLINE, PIN POINT VUGS, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

880.0- 890.0 NO SAMPLE,

890.0- 900.0 NO SAMPLE,

LARGE CAVITIES ENCOUNTERED BY DRILL RIG
LOST CIRCULATION

900.0- 910.0 SAND, VERY LIGHT GRAY TO LIGHT OLIVE GRAY, GRAIN SIZE: VERY COARSE, RANGE: FINE TO GRAVEL, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% PHOSPHATIC SAND, POOR SAMPLE,

SAMPLE APPEARS TO BE FROM ABOVE LITHOLOGY.

910.0- 920.0 AS ABOVE,

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920.0- 930.0 AS ABOVE,

LIMESTONE FRAGS INCLUDED IN SAMPLE.
LARGE AMOUNT OF FORAMINIFERA.

930.0- 940.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 05% SPAR, 12% QUARTZ SAND, POOR SAMPLE, FOSSIL FRAGMENTS, MOLLUSKS,

SAND IS LOOSE IN SAMPLE

940.0- 950.0 AS ABOVE,

950.0- 960.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 05% SPAR, 08% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

INCREASE IN MICRITE

960.0- 970.0 LIMESTONE, WHITE TO LIGHT GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 05% SPAR, 10% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

970.0- 980.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 05% SPAR, 08% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA,

980.0- 990.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 07% SPAR, 07% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA, ECHINOID,

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990.0- 1000.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 07% SPAR, 07% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA, ECHINOID,

1000.0- 1010.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 08% SPAR, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID, BENTHONIC FORAMINIFERA,

MOST OF SAMPLE RECRYSTALLIZED,TRACE PHOSPHATE.

1010.0- 1020.0 AS ABOVE,

1020.0- 1030.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 07% SPAR, 05% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA, CORAL,

1030.0- 1040.0 AS ABOVE,

1040.0- 1050.0 LIMESTONE, VERY LIGHT ORANGE, 09% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 15% DOLOMITE, 08% SPAR, 05% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS,

MORE RECRYSTALIZED THAN BEFORE

1050.0- 1060.0 AS ABOVE,

TRACE PHOSPHATE

1060.0- 1070.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 12% DOLOMITE, 08% SPAR, 05% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS,

1070.0- 1080.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 12% DOLOMITE, 07% SPAR, 04% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS,

ITHOLOGIC LOG
- 2030 . COLLIER CO. T52S, R28E, SEC 13BC

1080.0- 1090.0 AS ABOVE,

1090.0- 1100.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 08% SPAR, 03% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, CORAL,

INCREASE AMOUNT OF FORAMS.

1100.0- 1110.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 08% DOLOMITE, 08% SPAR, 03% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS, CORAL,

1110.0- 1120.0 AS ABOVE,

1120.0- 1130.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 08% DOLOMITE, 08% SPAR, 03% QUARTZ SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS, CORAL,

1130.0- 1140.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 08% DOLOMITE, 10% SPAR, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS,

1140.0- 1150.0 AS ABOVE,

1150.0- 1160.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 10% SPAR, CORAL, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, ECHINOID, MOLLUSKS,

1160.0- 1170.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 10% SPAR, CORAL, FOSSIL FRAGMENTS, ECHINOID, BENTHONIC FORAMINIFERA, MOLLUSKS,

1170.0- 1180.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 10% SPAR, CORAL, FOSSIL FRAGMENTS, ECHINOID, BENTHONIC FORAMINIFERA, MOLLUSKS,

LITHOLOGIC LOG
W- 2030 . COLLIER CO. T52S, R28E, SEC 13BC

1180.0- 1190.0 CALCARENITE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 10% SPAR, CORAL, FOSSIL FRAGMENTS, ECHINOID, BENTHONIC FORAMINIFERA, MOLLUSKS,

1190.0- 1200.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 05% SPAR, GRANULAR, MOLLUSKS, BENTHONIC FORAMINIFERA, MILIOLIDS,

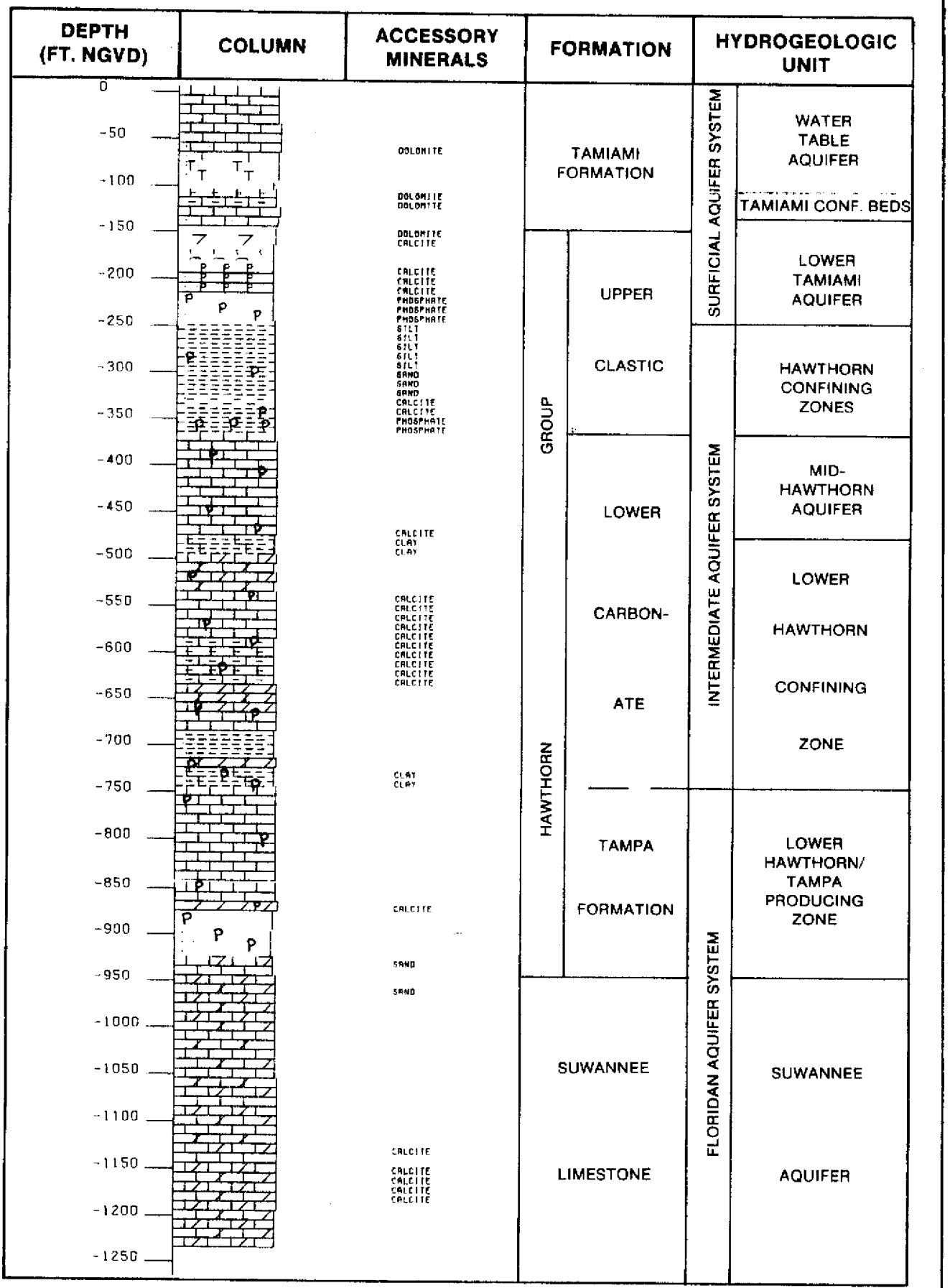
1200.0- 1210.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 05% SPAR, GRANULAR, MOLLUSKS, BENTHONIC FORAMINIFERA, MILIOLIDS,

1210.0- 1220.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 05% SPAR, 02% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, MILIOLIDS,

1220.0- 1230.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 05% SPAR, 04% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, MILIOLIDS,

TRACE PHOSPHATE

1230.0- 1240.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% DOLOMITE, 05% SPAR, 05% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, MILIOLIDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
-500
-550
-600
-650
-700
-750
-800
-850
-900
-950
-1000
-1050
-1100
-1150
-1200
-1250
DOLOMITE
DOLOMITE
DOLOMITE
DOLOMITE
CALCITE
CALCITE
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
SILT
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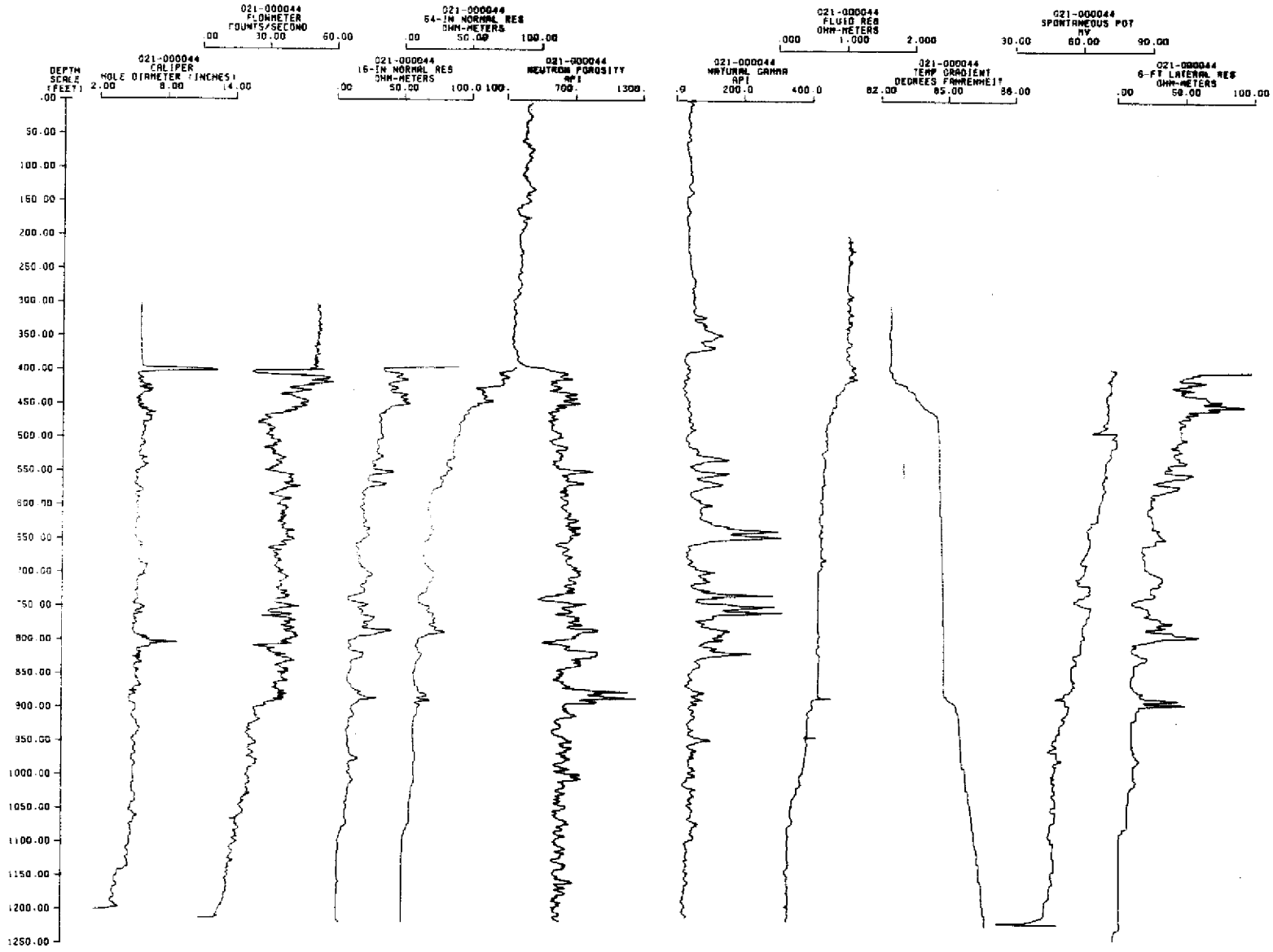
CALCITE
CALCITE
CALCITE
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER CLASTIC
LOWER CARBONATE
TAMPA FORMATION
SUWANNEE LIMESTONE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
FLORIDAN AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONF. BEDS
LOWER TAMIAMI AQUIFER
HAWTHORN CONFINING ZONES
MID-HAWTHORN AQUIFER
LOWER HAWTHORN CONFINING ZONE
LOWER HAWTHORN/ TAMPA PRODUCING ZONE
SUWANNEE AQUIFER

WC2030



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2030

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2031

COLLIER CO. T52S R30E SEC 07AB 81 21 11 N 25 57 30 W
TOTAL DEPTH- 880 FT. ELEV.- 6 FT. SAMPLES- 0- 880 FT.
COMPLETED- 81.01.28 DEPTH WORKED FT.

WELL NAME-
COLLIER DEEP WELL C2031D,SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
WORKED BY STEVE ANDERSON,QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 160.0 SURFICIAL AQUIFER SYSTEM
0.0- 80.0 WATER TABLE AQUIFER
80.0- 160.0 LOWER TAMIAMI AQUIFER
160.0- 430.0 MID-HAWTHORN CONFINING ZONE
430.0- 550.0 MID-HAWTHORN AQUIFER
550.0- 690.0 LOWER-HAWTHORN CONFINING ZONE
690.0- 880.0 LOWER-HAWTHORN/TAMPA PRODUCING ZONE

STRATIGRAPHIC FORMATIONS -

.0- 90.0 TAMIAMI FORMATION
90.0- 750.0 HAWTHORN FORMATION *
750.0- 880.0 TAMPA LIMESTONE

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

.0- 10.0 LIMESTONE, WHITE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

10.0- 20.0 LIMESTONE, WHITE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

20.0- 30.0 LIMESTONE, WHITE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

30.0- 40.0 LIMESTONE, WHITE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2031 . COLLIER CO. 152S, R30E, SEC 07A8

40.0- 50.0 LIMESTONE, WHITE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

50.0- 60.0 LIMESTONE, WHITE TO GRAYISH BROWN, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

60.0- 70.0 LIMESTONE, VERY LIGHT GRAY TO MODERATE LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS,

70.0- 80.0 LIMESTONE, VERY LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

80.0- 90.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, FOSSIL FRAGMENTS,

90.0- 100.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, FOSSIL FRAGMENTS,

100.0- 110.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

110.0- 120.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, 05% CALCILUTITE, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA, MOLLUSKS,

120.0- 130.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, 07% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

130.0- 140.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

140.0- 150.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

150.0- 160.0 SAND, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MODERATE INDURATION, CALCILUTITE MATRIX, 12% CALCILUTITE, FOSSIL FRAGMENTS, MOLLUSKS,

SAMPLE CONTAINS A LOT MORE SHELL FRAGS

160.0- 170.0 SANDSTONE, LIGHT GRAY TO GRAYISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, FOSSIL FRAGMENTS,

170.0- 180.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

180.0- 190.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

190.0- 200.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

200.0- 210.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

210.0- 220.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

220.0- 230.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

230.0- 240.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

240.0- 250.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% CALCILUTITE, 10% CLAY, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA,

OCCURANCE OF PHOSPHATIC GRANULES AND QUARTZ PEBBLES

250.0- 260.0 SAND, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, UNCONSOLIDATED, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 10% DOLOMITE, 10% PHOSPHATIC GRAVEL, 05% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

260.0- 270.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 15% DOLOMITE, 05% PHOSPHATIC SAND, 10% PHOSPHATIC GRAVEL, FOSSIL FRAGMENTS,

270.0- 280.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 15% DOLOMITE, 05% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS,

280.0- 290.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 20% DOLOMITE,

290.0- 300.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 20% DOLOMITE, 02% PHOSPHATIC SAND, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

300.0- 310.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 20% DOLOMITE, 02% PHOSPHATIC SAND, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

310.0- 320.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 20% DOLOMITE, 02% PHOSPHATIC SAND, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

320.0- 330.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

330.0- 340.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

340.0- 350.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 02% PHOSPHATIC SAND, PLANKTONIC FORAMINIFERA, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

350.0- 360.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS,

360.0- 370.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 02% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

370.0- 380.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 03% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

380.0- 390.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 05% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

390.0- 400.0 DOLO-SILT, LIGHT OLIVE GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 25% DOLOMITE, 06% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

400.0- 410.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 12% CALCILUTITE, 20% DOLOMITE, 03% QUARTZ SAND, 05% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS, BENTHONIC FORAMINIFERA,

410.0- 420.0 DOLO-SILT, LIGHT OLIVE GRAY TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 07% LIMESTONE, 20% DOLOMITE, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

420.0- 430.0 AS ABOVE,

430.0- 440.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 07% PHOSPHATIC SAND, 03% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

440.0- 450.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL,

450.0- 460.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL,

460.0- 470.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, CORAL,

470.0- 480.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

480.0- 490.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

490.0- 500.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

500.0- 510.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

510.0- 520.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

520.0- 530.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

530.0- 540.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 08% CALCILUTITE, 04% PHOSPHATIC SAND, 05% CLAY, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

540.0- 550.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 08% CALCILUTITE, 04% PHOSPHATIC SAND, 05% CLAY, 02% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

550.0- 560.0 LIMESTONE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 12% CALCILUTITE, 04% PHOSPHATIC SAND, 06% CLAY, 02% QUARTZ SAND, FOSSIL FRAGMENTS,

560.0- 570.0 CALCARENITE, WHITE TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 03% PHOSPHATIC SAND, 06% CLAY, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. 152S, R30E, SEC C7A8

570.0- 580.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 03% PHOSPHATIC SAND, 06% CLAY, FOSSIL FRAGMENTS,

580.0- 590.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 03% PHOSPHATIC SAND, 06% CLAY, FOSSIL FRAGMENTS, MOLLUSKS,

590.0- 600.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 05% CALCILUTITE, 03% CLAY, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS, CORAL,

600.0- 610.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 12% CALCILUTITE, 05% CLAY, 05% DOLOMITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

610.0- 620.0 LIMESTONE, WHITE TO GRAYISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 08% CALCILUTITE, 20% DOLOMITE, 05% CLAY, 02% PHOSPHATIC SAND,

620.0- 630.0 DOLOMITE, WHITE TO GRAYISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 02% PHOSPHATIC SAND,

630.0- 640.0 DOLOMITE, WHITE TO GRAYISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 02% PHOSPHATIC SAND,

640.0- 650.0 DOLOMITE, WHITE TO GRAYISH BROWN, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 03% PHOSPHATIC SAND,

650.0- 660.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 10% DOLOMITE, 05% CLAY, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

660.0- 670.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 10% DOLOMITE, 05% CLAY, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. 15S, R30E, SEC 07AB

670.0- 680.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 15% CALCILUTITE, 10% DOLOMITE, 05% CLAY, 05% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

680.0- 690.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 07% CALCILUTITE, 06% DOLOMITE, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

690.0- 700.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

700.0- 710.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% CALCILUTITE, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

710.0- 720.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 07% CALCILUTITE, FOSSIL FRAGMENTS,

720.0- 730.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 07% CALCILUTITE, FOSSIL FRAGMENTS,

730.0- 740.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 07% CALCILUTITE, FOSSIL FRAGMENTS,

OCCURANCE OF MIOGYPSINA, LAST 60 FEET.

740.0- 750.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, FOSSIL FRAGMENTS, BRYOZOA, BENTHONIC FORAMINIFERA,

750.0- 760.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, FOSSIL FRAGMENTS, BRYOZOA,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC 07AB

760.0- 770.0 CALCARENITE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, BRYOZOA,

770.0- 780.0 DOLO-SILT, LIGHT OLIVE GRAY TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 20% DOLOMITE, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

780.0- 790.0 DOLO-SILT, LIGHT OLIVE GRAY TO LIGHT GRAY, POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 10% CALCILUTITE, 20% DOLOMITE, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

790.0- 800.0 NO SAMPLE,

800.0- 810.0 NO SAMPLE,

810.0- 820.0 NO SAMPLE,

820.0- 830.0 NO SAMPLE,

CAVITY ZONE, POOR CUTTING RETURN, HARD DRILL.

830.0- 840.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% SPAR, FOSSIL FRAGMENTS,

840.0- 850.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS, BENTHONIC FORAMINIFERA,

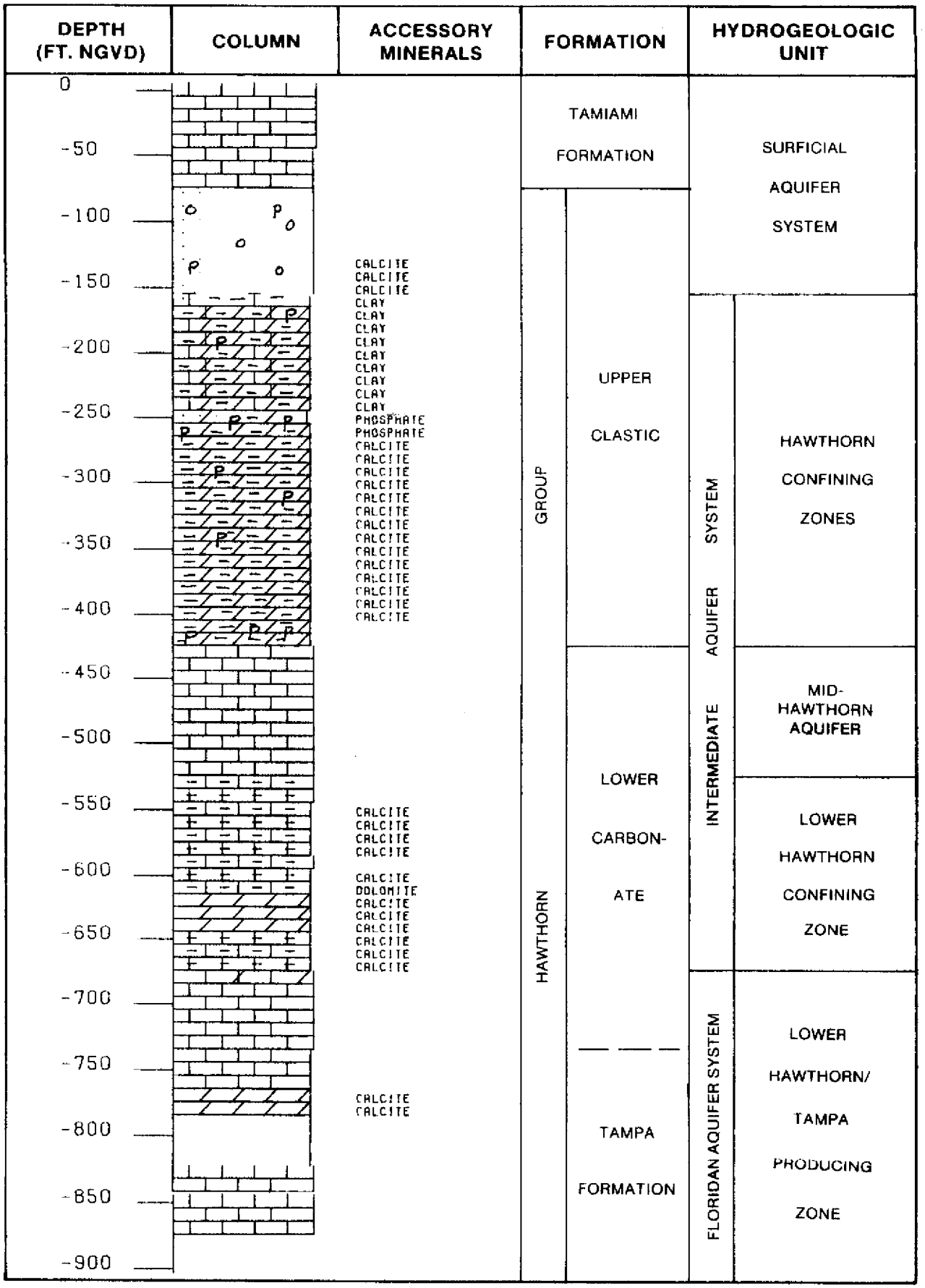
850.0- 860.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

860.0- 870.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 2031 . COLLIER CO. T52S, R30E, SEC C7AB

870.0- 880.0 LIMESTONE, WHITE TO VERY LIGHT GRAY, POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL FRAGMENTS,

LARGE CAVITIES LAST 50 FEET.


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
-500
-550
-600
-650
-700
-750
-800
-850
-900
CALCITE
CALCITE
CALCITE
CLAY
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PHOSPHATE
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CALCITE
DOLOMITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
TAMIAMI FORMATION
GROUP
HAWTHORN
UPPER CLASTIC
LOWER CARBON-ATE
TAMPA FORMATION
SURFICIAL AQUIFER SYSTEM
AQUIFER SYSTEM
INTERMEDIATE
FLORIDAN AQUIFER SYSTEM
HAWTHORN CONFINING ZONES
MID-HAWTHORN AQUIFER
LOWER HAWTHORN CONFINING ZONE
LOWER HAWTHORN/ TAMPA PRODUCING ZONE

WC2031

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2032C

COLLIER CO. 148S R27E SEC 23CA 26 17 09 N 81 35 35 W
TOTAL DEPTH- 352 FT. ELEV.- 25 FT. 18 SAMPLES- 0- 352 FT.
COMPLETED- 82.10.10 DEPTH WORKED 352 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
NEUTRON
ELECTRIC

WELL NAME-
JANET #1,GAC REALTY TRUST,CONTINUOS CORE,JUSTIN HODGES (DRILLER)
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (NOV.1982),QUALITY EXCELLENT

HYDROGEOLOGIC UNITS

0.0-	182.0	SURFICIAL AQUIFER SYSTEM
0.0-	35.0	WATER TABLE AQUIFER
35.0-	66.0	TAMIAMI CONFINING BEDS
66.0-	182.0	LOWER TAMIAMI AQUIFER
182.0-	197.0	UPPER HAWTHORN CONFINING ZONE
197.0-	222.0	SANDSTONE AQUIFER
319.0-	352.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	15.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
15.0-	152.0	TAMIAMI FORMATION
152.0-	182.0	MIOCENE COARSE CLASTICS
182.0-	352.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2032C. COLLIER CO. 148S, R27E, SEC 23CA

.0- 5.0 SAND, GRAYISH ORANGE, 42% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% CALCILUTITE, MOLLUSKS,

5.0- 10.0 SAND, DARK YELLOWISH ORANGE, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, 10% CALCILUTITE, MOLLUSKS, FOSSIL FRAGMENTS,

10.0- 15.0 SHELL BED, WHITE TO GRAYISH BROWN, 30% POROSITY, INTERGRANULAR, POOR INDURATION, CALCILUTITE MATRIX, 25% QUARTZ SAND, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
- 20320. COLLIER CO. 14S, R27E, SEC 23CA

15.0- 18.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

18.0- 25.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

25.0- 28.0 LIMESTONE, GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CRYSTALS, BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

28.0- 30.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

30.0- 35.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 08% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS, FOSSIL FRAGMENTS,

35.0- 43.0 NO RECOVERY-DRILLER REPORTS CALCAREOUS CLAY

43.0- 46.0 SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

46.0- 51.0 AS ABOVE,

51.0- 53.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 40% CALCILUTITE, 05% QUARTZ SAND, FOSSIL FRAGMENTS,

53.0- 55.0 AS ABOVE,

LITHOLOGIC LOG
#- 20326. COLLIER CO. T46S, R27E, SEC 23A

59.0- 61.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 40% CALCILUTITE, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

61.0- 63.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% DOLOMITE, 15% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS,

63.0- 66.0 LIMESTONE, WHITE, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

66.0- 74.0 LIMESTONE, WHITE TO LIGHT GRAY, 16% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

PECTEN, OYSTERS

74.0- 76.0 AS ABOVE,

76.0- 83.0 LIMESTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL,

83.0- 88.0 SANDSTONE, WHITE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 20% CALCILUTITE, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

88.0- 98.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

98.0- 99.0 AS ABOVE,

LITHOLOGIC LOG
- 20320. COLLIER CO. T48S, R27E, SEC 25CA

99.0- 107.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS, CORAL,

SOME ZONES ARE COQUINOID, WELL PRESERVED PECTONS

107.0- 110.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

110.0- 113.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, COQUINA, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

BECOMES VERY SANDY (40%) AT BASE

113.0- 117.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

117.0- 118.0 SANDSTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, 40% CALCILUTITE, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

[illegible]- 122.0 AS ABOVE POSSIBLE HIGH PERMEABILITY

[illegible]- 127.0 NO RECOVERY-DRILLER REPORTS CALCAREOUS QUARTZ SANDS

127.0- 128.0 SANDSTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 01% PHOSPHATIC SAND, 10% DOLOMITE, 10% CALCILUTITE, MOLLUSKS,

128.0- 132.0 AS 116 TO 127

LITHOLOGIC LOG
W- 20320. COLLIER CO. T48S, R27E, SEC 23CA

132.0- 133.0 DOLOMITE, LIGHT OLIVE GRAY TO GRAYISH BROWN, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 12% CALCILUTITE, 03% PHOSPHATIC SAND, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

133.0- 141.0 AS 118 TO 127

141.0- 142.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 20% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

142.0- 150.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 30% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

150.0- 152.0 DOLOMITE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 20% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

152.0- 162.0 SHELL BED, YELLOWISH GRAY TO DARK GRAYISH YELLOW, 25% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 25% QUARTZ SAND, MOLLUSKS,

162.0- 172.0 SAND, LIGHT OLIVE TO GRAYISH OLIVE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CALCILUTITE, 05% DOLOMITE, 05% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

172.0- 182.0 SAND, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 01% PHOSPHATIC SAND, 02% CALCILUTITE, MOLLUSKS, FOSSIL FRAGMENTS,

182.0- 192.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 02% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

192.0- 193.0 DOLO-SILT, LIGHT OLIVE TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 02% CLAY, PHOSPHATIC SAND, 35% QUARTZ SAND, MOLLUSKS,

193.0- 199.0 AS ABOVE,

LITHOLOGIC LOG
W- 20320. COLLIER CO. T46S, R27E, SEC 23CA

194.0- 197.0 LITTLE RECOVERY-SANDY,PHOS DOLO-WITH COARSE PHOS RUBBLE.

197.0- 199.0 DOLOMITE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 10% QUARTZ SAND, 15% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, MOLLUSKS, FOSSIL MOLDS,

199.0- 200.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CRYSTALS, BIOGENIC, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% DOLOMITE, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, 01% PHOSPHATIC GRAVEL, MOLLUSKS, FOSSIL MOLDS,

200.0- 202.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 03% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

202.0- 203.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, INTERBEDDED, 30% DOLOMITE, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

203.0- 205.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 40% DOLOMITE, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

205.0- 207.3 DOLOMITE, YELLOWISH GRAY TO GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% CALCILUTITE, 01% PHOSPHATIC SAND, 01% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA, FOSSIL FRAGMENTS,

207.3- 207.9 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL MOLDS,

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207.9- 216.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, COQUINA, MOLLUSKS, FOSSIL MOLDS,

216.0- 219.0 AS ABOVE,

219.0- 222.0 DOLOMITE, YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 10% SPAR, 01% PHOSPHATIC SAND, 01% QUARTZ SAND, MOLLUSKS, CORAL,

222.0- 223.0 DOLOMITE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 02% QUARTZ SAND, FOSSIL MOLDS,

223.0- 225.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% DOLOMITE, 02% QUARTZ SAND, MOLLUSKS,

225.0- 227.0 DOLO-SILT, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 03% CLAY, MOLLUSKS,

227.0- 229.0 DOLO-SILT, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% CALCILUTITE, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS,

229.0- 233.0 DOLO-SILT, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, BIOTURBATED, 06% QUARTZ SAND, 35% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS,

233.0- 237.0 AS ABOVE-NO BIOTURB-QTZ GRAINS WELL ROUNDED (COARSE)

237.0- 239.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 95% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 04% QUARTZ SAND,

239.0- 241.0 AS ABOVE-BUT POORLY INDURATED

LITHOLOGIC LOG
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241.0- 242.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 01% QUARTZ SAND, 05% DOLOMITE, MUDDY, COQUINA, MOLLUSKS,

242.0- 242.5 GRADATIONAL TO UNDERLYING LITHO

242.5- 245.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, LAMINATED, 10% CALCILUTITE, 05% CLAY, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS,

245.0- 247.0 AS ABOVE,

247.0- 249.0 AS ABOVE-WITH MORE SAND (10%) AND PHOS.(05%)

249.0- 254.5 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX, 02% CLAY, 05% CALCILUTITE, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

254.5- 256.0 AS ABOVE-WITH COARSE QTZ SAND (10%)

256.0- 259.0 SAND, GRAYISH OLIVE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 30% DOLOMITE, 03% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

259.0- 262.0 AS ABOVE,

262.0- 263.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS,

263.0- 272.0 AS ABOVE WITH POOR INDURATION

272.0- 273.0 DOLOMITE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 40% QUARTZ SAND, MOLLUSKS,

273.0- 282.0 SAND, VERY LIGHT ORANGE TO YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% CALCILUTITE, 05% DOLOMITE, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
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282.0- 292.0 AS ABOVE,

292.0- 295.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 10% CALCILUTITE, MOLLUSKS,

295.0- 295.3 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 05% CALCILUTITE, 01% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,

295.3- 296.0 DOLO-SILT, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 25% QUARTZ SAND, MOLLUSKS,

296.0- 300.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 12% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, 03% QUARTZ SAND, 06% PHOSPHATIC SAND, MOLLUSKS,

300.0- 302.0 DOLO-SILT, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX, 05% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 06% PHOSPHATIC SAND, MOLLUSKS,

302.0- 303.0 LIMESTONE, WHITE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% DOLOMITE, 05% PHOSPHATIC SAND, 03% QUARTZ SAND, MOLLUSKS,

303.0- 305.0 AS ABOVE WITH V.C. PHOSPHATE

305.0- 306.5 DOLOMITE, LIGHT OLIVE GRAY TO PINKISH GRAY, 12% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 14% PHOSPHATIC SAND, 06% QUARTZ SAND, MOLLUSKS,

REWORKED

306.5- 310.0 DOLO-SILT, LIGHT OLIVE GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, BANDED, 15% CALCILUTITE, 06% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, SHARK TEETH, FOSSIL FRAGMENTS,

SOME ZONE HAVE VERY HIGH PHOS. CONCENTRATIONS

LITHOLOGIC LOG
W- 20320. COLLIER CO. 14S, R27E, SEC 23CA

310.0- 312.0 AS ABOVE,

312.0- 314.0 DOLO-SILT, OLIVE GRAY TO PINKISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, BANDED, 05% CLAY, 05% CALCILUTITE, 10% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, SHARK TEETH, VERTBRATE,

314.0- 316.0 AS ABOVE - SECTION IS REWORKED - RUBBLE BEDS COMMON

318.0- 319.0 REWORKED DOLO-SILT AND LIMESTONE

319.0- 332.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 75% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: COARSE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, BRECCIATED, 25% DOLOMITE, 03% PHOSPHATIC SAND, 01% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

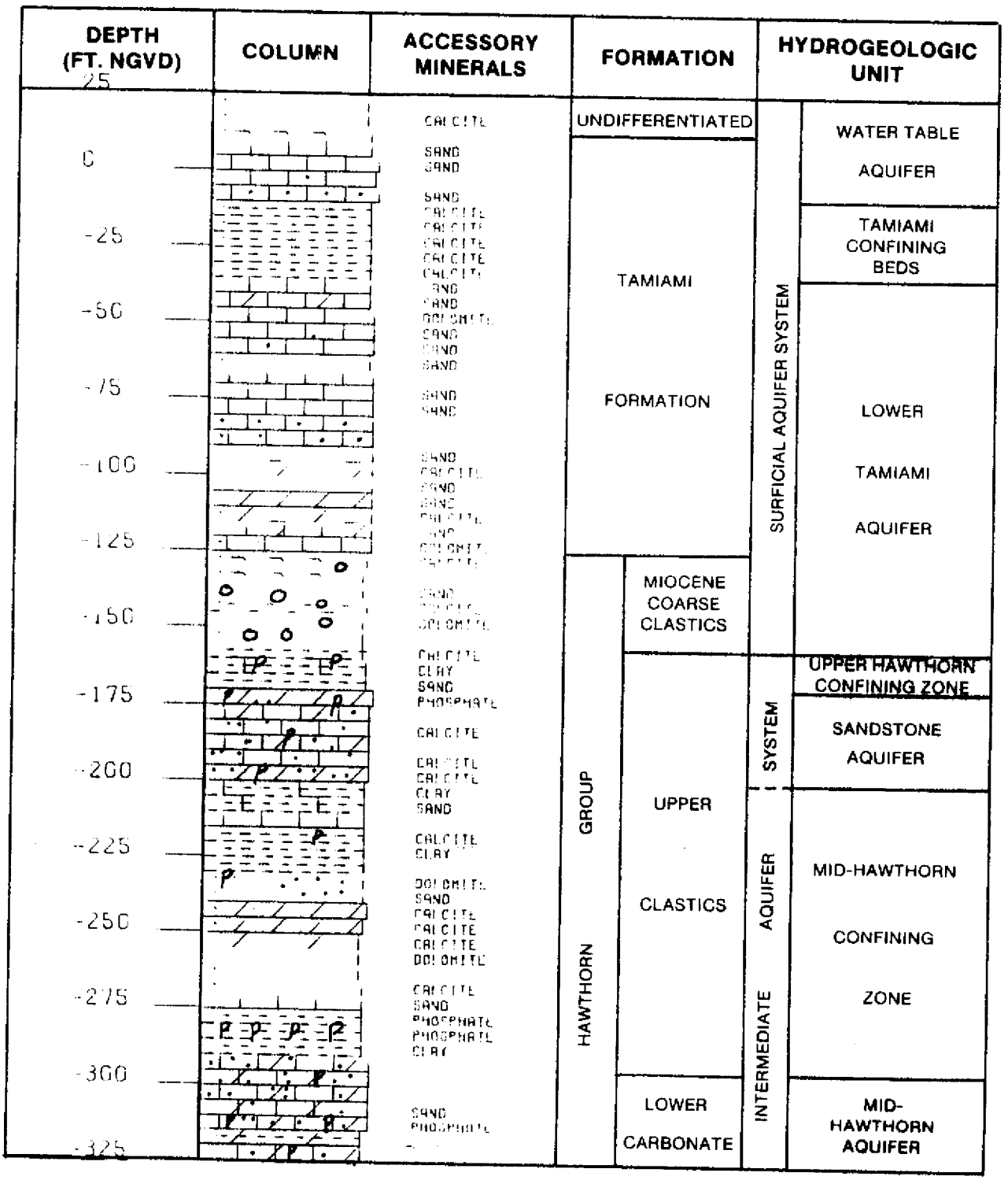
332.0- 342.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 40% DOLOMITE, 06% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

342.0- 347.0 SILT, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT, 05% CALCILUTITE, 05% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA,

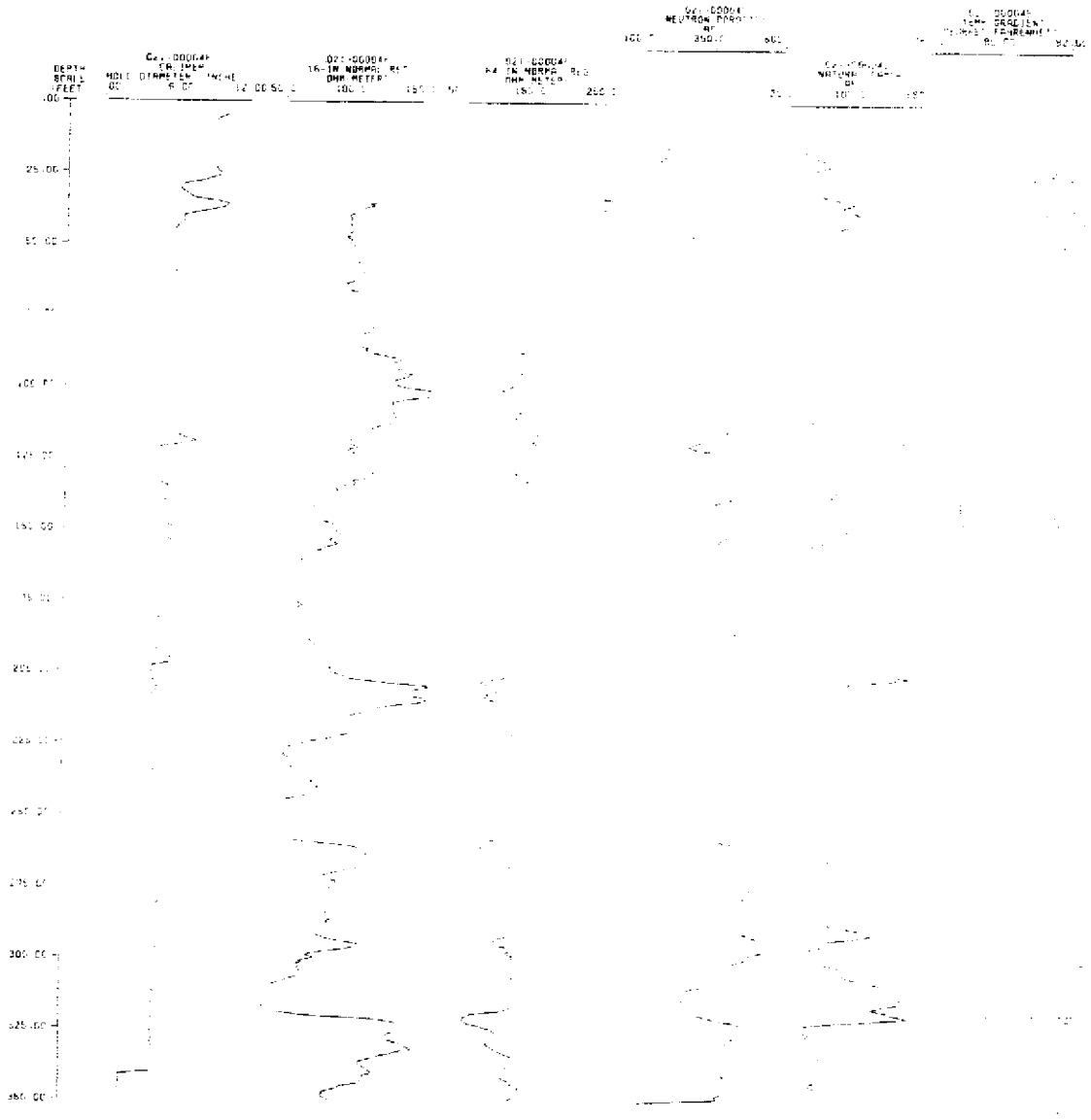
OYSTER SHELL INTERBEDDED

347.0- 350.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA,

350.0- 352.0 AS ABOVE WITH GOOD INDURATION


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
UNDIFFERENTIATED
TAMIAMI
FORMATION
HAWTHORN
GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTICS
LOWER
CARBONATE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER TABLE
AQUIFER
TAMIAMI
CONFINING
BEDS
LOWER
TAMIAMI
AQUIFER
UPPER HAWTHORN
CONFINING ZONE
SANDSTONE
AQUIFER
MID-HAWTHORN
CONFINING
ZONE
MID-
HAWTHORN
AQUIFER

WC2032



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2032

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2033

COLLIER CO. T49S R28E SEC 11AB 26 13 46 N 81 35 28 W
TOTAL DEPTH- 380 FT. ELEV.- 14 FT. 38 SAMPLES- 0- 380 FT.
COMPLETED- 83.05.01 DEPTH WORKED 380 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GEOLOGIST
CALIPHER
ELECTRIC
NEUTRON

WELL NAME-
GOLDEN GATE #1,SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
DESCRIBED BY MIKE KNAPP (2-28-83),QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0-	220.0	SURFICIAL AQUIFER SYSTEM
0.0-	40.0	WATER TABLE AQUIFER
40.0-	60.0	TAMIAMI CONFINING BEDS
60.0-	220.0	LOWER TAMIAMI AQUIFER
220.0-	240.0	UPPER HAWTHORN CONFINING ZONE
240.0-	250.0	SANDSTONE AQUIFER
250.0-	360.0	MID-HAWTHORN CONFINING ZONE
360.0-	T.D.	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	3.0	UNDIFFERENTIATED SAND AND CLAY
3.0-	150.0	TAMIAMI FORMATION
150.0-	230.0	MIOCENE COARSE CLASTICS
230.0-	380.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2033 . COLLIER CO. T49S, R28E, SEC 11AB

.0- 3.0 SAND, MODERATE YELLOWISH BROWN, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, ORGANIC MATRIX, MOLLUSKS,

3.0- 10.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2033 . COLLIER CO. T49S, R28E, SEC 11AB

10.0- 20.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, CORAL, FOSSIL MOLDS,

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

30.0- 40.0 AS ABOVE,

40.0- 50.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, 02% CLAY, MOLLUSKS,

50.0- 60.0 NO SAMPLE-DRILLER REPORTS SANDSTONE (50FT)

60.0- 70.0 LIMESTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS, CORAL,

70.0- 80.0 AS ABOVE,

80.0- 90.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, CORAL,

TRACE PHOSPHATIC SAND

90.0- 100.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID, BRYOZOA,

LITHOLOGIC LOG
#- 2033 . COLLIER CO. T49S, R28E, SEC 11AB

100.0- 110.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 65% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, BRYOZOA, ECHINOID,

110.0- 120.0 AS ABOVE,

120.0- 130.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 65% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, BRYOZOA, ECHINOID, CORAL,

130.0- 140.0 AS ABOVE,

140.0- 150.0 AS ABOVE WITH MORE SAND (10%)

150.0- 160.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS, BRYOZOA,

160.0- 170.0 AS ABOVE,

170.0- 180.0 AS ABOVE,

180.0- 190.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

190.0- 200.0 AS ABOVE,

200.0- 210.0 SANDSTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 30% CALCILUTITE, 01% PHOSPHATIC SAND, SHARK TEETH, MOLLUSKS, FOSSIL FRAGMENTS,

210.0- 220.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS, BRYOZOA, ECHINOID,

LITHOLOGIC LOG
W- 2033 . COLLIER CO. T49S, R28E, SEC 11AB

220.0- 230.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS,

230.0- 240.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 02% CLAY, 35% QUARTZ SAND, 02% PHOSPHATIC SAND,

240.0- 250.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

250.0- 260.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 30% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

260.0- 270.0 AS ABOVE,

270.0- 280.0 AS ABOVE,

280.0- 290.0 SAND, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 20% DOLOMITE, 10% CALCILUTITE, 04% PHOSPHATIC SAND, 01% CLAY, MOLLUSKS,

290.0- 300.0 AS ABOVE,

300.0- 310.0 DOLO-SILT, DARK GRAYISH YELLOW TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CALCILUTITE, 10% CLAY, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

310.0- 320.0 AS ABOVE,

320.0- 330.0 DOLO-SILT, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, 15% CALCILUTITE, MOLLUSKS,

330.0- 340.0 AS ABOVE WITH L/S FRAGS AND V.COARSE PHOSPHATE

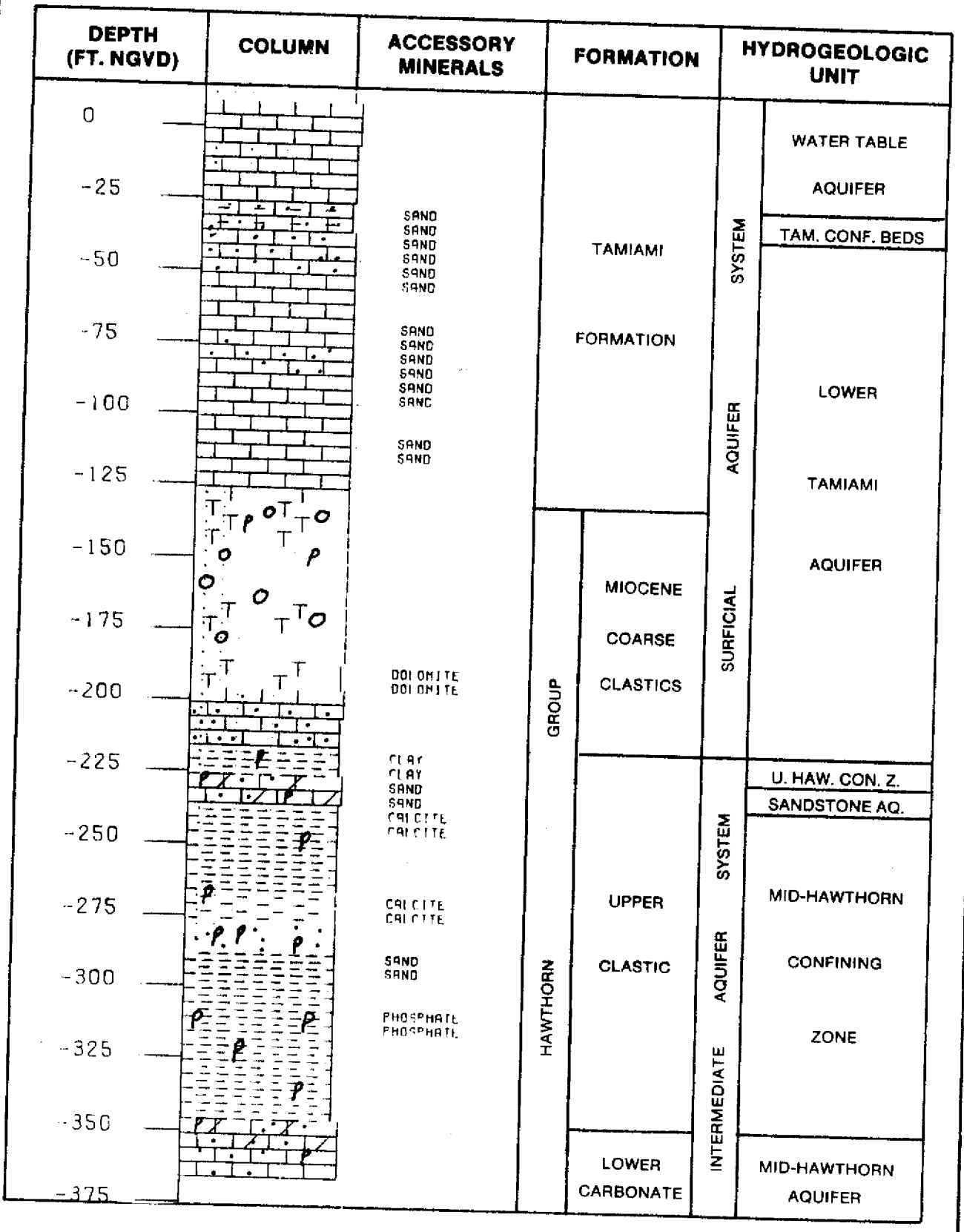
340.0- 350.0 AS ABOVE-RUBBLE ZONE

LITHOLOGIC LOG
W- 2033 . COLLIER CO. T49S, R28E, SEC 11A8

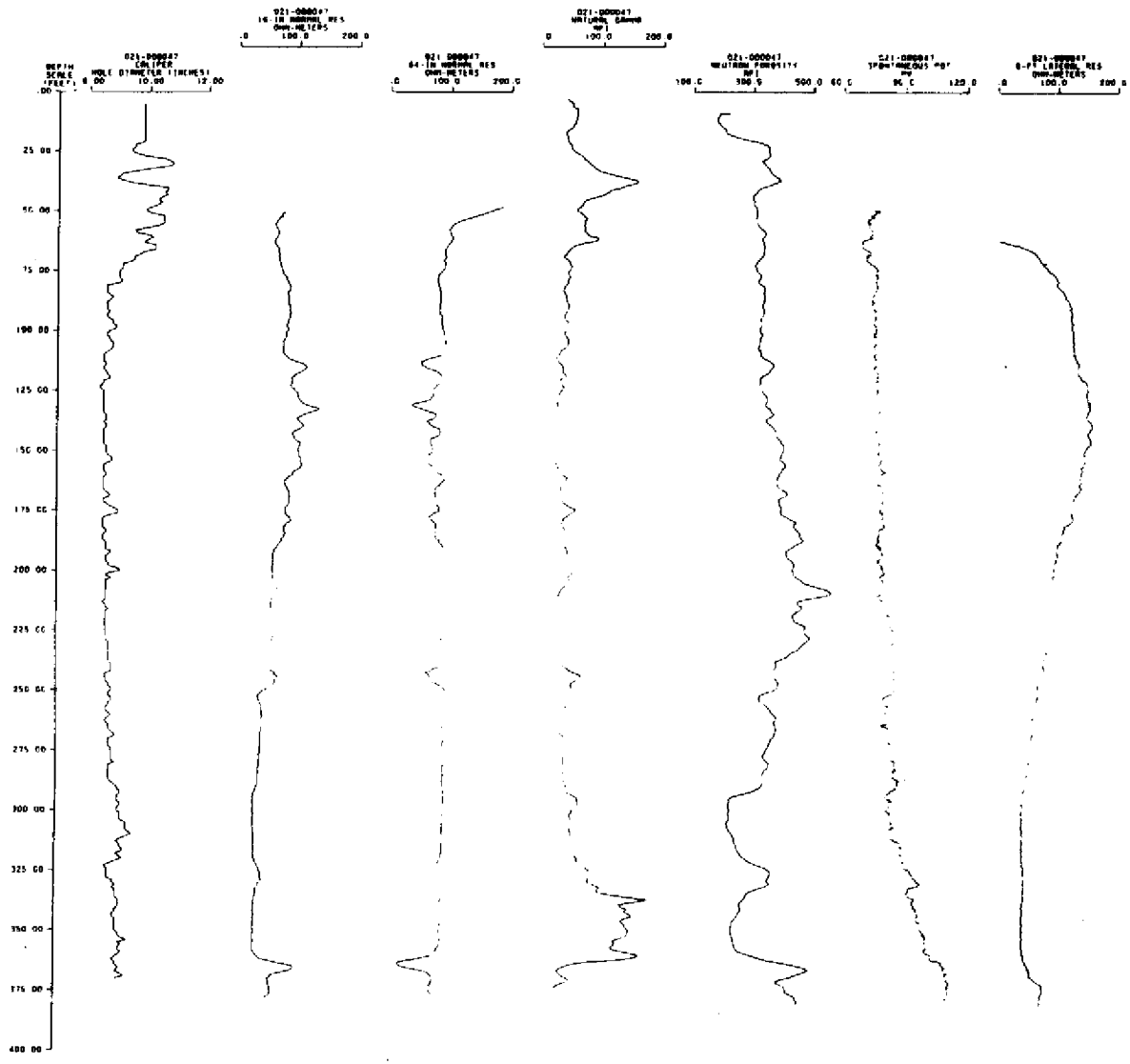
350.0- 360.0 AS ABOVE,

360.0- 370.0 LIMESTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 03% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

370.0- 380.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
DOLOMITE
DOLOMITE
CLAY
CLAY
SAND
SAND
CALCITE
CALCITE
CALCITE
CALCITE
SAND
SAND
PHOSPHATE
PHOSPHATE
TAMIAMI
FORMATION
HAWTHORN
GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
LOWER
CARBONATE
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER TABLE
AQUIFER
TAM. CONF. BEDS
LOWER
TAMIAMI
AQUIFER
U. HAW. CON. Z.
SANDSTONE AQ.
MID-HAWTHORN
CONFINING
ZONE
MID-HAWTHORN
AQUIFER

WC2033



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2033

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2034

COLLIER CO. T49S R27E SEC 36DD 26 08 37 N 81 31 27 W
TOTAL DEPTH- 340 FT. ELEV.- 13 FT. 34 SAMPLES- 0- 340 FT.
COMPLETED- 05.26.83 DEPTH WORKED 340 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
ELECTRIC
CALIPHER

WELL NAME-
C2034,SFWMD,ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP,(7-7-83), QUAL.(GOOD)

HYDROGEOLOGIC UNITS

0.0- 160.0 SURFICIAL AQUIFER SYSTEM
0.0- 60.0 WATER TABLE AQUIFER
60.0- 80.0 TAMIAMI CONFINING BEDS
80.0- 160.0 LOWER TAMIAMI AQUIFER
160.0- 330.0 HAWTHORN CONFINING BEDS
330.0- 340.0 MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 10.0 UNDIFFERENTIATED SAND AND CLAY
10.0- 100.0 TAMIAMI FORMATION
100.0- 190.0 MIOCENE COARSE CLASTICS
190.0- 340.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2034 . COLLIER CO. T49S, R27E, SEC 36DD

.0- 10.0 NO SAMPLE,

10.0- 20.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE CRYSTALS, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, SKELETAL, CRYSTALS, 65% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 014 PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

30.0- 40.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2034 . COLLIER CO. T49S, R27E, SEC 36DD

40.0- 50.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

50.0- 60.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

60.0- 70.0 SANDSTONE, LIGHT GRAYISH GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 10% DOLOMITE, MOLLUSKS,

70.0- 80.0 AS ABOVE WITH MICA

80.0- 90.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS,

90.0- 100.0 AS ABOVE,

100.0- 110.0 SHELL BED, LIGHT OLIVE GRAY TO DARK GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, UNCONSOLIDATED, 30% QUARTZ SAND, 04% PHOSPHATIC GRAVEL, MOLLUSKS,

VERY COARSE FROSTED SAND

110.0- 120.0 AS ABOVE,

120.0- 130.0 AS ABOVE,

130.0- 140.0 LIMESTONE, MODERATE LIGHT GRAY TO MODERATE YELLOWISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA,

MUCH LOOSE SHELL

LITHOLOGIC LOG
W- 2034 . COLLIER CO. T49S, R27E, SEC 36LO

140.0- 150.0 DOLOMITE, MODERATE DARK GRAY TO MODERATE YELLOWISH BROWN, 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 04% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

150.0- 160.0 DOLOMITE, MODERATE YELLOWISH BROWN, 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 04% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL MOLDS,

160.0- 170.0 LIMESTONE, VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS,

170.0- 180.0 AS ABOVE WITH COARSE SAND

180.0- 190.0 AS ABOVE,

190.0- 200.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 35% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS,

VERY COARSE SAND (5%)

200.0- 210.0 AS ABOVE,

210.0- 230.0 DOLO-SILT, LIGHT OLIVE TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, MOLLUSKS,

230.0- 240.0 SAND, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 20% DOLOMITE, 10% CALCILUTITE, 02% CLAY, 04% PHOSPHATIC SAND, MOLLUSKS,

240.0- 250.0 AS ABOVE,

250.0- 260.0 AS ABOVE,

260.0- 270.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 40% QUARTZ SAND, 04% PHOSPHATIC SAND, 15% CALCILUTITE, MOLLUSKS,

LITHOLOGIC LOG
W- 2034 . COLLIER CO. T49S, R27E, SEC 36DD

270.0- 280.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, 20% QUARTZ SAND, 02% CLAY, MOLLUSKS,

280.0- 290.0 DOLO-SILT, LIGHT OLIVE, 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 03% PHOSPHATIC SAND, 05% QUARTZ SAND, 02% CLAY, MOLLUSKS,

290.0- 300.0 AS ABOVE,

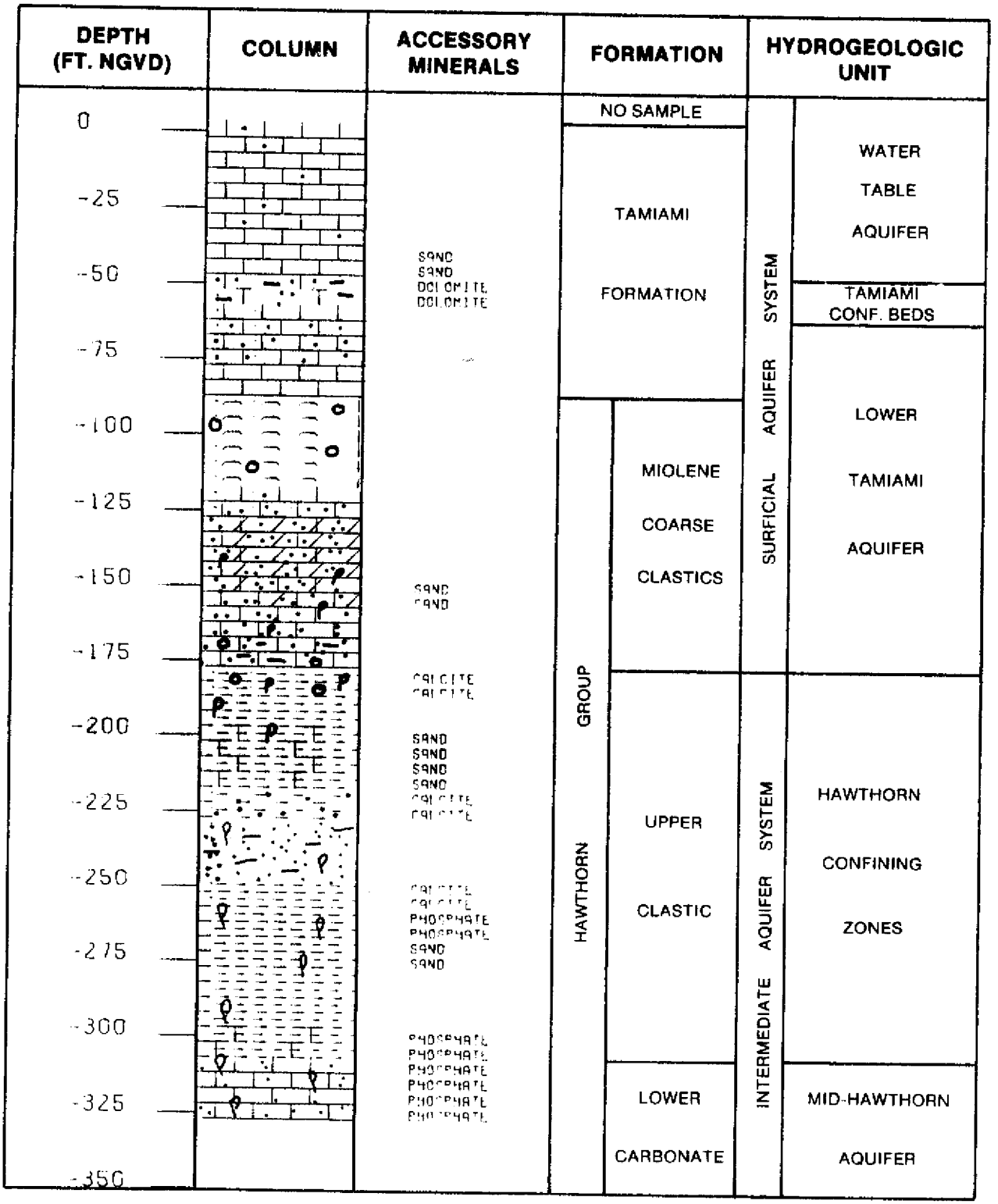
300.0- 310.0 AS ABOVE,

310.0- 320.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 10% PHOSPHATIC SAND, 20% QUARTZ SAND, MOLLUSKS,

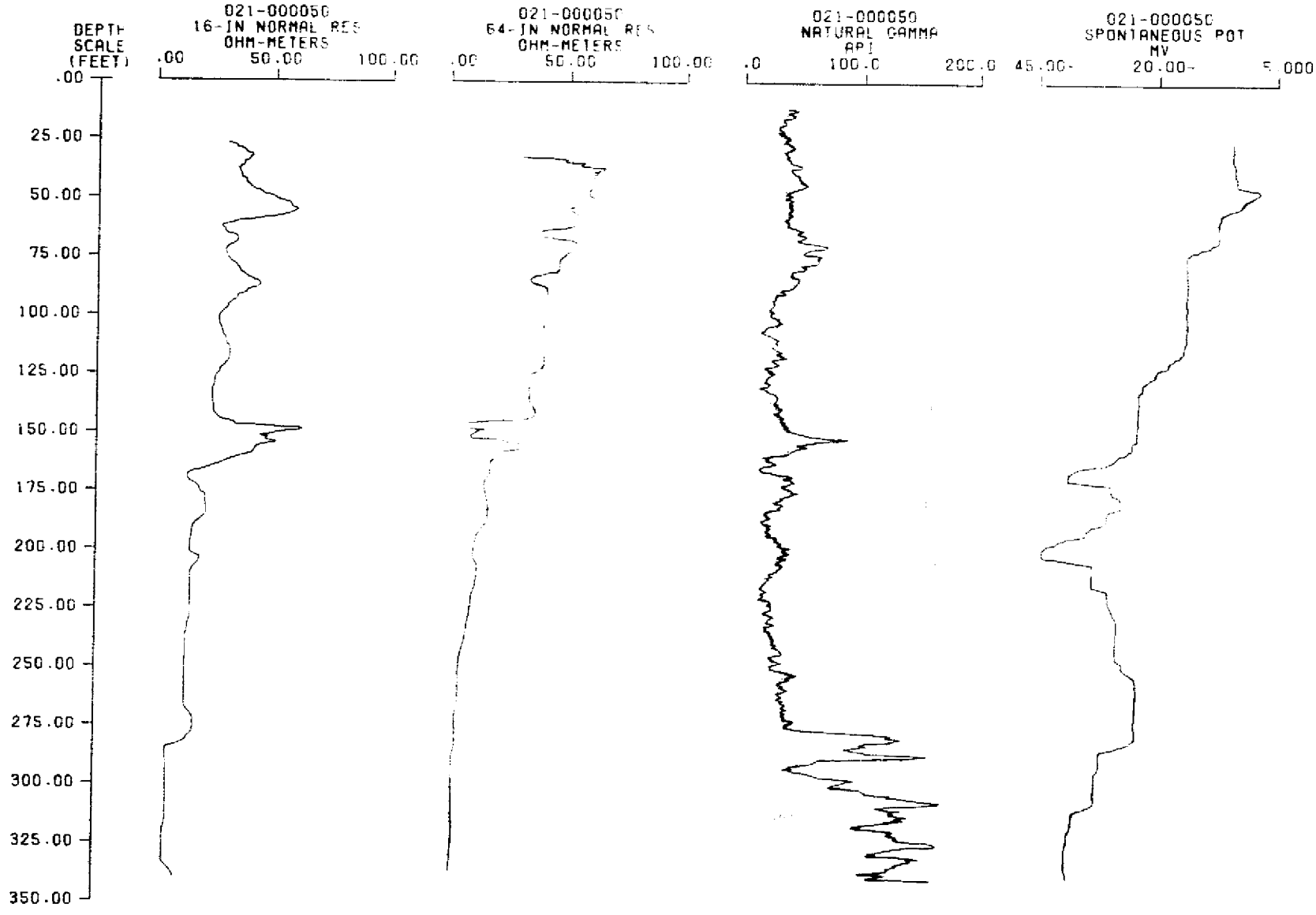
320.0- 330.0

AS ABOVE WITH REWORKED L/S FRAGS

330.0- 340.0 LIMESTONE, WHITE, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
SAND
SAND
DOLOMITE
DOLOMITE
SAND
SAND
CALCITE
CALCITE
SAND
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
SAND
SAND
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
NO SAMPLE
TAMIAMI FORMATION
HAWTHORN GROUP
MIOLENE COARSE CLASTICS
UPPER CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONF. BEDS
LOWER TAMIAMI AQUIFER
HAWTHORN CONFINING ZONES
MID-HAWTHORN AQUIFER

WC2034



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2034

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2035

COLLIER CO. T51S R27E SEC 06 26 03 13 N 61 38 03 W
TOTAL DEPTH- 180 FT. ELEV.- 7 FT. 18 SAMPLES- 0- 180 FT.
COMPLETED- 06.16.83 DEPTH WORKED 180 FT.

WELL NAME-
FRITCHEYS TREE FARM,SFWMD,ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (7-7-83),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNIT

0.0-	160.0	SURFICIAL AQUIFER SYSTEM
0.0-	50.0	WATER TABLE AQUIFER
50.0-	60.0	TAMIAMI CONFINING BEDS
60.0-	160.0	LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	10.0	UNDIFFERENTIATED SAND AND CLAY
10.0-	120.0	TAMIAMI FORMATION
120.0-	160.0	MIOCENE COARSE CLASTICS
160.0-	180.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2035 . COLLIER CO. T51S, R27E, SEC 06

.0- 10.0 SAND, DARK YELLOWISH BROWN, 42% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

10.0- 20.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

20.0- 30.0 AS ABOVE,

30.0- 40.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, ECHINOID, FOSSIL MOLDS,

40.0- 50.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2035 . COLLIER CO. T51S, R27E, SEC 06

50.0- 60.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, MOLLUSKS,

60.0- 70.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, MOLLUSKS, ECHINOID,

70.0- 80.0 AS ABOVE,

80.0- 90.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BENTHONIC FORAMINIFERA,

90.0- 100.0 AS ABOVE,

100.0- 110.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS,

110.0- 120.0 AS ABOVE,

120.0- 130.0 SANDSTONE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS,

130.0- 140.0 AS ABOVE,

140.0- 150.0 AS ABOVE,BUT POORLY INDURATED WITH MUCH SHELL

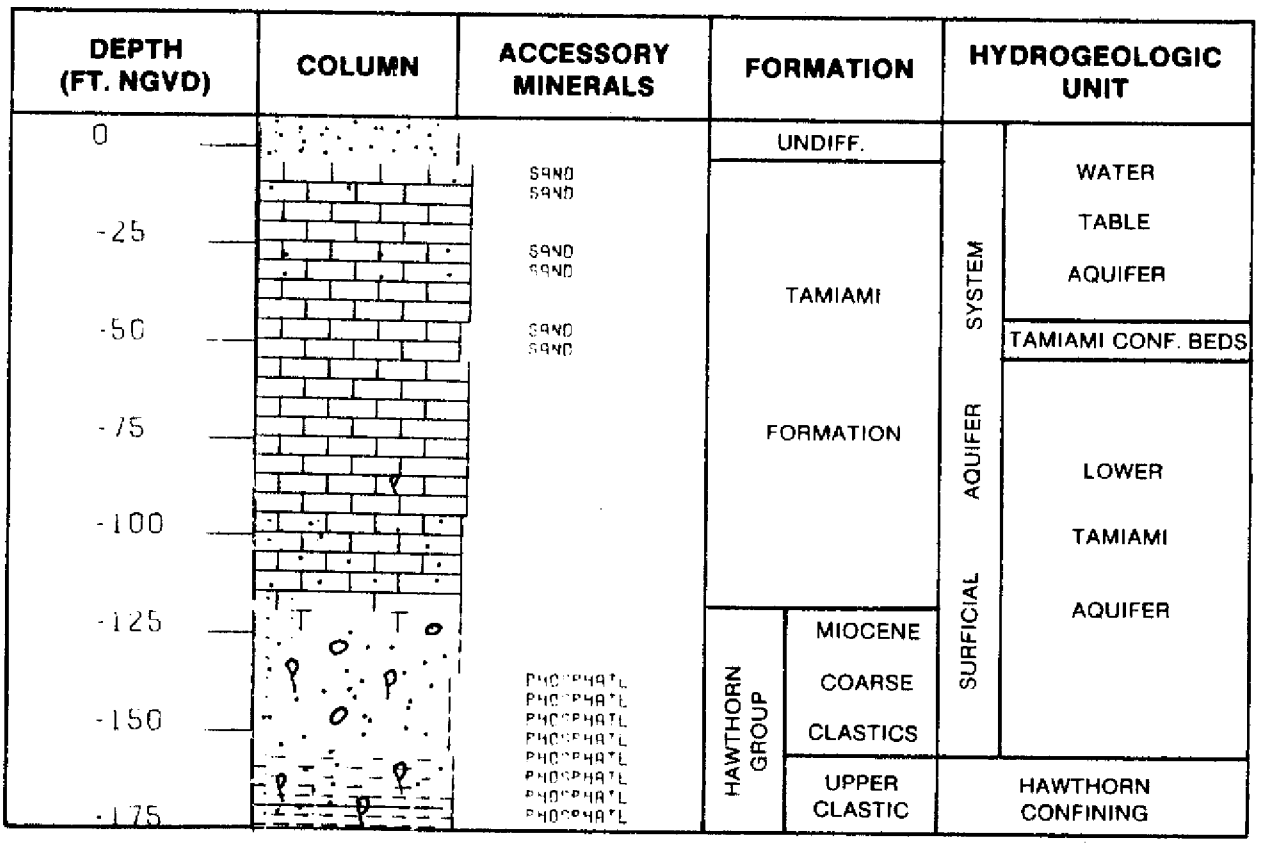
150.0- 160.0 SAND, WHITE, 32% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 03% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, MOLLUSKS,

160.0- 170.0 SAND, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 25% DOLOMITE, 02% CLAY, 10% PHOSPHATIC SAND, MOLLUSKS,

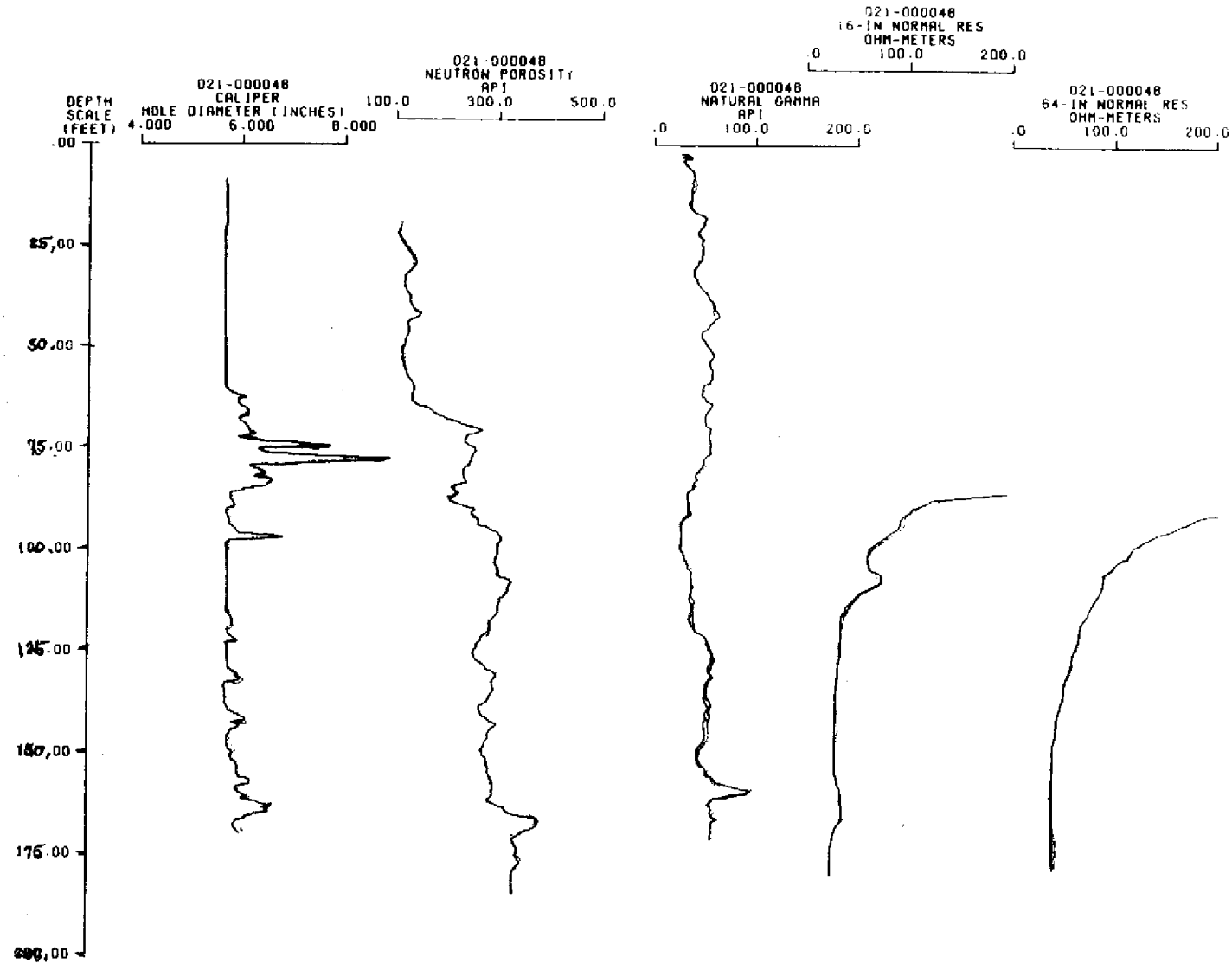
LITHOLOGIC LOG

W- 2035 . COLLIER CO. T51S, R27E, SEC 06

170.0- 180.0 DOLO-SILT, LIGHT OLIVE TO GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 02% CLAY, 35% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
SAND
SAND
SAND
SAND
SAND
SAND
PHOSPHATE
UNDIFF.
TAMIAMI
FORMATION
HAWTHORN GROUP
MIOCENE
COARSE
CLASTICS
UPPER CLASTIC
SURFICIAL AQUIFER SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI CONF. BEDS
LOWER
TAMIAMI
AQUIFER
HAWTHORN CONFINING

WC2035



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2035

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2036

COLLIER CO. T50S R27E SEC 06AA 26 08 42 N 81 38 12 W
TOTAL DEPTH- 240 FT. ELEV.- 11 FT. 0 SAMPLES- 240- 24 FT.
COMPLETED- 6.21.83 DEPTH WORKED 240 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

ELECTRIC
CALIPHER
GAMMA
PHOTO
NEUTRON

WELL NAME-
C2036,ALLIGATOR ALLEY,SFWMD,ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (11-14-83), QUALITY (GOOD).

HYDROGEOLOGIC UNITS

0.0- 237.0 SURFICIAL AQUIFER SYSTEM
0.0- 50.0 WATER TABLE AQUIFER
50.0- 80.0 TAMIAMI CONFINING BEDS
80.0- 160.0 LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 130.0 TAMIAMI FORMATION
130.0- 237.0 MIOCENE COARSE CLASTICS
237.0- 240.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2036 , COLLIER CO. T50S, R27E, SEC 06AA

.0- 10.0 LIMESTONE, GRAYISH BROWN TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CRYSTALS, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS,

10.0- 20.0 AS ABOVE WITH LESS SAND (10%)

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, ECHINOID,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

[illegible] LOG
[illegible] COLLIER CO. 15CS, R27E, SEC 06AA

[illegible]0.0- 40.0 DOLOMITE, MODERATE LIGHT GRAY, 10% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

[illegible]0.0- 50.0 LIMESTONE, LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

[illegible]0.0- 60.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 03% CLAY, 05% QUARTZ SAND, MOLLUSKS,

[illegible]0.0- 70.0 AS ABOVE WITH DOLOMITE FRAGS

[illegible]0.0- 80.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, MOLLUSKS,

[illegible]0.0- 90.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 15% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

[illegible]0.0- 100.0 AS ABOVE,

[illegible]0.0- 110.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

[illegible]0.0- 120.0 AS ABOVE,

[illegible]0.0- 130.0 AS ABOVE,

[illegible]0.0- 140.0 SANDSTONE, LIGHT GRAY TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 25% CALCILUTITE, MOLLUSKS,

[illegible]0.0- 150.0 AS ABOVE WITH POOR INDURATION

LITHOLOGIC LOG
W- 2036 . COLLIER CO. T50S, R27E, SEC 06AA

150.0- 160.0 AS ABOVE,

160.0- 170.0 SANDSTONE, LIGHT GRAY TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 05% CLAY, MOLLUSKS,

170.0- 180.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, VUGULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

180.0- 190.0 AS ABOVE,BUT POORLY INDURATED,LOW PERM.

190.0- 195.0 NO SAMPLE-DRILLER V.FINE QUARTZ SAND

195.0- 200.0 SANDSTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 05% CLAY, MOLLUSKS,

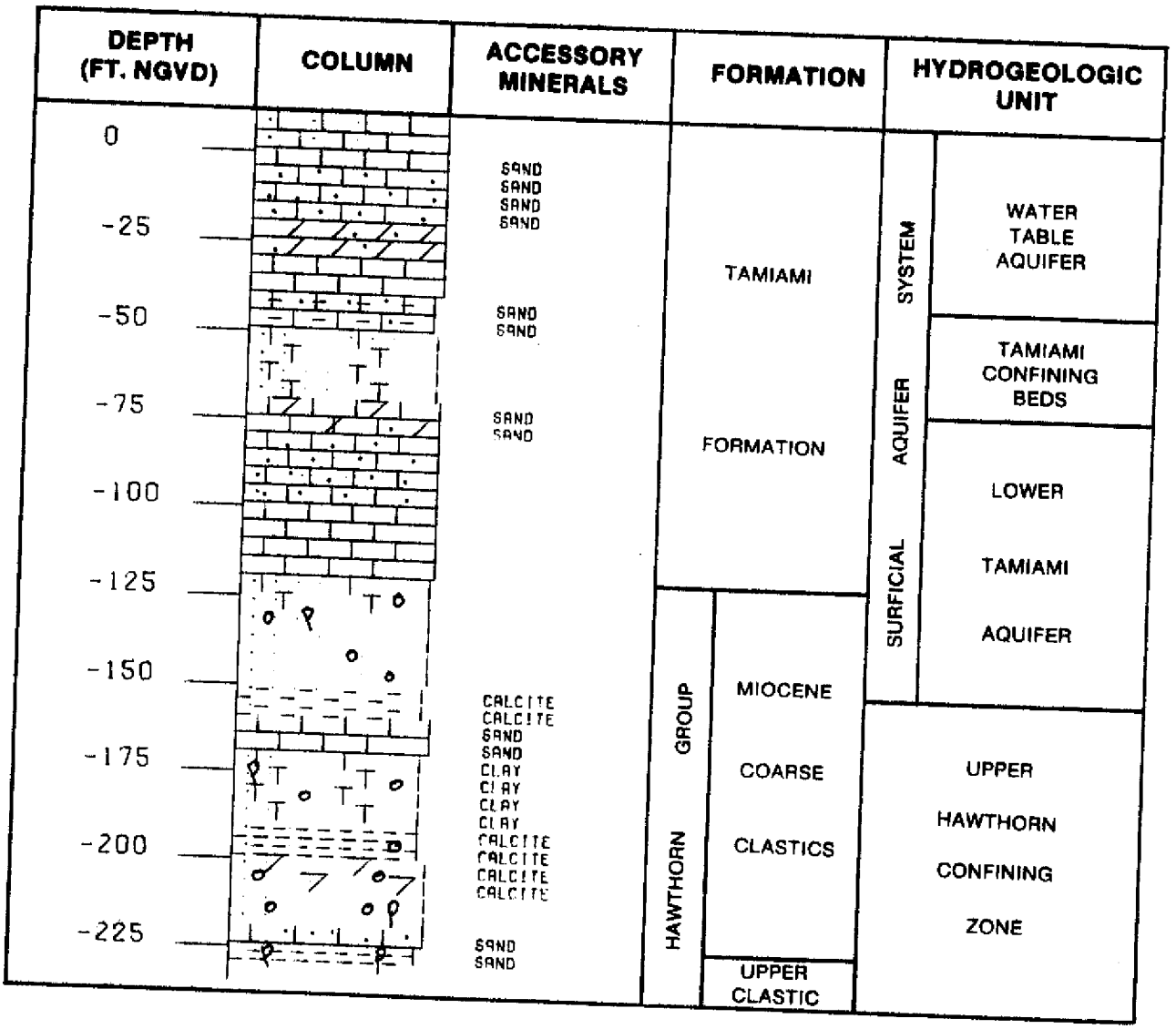
200.0- 210.0 DOLO-SILT, LIGHT OLIVE GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 20% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

210.0- 220.0 SANDSTONE, LIGHT GRAY TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, PIN POINT VUGS, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 15% CALCILUTITE, 25% DOLOMITE, MOLLUSKS,

220.0- 230.0 AS ABOVE,

230.0- 237.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA, VERTBRATE,

237.0- 240.0 DOLO-SILT, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 20% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
CALCITE
CALCITE
SAND
SAND
CLAY
CLAY
CLAY
CLAY
CALCITE
CALCITE
CALCITE
CALCITE
SAND
SAND
TAMIAMI
FORMATION
HAWTHORN GROUP
MIOCENE
COARSE
CLASTICS
UPPER CLASTIC
SURFICIAL AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE

WC2036

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2037

COLLIER CO. T51S R28E SEC 06BB 26 03 31 N 81 33 15 W
TOTAL DEPTH- 200 FT. ELEV.- 8 FT. 20 SAMPLES- 0- 206 FT.
COMPLETED- 06.28.83 DEPTH WORKED 200 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

CALIPHER
GAMMA
ELECTRIC
NEUTRON
PHOTO

WELL NAME-
C2037,EVERGLADES BLVD,SFWMD,ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (11-21-83), QUALITY (GOOD).

HYDROGEOLOGIC UNITS

0.0- 180.0 SURFICIAL AQUIFER SYSTEM
0.0- 60.0 WATER TABLE AQUIFER
60.0- 120.0 TAMIAMI CONFINING BEDS
120.0- 180.0 LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 140.0 TAMIAMI FORMATION
140.0- 180.0 MIOCENE COARSE CLASTICS
180.0- 200.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2037 COLLIER CO. T51S, R28E, SEC 06BB

.0- 5.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, CORAL, BRYOZOA, FOSSIL MOLDS,

5.0- 20.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, CORAL, BRYOZOA, FOSSIL MOLDS,

20.0- 30.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2037 . COLLIER CO. T51S, R28E, SEC 06BB

30.0- 40.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, VUGULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 40% SPAR, 02% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

40.0- 50.0 AS ABOVE,

50.0- 60.0 LIMESTONE, WHITE, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 35% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

60.0- 80.0 SANDSTONE, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 20% DOLOMITE, MOLLUSKS,

80.0- 90.0 SAND, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT, 05% CLAY, 15% CALCILUTITE, 20% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS,

90.0- 100.0 AS ABOVE,

100.0- 110.0 AS ABOVE,

110.0- 120.0 SAND, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 15% CLAY, 10% DOLOMITE, 03% PHOSPHATIC SAND, MOLLUSKS,

120.0- 135.0 LIMESTONE, VERY LIGHT ORANGE TO DARK YELLOWISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, VUGULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 40% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

135.0- 140.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, MOLLUSKS,

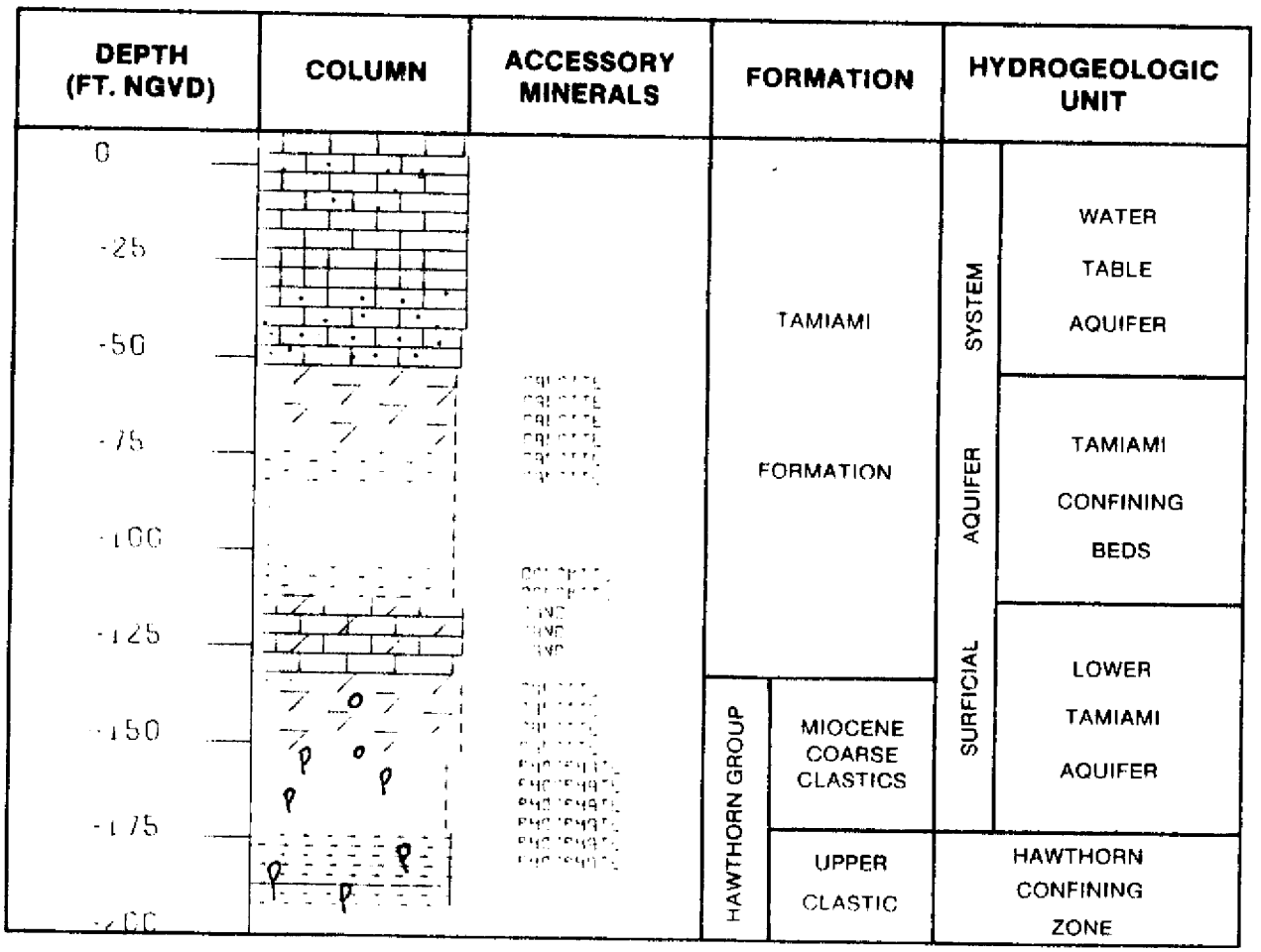
LITHOLOGIC LOG
W- 2037 . COLLIER CO. T51S, R28E, SEC 06B6

140.0- 160.0 SANDSTONE, VERY LIGHT ORANGE TO DARK YELLOWISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% DOLOMITE, 15% CALCILUTITE, MOLLUSKS,

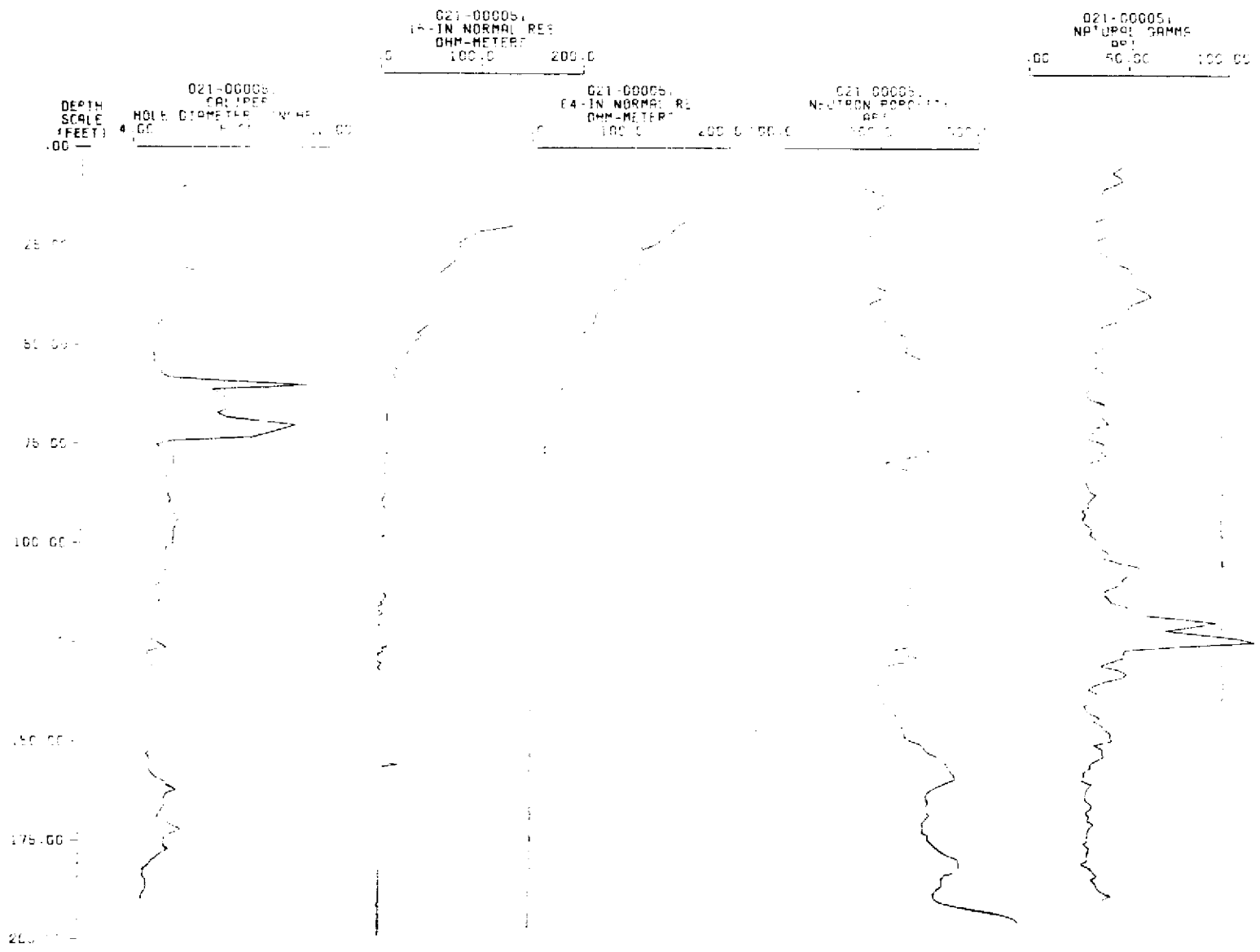
160.0- 180.0 SAND, WHITE TO VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, 03% PHOSPHATIC GRAVEL, MOLLUSKS,

180.0- 190.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

190.0- 200.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE COARSE CLASTICS
UPPER CLASTIC
SURFICIAL AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
HAWTHORN CONFINING ZONE

WC2037



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2037

SOUTH FLORIDA WMD - LITHOLOGY PRINTOUT

W- 2038

COLLIER CO. T47S R27E SEC 27DC 26 21 05 N 81 36 15 W
TOTAL DEPTH- 335 FT. ELEV.- 23 FT. 35 SAMPLES- 0- 335 FT.
COMPLETED- 83.08.17 DEPTH WORKED 335 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GEOLOGIST
CALIPHER
ELECTRIC

WELL NAME-
C2038,JOHN VLEIT,DRILLED BY SFWMD,ALVIN WOOSTER DRILLER
REMARKS-
DESCRIBED BY MIKE KNAPP,(1-5-84), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	160.0	SURFICIAL AQUIFER SYSTEM
0.0	40.0	WATER TABLE AQUIFER
40.0	55.0	TAMIAMI CONFINING ZONE
55.0	160.0	LOWER TAMIAMI AQUIFER
160.0	225.0	UPPER HAWTHORN CONFINING ZONE
225.0	320.0	SANDSTONE AQUIFER
	340.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	10.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
10.0-	140.0	TAMIAMI FORMATION
140.0-	160.0	MIOCENE COARSE CLASTICS
160.0-	340.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2038 . COLLIER CO. T47S, R27E, SEC 27DC

.0- 5.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 10% CALCILUTITE, 02% HEAVY MINERALS, MOLLUSKS,

5.0- 10.0 SHELL BED, VERY LIGHT ORANGE TO WHITE, UNCONSOLIDATED, 40% QUARTZ SAND, MOLLUSKS,

HIGHLY RERSTAL. L/S IN SAMPLE (CAPROCK)

10.0- 20.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2038 . COLLIER CO. T47S, R27E, SEC 27DC

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,

30.0- 40.0 AS ABOVE,

40.0- 55.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 10% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

55.0- 60.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

60.0- 70.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,

70.0- 80.0 AS ABOVE,

80.0- 90.0 AS ABOVE SANDIER (30%)

90.0- 100.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, PELLET, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS, PLANT REMAINS, FOSSIL MOLDS,

100.0- 110.0 SANDSTONE, WHITE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, MOLLUSKS,

DOLO-SILT (15%)

110.0- 120.0 DOLOMITE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, PIN POINT VUGS, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

LITHOLOGIC LOG
W- 2036 . COLLIER CO. T47S, R27E, SEC 27DC

120.0- 130.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

130.0- 140.0 AS ABOVE,

140.0- 150.0 AS ABOVE WITH COARSE SAND (2%)

150.0- 160.0 AS ABOVE,

160.0- 170.0 DOLO-SILT, LIGHT OLIVE TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 15% QUARTZ SAND, MOLLUSKS,

SAND IS V.C. TO GRANULE SIZE

170.0- 175.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 40% DOLOMITE, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

175.0- 180.0 DOLO-SILT, VERY LIGHT ORANGE TO LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 15% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS,

180.0- 190.0 AS ABOVE,

190.0- 200.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 02% CLAY, 25% CALCILUTITE, 05% PHOSPHATIC SAND, 25% QUARTZ SAND, MOLLUSKS,

200.0- 210.0 AS ABOVE,

210.0- 220.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 10% CLAY, 05% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

220.0- 225.0 AS ABOVE,

LITHOLOGIC LOG
W- 2036 . COLLIER CO. 147S, R27E, SEC 27DC

225.0- 240.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

240.0- 250.0 AS ABOVE,

250.0- 260.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, PIN POINT VUGS, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

260.0- 270.0 AS ABOVE,

270.0- 280.0 AS ABOVE,

280.0- 290.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANLLAR, PIN POINT VUGS, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

290.0- 300.0 AS ABOVE MORE PHOS (08%) WITH ECHINOID SPINES

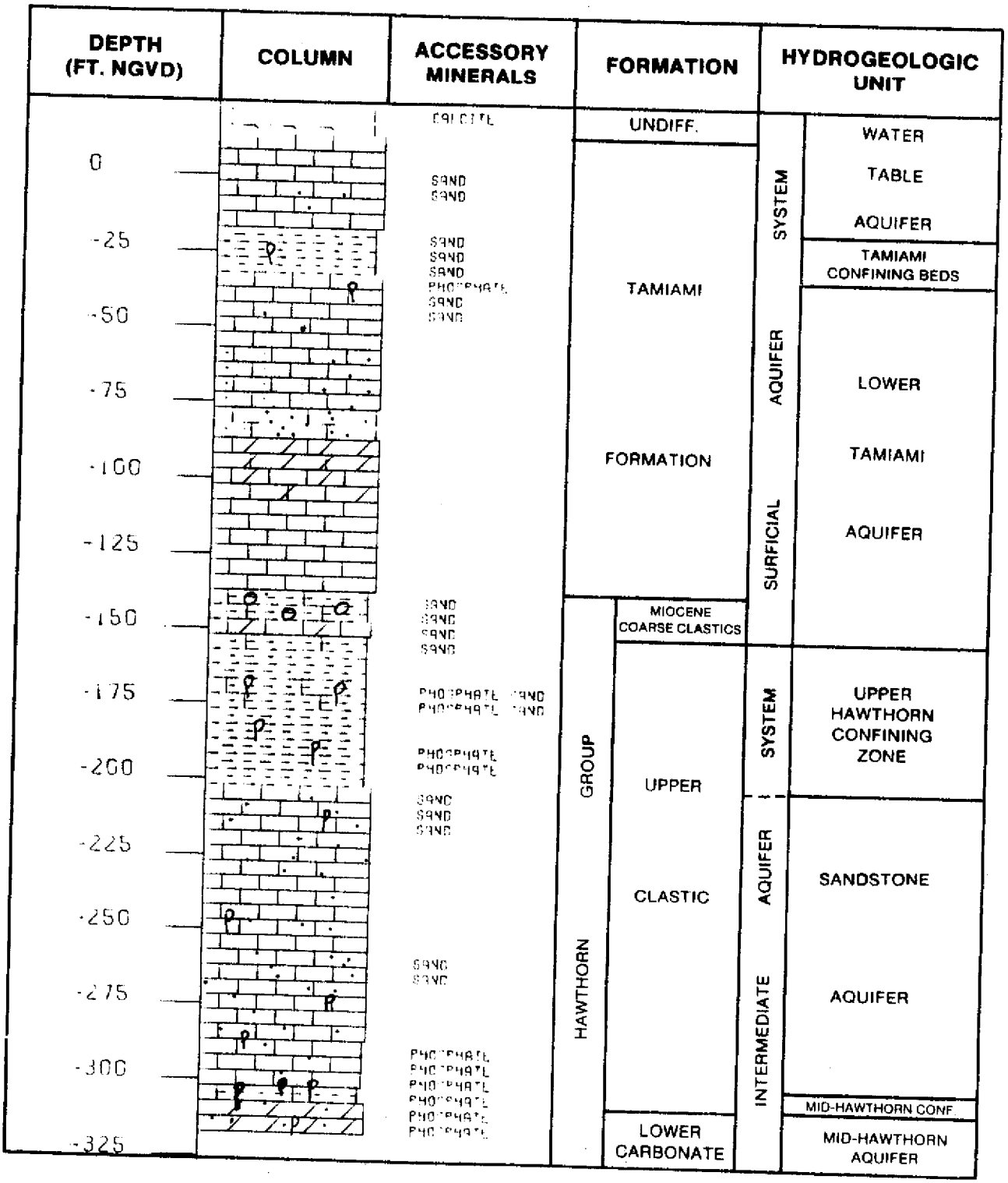
300.0- 310.0 AS ABOVE,

310.0- 325.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, 08% PHOSPHATIC SAND, MOLLUSKS,

325.0- 330.0 DOLO-SILT, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

SOME V.C. PHOS + SAND

330.0- 340.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, VUGULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
CALCITE
SAND
SAND
SAND
SAND
SAND
PHOSPHATE
SAND
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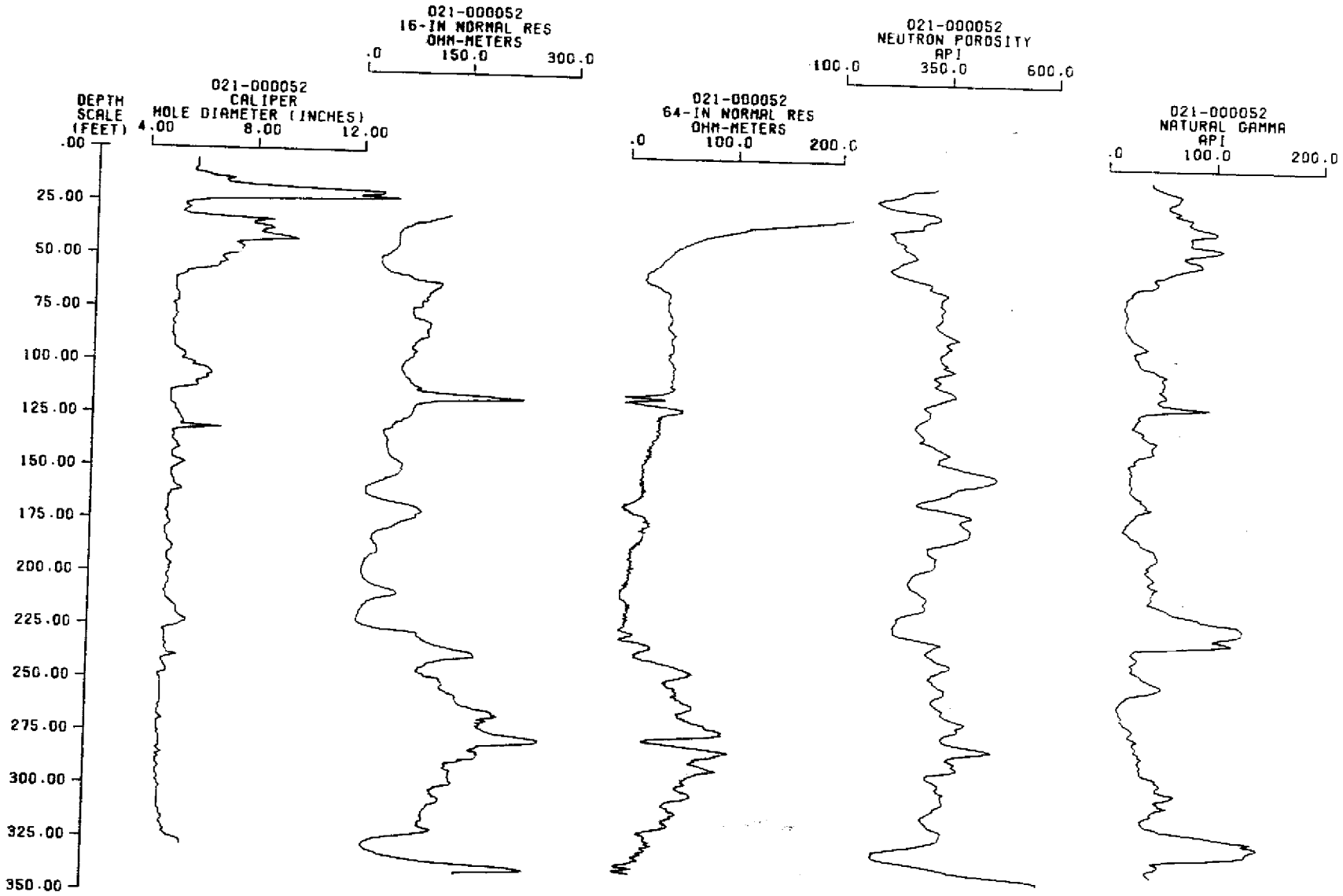
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFF.
TAMIAMI
FORMATION
MIOCENE COARSE CLASTICS
UPPER
CLASTIC
LOWER CARBONATE
HAWTHORN
GROUP
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI CONFINING BEDS
LOWER
TAMIAMI
AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE
AQUIFER
MID-HAWTHORN CONF.
MID-HAWTHORN AQUIFER

WC2038



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2038

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2039

COLLIER CO. T49S R27E SEC 07AA 26 13 43 N 81 38 55 W
TOTAL DEPTH- 260 FT. ELEV.- 13 FT. 30 SAMPLES- 0- 260 FT.
COMPLETED- 83.09.07 DEPTH WORKED 260 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

CALIPHER
ELECTRIC
NEUTRON
SONIC

WELL NAME-
SFWMD C2039-GOLDEN GATE BLVD #2,ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (5-10-84),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 250.0 SURFICIAL AQUIFER SYSTEM
0.0- 25.0 WATER TABLE AQUIFER
25.0- 50.0 TAMIAMI CONFINING BEDS
50.0- 250.0 LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 5.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
5.0- 190.0 TAMIAMI FORMATION
190.0- 250.0 MIOCENE COARSE CLASTICS
250.0- 260.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2039 . COLLIER CO. T49S, R27E, SEC 07AA

.0- 5.0 SAND, MODERATE YELLOWISH BROWN, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 62% LIMESTONE, 01% HEAVY MINERALS,

5.0- 15.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

15.0- 20.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS, CRUSTACEA, ECHINOID,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2039 . COLLIER CO. T49S, R27E, SEC 07AA

20.0- 25.0 AS ABOVE,

25.0- 30.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 02% CLAY, 10% QUARTZ SAND, MOLLUSKS,

30.0- 40.0 AS ABOVE,

40.0- 50.0 SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS,

50.0- 60.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS, CORAL,

SILT INTERMIXED

60.0- 70.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL,

70.0- 80.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, PELLET, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, BRYOZOA,

GOOD DCHOPEE

80.0- 90.0 AS ABOVE,

90.0- 100.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 40% QUARTZ SAND, MOLLUSKS,

100.0- 110.0 AS ABOVE,

LITHOLOGIC LOG
W- 2039 . COLLIER CO. T49S, R27E, SEC 07AA

110.0- 120.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, 40% QUARTZ SAND, MOLLUSKS, ECHINOID,

120.0- 130.0 SANDSTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 35% CALCILUTITE, MOLLUSKS,

130.0- 140.0 AS ABOVE,

140.0- 150.0 LIMESTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 25% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS, ECHINOID,

150.0- 160.0 AS ABOVE,

160.0- 170.0 AS ABOVE,

170.0- 180.0 LIMESTONE, LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, MOLLUSKS, ECHINOID, CORAL, FOSSIL MOLDS, BRYOZOA,

180.0- 190.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

190.0- 200.0 AS ABOVE-POORLY INDURATED

200.0- 210.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 15% DOLOMITE, MOLLUSKS,

210.0- 220.0 AS ABOVE,

LITHOLOGIC LOG
W- 2039 . COLLIER CO. T49S, R27E, SEC 07AA

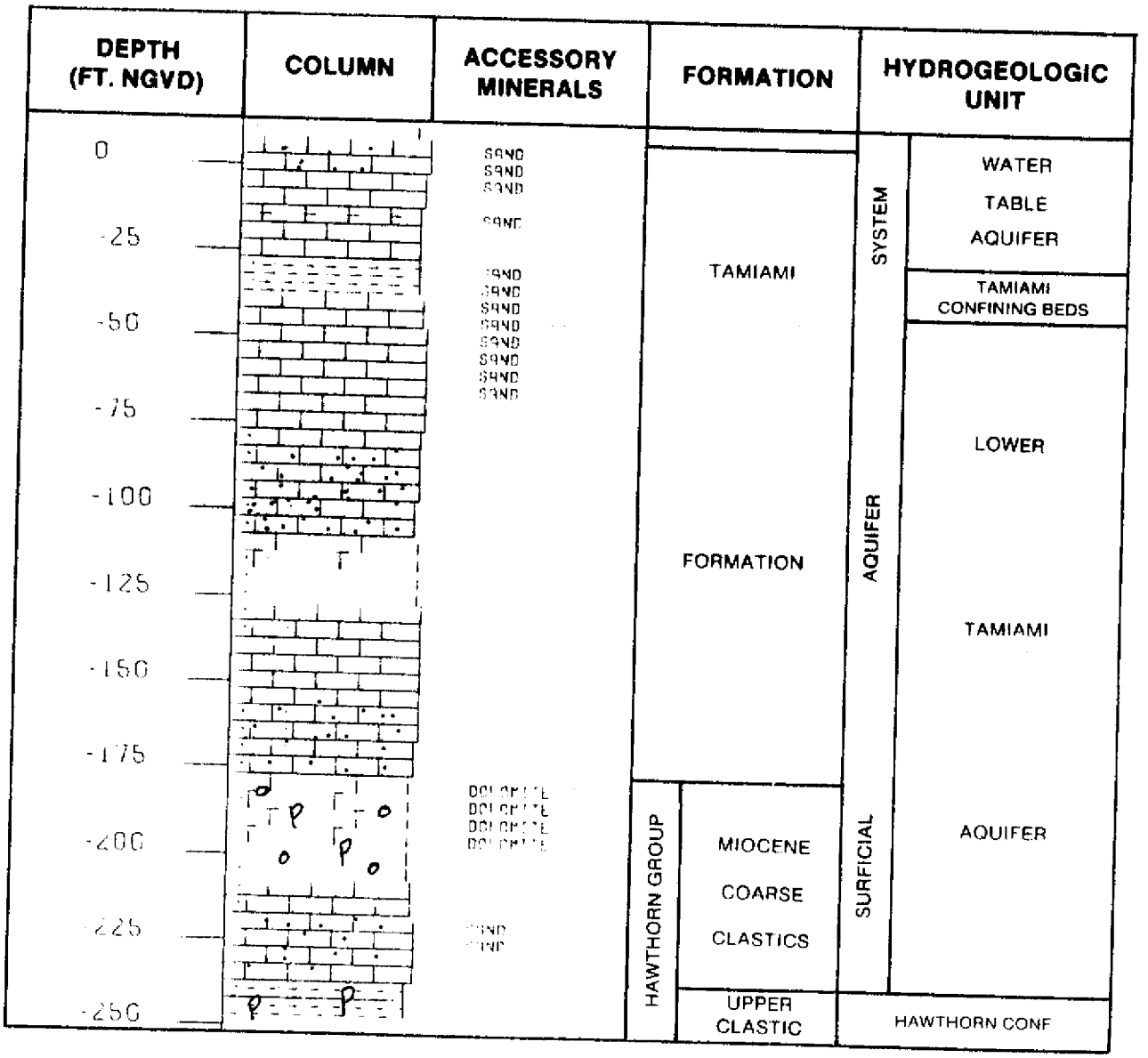
220.0- 230.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, CORAL, BRYOZOA,

230.0- 240.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 65% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL, BRYOZOA, CRUSTACEA,

240.0- 250.0 AS ABOVE,

250.0- 255.0 SILT, YELLOWISH GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% QUARTZ SAND, MOLLUSKS,

255.0- 260.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
SAND
TAMIAMI
FORMATION
HAWTHORN GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
SURFICIAL
AQUIFER
SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI
CONFINING BEDS
LOWER
TAMIAMI
AQUIFER
HAWTHORN CONF

WC2039

SOUTH FLORIDA WMD - LITHL LOG PRINTOUT

W- 2040

COLLIER CO. T47S R28E SEC 2426 22 05 81 N 27 20 W
TOTAL DEPTH- 520 FT. ELEV.- 25 FT. 52 SAMPLES- 0- 520 FT.
COMPLETED- . . DEPTH WORKED 520 FT.

WELL NAME-
L2040-SFWMD-ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (12-15-83), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0-208.0 SURFICIAL AQUIFER SYSTEM
0.0- 90.0 UPPER TAMIAMI AQUIFER
90.0-150.0 TAMIAMI CONFINING BEDS
150.0-208.0 LOWER TAMIAMI AQUIFER
208.0-310.0 UPPER HAWTHORN CONFINING ZONE
310.0-375.0 SANDSTONE AQUIFER
375.0-460.0 MID-HAWTHORN CONFINING ZONE
460.0-520.0 MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 37.0 UNDIFFERENTIATED SAND AND CLAY
37.0- 176.0 TAMIAMI FORMATION
176.0- 206.0 MIOCENE COARSE CLASTICS
206.0- 520.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2040 . COLLIER CO. T47S, R28E, SEC 2426

.0- 4.0 NO SAMPLE,

4.0- 10.0 SHELL BED, BROWNISH GRAY TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, POOR INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, 20% QUARTZ SAND, 55% CLAY, MOLLUSKS,

10.0- 20.0 AS ABOVE,BUT UNCONSOLIDATED,CHIONE AND LARGE GASTROPODS

20.0- 30.0 AS ABOVE,

30.0- 35.0 SHELL BED,LOOSELY CEMENTED WITH MICRITE AND SAND

35.0- 40.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

40.0- 50.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2040 . COLLIER CO. T47S, R28E, SEC 2426

50.0- 60.0 LIMESTONE, MODERATE LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 15% DOLOMITE, 25% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

60.0- 70.0 AS ABOVE,

70.0- 80.0 LIMESTONE, LIGHT GRAY TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, HIGH RECRYSTALLIZATION, CORAL, MOLLUSKS, FOSSIL MOLDS, BENTHONIC FORAMINIFERA,

80.0- 90.0 AS ABOVE,

90.0- 100.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 05% CALCILUTITE, 05% CLAY, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

100.0- 120.0 AS ABOVE,

120.0- 130.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 02% CALCILUTITE, 25% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, PLANKTONIC FORAMINIFERA, BENTHONIC FORAMINIFERA,

130.0- 140.0 AS ABOVE,

140.0- 150.0 AS ABOVE,

150.0- 155.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 25% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

155.0- 160.0 AS ABOVE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GOOD INDURATION, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 25% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

LITHOLOGIC LOG
0- 2640 . COLLIER CO. T47S, R28E, SEC 2426

160.0- 176.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

176.0- 180.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

180.0- 195.0 NO RECOVERY-CLEAN SANDS

195.0- 200.0 SANDSTONE, MODERATE LIGHT GRAY, 15% POROSITY, INTERGRANULAR, VUGULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 30% SPAR, 20% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

200.0- 208.0 AS ABOVE-WITH PHOSPHATE (5%)

208.0- 220.0 SAND, LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX, 05% CLAY, MOLLUSKS,

220.0- 230.0 AS ABOVE,

230.0- 240.0 AS ABOVE,

240.0- 250.0 AS ABOVE WITH SHELL (5%) AND PHOSPHATE (5%)

250.0- 260.0 SAND, DARK YELLOWISH BROWN, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 05% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS,

260.0- 270.0 AS ABOVE,

270.0- 280.0 AS ABOVE,

280.0- 290.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 30% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

290.0- 300.0 SAND, YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 02% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS,

300.0- 310.0
AS ABOVE BUT UNCONSOLIDATED-QUARTZITE PEBBLES

LITHOLOGIC LOG
W- 2040 . COLLIER CO. T47S, R28E, SEC 2426

310.0- 320.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 40% DOLOMITE, 05% PHOSPHATIC SAND, MOLLUSKS,

320.0- 340.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% CALCILUTITE, 01% PHOSPHATIC SAND, NO FOSSIL,

340.0- 355.0 SAND, LIGHT OLIVE TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 10% DOLOMITE, 05% CLAY, 03% PHOSPHATIC SAND, MOLLUSKS,

355.0- 360.0 LIMESTONE, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

360.0- 373.0 AS ABOVE,

373.0- 374.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, MOLLUSKS, BRYOZOA,

374.0- 375.0 AS ABOVE - (SANDIER 10%)

375.0- 380.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 05% CLAY, 20% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

380.0- 390.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 25% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

390.0- 400.0 AS ABOVE,

400.0- 410.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 30% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

410.0- 420.0 AS ABOVE,

420.0- 440.0 AS ABOVE - WITH MORE PHOS (15%)

LITHOLOGIC LOG
W- 2040 . COLLIER CO. T47S, R28E, SEC 2426

440.0- 450.0 AS ABOVE,

450.0- 460.0 SAND, LIGHT OLIVE TO GRAYISH OLIVE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% DOLOMITE, 05% CLAY, 10% CALCILUTITE, 20% PHOSPHATIC SAND, MOLLUSKS,

460.0- 470.0 SAMPLE IS A MIX OF ABOVE LITHO-SANDY,PHOS,DOLO LIMESTONE

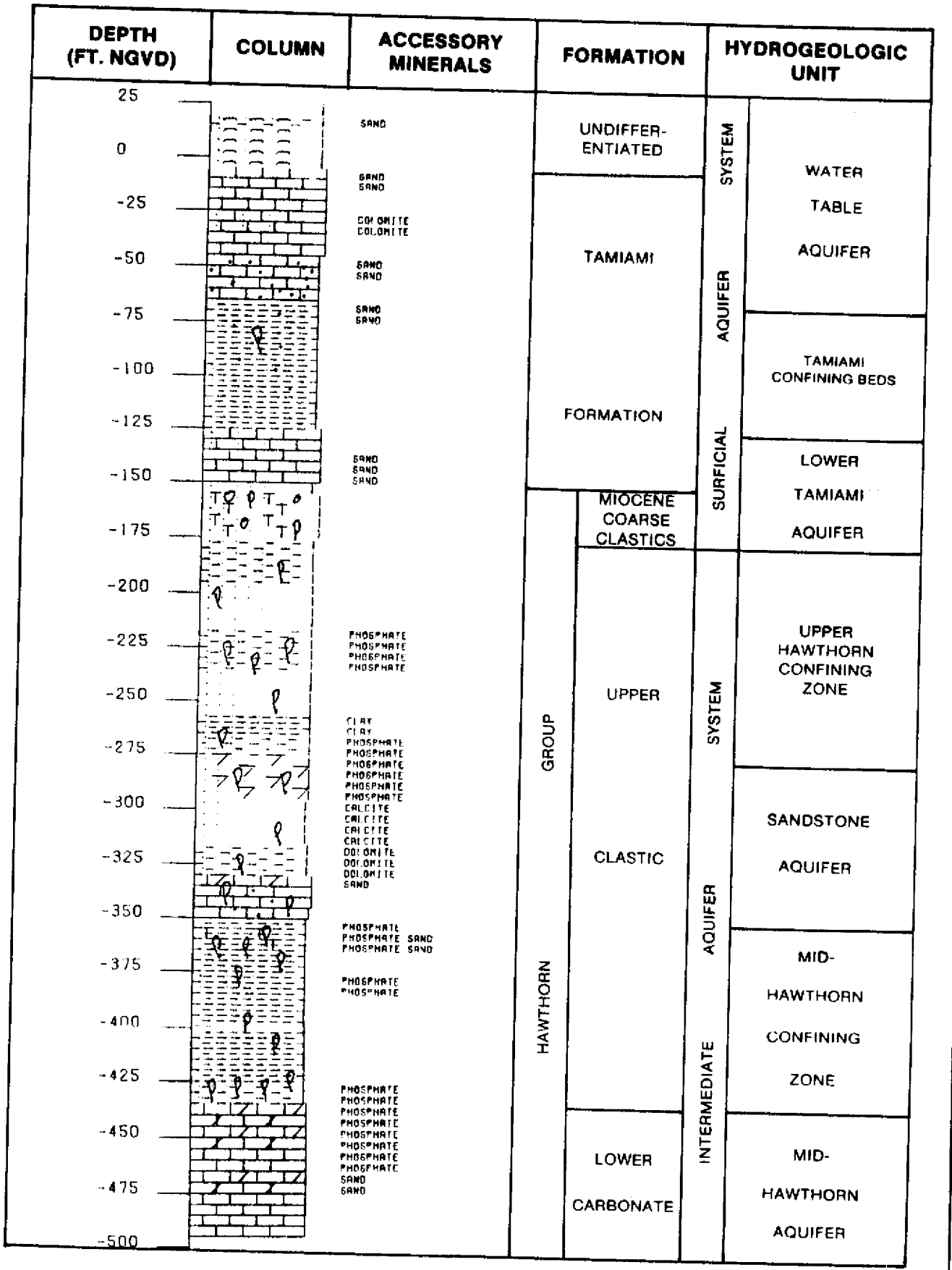
470.0- 480.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

480.0- 490.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS,

490.0- 500.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, PELLET, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, PLANT REMAINS, BENTHONIC FORAMINIFERA, BRYOZOA,

500.0- 510.0 AS ABOVE,

510.0- 520.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
-425
-450
-475
-500
SAND
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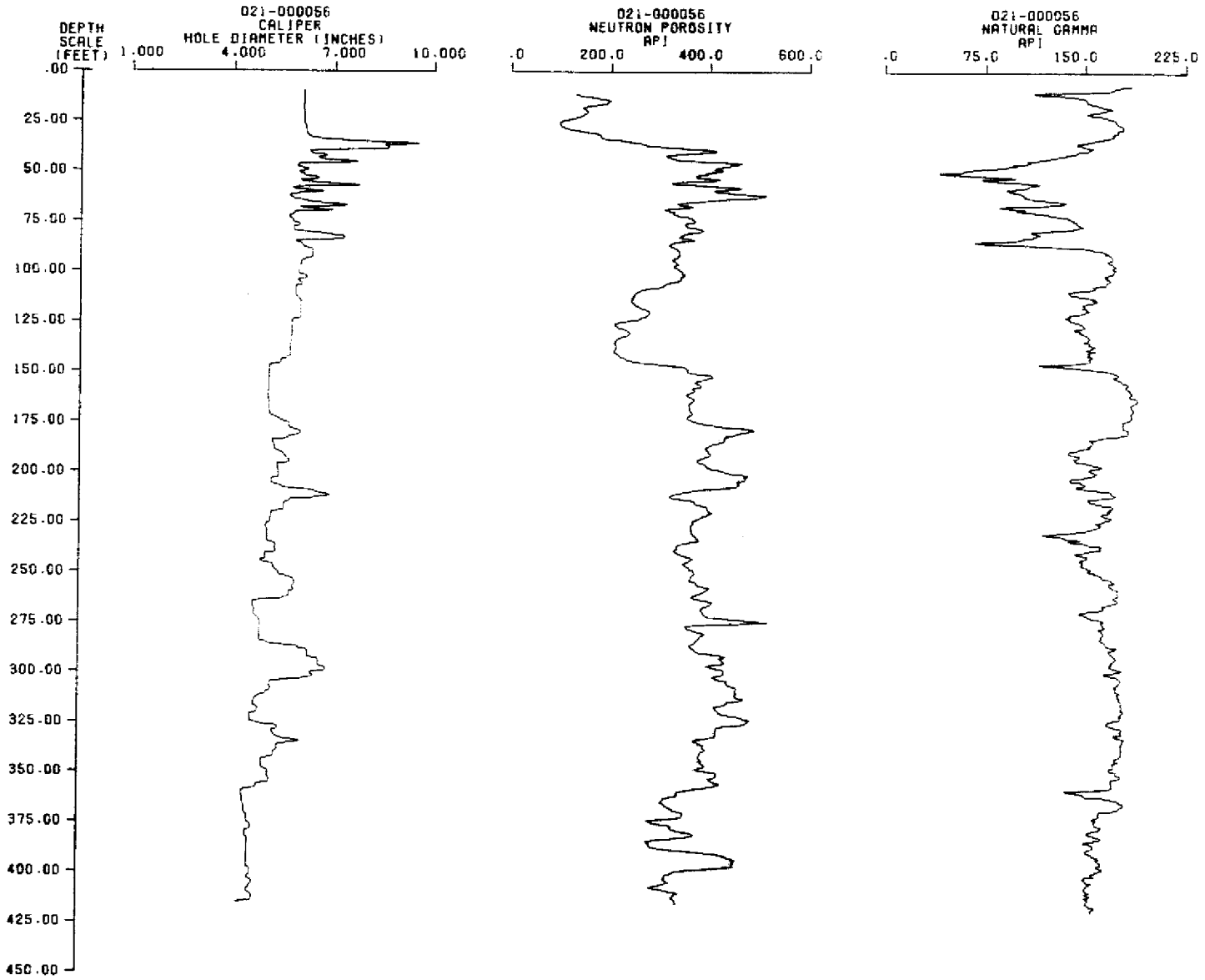
UNDIFFER-ENTIATED
TAMIAMI
FORMATION
MIOCENE COARSE CLASTICS
UPPER
CLASTIC
LOWER
CARBONATE
HAWTHORN
GROUP
SYSTEM
AQUIFER
SURFICIAL
SYSTEM
AQUIFER
INTERMEDIATE
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WC2040



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2040

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2041

COLLIER CO. T48S R28E SEC 23AA 26 17 33 N 81 31 07 W
TOTAL DEPTH- 380 FT. ELEV.- 18 FT. 55 SAMPLES- 0- 380 FT.
COMPLETED- 09.14.83 DEPTH WORKED 380 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
ELECTRIC
CALIPHER
NEUTRON

WELL NAME-
SFWMD C2041,OIL WELL NO.6 846,ALVIN WOOSTER DRILLER
REMARKS-
DESCRIBED BY MIKE KNAPP (2-14-84), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	170.0	SURFICIAL AQUIFER SYSTEM
0.0	50.0	WATER TABLE AQUIFER
50.0	75.0	TAMIAMI CONFINING BEDS
75.0	170.0	LOWER TAMIAMI AQUIFER
170.0	232.0	UPPER HAWTHORN CONFINING ZONE
232.0	270.0	SANDSTONE AQUIFER
270.0	345.0	MID-HAWTHORN CONFINING ZONE
345.0	380.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	8.0	NO SAMPLES
8.0-	135.0	TAMIAMI FORMATION
135.0-	170.0	MIOCENE COARSE CLASTICS
170.0-	380.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2041 . COLLIER CO. T48S, R28E, SEC 23AA

.0- 8.0 NO SAMPLES,

8.0- 15.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 95% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, MOLLUSKS,

SHELL INTERMIXED

15.0- 20.0 SHELL BED, WHITE, 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS,

CALOOSAHATCHEE TYPE MOLLUSKS

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2041 . COLLIER CO. T48S, R28E, SEC 23AA

20.0- 28.0 AS ABOVE,

28.0- 32.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, MOLLUSKS,

MUCH SHELL IN SAMPLE

32.0- 35.0 LIMESTONE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, VUGULAR, GRAIN TYPE: BIOGENIC, CRYSTALS, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND,

35.0- 40.0 AS ABOVE - SANDIER (40%)

40.0- 45.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

TYPE OCHUPEE

45.0- 50.0 AS ABOVE,

50.0- 55.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 15% SILT, MOLLUSKS, FOSSIL FRAGMENTS,

55.0- 60.0 CALCILUTITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 02% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 15% SILT, 20% QUARTZ SAND, MOLLUSKS,

60.0- 70.0 AS ABOVE - MORE SHELL

70.0- 75.0 AS ABOVE,

75.0- 80.0 LIMESTONE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

- 2041 . COLLIER CO. T46S, R26E, SEC 23AA

90.0- 90.0 AS ABOVE,

90.0- 100.0 LIMESTONE, WHITE TO LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,

100.0- 110.0 AS ABOVE - GOOD TAMIAMI

110.0- 115.0 AS ABOVE,

115.0- 120.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 08% QUARTZ SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,

120.0- 135.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

135.0- 140.0 AS ABOVE - VERY SANDY (40%) - LOWER POROSITY (15%)

140.0- 150.0 AS ABOVE,

150.0- 170.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

170.0- 180.0 SAND, GRAYISH OLIVE, 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 05% CALCILUTITE, MOLLUSKS,

180.0- 190.0 AS ABOVE,

LITHOLOGIC LOG
W- 2041 . COLLIER CO. T48S, R28E, SEC 23AA

190.0- 200.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS, BRYOZOA,

200.0- 203.0 AS ABOVE,

203.0- 210.0 DOLOMITE, LIGHT GRAY, 10% POROSITY, INTERCRYSTALLINE, PIN POINT VUGS, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 10% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS,

210.0- 220.0 DOLO-SILT, VERY LIGHT ORANGE TO LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 20% QUARTZ SAND, MOLLUSKS,

220.0- 232.0 AS ABOVE,

232.0- 238.0 SANDSTONE, DARK YELLOWISH ORANGE, 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, 30% DOLOMITE,

SOME LOOSE GRANULE SIZE QUARTZ

238.0- 240.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS,

240.0- 250.0 AS ABOVE,

250.0- 260.0 SANDSTONE, WHITE TO LIGHT GRAY, 20% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 20% SPAR, HIGH RECRYSTALLIZATION, MOLLUSKS,

260.0- 270.0 AS ABOVE,

270.0- 280.0 SANDSTONE, LIGHT GRAYISH GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 02% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2041 . COLLIER CO. T48S, R28E, SEC 23AA

280.0- 290.0 AS ABOVE,

290.0- 300.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 20% CALCILUTITE, 05% CLAY, 15% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

300.0- 315.0 AS ABOVE,

315.0- 322.0 NO SAMPLE-DRILLER REPORTS HARD DRILLING-DOLOMITE

322.0- 330.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 05% CLAY, 25% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS,

330.0- 335.0 AS ABOVE-MUCH SHELL

335.0- 340.0 DOLO-SILT, GRAYISH BLUE GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX, 10% CLAY, 08% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,

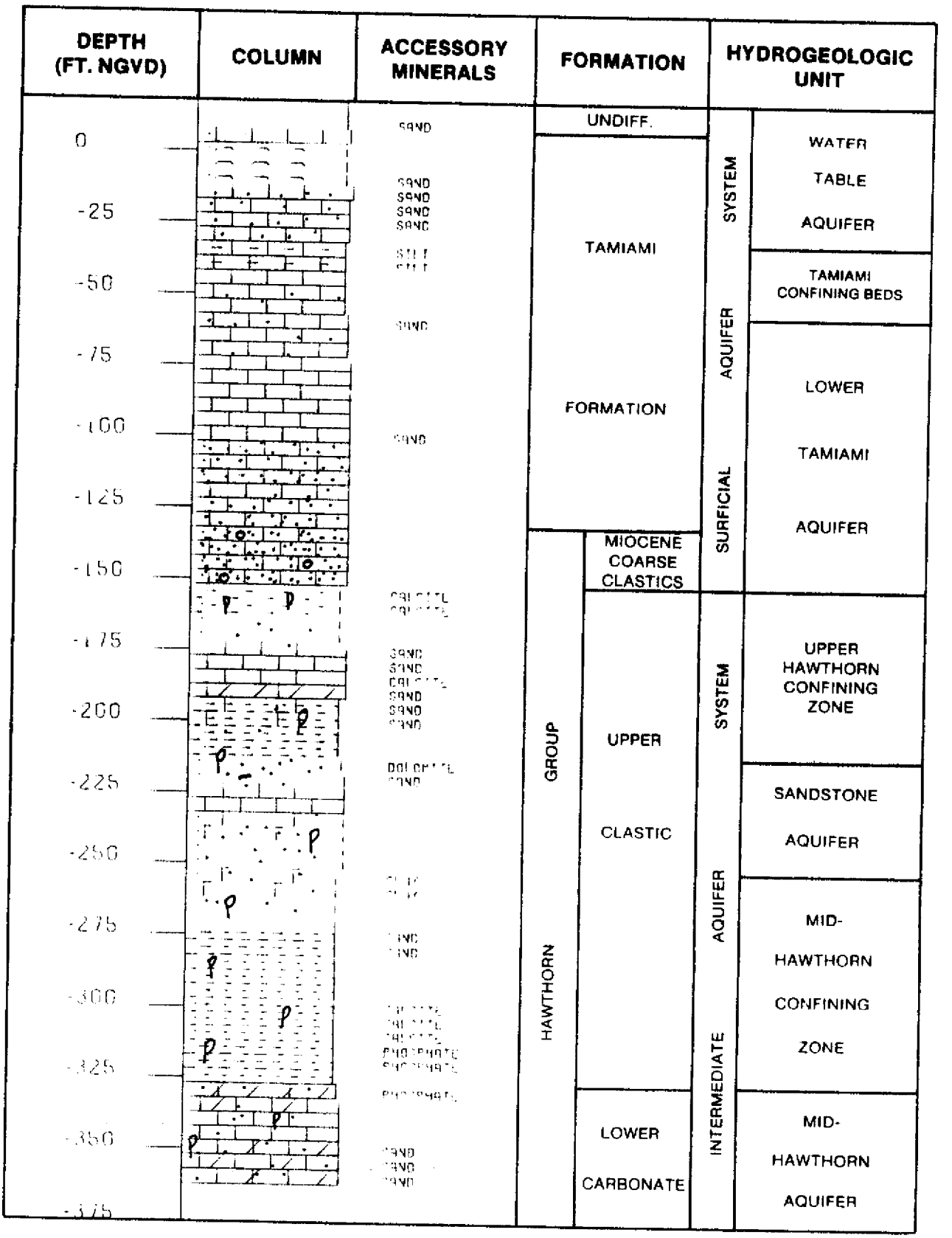
340.0- 345.0 AS ABOVE,

345.0- 350.0 DOLOMITE, YELLOWISH GRAY TO LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,

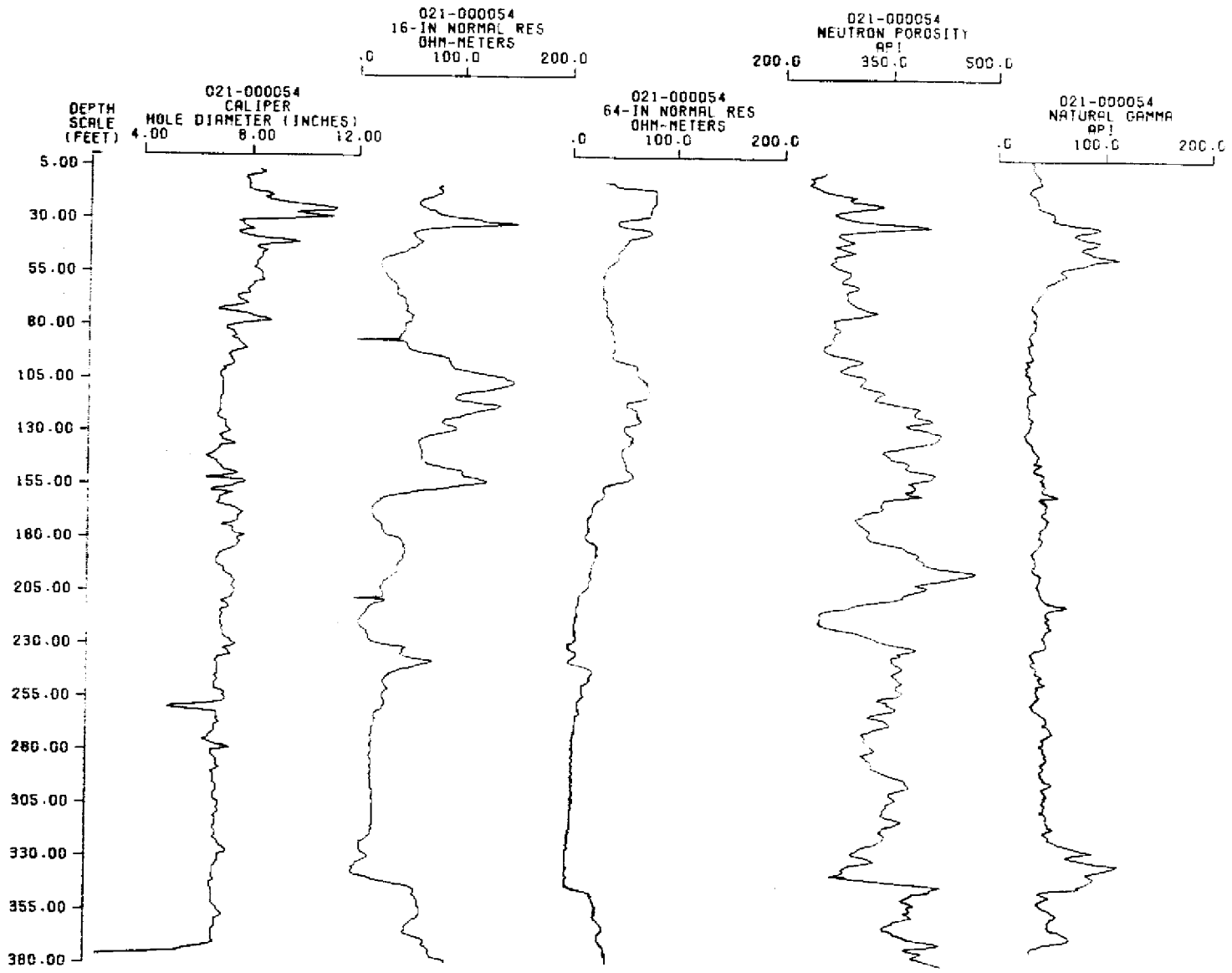
350.0- 355.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 07% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 02% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

355.0- 365.0 AS ABOVE,

365.0- 380.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 05% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
SAND
UNDIFF.
TAMIAMI
FORMATION
MIOCENE COARSE CLASTICS
UPPER
CLASTIC
LOWER
CARBONATE
HAWTHORN
GROUP
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WC2041



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2041

SOUTH FLORIDA WMD - LITHOLOGY PRINTOUT

#- 2042

COLLIER CO. 1475 R30E SEC 29AC 26 21 38 N 81 20 55 W
TOTAL DEPTH- 460 FT. ELEV.- 22 FT. 60 SAMPLES- 0- 460 FT.
COMPLETED- 65.10.19 DEPTH WORKED 460 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
ELECTRIC
CALIPHER

WELL NAME-
SFWMD C2042,ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (3-19-64),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0-	245.0	SURFICIAL AQUIFER SYSTEM
0.0-	55.0	WATER TABLE AQUIFER
55.0-	85.0	TAMIAMI CONFINING BEDS
85.0-	245.0	LOWER TAMIAMI AQUIFER
245.0-	310.0	UPPER HAWTHORN CONFINING ZONE
310.0-	390.0	SANDSTONE AQUIFER
390.0-	450.0	MID-HAWTHORN CONFINING ZONE
450.0-	460.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	3.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
3.0-	95.0	TAMIAMI FORMATION
95.0-	245.0	MIOCENE COARSE CLASTICS
245.0-	460.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
#- 2042 . COLLIER CO. 1475, R30E, SEC 29AC

.0- 3.0 SAND, GRAYISH BROWN, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, 05% CALCILUTITE, MOLLUSKS,

3.0- 5.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2042 . COLLIER CO. 147S, R30E, SEC 29AC

5.0- 10.0 LIMESTONE, DARK YELLOWISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

10.0- 15.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, MOLLUSKS,

SHELL INTERMIXED

15.0- 20.0 AS ABOVE-CHIONE CANCELLATA

20.0- 25.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, VUGULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% QUARTZ SAND, MOLLUSKS,

25.0- 30.0 AS ABOVE,

30.0- 35.0 LIMESTONE, LIGHT OLIVE GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, INTERCRYSTALLINE, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

35.0- 40.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 30% QUARTZ SAND, MOLLUSKS,

40.0- 45.0 AS ABOVE,

45.0- 55.0 AS ABOVE - WELL INDURATED

55.0- 60.0 DOLO-SILT, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 22% CLAY, 35% QUARTZ SAND, MOLLUSKS,

60.0- 70.0 SAND, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 20% DOLOMITE, 05% CLAY, 10% CALCILUTITE, MOLLUSKS,

LITHOLOGIC LOG
W- 2042 . COLLIER CO. T47S, R30E, SEC 29AC

70.0- 80.0 DOLO-SILT, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 45% QUARTZ SAND, MOLLUSKS,

80.0- 85.0 AS ABOVE,

85.0- 95.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS, CORAL,

95.0- 100.0 AS ABOVE,

100.0- 115.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

SOME V.C. QUARTZITE AND PHOS. GRAINS

115.0- 120.0 AS ABOVE,

120.0- 130.0 SAND, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 25% CALCILUTITE, MOLLUSKS,

130.0- 140.0 SAND, LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 15% DOLOMITE, 05% CLAY, 10% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS,

140.0- 145.0 SAND, VERY LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 10% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS,

145.0- 150.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 25% DOLOMITE, 05% CLAY, MOLLUSKS,

150.0- 160.0 SAND, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 15% DOLOMITE, 05% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2042 . COLLIER CO. T47S, R30E, SEC 29AC

160.0- 170.0 AS ABOVE,

170.0- 180.0 AS ABOVE,

180.0- 190.0 SAND, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 02% DOLOMITE, 02% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS,

190.0- 210.0 AS ABOVE,

210.0- 220.0 SAND, GREENISH GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: COARSE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 04% PHOSPHATIC SAND, 02% DOLOMITE,

220.0- 237.0 SAND, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 02% DOLOMITE, 05% PHOSPHATIC SAND,

237.0- 245.0 AS ABOVE,

245.0- 255.0 DOLL-SILT, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 10% QUARTZ SAND, MOLLUSKS,

255.0- 260.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

260.0- 265.0 AS ABOVE,

265.0- 275.0 SANDSTONE, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS,

275.0- 280.0 AS ABOVE,

280.0- 290.0 NO SAMPLE,

290.0- 320.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, 30% QUARTZ SAND, MOLLUSKS,

LITHOLOGIC LOG
- 2042 . COLLIER CO. T47S, R30E, SEC 29AC

320.0- 330.0 SAND, VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS, SHARK TEETH,

330.0- 350.0 AS ABOVE,

350.0- 380.0 SAND, VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 03% PHOSPHATIC SAND, 03% CALCILUTITE, MOLLUSKS, FOSSIL FRAGMENTS,

380.0- 390.0 AS ABOVE,

390.0- 400.0 OOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CALCILUTITE, 02% CLAY, 05% PHOSPHATIC SAND, 40% QUARTZ SAND, MOLLUSKS,

400.0- 410.0 AS ABOVE,

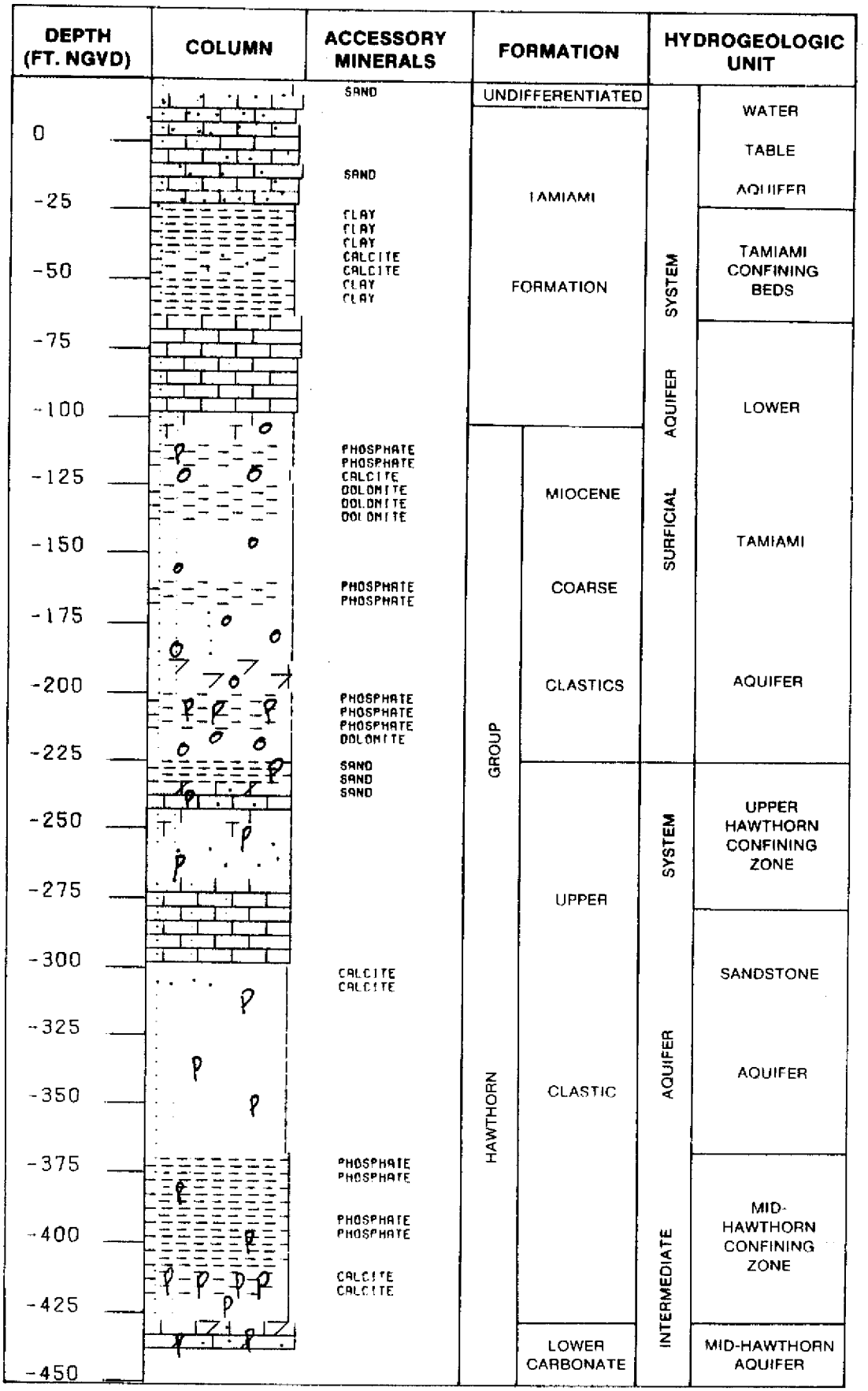
410.0- 420.0 OOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CALCILUTITE, 02% CLAY, 10% PHOSPHATIC SAND, 20% QUARTZ SAND, MOLLUSKS,

420.0- 430.0 AS ABOVE,

430.0- 440.0 SAND, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 20% DOLOMITE, 02% CLAY, 05% CALCILUTITE, 03% PHOSPHATIC SAND, MOLLUSKS,

440.0- 450.0 AS ABOVE,

450.0- 460.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 02% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
-425
-450
SAND
SAND
CLAY
CLAY
CLAY
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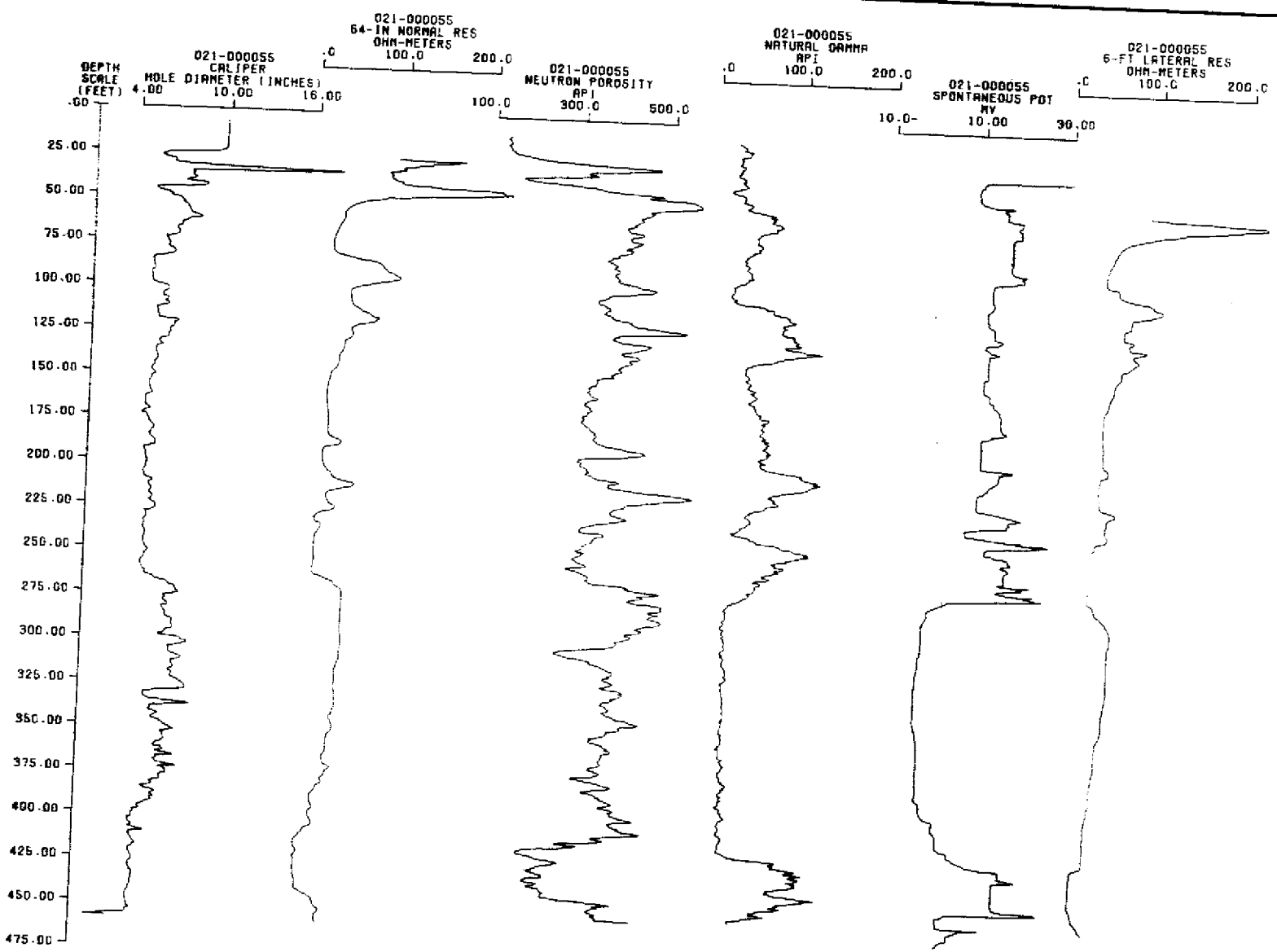
DOLOMITE
SAND
SAND
SAND
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
CALCITE
CALCITE
UNDIFFERENTIATED
TAMIAMI
FORMATION
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
LOWER CARBONATE
HAWTHORN
GROUP
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI CONFINING BEDS
LOWER
TAMIAMI
AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE
AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WC2042



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2042

SOUTH FLORIDA WML - LITHOLOGIC PRINTOUT

W- 2044C

COLLIER CO. T51S R29E SEC 06CC 26 03 10 N 81 27 25 W
TOTAL DEPTH- 420 FT. ELEV.- 15 FT. 42 SAMPLES- 0- 420 FT.
COMPLETED- 83.11.22 DEPTH WORKED 420 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

ELECTRIC
NEUTRON
GAMMA
SONIC

WELL NAME-
UNK-PAKAHATCHEE STRAND STATE PARK-SFWMD-ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (1-17-84),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 135.0 SURFICIAL AQUIFER SYSTEM
0.0- 46.0 WATER TABLE AQUIFER
46.0- 70.0 TAMIAMI CONFINING BEDS
70.0- 260.0 LOWER TAMIAMI AQUIFER
260.0- 370.0 UPPER HAWTHORN CONFINING ZONE
370.0- TD MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 190.0 TAMIAMI FORMATION
190.0- 260.0 MIOCENE COARSE CLASTICS
260.0- 420.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2044C. COLLIER CO. T51S, R29E, SEC 06CC

.0- 10.0 LIMESTONE, GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

10.0- 20.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, CORAL, BRYOZOA, FOSSIL MOLDS,

20.0- 30.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 20440. COLLIER CO. 1515, R29E, SEC 0000

30.0- 40.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, MOLLUSKS, CORAL, BENTHONIC FORAMINIFERA, BRYOZOA, FOSSIL MOLDS,

40.0- 50.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, MOLLUSKS, CORAL, BENTHONIC FORAMINIFERA, BRYOZOA, FOSSIL MOLDS,

50.0- 60.0 DOLO-SILT, GRAYISH OLIVE GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, CALCILUTITE MATRIX, 10% CALCILUTITE, 35% QUARTZ SAND, 01% PHOSPHATIC SAND,

60.0- 70.0 SAND, MODERATE GRAYISH GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 15% CLAY, 03% PHOSPHATIC SAND, SHARK TEETH,

70.0- 80.0 SHELL BED, VERY LIGHT ORANGE TO LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, POOR INDURATION, 35% QUARTZ SAND, MOLLUSKS,

80.0- 90.0 AS ABOVE,

90.0- 100.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

100.0- 110.0 AS ABOVE,

110.0- 120.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

120.0- 130.0 SAND, VERY LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, MOLLUSKS,

LITHOLOGIC LOG
W- 20440. COLLIER CO. T51S, R29E, SEC 06CC

135.0- 140.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 10% CLAY, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

140.0- 150.0 AS ABOVE SANDIER (25%),MORE PHOSPHATE (05%)

150.0- 160.0 DOLO-SILT, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 20% QUARTZ SAND, MOLLUSKS,

160.0- 166.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% DOLOMITE, 15% QUARTZ SAND, MOLLUSKS, BRYOZOA,

166.0- 180.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA,

180.0- 190.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

190.0- 200.0 SANDSTONE, GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 20% SPAR, MOLLUSKS,

200.0- 210.0 SAND, VERY LIGHT GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: VERY FINE TO GRANULE, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% PHOSPHATIC SAND, 05% CALCILUTITE, MOLLUSKS, FOSSIL FRAGMENTS,

QUARTZ AND SHELL WELL ROUNDED-FRACTURED

210.0- 220.0 SANDSTONE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% CALCILUTITE, 20% DOLOMITE, MOLLUSKS, FOSSIL FRAGMENTS,

220.0- 230.0 AS ABOVE,

LITHOLOGIC LOG
W- 20440. COLLIER CO. T51S, R29E, SEC 0600

230.0- 240.0 AS ABOVE,

240.0- 250.0 SANDSTONE, VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, SPARRY CALCITE CEMENT, 25% SPAR, 02% PHOSPHATIC SAND,

250.0- 260.0 AS ABOVE,

260.0- 270.0 SAND, LIGHT OLIVE BROWN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 20% DOLOMITE, 05% CLAY, 04% PHOSPHATIC SAND, MOLLUSKS,

270.0- 280.0 AS ABOVE,

280.0- 290.0 AS ABOVE,

290.0- 300.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 30% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

300.0- 310.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

310.0- 320.0 AS ABOVE-VERY LOW PERMEABILITY

320.0- 330.0 AS ABOVE,

330.0- 340.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 02% CLAY, 10% SILT, 15% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

340.0- 350.0 AS ABOVE,

350.0- 360.0 AS ABOVE-SANDIER-MORE PHOSPHATIC

360.0- 370.0 SAND, LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 02% CLAY, 05% DOLOMITE, 30% PHOSPHATIC SAND, 05% PHOSPHATIC GRAVEL, MOLLUSKS,

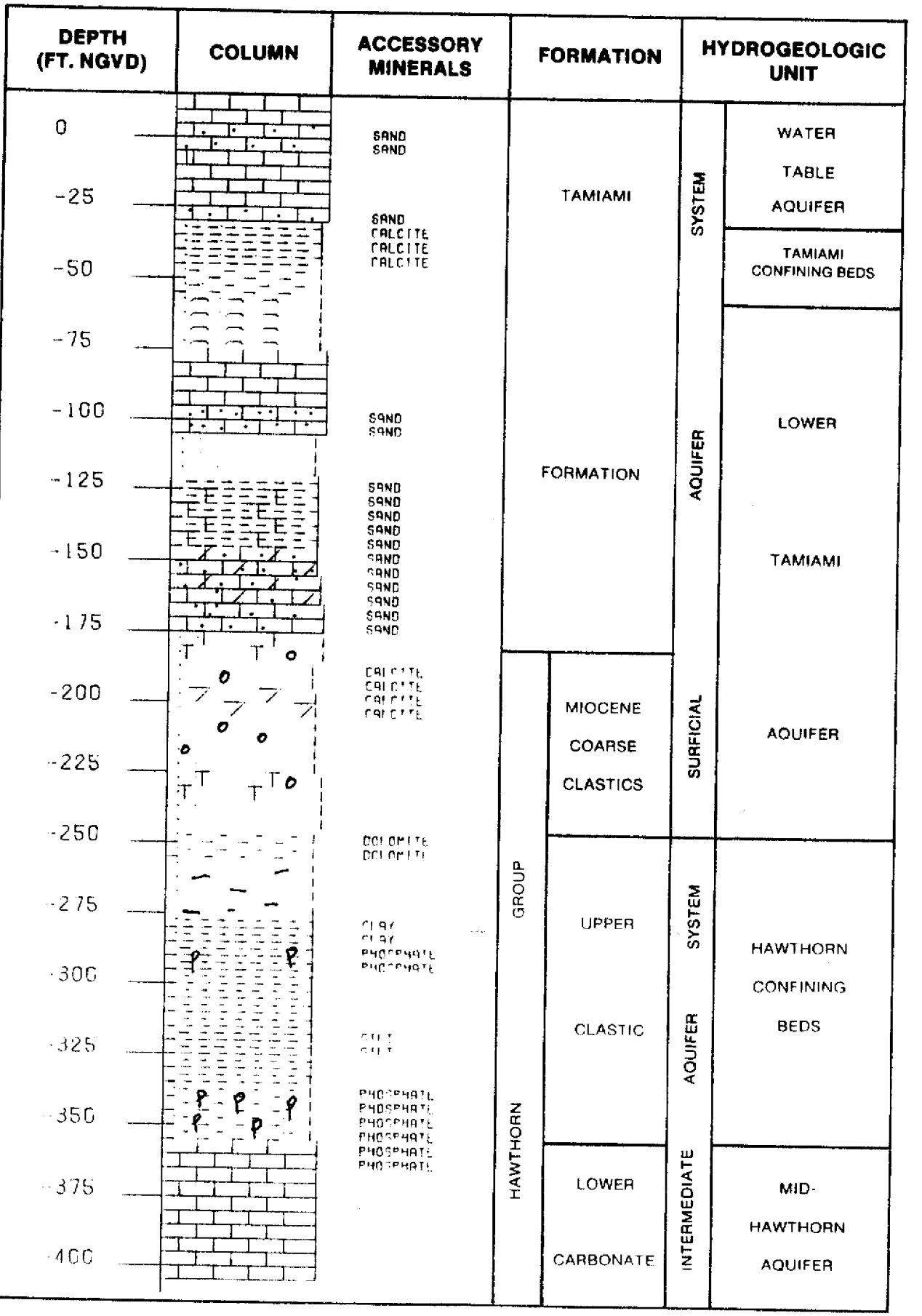
370.0- 380.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

380.0- 390.0 AS ABOVE,

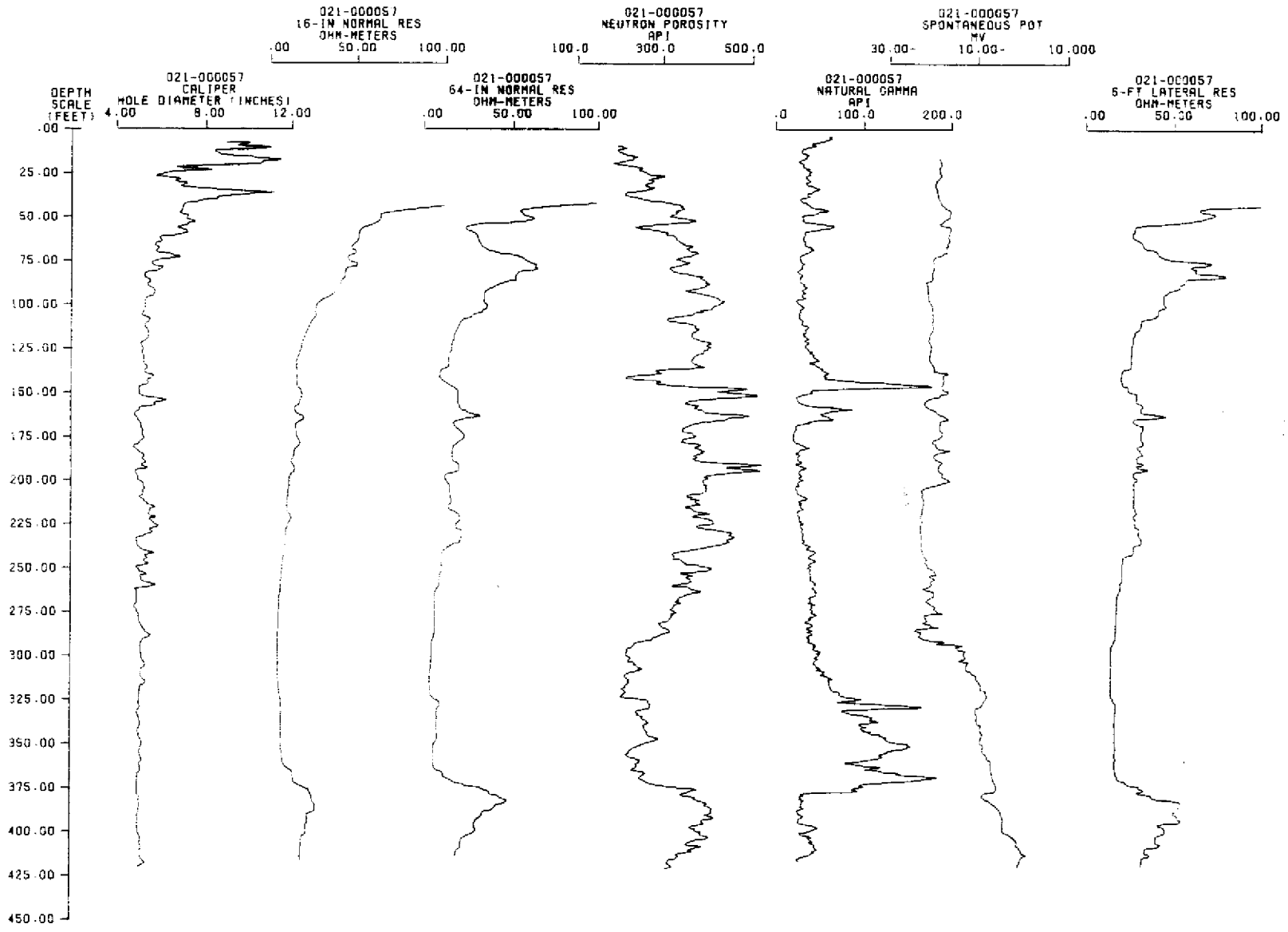
LITHOLOGIC LOG
#- 20440. COLLIER CO. T51S, R29E, SEC 06CC

340.0- 400.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

400.0- 420.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
CALCITE
DOLOMITE
DOLOMITE
CLAY
CLAY
PHOSPHATE
PHOSPHATE
SILT
SILT
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
TAMIAMI
FORMATION
HAWTHORN
GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
LOWER
CARBONATE
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI
CONFINING BEDS
LOWER
TAMIAMI
AQUIFER
HAWTHORN
CONFINING
BEDS
MID-
HAWTHORN
AQUIFER

WC2044



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2044

SOUTH FLORIDA WMD - LITHOLOGY PRINTOUT

W- 2045

COLLIER CO. T52S R30E SEC 348A 26 54 03 N 81 18 12 W
TOTAL DEPTH- 140 FT. ELEV.- 5 FT. 20 SAMPLES- 0- 140 FT.
COMPLETED- 83.12.03 DEPTH WORKED 140 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

CALIPHER
GAMMA
NEUTRON
ELECTRIC

WELL NAME-
SFWMD C2045-OCHOPEE-ALVIN WOOSTER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (03-21-84),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	140.0	SURFICIAL AQUIFER SYSTEM
0.0	58.0	WATER TABLE AQUIFER
58.0	70.0	TAMIAMI CONFINING BEDS
70.0	140.0	LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	3.0	UNDIFFERENTIATED SAND AND CLAY
3.0-	80.0	TAMIAMI FORMATION
80.0-	140.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2045 . COLLIER CO. T52S, R30E, SEC 348A

.0- 3.0 SAND, DARK YELLOWISH BROWN, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, CLAY MATRIX, 02% CALCILUTITE, 02% CLAY, 01% HEAVY MINERALS,

3.0- 10.0 LIMESTONE, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

10.0- 15.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL, BRYOZOA,

15.0- 20.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2045 . COLLIER CO. T52S, R30E, SEC 34BA

20.0- 25.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 04% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, BRYOZOA, CORAL, FOSSIL MOLDS,

25.0- 30.0 AS ABOVE,

30.0- 40.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BENTHONIC FORAMINIFERA, CORAL,

40.0- 50.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

50.0- 58.0 SANDSTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 40% CALCILUTITE, MOLLUSKS, ECHINOID, FOSSIL MOLDS,

58.0- 60.0 SAND, DARK YELLOWISH BROWN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 05% CLAY,

60.0- 70.0 SHELL BED, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, UNCONSOLIDATED, 20% CALCILUTITE, 30% QUARTZ SAND, MOLLUSKS,

70.0- 80.0 SAND, DARK YELLOWISH BROWN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 05% CLAY, MOLLUSKS,

80.0- 110.0 SAND, VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% PHOSPHATIC SAND, MOLLUSKS,

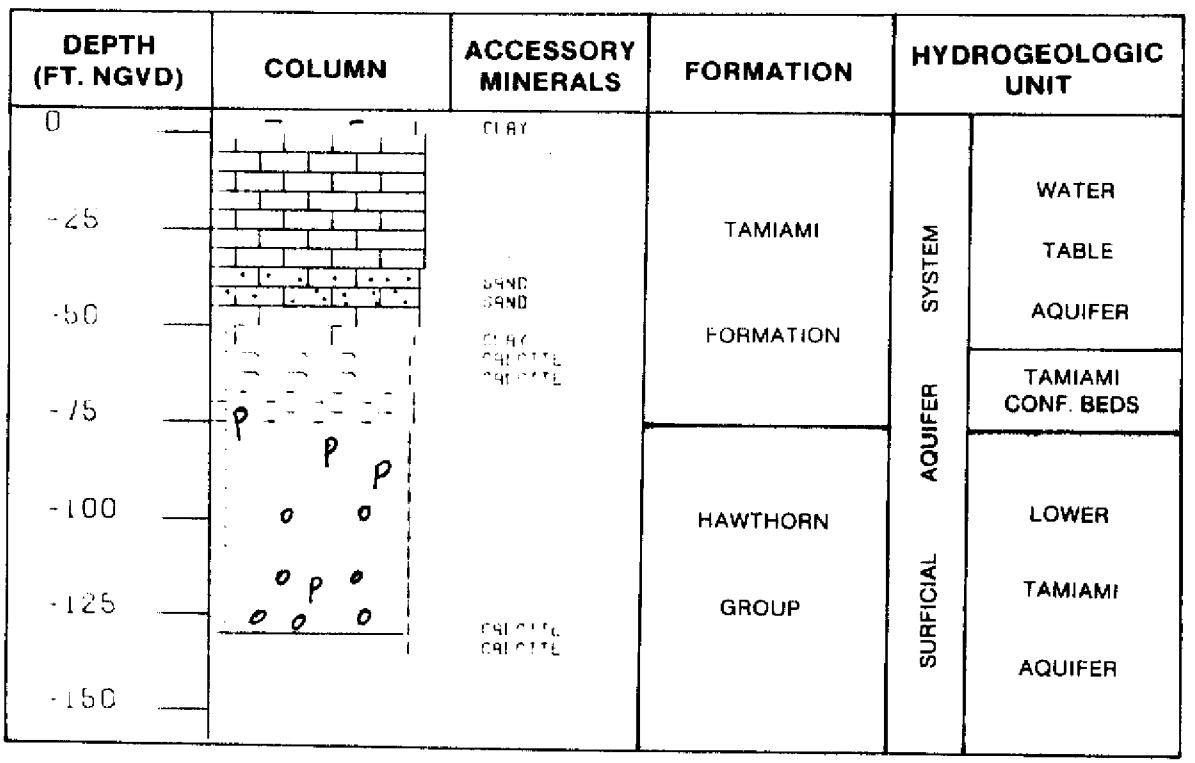
110.0- 130.0 AS ABOVE,

[illegible] LLC

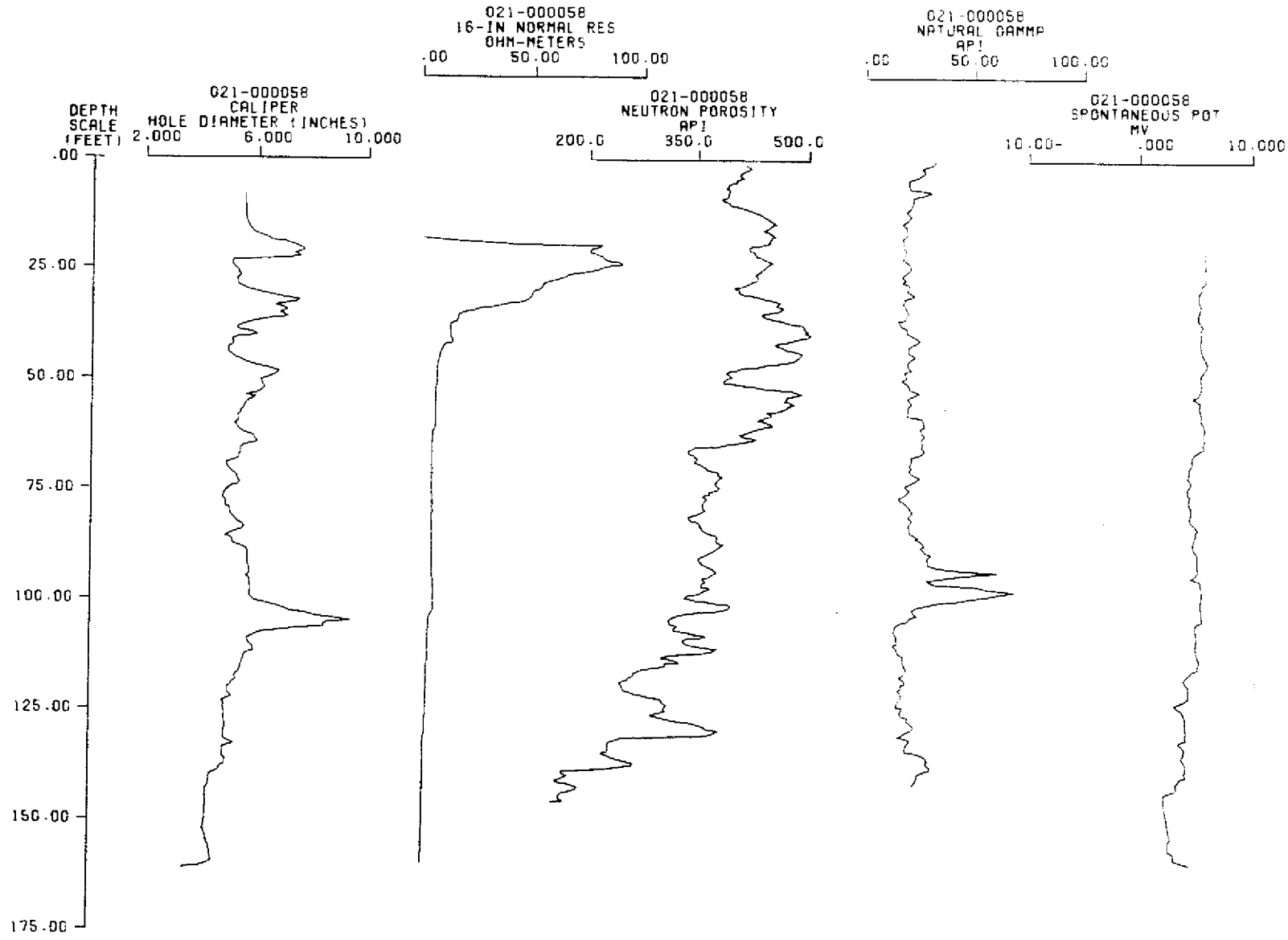
[illegible] 2645 . COLLIER CO. T52S, R30E, SEC 34BA

[illegible] 14060 SAND, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 04% PHOSPHATIC SAND, 10% CALCILUTITE, MOLLUSKS,

VERY COARSE QUARTZITE PEBBLES


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
CLAY
SAND
SAND
CLAY
CALCITE
CALCITE
CALCITE
CALCITE
TAMIAMI
FORMATION
HAWTHORN
GROUP
SURFICIAL AQUIFER SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI
CONF. BEDS
LOWER
TAMIAMI
AQUIFER

WC2045



GEOPHYSICAL LOGS, COLLIER COUNTY, C-2045

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2046

COLLIER CO. T46S R28E SEC 36CC 26 15 01 N 81 29 02 W
TOTAL DEPTH- 200 FT. ELEV.- 15 FT. 20 SAMPLES- 0- 200 FT.
COMPLETED- 84.01.01 DEPTH WORKED 200 FT.

WELL NAME-
SFWMD C2046-CATHERINE ISLAND
REMARKS-
DESCRIBED BY MIKE KNAPP (5-17-84),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0-	170.0	SURFICIAL AQUIFER SYSTEM
0.0-	60.0	WATER TABLE AQUIFER
60.0-	90.0	TAMIAMI CONFINING BEDS
90.0-	170.0	LOWER TAMIAMI AQUIFER
170.0-	TD	UPPER HAWTHORN CONFINING ZONE

STRATIGRAPHIC FORMATIONS -

.0-	3.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
3.0-	170.0	TAMIAMI FORMATION
170.0-	180.0	MIOCENE COARSE CLASTICS
180.0-	200.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2046 . COLLIER CO. T46S, R28E, SEC 36CC

.0- 3.0 SAND, MODERATE LIGHT GRAY, 42% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 01% HEAVY MINERALS,

3.0- 10.0 LIMESTONE, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, INTERCRYSTALLINE, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

10.0- 15.0 SHELL BED, VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, UNCONSOLIDATED, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS, CORAL,

15.0- 20.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 35% QUARTZ SAND, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2046 . COLLIER CO. T48S, R28E, SEC 36CC

SHELL INTERMIXED

36.0- 40.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

40.0- 50.0 SANDSTONE, VERY LIGHT ORANGE TO LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, 40% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

50.0- 60.0 AS ABOVE,

60.0- 75.0 SAND, OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 02% CLAY, 10% CALCILUTITE, 20% DOLOMITE, MOLLUSKS,

75.0- 90.0 AS ABOVE WITH SHELL

90.0- 100.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

100.0- 110.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

110.0- 120.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 70% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS, BRYOZOA,

GOOD DOHOPEE

120.0- 130.0 AS ABOVE,

LITHOLOGIC LOG
W- 2048 . COLLIER CO. T48S, R28E, SEC 36CC

130.0- 140.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 70% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS, BRYOZOA,

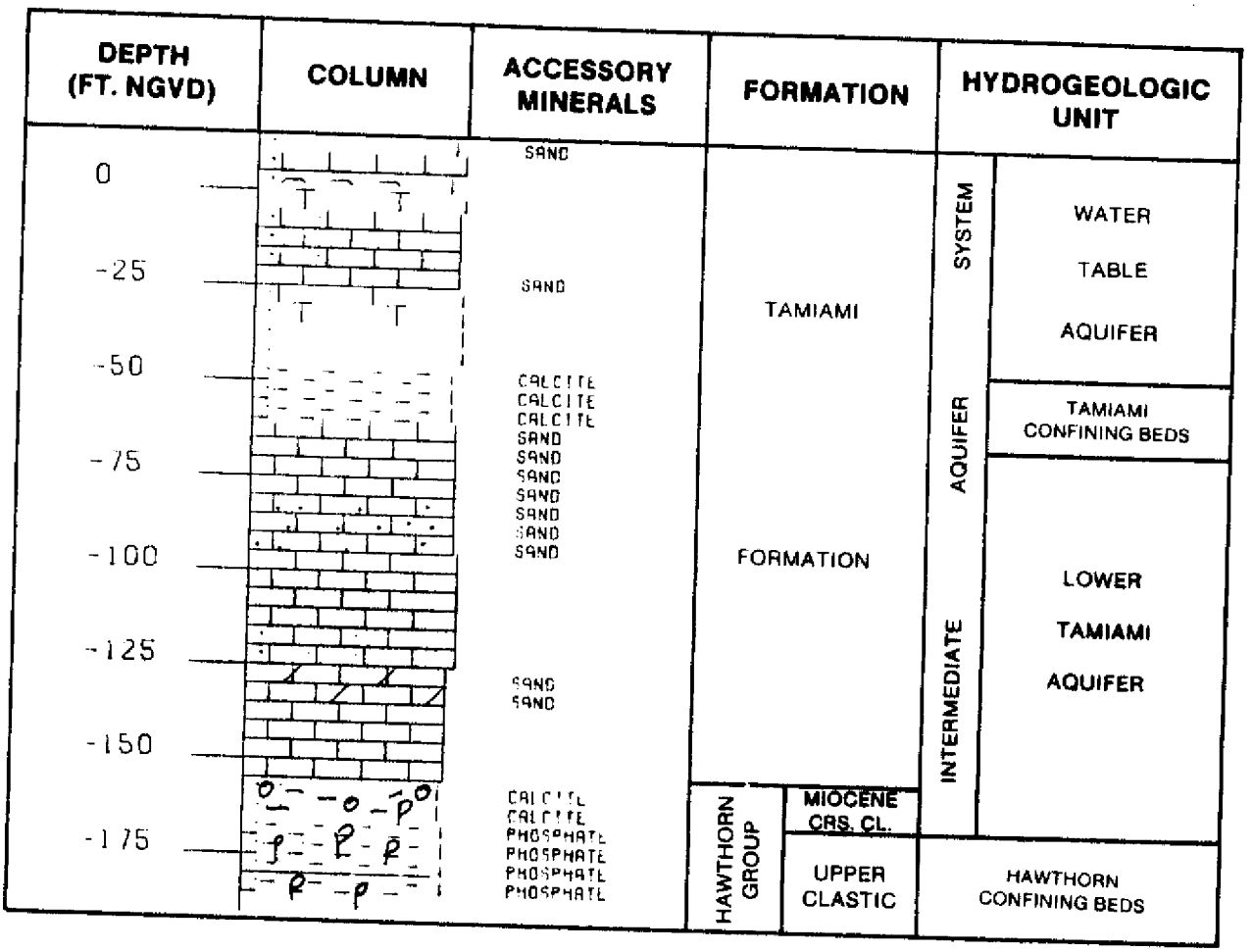
140.0- 150.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 20% QUARTZ SAND, MOLLUSKS,

SAMPLE IS A MIX OF ABOVE LITHO AND 150.

150.0- 170.0 AS ABOVE,

170.0- 180.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 10% LIMESTONE, FROSTED, MOLLUSKS,

180.0- 200.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 05% PHOSPHATIC SAND, 05% CLAY, 10% DOLOMITE, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
SAND
SAND
CALCITE
CALCITE
CALCITE
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
TAMIAMI
FORMATION
HAWTHORN GROUP
MIOCENE CRS. CL.
UPPER CLASTIC
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
HAWTHORN CONFINING BEDS

WC2046

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2049C

COLLIER CO. T48S R27E SEC 33C
TOTAL DEPTH- 52 FT. ELEV.- 15 FT. SAMPLES- N 0- N 52 FT.
COMPLETED- 83.03.20 DEPTH WORKED 52 FT.

WELL NAME-
CONTINUOUS CORE,MISSIMER WELL C-2
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (3-20-83), QUALITY (EXCELLENT)

HYDROGEOLOGIC UNITS

0.0- 50.0 WATER TABLE AQUIFER OF THE SURFICIAL AQUIFER SYSTEM
50.0- 52.0 UPPER TAMIAMI CONFINING BEDS

STRATIGRAPHIC FORMATIONS -

.0- 5.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
5.0- 52.0 TAMIAMI FORMATION

LITHOLOGIC LOG
W- 2049C. COLLIER CO. T48S, R27E, SEC 33C

.0- 5.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, ORGANIC MATRIX,

5.0- 12.0 LIMESTONE, VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CRYSTALS, BIOGENIC, 65% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 03% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

12.0- 22.0 AS ABOVE,

22.0- 32.0 DOLOMITE, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 12% CALCILUTITE, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

32.0- 34.0 OYSTER BED (6 INCHES THICK)

34.0- 40.0 DOLOMITE, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

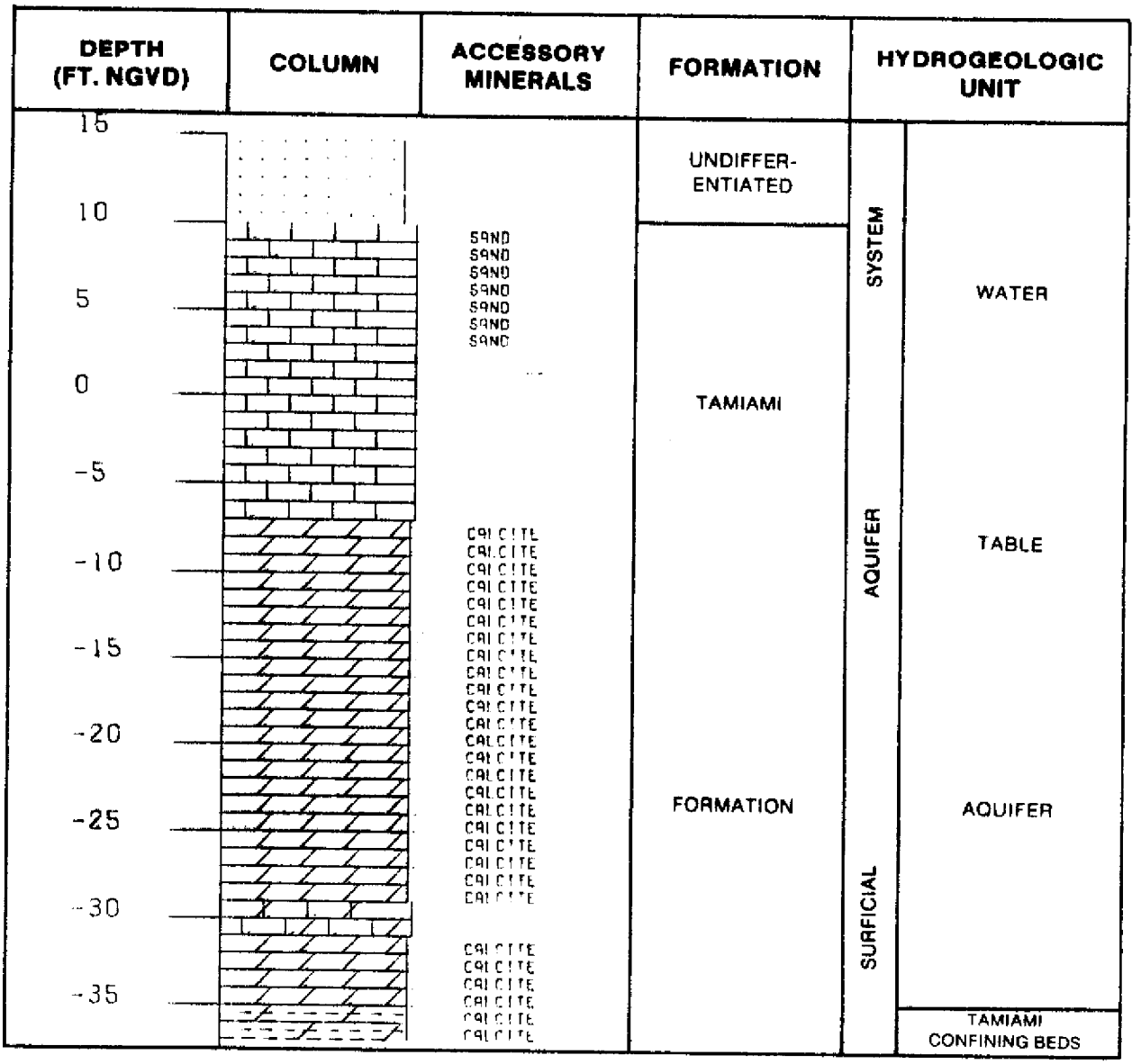
LITHOLOGIC LOG
W- 20490. COLLIER CO. T48S, R27E, SEC 33C

40.0- 44.0 DOLOMITE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

44.0- 46.0 LIMESTONE, PINKISH GRAY, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, MOLLUSKS, FOSSIL MOLDS,

46.0- 50.0 DOLOMITE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

50.0- 52.0 DOLO-SILT, VERY LIGHT ORANGE TO LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, 10% CALCILUTITE, 10% DOLOMITE, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
15
10
5
0
-5
-10
-15
-20
-25
-30
-35
SAND
CALCITE
UNDIFFER-ENTIATED
TAMIAMI
FORMATION
SURFICIAL
AQUIFER
SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI CONFINING BEDS

WC2049

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2050C

COLLIER CO. 149S R26B SEC 13DD
TOTAL DEPTH- 32 FT. ELEV.- 12 FT. N SAMPLES- 0- 32 FT. W
COMPLETED- 83.03.20 DEPTH WORKED 32 FT.

WELL NAME-
CONTINUOUS CORE,MISSIMER WELL C-3
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (-20-83),QUALITY (EXCELLENT)

HYDROLOGEOLOGIC UNITS

0.0- 15.0 WATER TABLE AQUIFER OF THE SURFICIAL AQUIFER SYSTEM
15.0- 27.0 TAMIAMI CONFINING BEDS

STRATIGRAPHIC FORMATIONS -

.0- 3.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
3.0- 32.0 TAMIAMI FORMATION

LITHOLOGIC LOG
W- 2050C. COLLIER CO. 149S, R26B, SEC 13DD

.0- 3.0 NO RECOVERY-SURFICIAL SANDS

3.0- 11.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: CRYSTALS, BIOGENIC, INTRACLASTS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

11.0- 12.0 LIMESTONE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: CRYSTALS, BIOGENIC, INTRACLASTS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

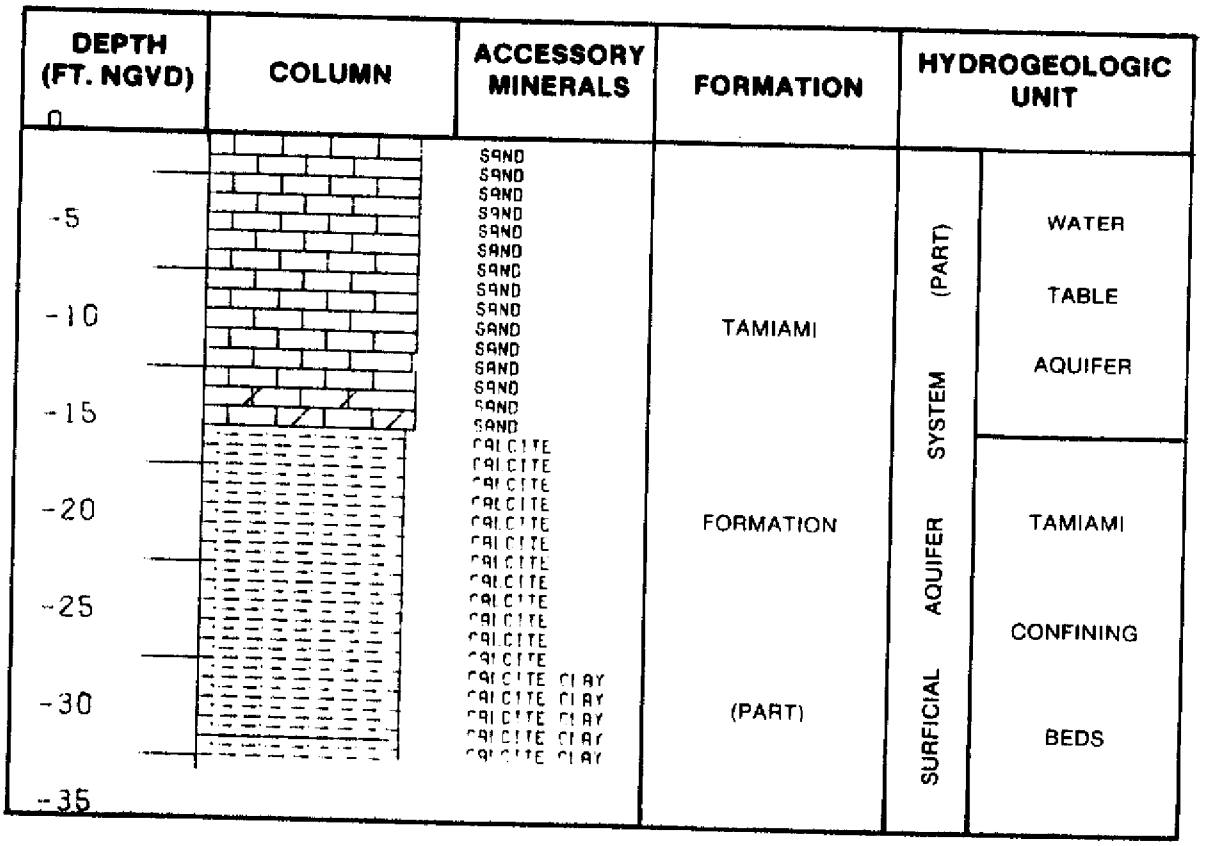
12.0- 13.0 LIMESTONE, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: CRYSTALS, BIOGENIC, INTRACLASTS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 20500. COLLIER CO. T49S, R26B, SEC 13DD

13.0- 15.0 LIMESTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CRYSTALS, BIOGENIC, INTRACLASTS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 25% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

15.0- 27.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% QUARTZ SAND, 15% CALCILUTITE, MOLLUSKS,

27.0- 32.0 DOLO-SILT, MODERATE GRAYISH GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 25% QUARTZ SAND, 15% CALCILUTITE, 04% CLAY, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-5
-10
-15
-20
-25
-30
-35
SAND
CALCITE
CALCITE CLAY
TAMIAMI
FORMATION
(PART)
SURFICIAL AQUIFER SYSTEM (PART)
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS

WC2050

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2051C

COLLIER CO. T49S R26E SEC 03AC N W
TOTAL DEPTH- FT. ELEV.- 13 FT. SAMPLES- 0- 37 FT.
COMPLETED- 83.03.20 DEPTH WORKED 37 FT.

WELL NAME-
CONTINUOUS CORE,MISSIMER WELL C-1
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (3-23-83),QUALITY (EXCELLENT)

HYDROGEOLOGIC UNITS

0.0- 27.0 WATER TABLE AQUIFER OF THE SURFICIAL AQUIFER SYSTEM
27.0- 37.0 TAMIAMI CONFINING BEDS

STRATIGRAPHIC FORMATIONS -

.0- 3.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
3.0- 37.0 TAMIAMI FORMATION

LITHOLOGIC LOG
W- 2051C. COLLIER CO. T49S, R26E, SEC 03AC

.0- 3.0 NO RECOVER SURFACIAL SAND

3.0- 17.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 15% QUARTZ SAND, PELLOSKS, FOSSIL MOLDS,

17.0- 20.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

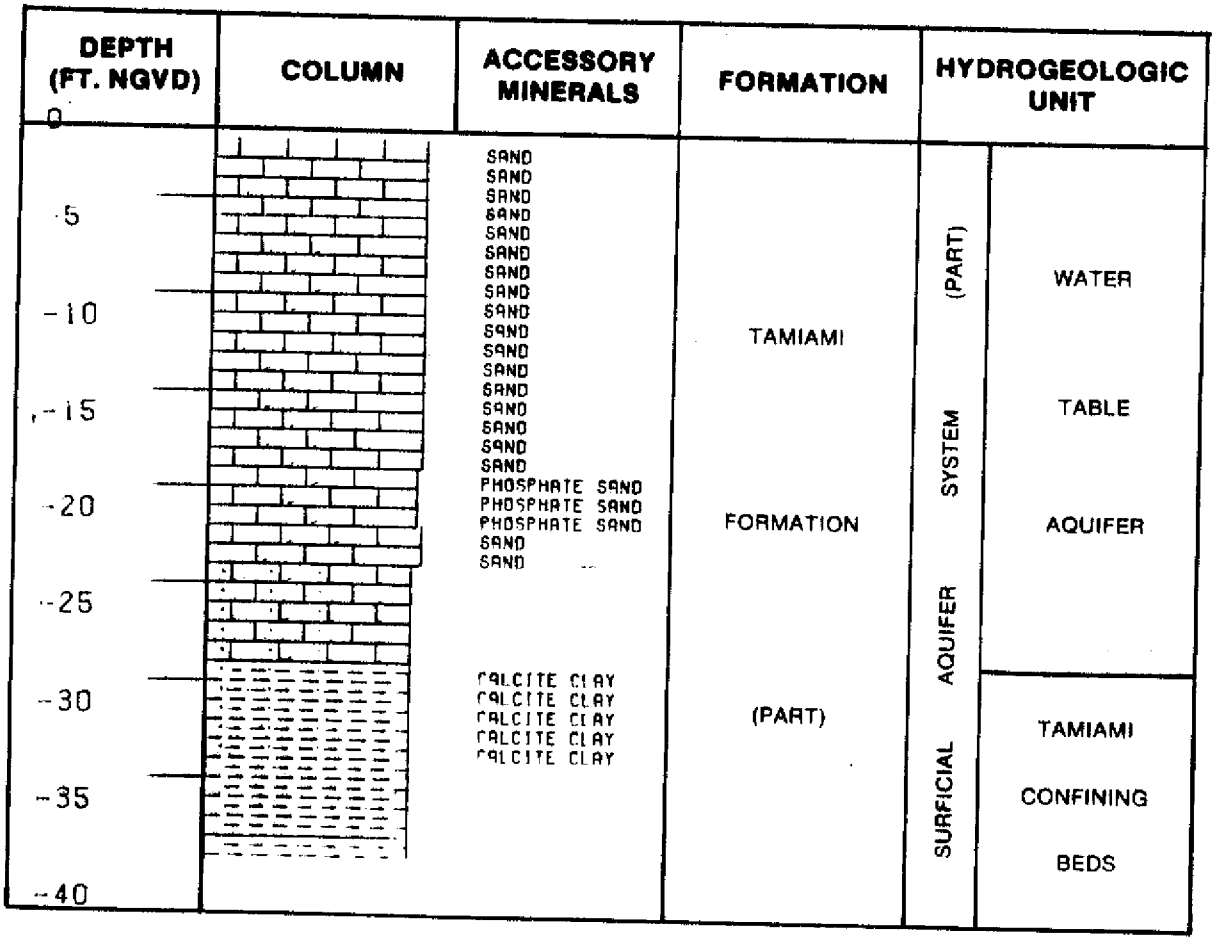
20.0- 22.0 LIMESTONE, GRAYISH ORANGE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CRYSTALS, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

22.0- 27.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, 25% QUARTZ SAND, MOLLUSKS,

LITHOLOGIC LOG
#- 20516. COLLIER CO. T49S, R26E, SEC 03AC

27.0- 32.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 25% QUARTZ SAND, 02% CLAY, MOLLUSKS,

32.0- 37.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-5
-10
-15
-20
-25
-30
-35
-40
SAND
PHOSPHATE SAND
CALCITE CLAY
TAMIAMI
FORMATION
(PART)
SURFICIAL AQUIFER SYSTEM (PART)
WATER
TABLE
AQUIFER
TAMIAMI
CONFINING
BEDS

WC2051

SOUTH FLORIDA WMD - LITHOLOGIC LOG PRINTOUT

W- 20520

COLLIER CO. T48S R27E SEC 08DD N W
TOTAL DEPTH- 40 FT. ELEV.- 15 FT. SAMPLES- 0- 40 FT.
COMPLETED- 83.05.20 DEPTH WORKED 40 FT.

WELL NAME-
CONTINUOUS CORE,MISSIMER WELL C-4
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (3-20-83),QUALITY (EXCELLENT)

HYDROGEOLOGIC UNITS

0.0- 5.0 WATER TABLE AQUIFER OF THE SURFICIAL AQUIFER SYSTEM
5.0- 30.1 TAMIAMI CONFINING BEDS
30.1 40.0 LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 2.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
2.0- 40.0 TAMIAMI FORMATION

LITHOLOGIC LOG
W- 20520. COLLIER CO. T48S, R27E, SEC 08DD

.0- 2.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, ORGANIC MATRIX,

2.0- 3.5 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 35% CALCILUTITE, MOLLUSKS,

3.5- 5.0 GRADES INTO A LIMESTONE

5.0- 8.5 SAND, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 10% CLAY, 15% DOLOMITE,

8.5- 25.0 DOLO-SILT, LIGHT OLIVE TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, 10% CALCILUTITE, 10% DOLOMITE,

25.0- 30.0 AS ABOVE,

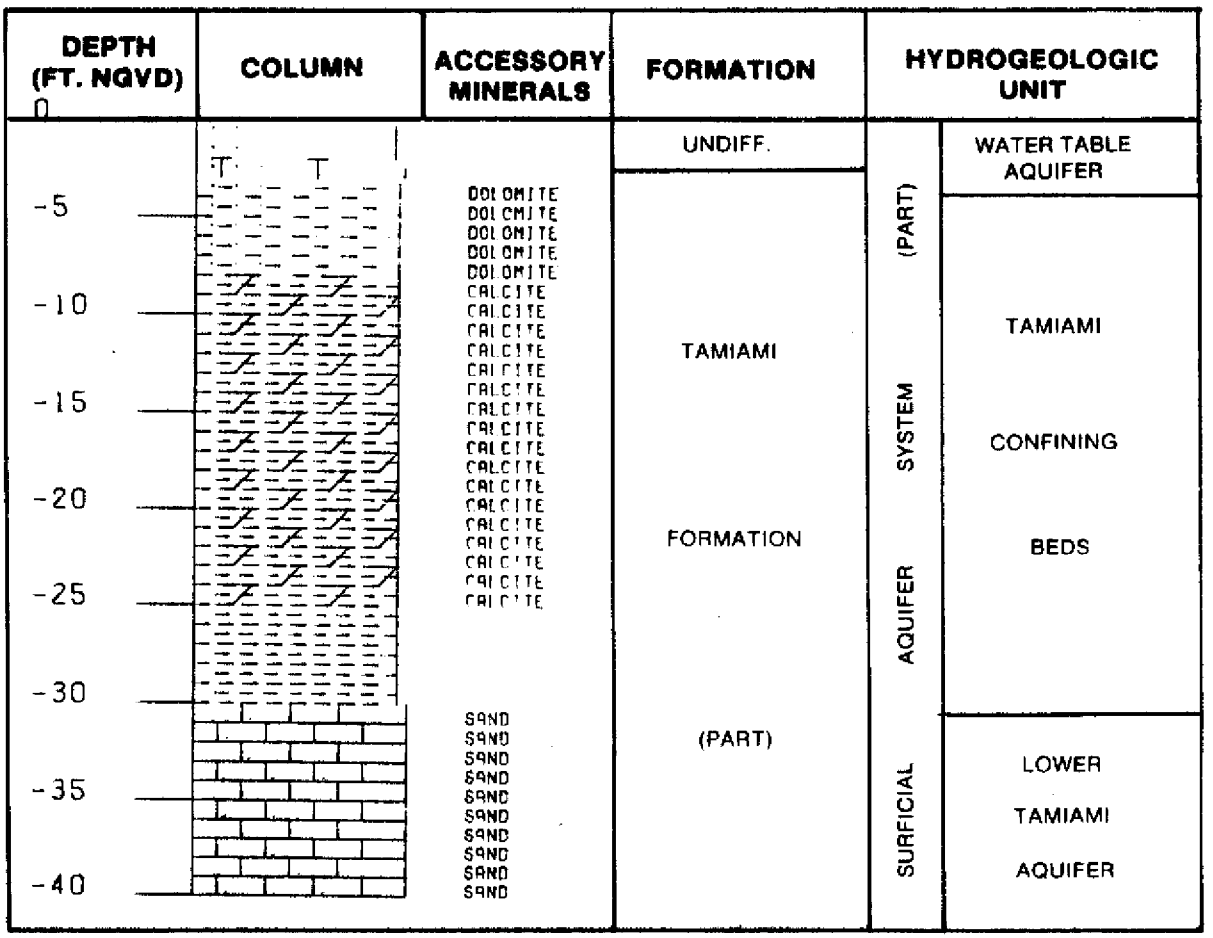
30.0- 30.1 FRESH WATER MOLLUSKS

LITHOLOGIC LOG

#- 20520. COLLIER CO. T48S, R27E, SEC 08DD

30.1- 30.3 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS,

30.3- 40.0 LIMESTONE, LIGHT OLIVE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,


DEPTH (FT. NGVD)
0
-5
-10
-15
-20
-25
-30
-35
-40
COLUMN
ACCESSORY MINERALS
DOLOMITE
CALCITE
SAND
FORMATION
UNDIFF.
TAMIAMI
FORMATION
(PART)
HYDROGEOLOGIC UNIT
SURFICIAL AQUIFER SYSTEM (PART)
WATER TABLE AQUIFER
TAMIAMI
CONFINING
BEDS
LOWER
TAMIAMI
AQUIFER

WC 2052

SOUTH FLORIDA WMD - LITHOLOGIC PRINTOUT

W- 2053

COLLIER CO. 149S R25E SEC 09UD 26 13 10 N 81 48 06 W
TOTAL DEPTH- 935 FT. ELEV.- 16 FT. 93 SAMPLES- 0- 935 FT.
COMPLETED- 12.01.83 DEPTH WORKED 935 FT.

WELL NAME-
USGS C-574,480 FT CASING
REMARKS-
DESCRIBED BY MIKE KNAPP (12-1-83),QUALITY (POOR)

HYDROGEOLOGIC UNITS

0.0- 245.0 SURFICIAL AQUIFER SYSTEM
0.0- 100.0 WATER TABLE AQUIFER
100.0- 140.0 TAMIAMI CONFINING BEDS
140.0- 245.0 LOWER TAMIAMI PRODUCING ZONE
245.0- 280.0 UPPER HAWTHORN CONFINING ZONE
280.0- 290.0 SANDSTONE AQUIFER
290.0- 340.0 MID-HAWTHORN CONFINING ZONE
340.0- 620.0 MID-HAWTHORN AQUIFER?
NOTE-SAMPLES FROM 430 TO 935 QUESTIONABLE

STRATIGRAPHIC FORMATIONS -

.0- 20.0 UNDIFFERENTIATED SAND AND CLAY
20.0- 245.0 TAMIAMI FORMATION
245.0- 935.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2053 . COLLIER CO. 149S, R25E, SEC 09UD

.0- 10.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, LOW SPHERICITY, UNCONSOLIDATED, 5% HEAVY MINERALS,

10.0- 20.0 SAND, GRAYISH BROWN, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

20.0- 30.0 LIMESTONE, WHITE, 25% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS, FOSSIL FRAGMENTS,

30.0- 40.0 AS ABOVE,

40.0- 50.0 SAMPLE IS A MIXTURE OF SHELL (CHIONE SP) AND L/S FRAGS.

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2053 . COLLIER CO. T49S, R25E, SEC 09D0

50.0- 60.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, CORAL, MOLLUSKS, ECHINOID,

60.0- 70.0 AS ABOVE WITH MORE SHELL

70.0- 80.0 AS ABOVE,

80.0- 90.0 LIMESTONE, VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 65% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID, FOSSIL MOLDS,

90.0- 100.0 AS ABOVE,

100.0- 110.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% QUARTZ SAND, MOLLUSKS,

110.0- 120.0 AS ABOVE,

120.0- 130.0 LIMESTONE, LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS,

130.0- 140.0 LIMESTONE, MODERATE LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 02% QUARTZ SAND, MOLLUSKS, CORAL,

140.0- 150.0 AS ABOVE,

150.0- 160.0 LIMESTONE, VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 10% QUARTZ SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2653 . COLLIER CO. T49S, R25E, SEC 0900

160.0- 170.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, 04% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS,

170.0- 190.0 AS ABOVE,

190.0- 200.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 75% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, MOLLUSKS, BENTHONIC FORAMINIFERA, CORAL,

200.0- 230.0 AS ABOVE,

230.0- 240.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

240.0- 245.0 AS ABOVE,

245.0- 250.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% SILT, 05% QUARTZ SAND, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

250.0- 260.0 AS ABOVE,

260.0- 270.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, ROUNDED, HIGH SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 30% DOLOMITE, 02% PHOSPHATIC SAND,

270.0- 280.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 25% QUARTZ SAND, 02% PHOSPHATIC SAND,

280.0- 290.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS,

290.0- 300.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 08% PHOSPHATIC SAND, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA,

300.0- 310.0 AS ABOVE,

LITHOLOGIC LOG
W- 2053 . COLLIER CO. T49S, R25E, SEC 6/00

310.0- 320.0 SAND, OLIVE GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 15% DOLOMITE, 20% PHOSPHATIC SAND,

320.0- 330.0 AS ABOVE,

330.0- 340.0 SAND, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 10% DOLOMITE, 10% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

340.0- 350.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 32% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 03% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS,

350.0- 370.0 AS ABOVE,

370.0- 380.0 LIMESTONE, VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% DOLOMITE, 04% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

380.0- 390.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 04% PHOSPHATIC SAND, BRYOZOA, WORM TRACES, MOLLUSKS,

390.0- 420.0 AS ABOVE,

420.0- 430.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 02% PHOSPHATIC SAND, BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS,

430.0- 450.0 AS ABOVE,

450.0- 460.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 05% PHOSPHATIC SAND, 15% QUARTZ SAND, MOLLUSKS, BRYOZOA, BENTHONIC FORAMINIFERA,

LITHOLOGIC LOG
W- 2053 . COLLIER CO. T44S, R29E, SEC 09D

460.0- 470.0 AS ABOVE,

470.0- 480.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 30% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

480.0- 495.0 AS ABOVE,

495.0- 505.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 20% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS,

505.0- 525.0 AS ABOVE,

525.0- 535.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 30% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS, MOLLUSKS, WORM TRACES,

535.0- 540.0 AS ABOVE,

540.0- 550.0 AS ABOVE,

550.0- 560.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 20% QUARTZ SAND, FOSSIL FRAGMENTS, MOLLUSKS,

560.0- 570.0 AS ABOVE,

AS ABOVE WITH MORE SAND (40%)

570.0- 580.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

580.0- 590.0 AS ABOVE,

590.0- 600.0 AS ABOVE WITH MORE SAND (40%)

LITHOLOGIC LOG
W- 2053 . COLLIER CO. T49S, R25E, SEC 6400

600.0- 610.0 AS ABOVE,

610.0- 620.0 AS ABOVE,

620.0- 635.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS,

635.0- 655.0 SAND, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 20% DOLOMITE, 02% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS,

POOR SAMPLE

655.0- 695.0 SAND, VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% PHOSPHATIC SAND, 03% CALCILUTITE, MOLLUSKS, FOSSIL FRAGMENTS,

695.0- 715.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 35% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

715.0- 735.0 DOLO-SILT, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

735.0- 755.0 AS ABOVE WITH V.C. PHOSPHATE

755.0- 775.0 AS ABOVE,

775.0- 795.0 DOLOMITE, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, LOW PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 20% QUARTZ SAND, 05% PHOSPHATIC SAND,

795.0- 815.0 AS ABOVE,

815.0- 835.0 AS ABOVE,

835.0- 855.0 DOLOMITE, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2053 . COLLIER CO. T49S, R25E, SEC 19BD

855.0- 875.0 OOLD-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LO. PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 10% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS,

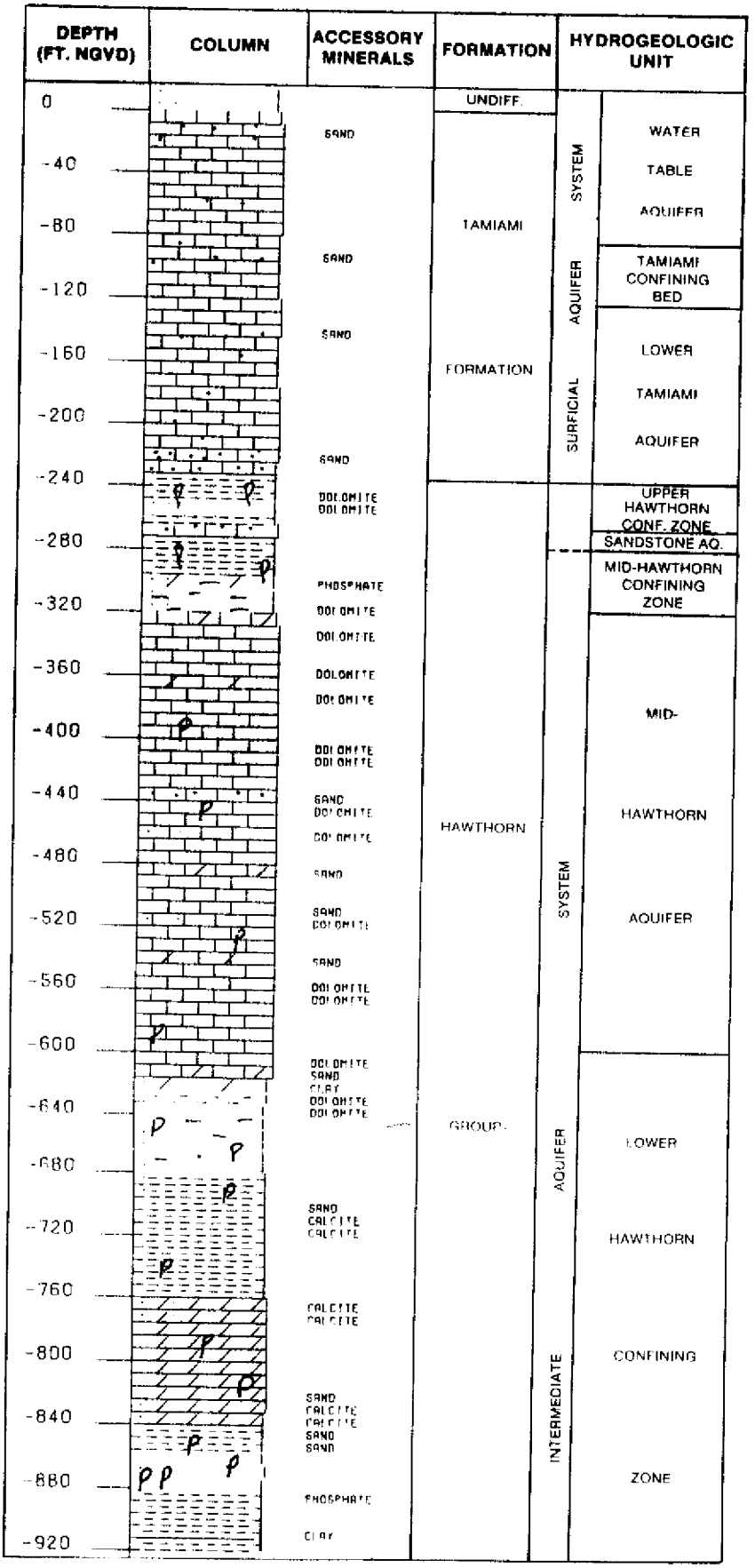
875.0- 895.0 SANDSTONE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 02% PHOSPHATIC SAND, MOLLUSKS,

895.0- 905.0 OOLD-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 05% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS,

905.0- 920.0 AS ABOVE,

920.0- 925.0 OOLD-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

925.0- 935.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-40
-80
-120
-160
-200
-240
-280
-320
-360
-400
-440
-480
-520
-560
-600
-640
-680
-720
-760
-800
-840
-880
-920
SAND
SAND
SAND
SAND
DOLOMITE
DOLOMITE
PHOSPHATE
DOLOMITE
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DOLOMITE
DOLOMITE
SAND
CALCITE
CALCITE
CALCITE
CALCITE
SAND
CALCITE
CALCITE
SAND
SAND
PHOSPHATE
CLAY
UNDIFF.
TAMIAMI
FORMATION
HAWTHORN
GROUP
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BED
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONF. ZONE
SANDSTONE AQ.
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER
LOWER HAWTHORN CONFINING ZONE

WC2053

W- 2054

COLLIER CO. T46S R29E SEC 31DB 26 26 02 N 81 27 01 W
TOTAL DEPTH- 340 FT. ELEV.- 30 FT. 68 SAMPLES- 0- 340 FT.
COMPLETED- 84.02.01 DEPTH WORKED 340 FT.

WELL NAME-
USGS C632
REMARKS-
DESCRIBED BY MIKE KNAPP 2-1-84,SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0 150.0 SURFICIAL AQUIFER SYSTEM
150.0 220.0 UPPER HAWTHORN CONFINING ZONE
220.0 300.0 SANDSTONE AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 20.0 UNDIFFERENTIATED SAND AND CLAY
20.0- 150.0 MIOCENE COARSE CLASTICS
150.0- 340.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2054 . COLLIER CO. T46S, R29E, SEC 31DB

.0- 10.0 SAND, GRAYISH ORANGE, 42% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

10.0- 20.0 SAND, VERY LIGHT ORANGE TO LIGHT GREENISH GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 05% CALCILUTITE, 01% HEAVY MINERALS, MOLLUSKS,

20.0- 30.0 SAND, VERY LIGHT ORANGE TO WHITE, 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, FROSTED,

30.0- 60.0 SAMPLE ARE ALL SAND SAME AS ABOVE-FROSTED,ROUNDED,MARINE

60.0- 100.0 SAND, VERY LIGHT ORANGE, 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, FROSTED,

100.0- 135.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 100% ALL CHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 25% QUARTZ SAND, MOLLUSKS,

MUCH SAND IN SAMPLE

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
*- 2054 . COLLIER CO. T48S, R29E, SEC 31DB

185.0- 190.0 SAND, WHITE TO VERY LIGHT ORANGE, 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% LIMESTONE, MOLLUSKS,

190.0- 150.0 AS ABOVE,

150.0- 160.0 DOLO-SILT, LIGHT GREENISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 25% QUARTZ SAND, MOLLUSKS,

160.0- 180.0 SAND, VERY LIGHT ORANGE, 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

180.0- 190.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 20% SILT, 05% CLAY, 03% PHOSPHATIC SAND, MOLLUSKS,

190.0- 200.0 AS ABOVE,

200.0- 210.0 DOLO-SILT, LIGHT GRAYISH GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 10% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS,

210.0- 220.0 AS ABOVE,

220.0- 230.0 LIMESTONE, LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

230.0- 240.0 AS ABOVE -SANDIER (35%)

240.0- 250.0 AS ABOVE,

250.0- 260.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2054 . COLLIER CO. T46S, R29E, SEC 3100

260.0- 270.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS,

270.0- 280.0 AS ABOVE-NO SAND

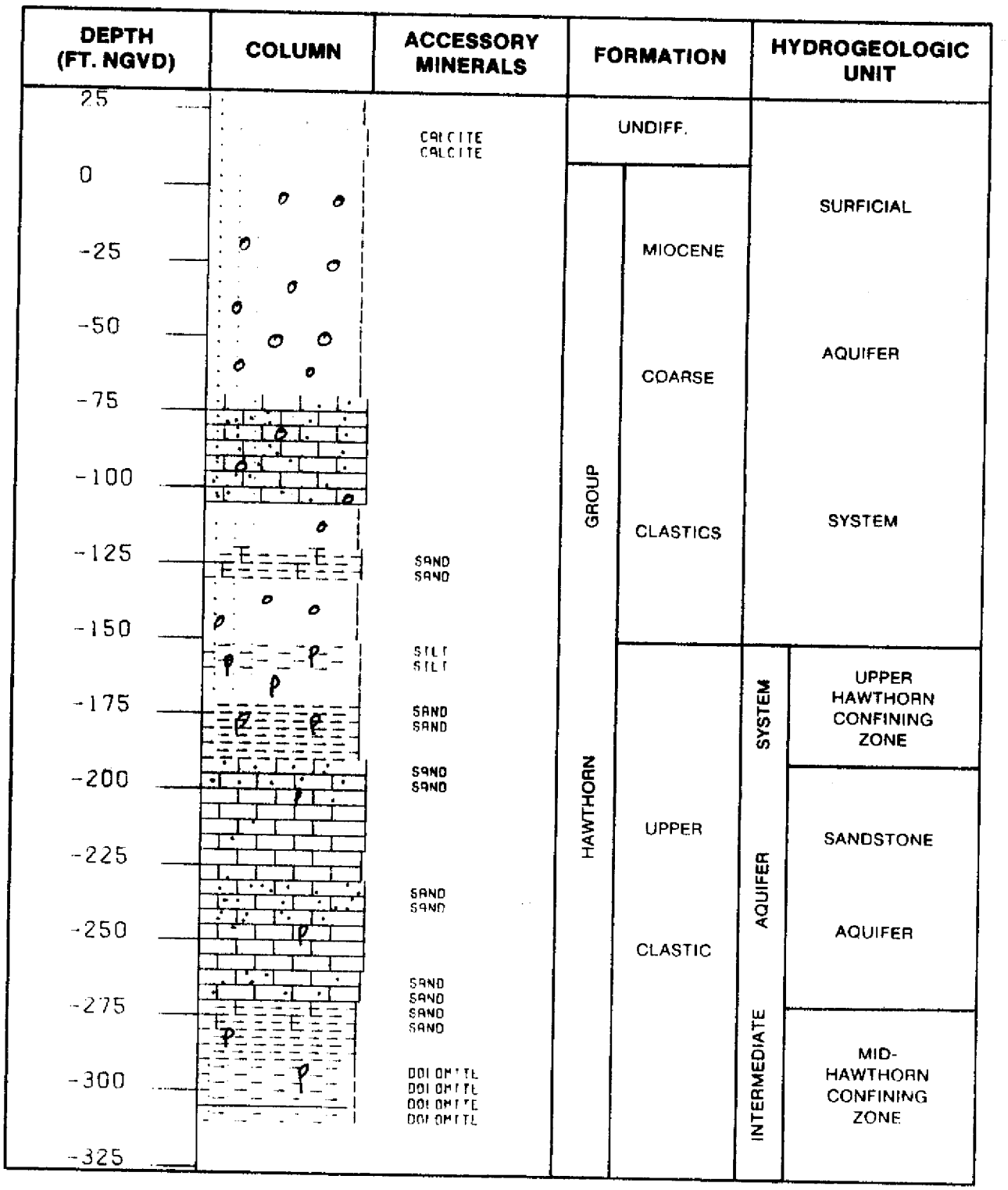
280.0- 290.0 AS ABOVE,

290.0- 300.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS,

300.0- 310.0 DOLO-SILT, LIGHT GREENISH-GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 25% QUARTZ SAND, MOLLUSKS,

310.0- 320.0 AS ABOVE,

320.0- 340.0 SAND, LIGHT GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 02% CLAY, 25% DOLOMITE, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
CALCITE
CALCITE
SAND
SAND
SILT
SILT
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
DOLOMITE
DOLOMITE
DOLOMITE
DOLOMITE
UNDIFF.
HAWTHORN GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
SURFICIAL
AQUIFER
SYSTEM
SYSTEM
AQUIFER
INTERMEDIATE
UPPER HAWTHORN CONFINING ZONE
SANDSTONE
AQUIFER
MID-HAWTHORN CONFINING ZONE

WC2054

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2055

COLLIER CO. T47S R29E SEC 01AC 26 25 09 N 81 22 37 W
TOTAL DEPTH- 540 FT. ELEV.- 30 FT. 54 SAMPLES- 0- 540 FT.
COMPLETED- 84.02.01 DEPTH WORKED 540 FT.

WELL NAME-
USGS C681
REMARKS-
DESCRIBED BY MIKE KNAPP (2-1-84),SAMPLE QUALITY (FAIR)

HYDROGEOLOGIC UNITS

0.0	230.0	SURFICIAL AQUIFER SYSTEM
0.0	50.0	WATER TABLE AQUIFER
50.0	130.0	TAMIAMI CONFINING BEDS
130.0	230.0	LOWER TAMIAMI AQUIFER / SANDSTONE AQUIFER
230.0	490.0	MID-HAWTHORN CONFINING ZONE
490.0	540.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	30.0	TAMIAMI FORMATION
30.0-	230.0	MIOCENE COARSE CLASTICS
230.0-	540.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2055 . COLLIER CO. T47S, R29E, SEC 01AC

.0- 10.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS,

10.0- 20.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: VERY FINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

20.0- 30.0 AS ABOVE,

30.0- 40.0 SAND, WHITE TO VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 15% CALCILUTITE, MOLLUSKS,

40.0- 50.0 AS ABOVE-SOME PHOS (02%) AND A FEW CHIPS OF S/S

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG

W- 2055 . COLLIER CO. 147S, R29E, SEC 01AC

50.0- 60.0 SANDSTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 10% CALCILUTITE, MOLLUSKS,

60.0- 70.0 AS ABOVE,

70.0- 80.0 AS ABOVE WITH POOR INDURATION

80.0- 90.0 SAND, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 05% CALCILUTITE,

90.0- 100.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, DIATOMS,

100.0- 110.0 AS ABOVE,

110.0- 120.0 SAND, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 02% CLAY, 15% DOLOMITE, 04% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA,

120.0- 130.0 CLAY, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 40% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

130.0- 140.0 SAND, WHITE, 40% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% PHOSPHATIC SAND, 15% PHOSPHATIC GRAVEL, MOLLUSKS,

140.0- 150.0 AS ABOVE,

150.0- 160.0 AS ABOVE WITH POOR INDURATION-DOLOSILT (5%)

160.0- 170.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, MOLLUSKS,

170.0- 180.0 AS ABOVE,

LITHOLOGIC LOG
W- 2055 . COLLIER CO. 147S, R29E, SEC 01AC

180.0- 190.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 03% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

190.0- 200.0 AS ABOVE,

200.0- 210.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, MOLLUSKS,

210.0- 220.0 SANDSTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% CALCILUTITE, 30% DOLOMITE, MOLLUSKS,

220.0- 230.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS,

230.0- 240.0 SANDSTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 10% DOLOMITE,

240.0- 250.0 AS ABOVE,

250.0- 260.0 AS ABOVE,

260.0- 270.0 AS ABOVE,

270.0- 280.0 AS ABOVE,

280.0- 290.0 290 TO 290 COARSE SANDS WITH DOLOSILT MATRIX (15%)

290.0- 300.0 AS ABOVE,

300.0- 310.0 SANDSTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, 25% DOLOMITE, 50% PHOSPHATIC SAND,

310.0- 320.0 AS ABOVE,

320.0- 340.0 AS ABOVE-POORLY INDURATED

340.0- 350.0 AS ABOVE-SEAR GRANULE SIZE QUARTZ

LITHOLOGIC LOG
W- 2055 . COLLIER CO. T47S, R29E, SEC 01AC

350.0- 360.0 AS ABOVE,

360.0- 370.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 15% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

370.0- 400.0 AS ABOVE,

400.0- 410.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 20% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

410.0- 440.0 AS ABOVE,

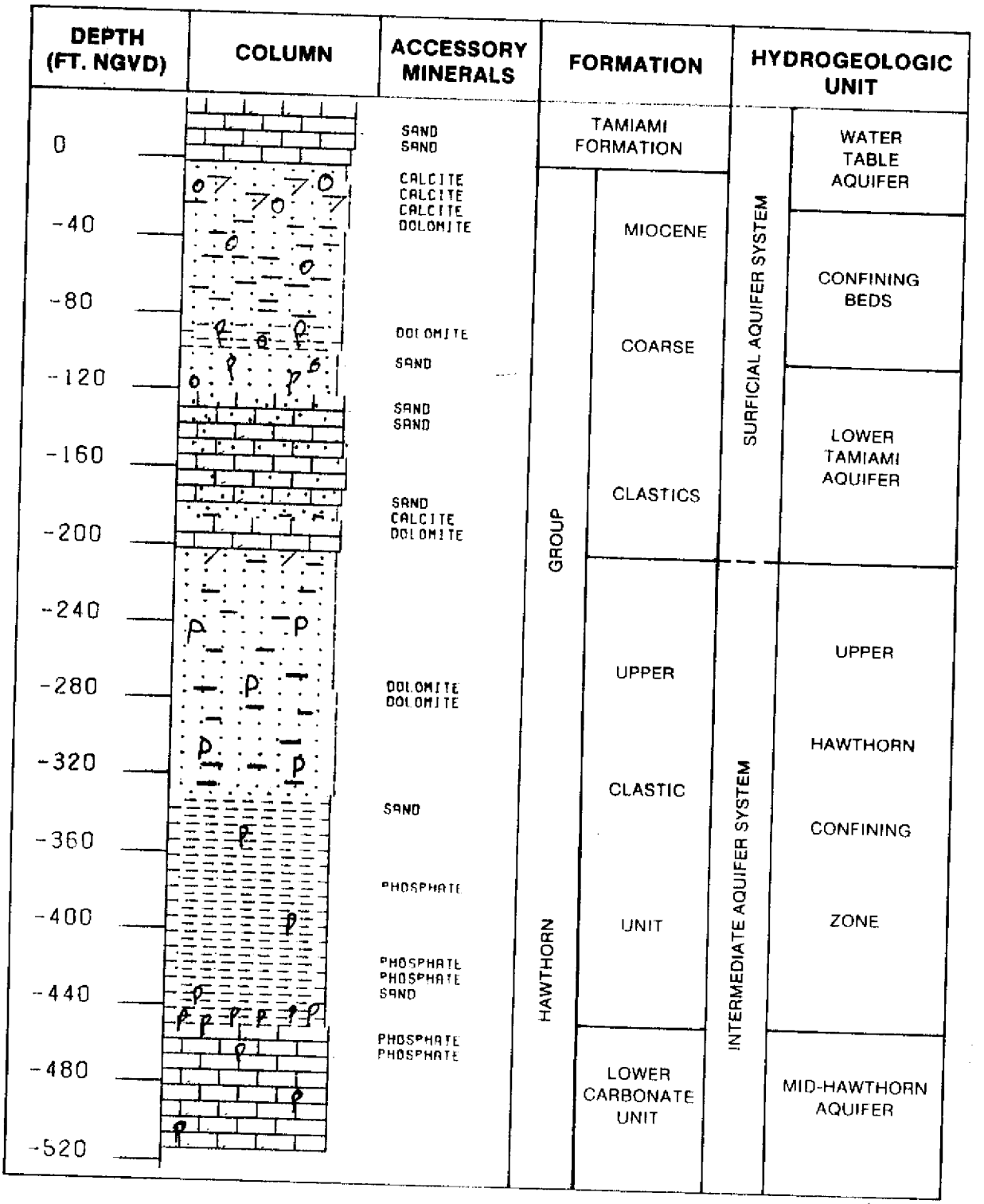
440.0- 460.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 30% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS,

460.0- 480.0 AS ABOVE,

480.0- 490.0 AS ABOVE-WITH PHOSPHATE RUBBLE

490.0- 500.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% PHOSPHATIC SAND, MOLLUSKS,

500.0- 540.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-40
-80
-120
-160
-200
-240
-280
-320
-360
-400
-440
-480
-520
SAND
SAND
CALCITE
CALCITE
CALCITE
DOLOMITE
DOLOMITE
SAND
SAND
SAND
SAND
CALCITE
DOLOMITE
DOLOMITE
DOLOMITE
SAND
PHOSPHATE
PHOSPHATE
PHOSPHATE
SAND
PHOSPHATE
PHOSPHATE
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
UNIT
LOWER CARBONATE UNIT
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER
HAWTHORN
CONFINING
ZONE
MID-HAWTHORN AQUIFER

WC2055

SOUTH FLORIDA WMD - LIMI COUNTY PRINTOUT

W- 2056

COLLIER CO. T46S R29E SEC 10C
TOTAL DEPTH- 180 FT. ELEV.- 30 FT. 30 SAMPLES- N 5- W 180 FT.
COMPLETED- 03.11.81 DEPTH WORKED 180 FT.

WELL NAME-
MISSIMER CO-753, SILVER STRAND FARMS-NORTH
REMARKS-
DESCRIBED BY MIKE KNAPP (6-18-84), QUALITY (POOR)

HYDROGEOLOGIC UNITS

0.0 95.0 SURFICIAL AQUIFER SYSTEM
95.0 120.0 UPPER HAWTHORN CONFINING ZONE
120.0 135.0 SANDSTONE AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 30.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
30.0- 45.0 TAMIAMI FORMATION
45.0- 180.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2056 . COLLIER CO. T46S, R29E, SEC 10C

.0- 5.0 NO SAMPLE,

5.0- 10.0 SAND, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 03% SPAR,

10.0- 15.0 AS ABOVE,

15.0- 20.0 SANDSTONE, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% CALCILUTITE, 10% SPAR, ACCESSORY,

20.0- 25.0 AS ABOVE,

25.0- 30.0 AS ABOVE,

30.0- 35.0 LIMESTONE, LIGHT GRAY TO VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, 20% CLEAR SPAR, ACCESSORY,

35.0- 40.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2056 . COLLIER CO. T48S, R29E, SEC 33C

40.0- 45.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, MOLLUSKS,

45.0- 50.0 SAND, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE,

50.0- 55.0 SAND, LIGHT GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 95% PHOSPHATIC SAND, 05% LIMESTONE, MOLLUSKS,

55.0- 60.0 AS ABOVE,

60.0- 65.0 AS ABOVE,

65.0- 70.0 AS ABOVE,

70.0- 75.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO GRANULE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 95% PHOSPHATIC SAND,

75.0- 80.0 SAND, LIGHT GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 95% PHOSPHATIC SAND,

80.0- 85.0 AS ABOVE BECOMING SLIGHTLY CEMENTED WITH MICRITE

85.0- 90.0 AS ABOVE,

90.0- 95.0 AS ABOVE (CORE 90.0-95.0)

95.0- 100.0 SAND, YELLOWISH GRAY, 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 15% CLAY, 20% DOLOMITE, MOLLUSKS,

100.0- 105.0 AS ABOVE,

105.0- 110.0 SAND, YELLOWISH GRAY, 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 05% CLAY, 20% DOLOMITE, MOLLUSKS,

110.0- 115.0 AS ABOVE,

LITHOLOGIC LOG
N- .05E . COLLIER CO. 1985, PAGE, SEC 1CC

120.0- 125.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 10% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS,

125.0- 130.0 AS ABOVE-POORLY INDURATED

130.0- 135.0 SANDSTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% CALCILUTITE, 10% DOLOMITE, 05% PHOSPHATIC SAND, MOLLUSKS,

135.0- 140.0 SAND, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 05% CALCILUTITE,

140.0- 165.0 SAND, VERY LIGHT ORANGE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% CALCILUTITE, 15% DOLOMITE, 02% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

165.0- 170.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

170.0- 180.0 AS ABOVE,

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2657

COLLIER CO. T48S R25E SEC 24DC 26 16 22 N 81 45 15 W
TOTAL DEPTH- 225 FT. ELEV.- 16 FT. 23 SAMPLES- 0- 225 FT.
COMPLETED- 78.01.24 DEPTH WORKED 225 FT.

WELL NAME-
USES (DOC,H2O) SYSTEMS (DRILLER).
REMARKS-
DESCRIBED BY MIKE KNAPP (6-27-84),SAMPLE QUALITY ( )
HYDROGEOLOGIC UNITS

0.0	225.0	SURFICIAL AQUIFER SYSTEM
0.0	20.0	WATER TABLE AQUIFER
20.0	54.0	UPPER TAMIAMI CONFINING ZONE
54.0	125.0	LOWER TAMIAMI AQUIFER
154.0	225.0	UPPER HAWTHORN CONFINING ZONE

STRATIGRAPHIC FORMATIONS -

.0-	35.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
35.0-	125.0	TAMIAMI FORMATION
125.0-	140.0	MIOCENE COARSE CLASTICS
140.0-	225.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2657 . COLLIER CO. T48S, R25E, SEC 24DD

.0- 5.0 SAND, LIGHT YELLOWISH ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 01% HEAVY MINERALS,

5.0- 10.0 SAND, LIGHT YELLOWISH ORANGE TO VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 01% HEAVY MINERALS, 20% CALCILUTITE, MOLLUSKS,

10.0- 15.0 AS ABOVE,

15.0- 24.0 SAND, LIGHT YELLOWISH ORANGE TO VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 20% CALCILUTITE, MOLLUSKS,

24.0- 35.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 40% CALCILUTITE, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2057 . COLLIER CO. 1983, R25E, SEC 29LO

39.0- 44.0 DOLO-SILT, LIGHT YELLOWISH ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 35% QUARTZ SAND, MOLLUSKS,

44.0- 51.0 AS ABOVE,

51.0- 54.0 AS ABOVE,

54.0- 63.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 90% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID, FOSSIL MOLDS,

63.0- 75.0 AS ABOVE,

75.0- 80.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, SKELETAL, CRYSTALS, 70% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% QUARTZ SAND, OOLITES, MOLLUSKS, CORAL, ECHINOID, FOSSIL MOLDS,

80.0- 92.0 AS ABOVE,

92.0- 95.0 AS ABOVE,

95.0- 110.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 10% DOLOMITE, MOLLUSKS,

110.0- 125.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

125.0- 126.0 AS ABOVE,

126.0- 135.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS,

LITHOLOGIC LOG
F- 2057 . COLLIER CO. 1455, R25E, SEC 2460

125.0- 130.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 10% DOLOMITE, MOLLUSKS,

130.0- 135.0 AS ABOVE,

135.0- 140.0 AS ABOVE,

140.0- 145.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 40% QUARTZ SAND, MOLLUSKS,

145.0- 165.0 AS ABOVE,

165.0- 170.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% CALCILUTITE, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

170.0- 177.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 25% QUARTZ SAND, MOLLUSKS,

177.0- 180.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 15% QUARTZ SAND, 02% PHOSPHATIC SAND,

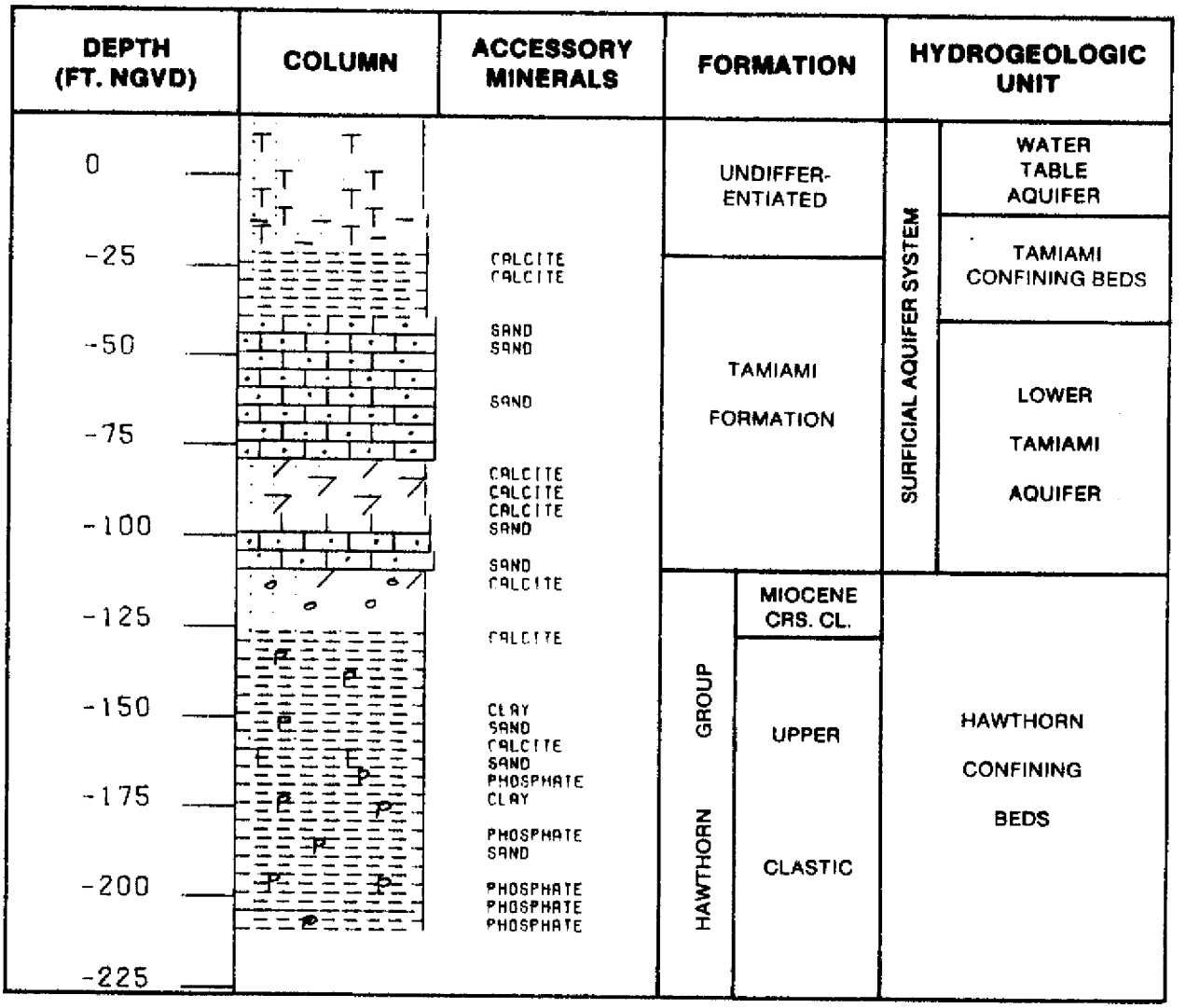
180.0- 187.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CLAY, 05% CALCILUTITE, 05% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS,

187.0- 195.0 AS ABOVE,

195.0- 200.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% QUARTZ SAND, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

200.0- 210.0 AS ABOVE,

210.0- 225.0 DOLO-SILT, MODERATE OLIVE BROWN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CLAY, 10% CALCILUTITE, 03% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
CALCITE
CALCITE
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
SAND
SAND
CALCITE
CALCITE
CLAY
SAND
CALCITE
SAND
PHOSPHATE
CLAY
PHOSPHATE
SAND
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFFER-ENTIATED
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE CRS. CL.
UPPER CLASTIC
SURFICIAL AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
HAWTHORN CONFINING BEDS

WC2057

SOUTH FLORIDA WRD - LITHO LOG PRINTOUT

W- 2058

COLLIER CO. T46S R26E SEC 28BD 26 26 40 N 81 31 01 W
TOTAL DEPTH- 260 FT. ELEV.- 21 FT. 26 SAMPLES- 0- 260 FT.
COMPLETED- 79.01.16 DEPTH WORKED 260 FT.

WELL NAME-
USGS C576,EDDIE MILLER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (6-27-79),SAMPLE QUALITY (GOOD)

HYDROGEOLOGICAL UNITS

0.0 210.0 SURFICIAL AQUIFER SYSTEM
0.0 55.0 WATER TABLE AQUIFER
55.0 90.0 TAMIAMI CONFINING ZONE
90.0 210.0 LOWER TAMIAMI AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 10.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
10.0- 90.0 TAMIAMI FORMATION
90.0- 210.0 MIOCENE COARSE CLASTICS
210.0- 260.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2058 . COLLIER CO. T46S, R26E, SEC 28BD

.0- 5.0 SHELL BED, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 40% QUARTZ SAND, MOLLUSKS,

5.0- 10.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, MOLLUSKS,

10.0- 20.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 25% CALCILUTITE, MOLLUSKS,

20.0- 30.0 SANDSTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

30.0- 40.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2058 . COLLIER CO. T46S, R28E, SEC 28BD

40.0- 55.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS,

55.0- 65.0 DOLO-SILT, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 10% QUARTZ SAND, MOLLUSKS,

65.0- 70.0 AS ABOVE,

70.0- 80.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CLAY, 10% CALCILUTITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

80.0- 90.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

90.0- 100.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

100.0- 110.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, 10% SPAR, MOLLUSKS,

110.0- 140.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 05% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS,

140.0- 160.0 SAND, WHITE TO VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% PHOSPHATIC SAND, MOLLUSKS,

160.0- 170.0 AS ABOVE,

170.0- 180.0 SAND, WHITE TO LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, MOLLUSKS,

WELL INDURATED FRAGS OF S/S IN SAMPLE

LITHOLOGIC LOG
- 2058 . COLLIER CO. 14GS, R28E, SEC 28B0

180.0- 200.0 AS ABOVE,

200.0- 210.0 SAND, WHITE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 05% PHOSPHATIC SAND, 02% CLAY, MOLLUSKS,

210.0- 220.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX, 10% CALCILUTITE, 05% CLAY, 40% QUARTZ SAND, MOLLUSKS,

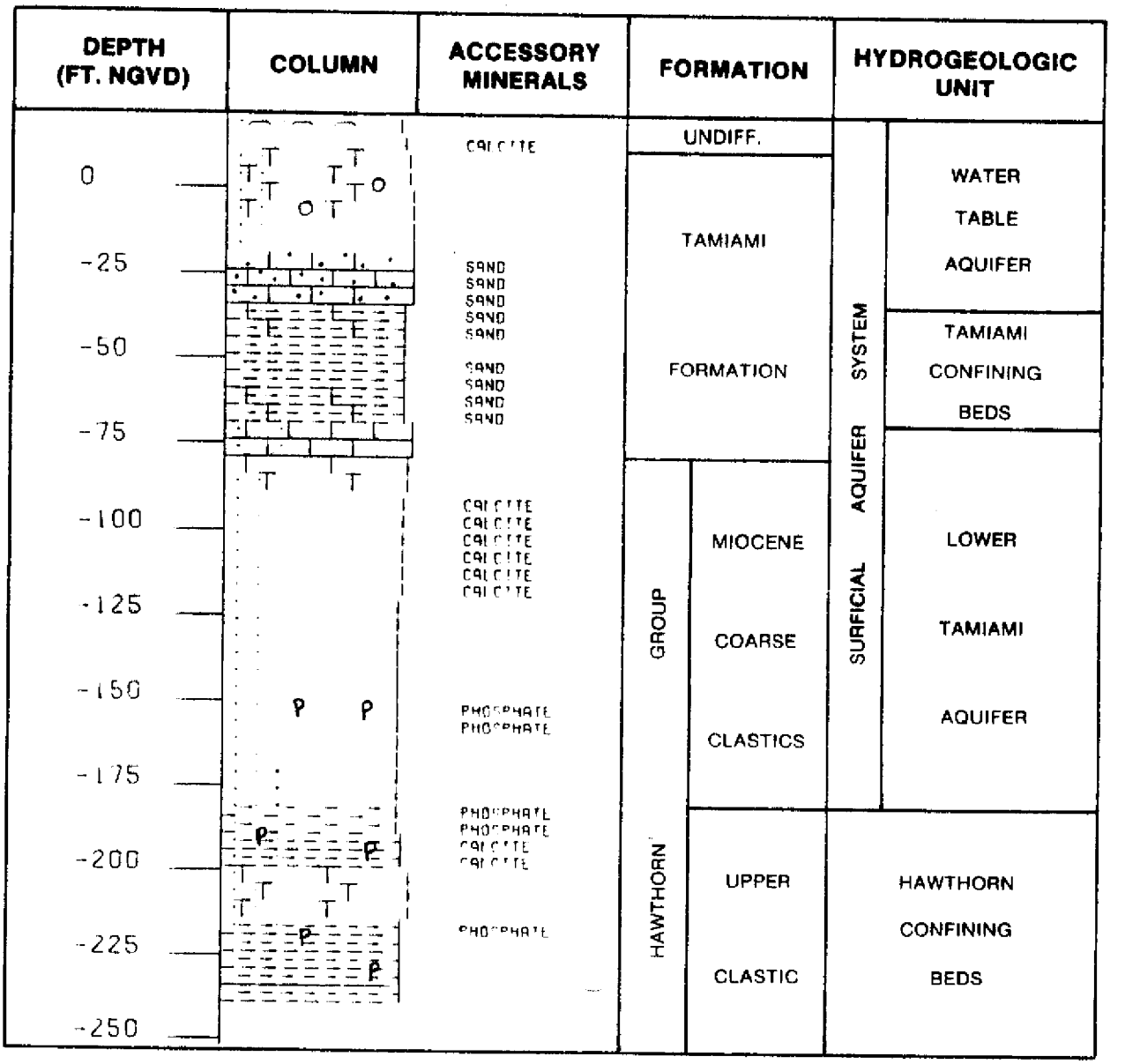
220.0- 235.0 SANDSTONE, LIGHT GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, SPARRY CALCITE CEMENT, 20% SPAR, MOLLUSKS,

SAMPLE IS A MIXTURE OF SHELL,COARSE SAND AND SS.

235.0- 240.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 25% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

COARSE SAND

240.0- 260.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
CALCITE
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
CALCITE
CALCITE
PHOSPHATE
UNDIFF.
TAMIAMI
FORMATION
HAWTHORN
GROUP
MIOCENE
COARSE
CLASTICS
UPPER
CLASTIC
SURFICIAL AQUIFER SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI
CONFINING
BEDS
LOWER
TAMIAMI
AQUIFER
HAWTHORN
CONFINING
BEDS

WC2058

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2059

COLLIER CO. T46S R29E SEC 07AD 26 28 59 N 81 27 30 W
TOTAL DEPTH- 410 FT. ELEV.- 42 FT. 40 SAMPLES- 0- 410 FT.
COMPLETED- 75.10.22 DEPTH WORKED 410 FT.

WELL NAME-
USGS 531,NORTH OF IMMOKALEE,DRILLER (COASTAL CAISSENS)
REMARKS-
DESCRIBED BY MIKE KNAPP (06-26-84),QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	96.0	SURFICIAL AQUIFER SYSTEM
0.0	15.0	WATER TABLE AQUIFER
15.0	35.0	TAMIAMI CONFINING BEDS
35.0	96.0	LOWER TAMIAMI AQUIFER
96.0	190.0	UPPER HAWTHORN CONFINING ZONE
190.0	250.0	SANDSTONE AQUIFER
250.0	390.0	MID-HAWTHORN CONFINING ZONE
390.0	410.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	15.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
15.0-	35.0	TAMIAMI FORMATION
35.0-	96.0	MIOCENE COARSE CLASTICS
96.0-	410.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2059 . COLLIER CO. T46S, R29E, SEC 07AD

.0- 5.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

5.0- 10.0 SAND, DARK YELLOWISH ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX,

10.0- 15.0 AS ABOVE,

15.0- 20.0 SAND, DARK GRAYISH YELLOW, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 85% DOLOMITE, 15% CALCILUTITE,

DOLOSILT INTERMIXED

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2059 . COLLIER CO. T46S, R29E, SEC 07AD

20.0- 25.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS,

25.0- 30.0 AS ABOVE,

30.0- 35.0 AS ABOVE,

35.0- 50.0 SAND, WHITE TO LIGHT GRAY, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, 05% CALCILUTITE, MOLLUSKS,

50.0- 60.0 AS ABOVE,

60.0- 65.0 SAND, VERY LIGHT GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: FINE TO GRANULE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, 05% CALCILUTITE, 02% PHOSPHATIC SAND,

65.0- 70.0 SAND, VERY LIGHT GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, 05% CALCILUTITE,

70.0- 80.0 SAND, VERY LIGHT GRAY, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: VERY COARSE, RANGE: COARSE TO GRANULE, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED,

80.0- 96.0 SAND, VERY LIGHT GRAY, 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, CALCILUTITE MATRIX, 05% CALCILUTITE, 02% PHOSPHATIC SAND,

96.0- 110.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 25% DOLOMITE, 05% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

110.0- 120.0 AS ABOVE,

120.0- 130.0 SAND, VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% DOLOMITE, 10% CALCILUTITE, 05% CLAY, 03% PHOSPHATIC SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2059 . COLLIER CO. 146S, R29E, SEC 07AD

130.0- 140.0 AS ABOVE,

140.0- 150.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 30% QUARTZ SAND, MOLLUSKS,

150.0- 160.0 AS ABOVE,

160.0- 170.0 SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 30% DOLOMITE, 10% CALCILUTITE, 05% CLAY, MOLLUSKS,

170.0- 180.0 AS ABOVE,

180.0- 190.0 SAND, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 30% DOLOMITE, 10% CALCILUTITE, 10% CLAY,

190.0- 200.0 DOLOMITE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

200.0- 210.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, MOLLUSKS, FOSSIL MOLDS, CORAL, WORM TRACES,

210.0- 220.0 AS ABOVE,

220.0- 230.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

250.0- 260.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 15% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

260.0- 270.0 AS ABOVE,

270.0- 280.0 AS ABOVE,

LITHOLOGIC LOG
W- 2059 . COLLIER CO. T46S, R29E, SEC 07AD

280.0- 290.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 10% CLAY, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

290.0- 300.0 AS ABOVE - COARSE SAND (CAVINGS?)

300.0- 320.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CALCILUTITE, 10% CLAY, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

320.0- 340.0 AS ABOVE,

340.0- 350.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 10% CLAY, 25% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

350.0- 360.0 SAND, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% DOLOMITE, 05% CLAY, 05% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS,

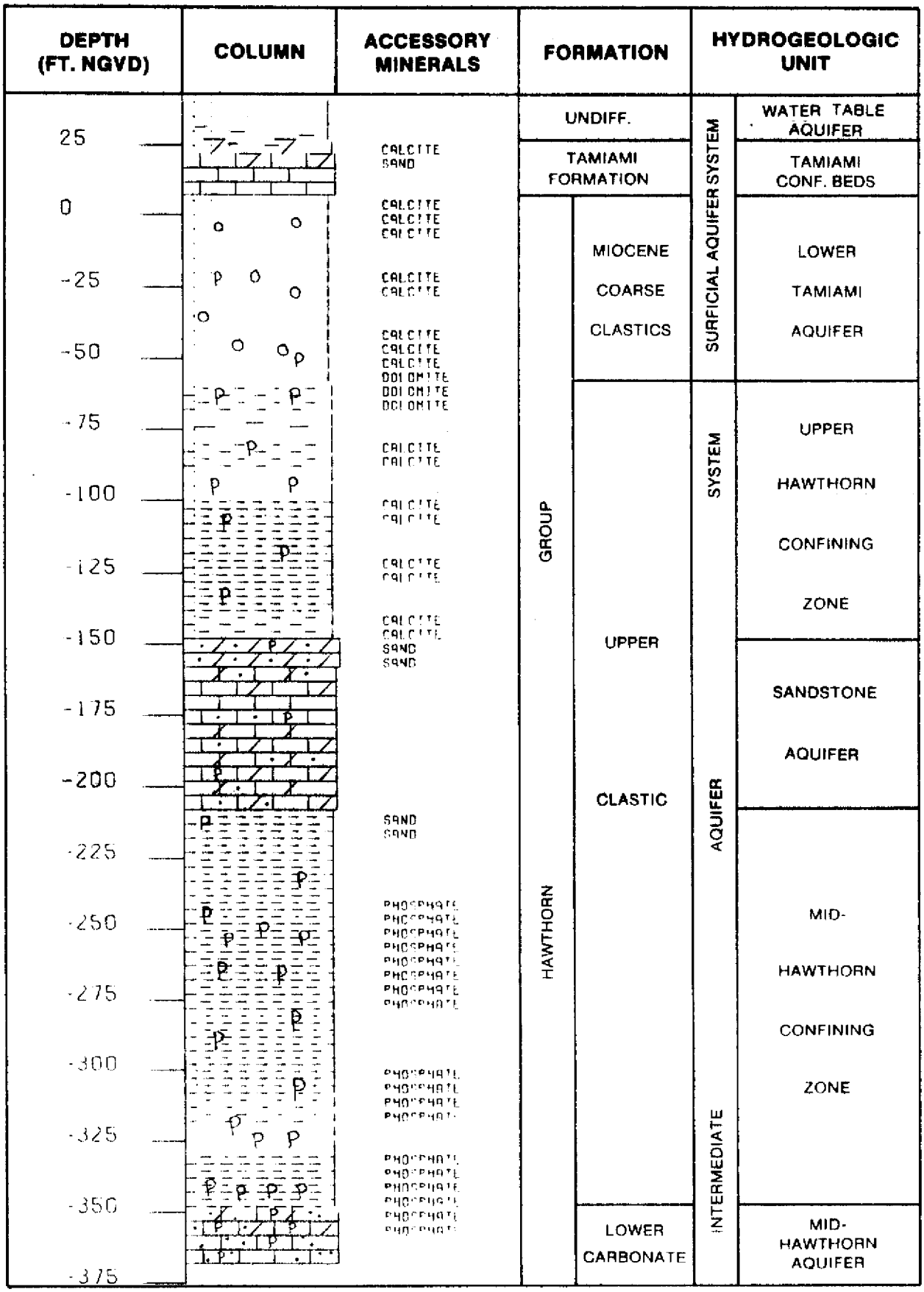
360.0- 370.0 AS ABOVE,

370.0- 380.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 10% PHOSPHATIC SAND, 15% QUARTZ SAND, MOLLUSKS,

380.0- 390.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 15% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,

390.0- 400.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 25% DOLOMITE, 10% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS,

400.0- 410.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
CALCITE
SAND
DOLOMITE
PHOSPHATE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE COARSE CLASTICS
UPPER CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONF. BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WC2059

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2060

COLLIER CO. T48S R27E SEC 07DB 26 18 41 N 81 38 32 W
TOTAL DEPTH- 390 FT. ELEV.- 16 FT. 40 SAMPLES- 0- 390 FT.
COMPLETED- 79.01.15 DEPTH WORKED 390 FT.

WELL NAME-
USGS C577,EDDIE MILLER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (06-27-84),QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	200.0	SURFICIAL AQUIFER SYSTEM
0.0	80.0	WATER TABLE AQUIFER
80.0	110.0	UPPER TAMIAMI CONFINING ZONE
110.0	200.0	LOWER TAMIAMI AQUIFER
200.0	240.0	UPPER HAWTHORN CONFINING ZONE
240.0	270.0	SANDSTONE AQUIFER
270.0	360.0	MID-HAWTHORN CONFINING ZONE
360.0	390.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	10.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
10.0-	200.0	TAMIAMI FORMATION
200.0-	390.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2060 . COLLIER CO. T48S, R27E, SEC 07DB

.0- 5.0 SHELL BED, GRAYISH ORANGE, 30% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 25% QUARTZ SAND, MOLLUSKS,

5.0- 1.0 AS ABOVE,

1.0- 15.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS,

15.0- 20.0 SANDSTONE, GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 10% SPAR, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 2060 . COLLIER CO. T48S, R27E, SEC 07DB

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

30.0- 40.0 AS ABOVE,

40.0- 50.0 LIMESTONE, GRAYISH BROWN TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS, BRYOZOA,

50.0- 60.0 AS ABOVE,

60.0- 70.0 LIMESTONE, VERY LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, OOLITES, FOSSIL MOLDS, BRYOZOA,

70.0- 80.0 AS ABOVE,

80.0- 90.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

90.0- 100.0 AS ABOVE,

100.0- 110.0 AS ABOVE,

110.0- 120.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

120.0- 140.0 AS ABOVE,

LITHOLOGIC LOG
W- 2060 . COLLIER CO. T48S, R27E, SEC 07DB

140.0- 150.0 LIMESTONE, WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA, CORAL,

150.0- 160.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA, CORAL,

160.0- 170.0 AS ABOVE,

170.0- 180.0 AS ABOVE,

180.0- 190.0 LIMESTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID,

190.0- 200.0 AS ABOVE,

200.0- 210.0 SAND, YELLOWISH GRAY TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 25% DOLOMITE, 05% CLAY, MOLLUSKS,

210.0- 220.0 AS ABOVE,

220.0- 230.0 SAND, LIGHT GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 15% LIMESTONE, MOLLUSKS,

230.0- 240.0 AS ABOVE,

240.0- 250.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS,

MUCH LOOSE SAND IN SAMPLE

LITHOLOGIC LOG
W- 2060 . COLLIER CO. T48S, R27E, SEC 07DB

250.0- 260.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, 10% SPAR, MOLLUSKS,

260.0- 270.0 SHELL BED, VERY LIGHT ORANGE, 30% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 40% QUARTZ SAND, MOLLUSKS,

270.0- 280.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 35% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

280.0- 290.0 AS ABOVE,

290.0- 300.0 SANDSTONE, GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 10% CALCILUTITE, MOLLUSKS,

300.0- 310.0 SANDSTONE, GRAYISH BROWN TO GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 10% CALCILUTITE, MOLLUSKS,

310.0- 320.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 40% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

320.0- 330.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 10% CALCILUTITE, 03% PHOSPHATIC SAND, MOLLUSKS,

330.0- 340.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% CALCILUTITE, 25% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

340.0- 350.0 AS ABOVE,

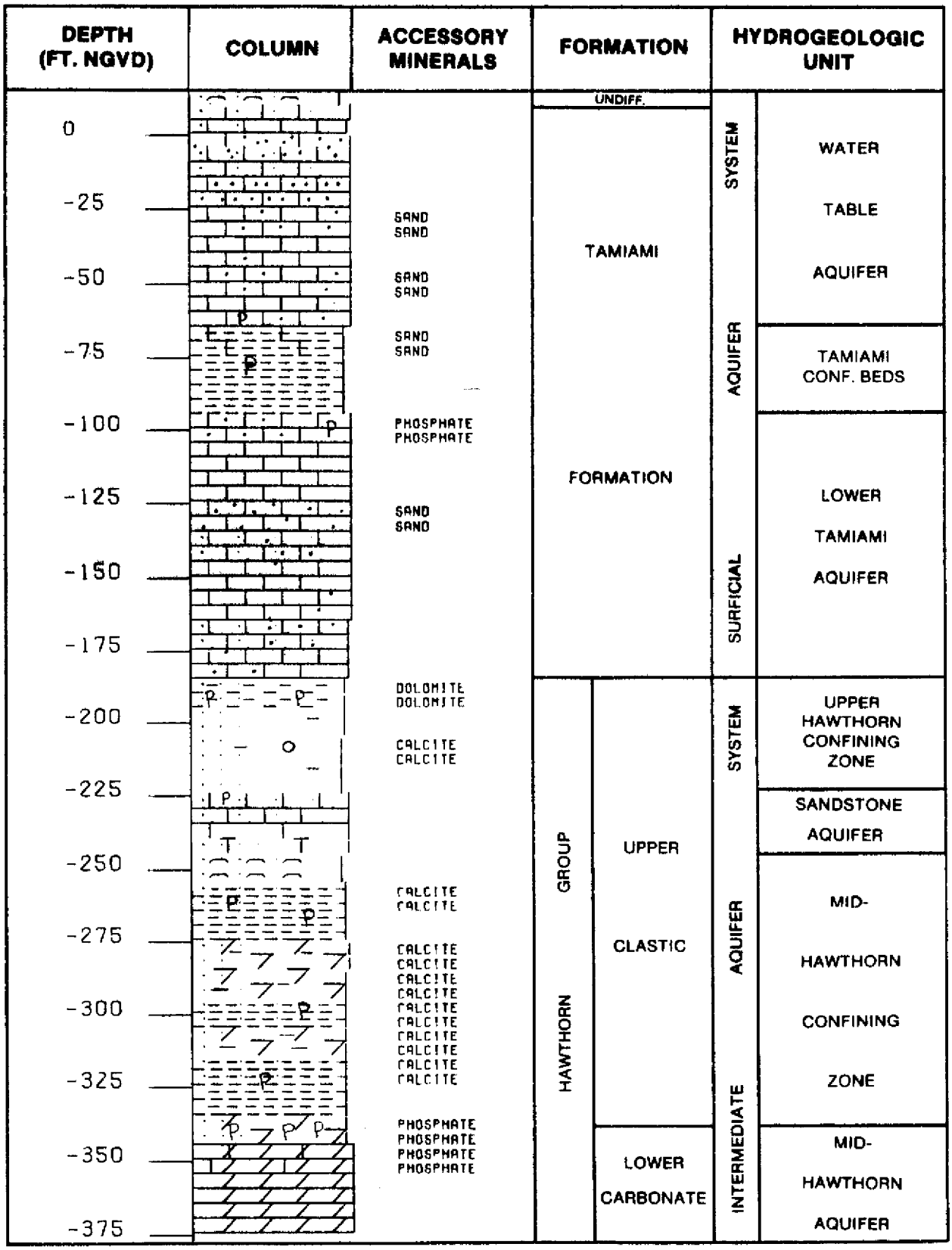
350.0- 360.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 10% CALCILUTITE, 05% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, MOLLUSKS,

LITHOLOGIC LOG
W- 2060 . COLLIER CO. T48S, R27E, SEC 07DB

360.0- 370.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

370.0- 380.0 AS ABOVE,

380.0- 390.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
SAND
SAND
SAND
SAND
SAND
SAND
PHOSPHATE
PHOSPHATE
SAND
SAND
DOLOMITE
DOLOMITE
CALCITE
CALCITE
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CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFF.
TAMIAMI
FORMATION
HAWTHORN
GROUP
UPPER
CLASTIC
LOWER
CARBONATE
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER
TABLE
AQUIFER
TAMIAMI
CONF. BEDS
LOWER
TAMIAMI
AQUIFER
UPPER
HAWTHORN
CONFINING
ZONE
SANDSTONE
AQUIFER
MID-
HAWTHORN
CONFINING
ZONE
MID-
HAWTHORN
AQUIFER

WC2060

SOUTH FLORIDA WMD - LITHOLOGY PRINTOUT

W- 2061

COLLIER CO. T48S R29E SEC 23AA 26 17 40 N 81 23 54 W
TOTAL DEPTH- 498 FT. ELEV.- 18 FT. 50 SAMPLES- 0- 498 FT.
COMPLETED- 80.11.20 DEPTH WORKED 498 FT.

WELL NAME-
USGS C684,MIXON (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (6-27-84), QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	170.0	SURFICIAL AQUIFER SYSTEM
0.0	30.0	WATER TABLE AQUIFER
30.0	50.0	UPPER TAMIAMI CONFINING ZONE
50.0	170.0	LOWER TAMIAMI AQUIFER
170.0	240.0	UPPER HAWTHORN CONFINING ZONE
240.0	320.0	SANDSTONE AQUIFER
320.0	400.0	MID-HAWTHORN CONFINING ZONE
400.0	498.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	10.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
10.0-	60.0	TAMIAMI FORMATION
60.0-	170.0	MIOCENE COARSE CLASTICS
170.0-	498.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2061 . COLLIER CO. T48S, R29E, SEC 23AA

.0- 10.0 SAND, VERY LIGHT ORANGE TO WHITE, 32% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

10.0- 15.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

15.0- 20.0 AS ABOVE,

20.0- 30.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, ECHINOID, PLANT REMAINS, FOSSIL MOLDS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2061 . COLLIER CO. T48S, R29E, SEC 23AA

30.0- 40.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, MOLLUSKS, ECHINOID, BRYOZOA, FOSSIL MOLDS,

40.0- 50.0 AS ABOVE,

50.0- 60.0 LIMESTONE, VERY LIGHT ORANGE TO LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

60.0- 70.0 SAND, WHITE TO LIGHT GRAY, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 20% LIMESTONE, MOLLUSKS,

70.0- 100.0 AS ABOVE,

100.0- 120.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% CALCILUTITE, FROSTED,

120.0- 140.0 AS ABOVE,

140.0- 160.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% CALCILUTITE, FROSTED,

160.0- 170.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 02% PHOSPHATIC SAND, 02% CALCILUTITE, 05% CLAY, 25% DOLOMITE, FROSTED,

170.0- 180.0 AS ABOVE,

180.0- 190.0 AS ABOVE,

190.0- 200.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: COARSE, RANGE: VERY FINE TO GRANULE, ROUNDED, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% CALCILUTITE, 02% PHOSPHATIC SAND, FROSTED,

LITHOLOGIC LOG
W- 2061 . COLLIER CO. T48S, R29E, SEC 23AA

200.0- 220.0 SANDSTONE, VERY LIGHT ORANGE TO LIGHT GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 25% CALCILUTITE,

220.0- 230.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, 40% QUARTZ SAND,

230.0- 240.0 AS ABOVE,

240.0- 250.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, MOLLUSKS,

250.0- 260.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, ECHINOID,

260.0- 270.0 AS ABOVE,

270.0- 280.0 AS ABOVE,

280.0- 300.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS,

COARSE QUARTZ IN SAMPLE (40%)

300.0- 320.0 AS ABOVE,

320.0- 330.0 DOLO-SILT, VERY LIGHT ORANGE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 25% QUARTZ SAND, 10% SILT, 02% PHOSPHATIC SAND, MOLLUSKS,

330.0- 340.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 40% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

340.0- 360.0 AS ABOVE,

LITHOLOGIC LOG
W- 2061 . COLLIER CO. T48S, R29E, SEC 23AA

360.0- 380.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% CALCILUTITE, 10% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

380.0- 390.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% CALCILUTITE, 15% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS,

390.0- 400.0 AS ABOVE,

400.0- 420.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

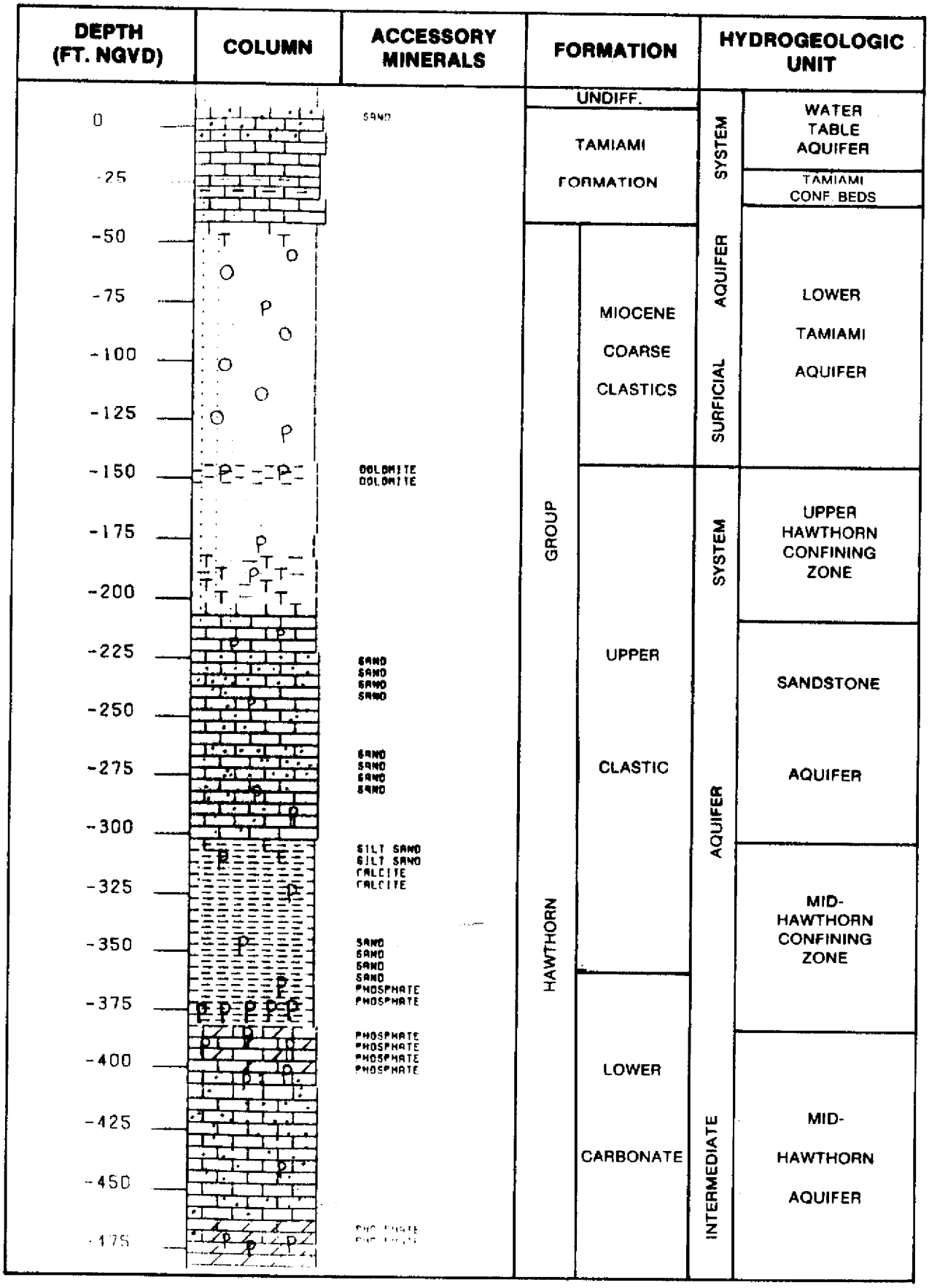
420.0- 440.0 AS ABOVE,

440.0- 460.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 04% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS,

460.0- 480.0 AS ABOVE,

480.0- 490.0 DOLOMITE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 08% PHOSPHATIC SAND, 04% QUARTZ SAND, MOLLUSKS,

490.0- 498.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
-425
-450
-475
SAND
DOLOMITE
DOLOMITE
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SILT SAND
SILT SAND
CALCITE
CALCITE
SAND
SAND
SAND
SAND
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE COARSE CLASTICS
UPPER CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONF. BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WC2061

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2062

COLLIER CO. T48S R28E SEC 17CC 26 17 36 N 81 32 45 W
TOTAL DEPTH- 460 FT. ELEV.- 16 FT. 46 SAMPLES- 0- 460 FT.
COMPLETED- 80.11.20 DEPTH WORKED 460 FT.

WELL NAME-
USGS C683,MIXSON (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (6-27-84),QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	150.0	SURFICIAL AQUIFER SYSTEM
0.0	55.0	WATER TABLE AQUIFER
55.0	65.0	UPPER TAMIAMI CONFINING ZONE
65.0	150.0	LOWER TAMIAMI AQUIFER
150.0	360.0	MID-HAWTHORN CONFINING ZONE
320.0	460.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	17.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
17.0-	70.0	TAMIAMI FORMATION
70.0-	150.0	MIOCENE COARSE CLASTICS
150.0-	460.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W- 2062 . COLLIER CO. T48S, R28E, SEC 17CC

.0- 10.0 SAND, LIGHT BROWN, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

10.0- 17.0 AS ABOVE,

17.0- 20.0 LIMESTONE, GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

20.0- 55.0 AS ABOVE,

55.0- 65.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 05% QUARTZ SAND, MOLLUSKS,

65.0- 70.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W- 2062 . COLLIER CO. T49S, R28E, SEC 17CC

70.0- 80.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 25% DOLOMITE, MOLLUSKS,

80.0- 90.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

90.0- 100.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 10% DOLOMITE, MOLLUSKS,

100.0- 120.0 AS ABOVE,

120.0- 135.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 10% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS,

135.0- 140.0 LIMESTONE, GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, MOLLUSKS, PLANT REMAINS, FOSSIL MOLDS,

140.0- 150.0 AS ABOVE,

150.0- 160.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 05% QUARTZ SAND,

160.0- 177.0 AS ABOVE,

177.0- 187.0 SAND, WHITE TO VERY LIGHT ORANGE, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 03% CALCILUTITE, MOLLUSKS,

187.0- 200.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

LITHOLOGIC LOG
W- 2062 . COLLIER CO. T48S, R28E, SEC 17CC

200.0- 220.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% CALCILUTITE, 20% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

220.0- 240.0 AS ABOVE,

240.0- 250.0 DOLO-SILT, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, 04% QUARTZ SAND, 10% CALCILUTITE, MOLLUSKS,

250.0- 260.0 AS ABOVE,

260.0- 270.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 04% PHOSPHATIC SAND, 10% QUARTZ SAND, 10% CALCILUTITE, MOLLUSKS,

270.0- 280.0 AS ABOVE,

280.0- 300.0 AS ABOVE,

300.0- 320.0 DOLO-SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 05% QUARTZ SAND, MOLLUSKS,

320.0- 340.0 LIMESTONE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, MOLLUSKS, CORAL, FOSSIL MOLDS,

340.0- 360.0 AS ABOVE,

360.0- 380.0 DOLOMITE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

380.0- 385.0 DOLOMITE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 03% PHOSPHATIC SAND, MOLLUSKS,

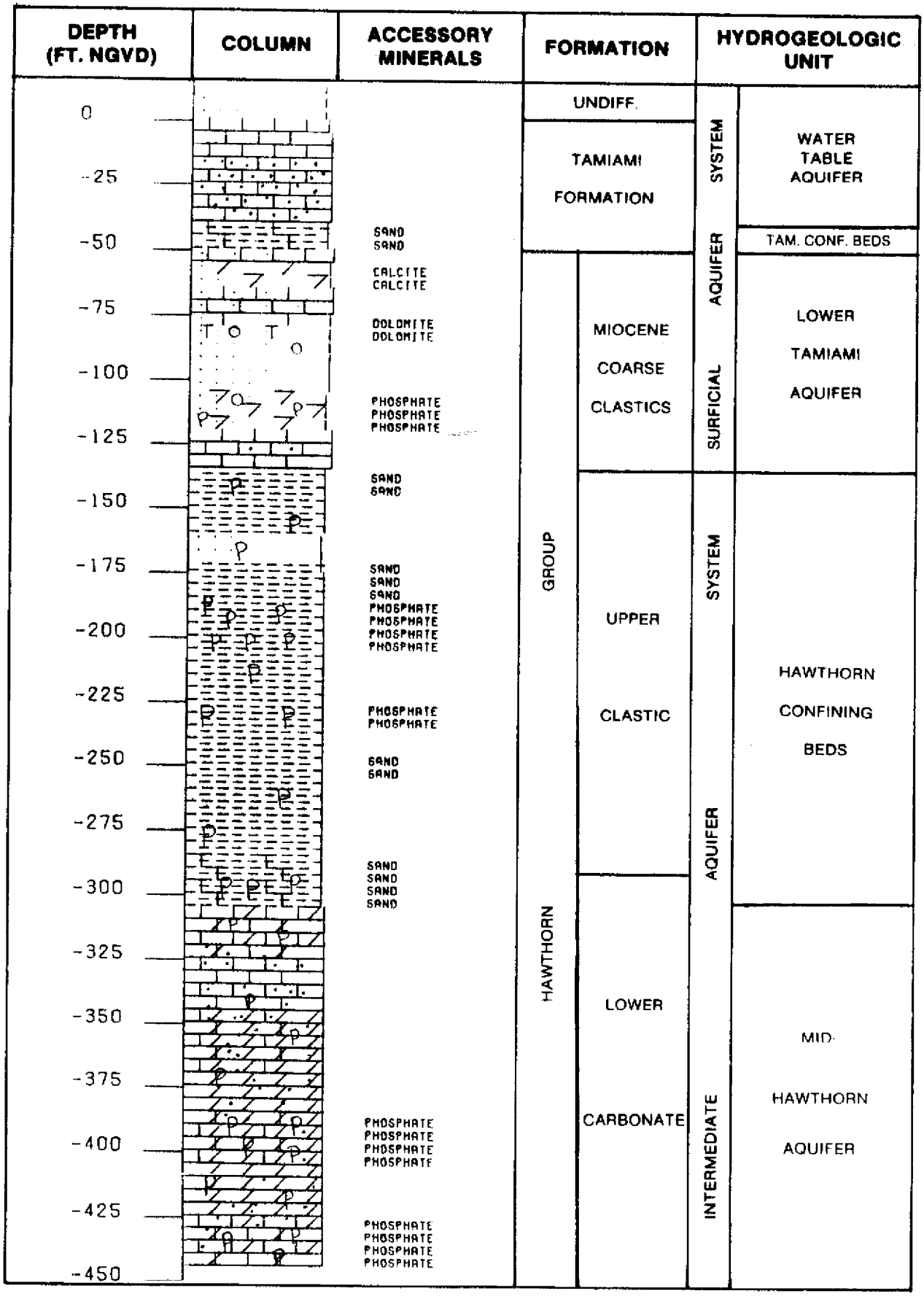
385.0- 400.0 AS ABOVE,

LITHOLOGIC LOG
W- 2062 . COLLIER CO. T48S, R28E, SEC 17CC

400.0- 420.0 DOLOMITE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% CALCILUTITE, 05% PHOSPHATIC SAND, 15% QUARTZ SAND, MOLLUSKS,

420.0- 440.0 AS ABOVE,

440.0- 460.0 LIMESTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
-425
-450
SAND
SAND
CALCITE
CALCITE
DOLOMITE
DOLOMITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
SAND
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PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE COARSE CLASTICS
UPPER CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
WATER TABLE AQUIFER
TAM. CONF. BEDS
LOWER TAMIAMI AQUIFER
HAWTHORN CONFINING BEDS
MID-HAWTHORN AQUIFER

WC2062

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 2063

COLLIER CO. T50S R25E SEC 12 26 08 16 N 81 45 23 W
TOTAL DEPTH- 60 FT. ELEV.- 7 FT. 12 SAMPLES- 0- 60 FT.
COMPLETED- 79.02.27 DEPTH WORKED 60 FT.

WELL NAME-
USGS S90,NAPLES,MARVIN MILLER (DRILLER)
REMARKS-
DESCRIBED BY MIKE KNAPP (06-26-84)

HYDROGEOLOGIC UNITS

0.0	60.0	SURFICIAL AQUIFER SYSTEM (PARTIAL)
0.0	17.0	WATER TABLE AQUIFER
17.0	30.0	UPPER TAMIAMI CONFINING ZONE
30.0	60.0	LOWER TAMIAMI AQUIFER (PART)

STRATIGRAPHIC FORMATIONS -

.0-	5.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
5.0-	60.0	TAMIAMI FORMATION

LITHOLOGIC LOG
W- 2063 . COLLIER CO. T50S, R25E, SEC 12

.0- 5.0 SAND, DARK YELLOWISH BROWN, 40% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

5.0- 7.0 LIMESTONE, GRAYISH ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, ECHINOID,

7.0- 10.0 LIMESTONE, GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID, FOSSIL MOLDS,

10.0- 15.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID, FOSSIL MOLDS,

15.0- 17.0 AS ABOVE,

LITHOLOGIC LOG
W- 2063 . COLLIER CO. T50S, R25E, SEC 12

17.0- 25.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, MOLLUSKS,

25.0- 30.0 AS ABOVE,

30.0- 35.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, MOLLUSKS,

35.0- 38.0 AS ABOVE,

38.0- 40.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, CORAL, ECHINOID, FOSSIL MOLDS,

40.0- 42.0 AS ABOVE,

42.0- 44.0 LIMESTONE, MODERATE LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

44.0- 46.0 LIMESTONE, LIGHT GRAY, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL,

46.0- 48.0 AS ABOVE,

48.0- 50.0 AS ABOVE,

50.0- 52.0 AS ABOVE,

52.0- 60.0 LIMESTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS, CORAL, ECHINOID,

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08.10.03.LITHO.
08.10.03.USER,KNAPP,.
08.10.03.ABSC,  B.
08.10.03.CHARGE,306,8760.
08.10.03.ROUTE,OUTPUT,DEF,UC=PR,FL=SM.
08.10.04. ROUTE COMPLETE.
08.10.04.GET,CLITHO2,WC2063.
08.10.04.CLITHO2,WC2063.
08.10.06.  CM LWA+1 = 263708, LOADER USED  447008
08.10.07.     STOP
08.10.07.      37600 MAXIMUM EXECUTION FL.
08.10.07.      0.916 CP SECONDS EXECUTION TIME.
08.10.07.EXIT.
08.10.08.UEAD,       0.002KUNS.
08.10.08.UEPF,       0.015KUNS.
08.10.08.UEMS,       2.609KUNS.
08.10.08.UECP,       1.930SECS.
08.10.08.AESR,       4.571UNTS.
08.10.08.$UUT(*/DP=E)
08.10.08. NO FILES PROCESSED.
08.10.08.$DAYFILE(OUTPUT,JT=D)
08.22.58.UCLP, AA, 013,      0.192KUNS.
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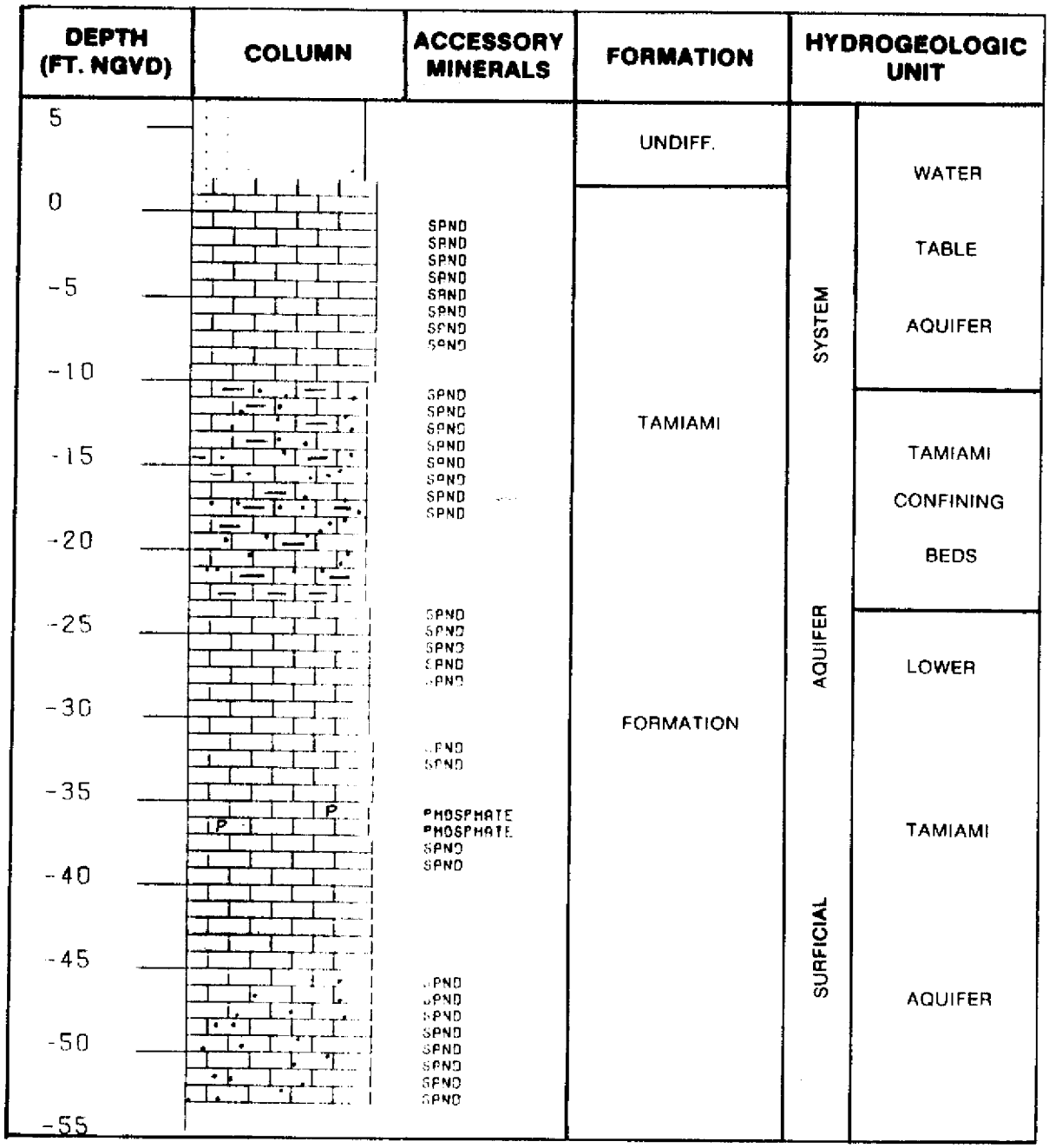

DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
-55
SAND
PHOSPHATE
UNDIFF.
TAMIAMI
FORMATION
SURFICIAL AQUIFER SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER

WC2063

SOUTH FLORIDA WMD - LITHOLOGY PRINTOUT

W-HE006

HENDRY CO. T44S R29E SEC 16BC 26 38 45 N 81 26 12 W
TOTAL DEPTH- 380 FT. ELEV.- 28 FT. 36 SAMPLES- 0- 380 FT.
COMPLETED- 84.01.25 DEPTH WORKED 380 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GEOLOGIST
CALIPHER
ELECTRIC
GAMMA
LATERLOG

WELL NAME-
RTA-6 DRILLED BY ALVIN WEBSTER(SFWMD); MUD ROTARY; SEARS RD & SR29
REMARKS-
DESCRIBED BY SCOTT BURNS (6-15-84), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	40.0	WATER TABLE AQUIFER
40.0	140.0	UPPER HAWTHORN CONFINING ZONE
140.0	180.0	SANDSTONE AQUIFER
180.0	370.0	MID HAWTHORN CONFINING ZONE
370.0	380.0	MID HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	20.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
20.0-	40.0	TAMIAMI FORMATION
40.0-	380.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W-HE006 . HENDRY CO. T44S, R29E, SEC 16BC

.0- 10.0 SANDSTONE, GRAYISH BROWN, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, LOW SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 15% CLAY, IRON STAIN, NO FOSSIL,

10.0- 20.0 SANDSTONE, VERY LIGHT GRAY TO YELLOWISH GRAY, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, LOW SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% CALCILUTITE, 10% SPAR, NO FOSSIL,

20.0- 30.0 CALCILUTITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, MOLLIC, GRAIN TYPE: CALCILUTITE, INTRACLASTS, 25% ALLOCHEMICAL CONSTITUENTS, RANGE: CRYPTOCRYSTALLINE TO CRYPTOCRYSTALLINE, POOR INDURATION, 40% QUARTZ SAND, 34% PHOSPHATIC SAND, NO FOSSIL,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W-HE008 . HENDRY CO. 14S, R29E, SEC 16EC

30.0- 40.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO FINE, LOW SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 10% CLAY, 03% PHOSPHATIC SAND, IRON STAIN, MOLLUSKS,

OSTREA FRAGMENTS

40.0- 50.0 CLAY, YELLOWISH GRAY, 10% POROSITY, LOW PERMEABILITY, POOR INDURATION, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, IRON STAIN, PLASTIC, NO FOSSIL,

50.0- 60.0 AS ABOVE,

60.0- 70.0 SILT, LIGHT OLIVE GRAY, 10% POROSITY, LOW PERMEABILITY, BENTHONIC FORAMINIFERA,

70.0- 80.0 CLAY, OLIVE GRAY, 10% POROSITY, LOW PERMEABILITY, POOR INDURATION, PLASTIC, BENTHONIC FORAMINIFERA, DIATOMS,

80.0- 90.0 AS ABOVE,

90.0- 100.0 CLAY, LIGHT OLIVE, 10% POROSITY, LOW PERMEABILITY, POOR INDURATION, 10% QUARTZ SAND, 04% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

100.0- 110.0 AS ABOVE,

110.0- 120.0 SAND, MODERATE GRAYISH GREEN, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: MEDIUM TO GRANULE, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 40% SILT, 02% PHOSPHATIC GRAVEL, FOSSIL FRAGMENTS,

120.0- 130.0 SILT, GRAYISH OLIVE TO WHITE, 12% POROSITY, LOW PERMEABILITY, POOR INDURATION, 35% QUARTZ SAND, 20% DOLOMITE,

05% QUARTZ GRAVEL

130.0- 140.0 AS ABOVE,

140.0- 150.0 LIMESTONE, YELLOWISH GRAY TO VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, VOGULAR, GRAIN TYPE: CALCILUTITE, INTRACLASTS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO GRANULE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% QUARTZ SAND, 20% CLAY, 10% DOLOMITE,

150.0- 160.0 AS ABOVE WITH LESS SILT

160.0- 170.0 LIMESTONE, WHITE, 17% POROSITY, VOGULAR, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, 05% QUARTZ SAND, 10% DOLOMITE,

LITHOLOGIC LOG
W-RECORD . HENDRY CO. T44S, R29E, SEC 10BC

170.0- 180.0 LIMESTONE, WHITE, 12% POROSITY, VUGULAR, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO GRANULE, POOR INDURATION, 15% QUARTZ SAND, 20% DOLOMITE, CHALKY,

180.0- 190.0 CALCILUTITE, YELLOWISH GRAY TO WHITE, 10% POROSITY, PIN POINT VUGS, GRAIN TYPE: CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, 30% DOLOMITE, 30% QUARTZ SAND, CHALKY, NO FOSSIL,

MED. GRAINED SUBANGULAR SAND

190.0- 200.0 AS ABOVE,

200.0- 220.0 NO SAMPLE,

220.0- 230.0 CALCILUTITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: CRYPTOCRYSTALLINE TO MEDIUM, MODERATE INDURATION, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, 15% DOLOMITE, CHALKY, NO FOSSIL,

2% QTZ GRANULES

230.0- 240.0 AS ABOVE,

240.0- 250.0 CALCILUTITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: CRYPTOCRYSTALLINE TO GRANULE, POOR INDURATION, 40% QUARTZ SAND, 15% DOLOMITE, NO FOSSIL,

5% QTZ GRAVEL

250.0- 270.0 CALCILUTITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, POOR INDURATION, 40% QUARTZ SAND, 20% DOLOMITE,

270.0- 290.0 SILT, YELLOWISH GRAY, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 25% QUARTZ SAND, 35% CALCILUTITE, 25% CLAY, 01% PHOSPHATIC SAND, PLASTIC, NO FOSSIL,

290.0- 300.0 SILT, YELLOWISH GRAY, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 15% QUARTZ SAND, 3% PHOSPHATIC SAND, 35% CLAY, 45% CALCILUTITE,

300.0- 310.0 SANDSTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 10% PHOSPHATIC SAND,

310.0- 330.0 CLAY, LIGHT OLIVE GRAY, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 02% PHOSPHATIC SAND, POOR SAMPLE, PLASTIC,

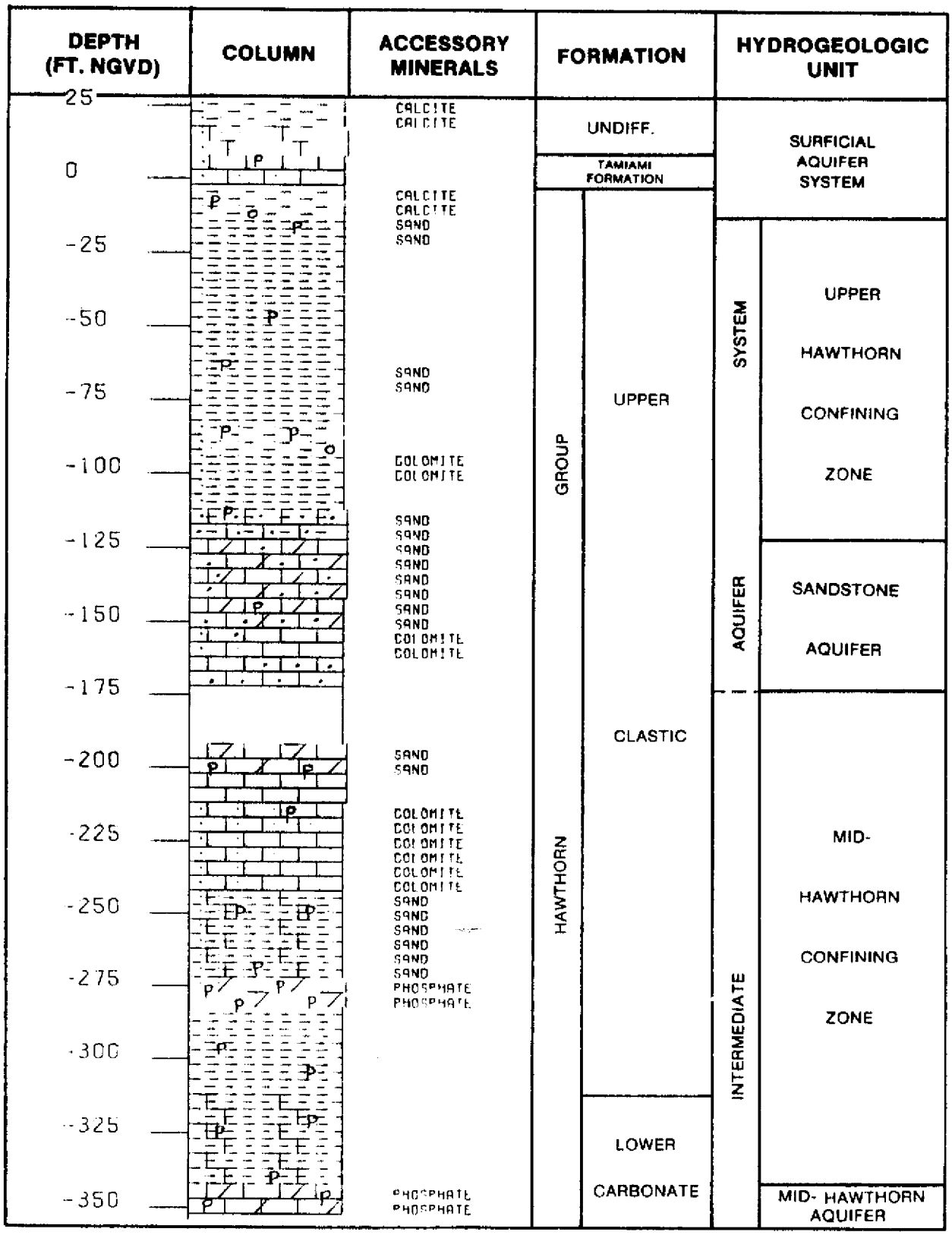
LITHOLOGIC LOG
W-HE006 . HENDRY CO. T44S, R29E, SEC 1006

330.0- 340.0 CLAY, GREENISH GRAY, POROSITY, LOW PERMEABILITY, POOR INDURATION, 03% PHOSPHATIC SAND, PLASTIC,

340.0- 360.0 CLAY, GREENISH GRAY, POROSITY, LOW PERMEABILITY, POOR INDURATION, 25% LIMESTONE, 03% PHOSPHATIC SAND, PLASTIC, FOSSIL FRAGMENTS,

360.0- 370.0 CLAY, GREENISH GRAY, POOR INDURATION, 30% CALCILUTITE, 04% PHOSPHATIC SAND,

370.0- 380.0 CALCILUTITE, WHITE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO GRANULE, POOR INDURATION, 25% DOLOMITE, 05% PHOSPHATIC SAND, FOSSIL FRAGMENTS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
CALCITE
CALCITE
CALCITE
CALCITE
SAND
SAND
SAND
SAND
DOLOMITE
DOLOMITE
SAND
SAND
SAND
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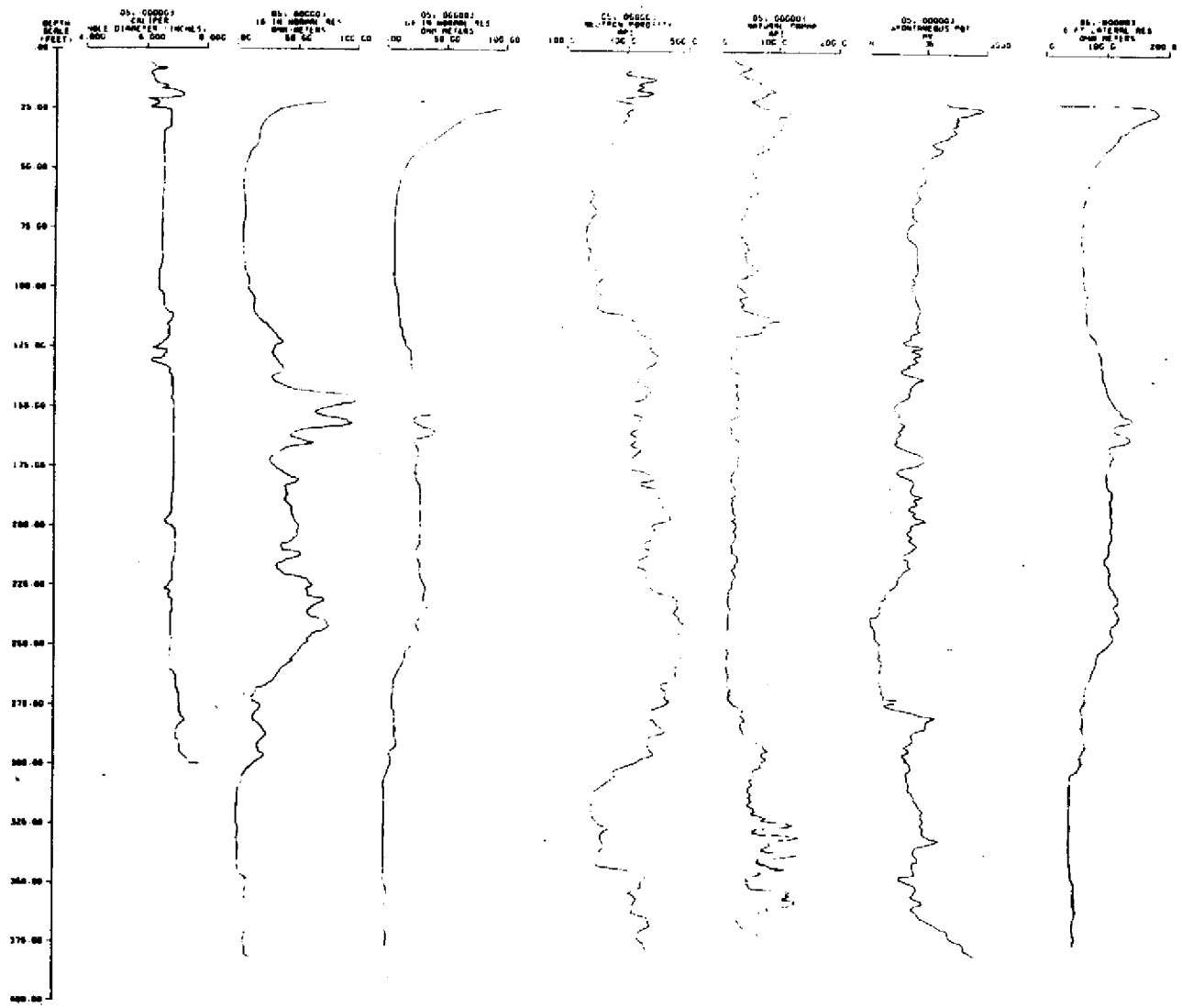
DOLOMITE
DOLOMITE
SAND
SAND
SAND
SAND
SAND
SAND
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER
CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID- HAWTHORN AQUIFER
INTERMEDIATE AQUIFER SYSTEM

WHE008



GEOPHYSICAL LOGS, HENDRY COUNTY, HE008

W-HE010

HENDRY CO. T45S R28E SEC 06DC 26 35 18 N 81 33 28 W
TOTAL DEPTH- 260 FT. ELEV.- 26 FT. 24 SAMPLES- 0- 260 FT.
COMPLETED- 09.82 DEPTH REPORTED 260 FT.

WELL NAME-
H-M-120 DRILLED BY MISSIMER & ASSOC. MUD ROTARY; TURNER CORP NORTH SITE
REMARKS-
DESCRIBED BY SCOTT BURNS (6-18-84), SAMPLE QUALITY (POOR)

HYDROGEOLOGIC UNITS

0.0	20.0	WATER TABLE AQUIFER
20.0	159.0	UPPER HAWTHORN CONFINING ZONE
159.0	189.0	SANDSTONE AQUIFER
189.0	260.0	MID HAWTHORN CONFINING ZONE

STRATIGRAPHIC FORMATIONS -

.0-	5.0	UNDIFFERENTIATED SAND AND CLAY
5.0-	20.0	TAMIAMI FORMATION
20.0-	260.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W-HE010 . HENDRY CO. T45S, R28E, SEC 06DC

.0- 5.0 SAND, LIGHT BROWN, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: FINE TO COARSE, ANGULAR, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, IRON CEMENT, 10% HEAVY MINERALS,

5.0- 15.0 LIMESTONE, LIGHT BROWN TO VERY LIGHT ORANGE, 20% POROSITY, VUGGULAR, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, SKELETAL CAST, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, 20% QUARTZ SAND, 40% DOLOMITE, IRON STAIN,

15.0- 20.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, 30% DOLOMITE, 10% QUARTZ SAND, CHALKY,

20.0- 25.0 NO SAMPLE,

25.0- 30.0 SILT, GRAYISH OLIVE, 05% POROSITY, LOW PERMEABILITY, POOR INDURATION, 40% DOLOMITE, 20% CLAY, 30% CALCILUTITE, 10% QUARTZ SAND, CALCAREOUS, PLASTIC, POOR SAMPLE, BENTHONIC FORAMINIFERA, DIATOMS,

30.0- 40.0 SILT, GRAYISH OLIVE, 05% POROSITY, LOW PERMEABILITY, POOR INDURATION, 40% DOLOMITE, 30% CALCILUTITE, 20% CLAY, 15% QUARTZ SAND, CALCAREOUS, PLASTIC, POOR SAMPLE, BENTHONIC FORAMINIFERA, DIATOMS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W-HE010 . HENDRY CO. T45S, R28E, SEC 16CC

40.0- 60.0 CLAY, GRAYISH OLIVE, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

60.0- 72.0 CLAY, GRAYISH OLIVE, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 35% QUARTZ SAND, 03% PHOSPHATIC SAND,

15% RECRYSTALIZED SHELL FRAGMENT

72.0- 85.0 CLAY, GRAYISH OLIVE, 08% POROSITY, LOW PERMEABILITY, 20% QUARTZ SAND, 20% DOLOMITE, BENTHONIC FORAMINIFERA,

DOLOMITE,GREY,WELL LITHOFIED,HIGHLY RECRYSTALIZED; SAND VERY FINE TO FINE,SUBANGULAR

85.0- 90.0 AS ABOVE WITH 10% FROSTED QTZ GRANULES

90.0- 100.0 SILT, MODERATE GRAYISH GREEN TO MODERATE LIGHT GRAY, 12% POROSITY, INTERGRANULAR, POOR INDURATION, 45% QUARTZ SAND, 30% DOLOMITE, 25% CALCILUTITE, CALCAREOUS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

100.0- 110.0 SAND, MODERATE GRAYISH GREEN, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 30% DOLOMITE, FROSTED,

MATRIX (DOLOMITE 30%) AS DOLOSILT

110.0- 125.0 SILT, GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 20% DOLOMITE, 35% QUARTZ SAND, CALCAREOUS,

125.0- 135.0 SAND, GRAYISH OLIVE, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 35% SILT, FOSSIL FRAGMENTS,

5% WHITE MELLUSK FRAGMENTS

135.0- 145.0 AS ABOVE WITH INCREASE PERCENTAGE OF ROUNDED QTZ GRANULES (2

145.0- 159.0 SAND, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO GRANULE, ANGULAR, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 30% SILT, 10% DOLOMITE, FROSTED,

159.0- 170.0 DOLOMITE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 14% POROSITY, MOLDIC, VUGGLAR, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, SUBHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, 30% LIMESTONE, 10% QUARTZ SAND, PLATY, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
*-HEGIO . HENORY CO. T4:S, R26E, SEC 06LC

170.0- 183.0 AS ABOVE,

183.0- 189.0 DOLOMITE, VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN, 15
POROSITY, MOLDIC, VUGGLAR, POSSIBLY HIGH PERMEABILITY,
50-90% ALTERED, SUBHEDRAL, GRAIN SIZE: MICROCRYSTALLINE,
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE, GOOD
INDURATION, 10% QUARTZ SAND, 30% LIMESTONE, FOSSIL
FRAGMENTS,

189.0- 197.0 CLAY, LIGHT OLIVE GRAY, POROSITY, NONE OBSERVED, POOR
INDURATION, 20% LIMESTONE, 10% QUARTZ SAND, 02% PHOSPHATIC
SAND, CALCAREOUS, PLASTIC, POOR SAMPLE,

LIMESTONE FRAGMENTS IN SAMPLE MAY BE CAVINGS FROM ABOVE
197.0- 205.0 NO SAMPLE,

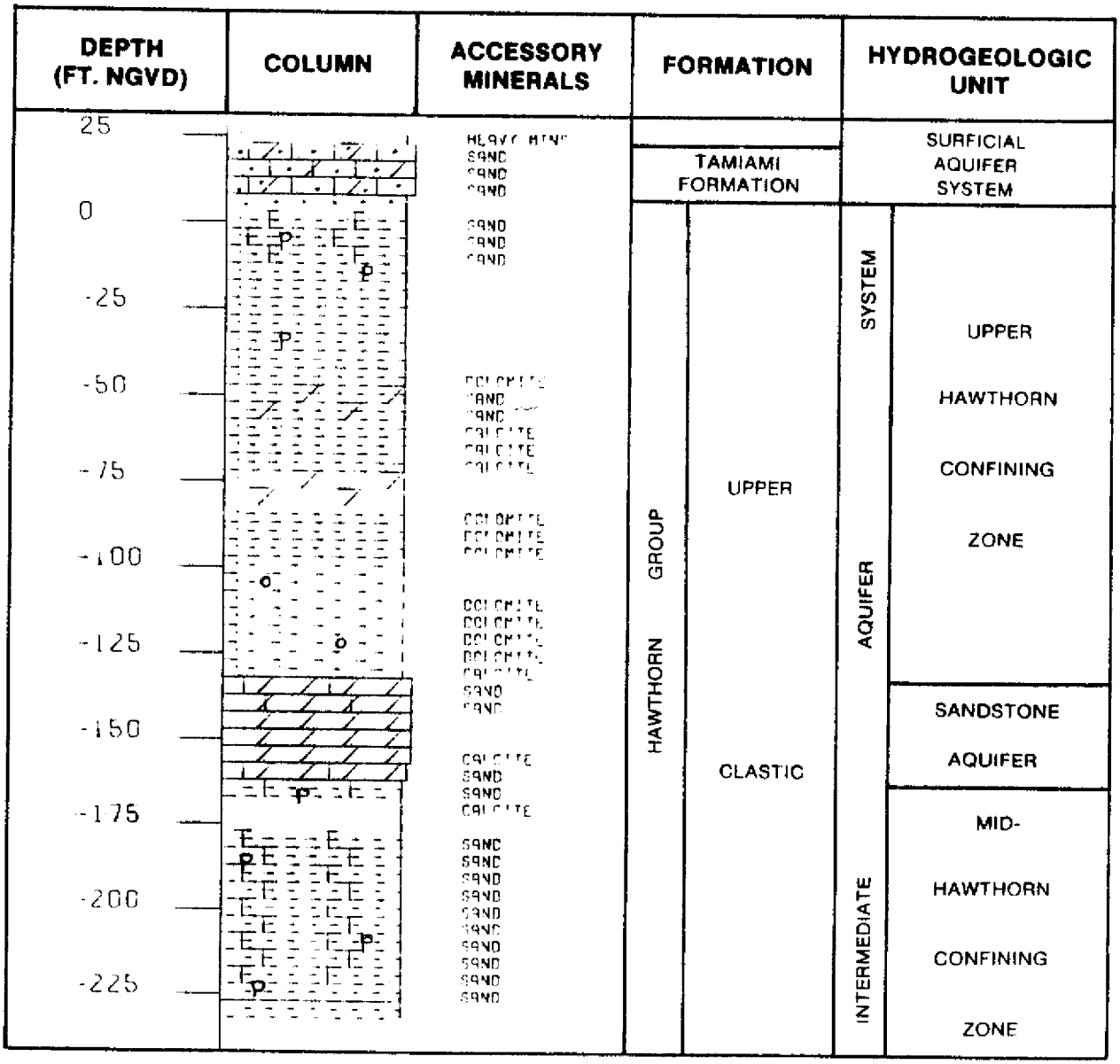
205.0- 217.0 CLAY, LIGHT OLIVE GRAY, 08% POROSITY, INTERGRANULAR, LOW
PERMEABILITY, POOR INDURATION, 30% LIMESTONE, 20% QUARTZ
SAND, CALCAREOUS, PLASTIC, POOR SAMPLE, FOSSIL FRAGMENTS,
PLANT REMAINS,

217.0- 228.0 CLAY, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW
PERMEABILITY, POOR INDURATION, 30% CALCILUTITE, 20% QUARTZ
SAND, 01% PHOSPHATIC SAND, CHALKY, PLASTIC, NO FOSSIL,

228.0- 242.0 AS ABOVE WITH 30% WELL INDURATED DOLOMITE, POSSIBLY
A STRINGER OR CAVINGS. 35% SUBANGULAR SAND

242.0- 252.0 CLAY, GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW
PERMEABILITY, POOR INDURATION, 30% QUARTZ SAND, 30%
CALCILUTITE, 03% PHOSPHATIC SAND, CALCAREOUS, PLASTIC, NO
FOSSIL,

252.0- 260.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
TAMIAMI FORMATION
SURFICIAL AQUIFER SYSTEM
HAWTHORN GROUP
UPPER
CLASTIC
SYSTEM
AQUIFER
INTERMEDIATE
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE

WHE010

SOUTH FLORIDA WMD - LITHOLOGIC PRINTOUT

W-HE011

HENDRY CO. T45S R28E SEC 100C 26 34 30 N 81 30 30 W
TOTAL DEPTH- 200 FT. ELEV.- 32 FT. 20 SAMPLES- 0- 200 FT.
COMPLETED- 73. . DEPTH WORKED 200 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

ELECTRIC

WELL NAME-
HE-570 DRILLED BY USGS, MUD ROTARY; 4.5 MI WEST SR29, 1 MI NORTH CHURCH RD
REMARKS-
DESCRIBED BY SCOTT BURNS (6-26-64) SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	20.0	WATER TABLE AQUIFER
20.0	175.0	UPPER HAWTHORN CONFINING ZONE
175.0	200.0	SANDSTONE AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	13.0	UNDIFFERENTIATED SAND AND CLAY
13.0-	20.0	TAMIAMI FORMATION
20.0-	200.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W-HE011 . HENDRY CO. T45S, R28E, SEC 100C

.0- 4.0 SAND, LIGHT GRAY, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO FINE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% LIMONITE, PLANT REMAINS,

4.0- 13.0 SAND, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO FINE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, NO FOSSIL,

13.0- 15.0 SANDSTONE, MODERATE YELLOWISH BROWN, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 02% SPAR, 05% LIMESTONE, FOSSIL FRAGMENTS,

15.0- 20.0 LIMESTONE, WHITE, 15% POROSITY, PIN POINT VUGS, MOLDIC, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE, GOOD INDURATION, [illegible] DOLOMITE, 02% SPAR, 10% QUARTZ SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W-HE011 . HENDRY CO. T45S, R28E, SEC 10CC

20.0- 30.0 SILT, YELLOWISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 20% QUARTZ SAND, 25% DOLOMITE, 03% PHOSPHATIC SAND, 30% CALCILUTITE, CALCAREOUS, PLASTIC, FOSSIL FRAGMENTS,

3% APPATITE CRYSTALS

30.0- 40.0 AS ABOVE,

40.0- 50.0 SILT, VERY LIGHT GRAY, 00% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY, POOR INDURATION, 20% QUARTZ SAND, 30% DOLOMITE, 03% PHOSPHATIC SAND, CALCAREOUS, PLASTIC, FOSSIL FRAGMENTS,

50.0- 60.0 DOLOMITE, WHITE, 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, 50-90% ALTERED, SUBHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, 30% CALCILUTITE, 20% QUARTZ SAND, FOSSIL FRAGMENTS,

60.0- 65.0 SILT, YELLOWISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 35% QUARTZ SAND, 20% CALCILUTITE, 03% PHOSPHATIC SAND, CALCAREOUS, PLASTIC, FOSSIL FRAGMENTS,

65.0- 80.0 SAND, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: MEDIUM TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 15% CALCILUTITE, PHOSTED, NO FOSSIL,

80.0- 100.0 AS ABOVE,

AS ABOVE,

POORLY SORTED, VERY FINE TO VERY COARSE

100.0- 120.0 SANDSTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 25% CALCILUTITE, PHOSTED, PLANT REMAINS,

120.0- 137.0 AS ABOVE,

10% ROUNDED QTZ GRANULES
AS ABOVE,

137.0- 140.0 SANDSTONE, YELLOWISH GRAY TO WHITE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, LOW SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, PLANT REMAINS,

140.0- 157.0 AS ABOVE,

LITHOLOGIC LOG

W-HE011 . McNORY CO. T4S, R28E, SEC 10DC

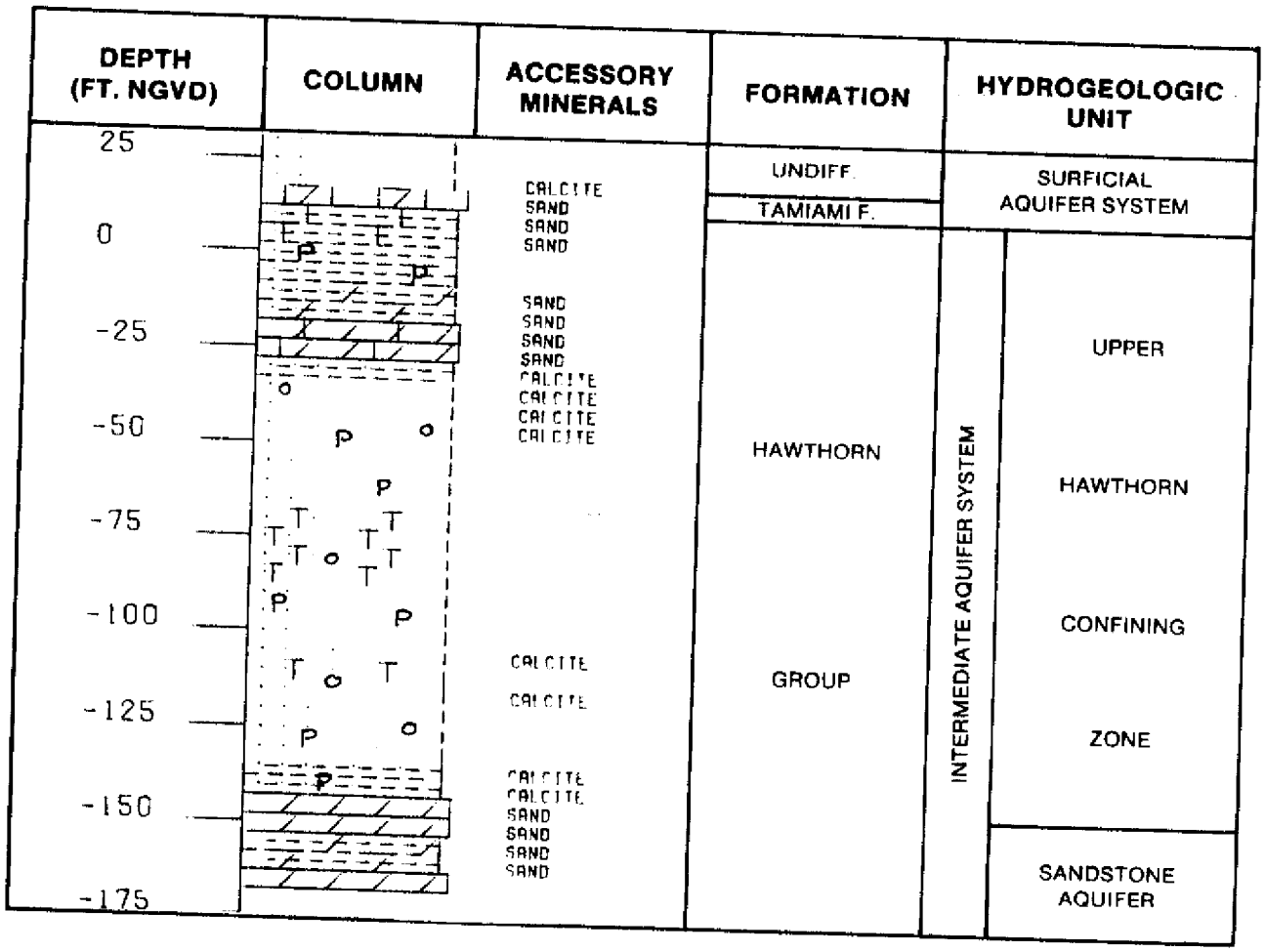
157.0- 165.0 AS ABOVE,

165.0- 175.0 SILT, YELLOWISH GRAY, 08% POROSITY, INTERGRANULAR, PIN POINT VUGS, POOR INDURATION, CALCILUTITE MATRIX, 35% QUARTZ SAND, 30% CALCILUTITE, 30% DOLOMITE, NO FOSSIL,

175.0- 185.0 DOLOMITE, VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, PIN POINT VUGS, 90-100% ALTERED, EUHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

185.0- 195.0 CLAY, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 40% DOLOMITE, 05% QUARTZ SAND, CHALKY, FOSSIL FRAGMENTS,

195.0- 200.0 DOLOMITE, VERY LIGHT ORANGE, 12% POROSITY, PIN POINT VUGS, MOLDIC, INTERGRANULAR, EUHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, FOSSIL FRAGMENTS, FOSSIL MOLDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
CALCITE
SAND
SAND
SAND
SAND
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
SAND
SAND
SAND
SAND
UNDIFF.
TAMIAMI F.
HAWTHORN
GROUP
SURFICIAL AQUIFER SYSTEM
INTERMEDIATE AQUIFER SYSTEM
UPPER
HAWTHORN
CONFINING
ZONE
SANDSTONE AQUIFER

WHE011

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W-HE012

HENDRY CO. 45S 28E Sec 30 26 38 40 N 81 20 45 W
TOTAL DEPTH- 240 FT. ELEV.- 27 FT. 29 SAMPLES- 0- 240 FT.
COMPLETED- . . DEPTH WORKED 240 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GEOLOGIST

WELL NAME-
DRILLED BY MISSIMER & ASSOC; MCD ROTARY; TURNER CORP. SOUTH
REMARKS-
DESCRIBED BY SCOTT BURNS (7-3-84) SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	100.0	SURFICIAL AQUIFER SYSTEM
0.0	40.0	WATER TABLE AQUIFER
40.0	60.0	CONFINING ZONE
60.0	100.0	INTERMEDIATE AQUIFER
100.0	150.0	UPPER HAWTHORN CONFINING ZONE
150.0	180.0	SANDSTONE AQUIFER
180.0	240.0	MID HAWTHORN CONFINING ZONE

STRATIGRAPHIC FORMATIONS -

.0-	20.0	UNDIFFERENTIATED SAND AND CLAY
20.0-	85.0	TAMIAMI FORMATION
85.0-	240.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W-HE012 . HENDRY CO. T44S, R30E, SEC 20AB

.0- 10.0 SAND, MODERATE BROWN, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 15% CALCILUTITE, 02% LIMONITE, PLANT REMAINS,

10.0- 15.0 SANDSTONE, GRAYISH BROWN, <0% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 20% CALCILUTITE, TR FOSSIL,

15.0- 20.0 SANDSTONE, GRAYISH BROWN TO WHITE, 18% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, <5% CALCILUTITE, 25% LIMESTONE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT

LITHOLOGIC LOG
W-HECIZ . HENDRY CO. 45S 28E Sec 30

20.0- 30.0 LIMESTONE, WHITE TO GRAYISH BROWN, 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN TYPE: CALCILUTITE, INTRACLASTS, SKELETAL, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO GRANULE, MODERATE INDURATION, CALCILUTITE MATRIX, 35% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

POORLY SORTED SUBANGULAR SAND FINE TO COARSE GRAINED

30.0- 35.0 AS ABOVE,

35.0- 40.0 LIMESTONE, VERY LIGHT GRAY TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN TYPE: CALCILUTITE, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY COARSE, MODERATE INDURATION, 35% QUARTZ SAND, 20% SILT, FOSSIL FRAGMENTS,

OSTREA FRAGMENTS

40.0- 50.0 SILT, LIGHT OLIVE, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 30% CALCILUTITE, 30% DOLOMITE, 10% CLAY, 05% QUARTZ SAND, CALCAREOUS, PLASTIC, OOLITES, DIATOMS,

50.0- 60.0 AS ABOVE WITH 3% SILT SIZE PHOSPHORITE

60.0- 70.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC, GRAIN TYPE: CALCILUTITE, INTRACLASTS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: CRYPTOCRYSTALLINE TO MEDIUM, GOOD INDURATION, 20% DOLOMITE, 20% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL MOLDS,

70.0- 75.0 AS ABOVE WITH LARGE PELECYPOD FRAGMENTS AND MOLDS HIGHLY RECRYSTALLIZED

75.0- 85.0 DOLOMITE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, 90-100% ALTERED, ELHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, 35% QUARTZ SAND, 03% CALCILUTITE, 02% PHOSPHATIC GRAVEL, REEFAL, FOSSIL MOLDS, FOSSIL FRAGMENTS, VERTBRATE,

HIGHLY RECRYSTALIZED OSTREA FRAGMENTS; 5% QTZ. PEBBLES

85.0- 95.0 SAND, VERY LIGHT GRAY TO MODERATE GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: COARSE, RANGE: VERY FINE TO GRANULE, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 20% DOLOMITE, 01% PHOSPHATIC GRAVEL, FROSTED, REEFAL, FOSSIL FRAGMENTS, SHARK TEETH, CRUSTACEA,

SHELL FRAGMENTS ARAGONITIC ;BARNACLES,OSTREA,& PELECYPODS

95.0- 100.0 SAND, LIGHT GRAY TO WHITE, 17% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, REEFAL, FROSTED, FOSSIL FRAGMENTS, CRUSTACEA,

LITHOLOGIC LOG
W-HEG12 . HENDRY CO. 45S 28E Sec 30

25% ARAGONITIC SHELL FRAGMENTS AND BARNACLES

100.0- 110.0 SAND, MODERATE GRAYISH GREEN, 35% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, SUB-ANGULAR, HIGH SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 10% DOLOMITE, FOSSIL FRAGMENTS,

15% SHELL FRAGMENTS; CLAY AND DOLOSILT MATRIX

110.0- 120.0 SAND, OLIVE GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO FINE, SUB-ANGULAR, HIGH SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 10% CLAY, 10% DOLOMITE, FOSSIL FRAGMENTS,

120.0- 130.0 AS ABOVE,

130.0- 140.0 SAND, GRAYISH OLIVE GREEN, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 10% CLAY, 10% DOLOMITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

2% GIZ GRANULES

140.0- 150.0 AS ABOVE,

150.0- 160.0 DOLOMITE, YELLOWISH GRAY, 15% POROSITY, MOLDIC, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY, 90-100% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, 30% CALCILUTITE, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL MOLDS,

160.0- 165.0 DOLOMITE, YELLOWISH GRAY TO LIGHT GRAY, 15% POROSITY, MOLDIC, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY, 90-100% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, 30% CALCILUTITE, 30% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL MOLDS, FOSSIL FRAGMENTS,

165.0- 175.0 DOLOMITE, YELLOWISH GRAY, 20% POROSITY, MOLDIC, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY, 90-100% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, 20% CALCILUTITE, 30% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES,

175.0- 180.0 AS ABOVE,

180.0- 190.0 SILT, GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 40% CALCILUTITE, 30% DOLOMITE, 10% QUARTZ SAND, CALCAREOUS, PLASTIC, FOSSIL FRAGMENTS,

190.0- 205.0 AS ABOVE,

LITHOLOGIC LOG
W-HEC12 . HENDRY CO. 45S 28E Sec 30

205.0- 211.0 CALCILUTITE, VERY LIGHT GRAY, 06% POROSITY, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, 25% DOLOMITE, 45% CALCILUTITE, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, PLASTIC,

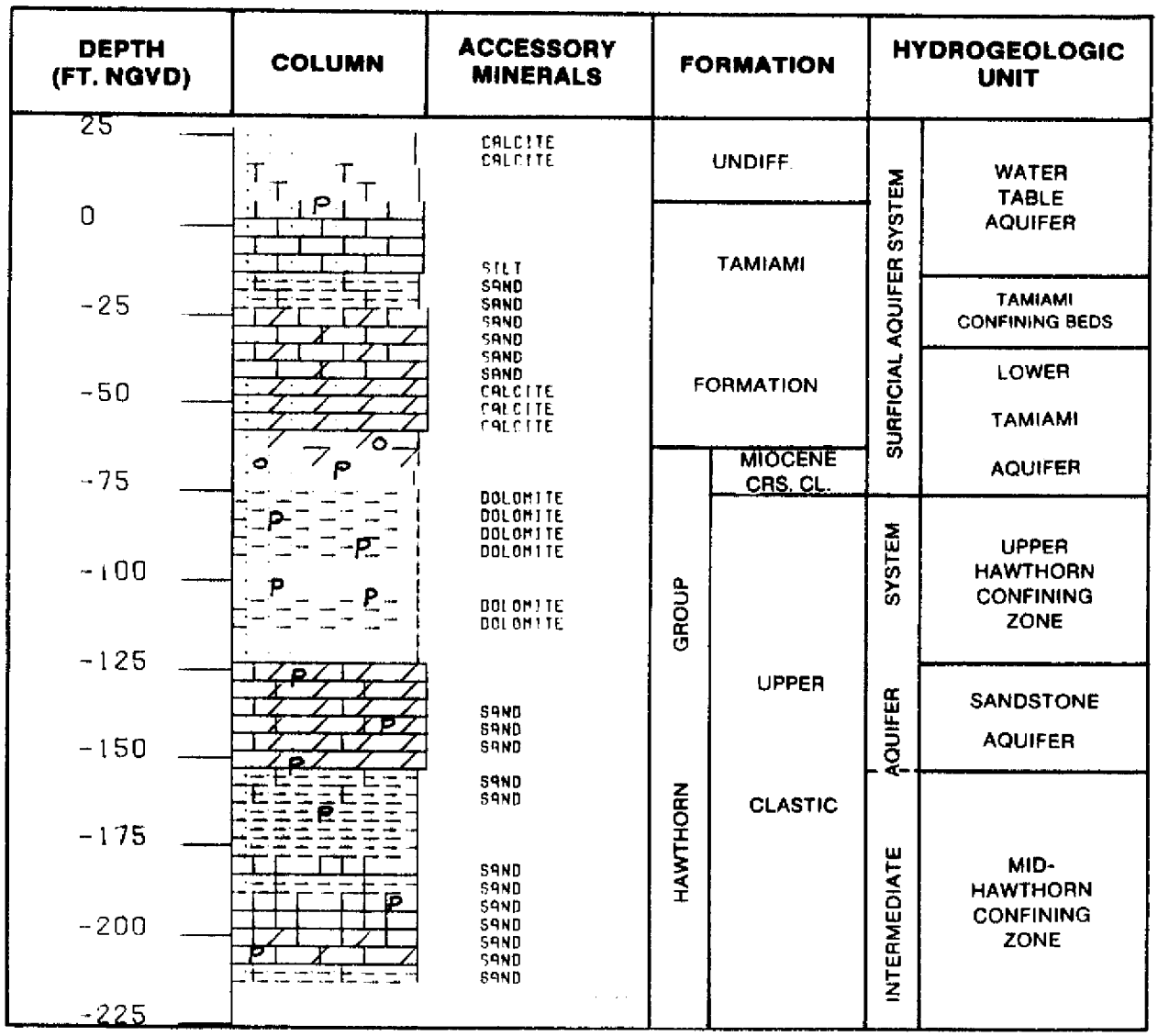
211.0- 215.0 SILT, GREENISH GRAY, 06% POROSITY, LOW PERMEABILITY, POOR INDURATION, 25% DOLOMITE, 45% CALCILUTITE, 02% PHOSPHATIC SAND, 10% QUARTZ SAND, CALCAREOUS, PLASTIC, FOSSIL FRAGMENTS,

MOLLUSK FRAGMENTS HIGHLY REPLACED WITH DOLOMITE

215.0- 225.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 75% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: CRYPTOCRYSTALLINE TO MEDIUM, POOR INDURATION, 20% DOLOMITE, 30% CALCILUTITE, 20% QUARTZ SAND, CALCAREOUS, FROSTED, FOSSIL FRAGMENTS,

225.0- 235.0 CALCILUTITE, WHITE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: CRYPTOCRYSTALLINE TO FINE, POOR INDURATION, 20% DOLOMITE, 20% QUARTZ SAND, FOSSIL FRAGMENTS,

235.0- 240.0 SILT, GREENISH GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 10% DOLOMITE, 40% CALCILUTITE, 15% QUARTZ SAND, 33% PHOSPHATIC SAND, CALCAREOUS, NO FOSSIL,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
CALCITE
CALCITE
SILT
SAND
SAND
SAND
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
DOLOMITE
DOLOMITE
DOLOMITE
DOLOMITE
DOLOMITE
DOLOMITE
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
SAND
UNDIFF.
TAMIAMI
FORMATION
MIOCENE CRS. CL.
HAWTHORN GROUP
UPPER
CLASTIC
SURFICIAL AQUIFER SYSTEM
SYSTEM
AQUIFER
INTERMEDIATE
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE

WHE012

SOUTH FLORIDA WML - LITHO LOG PRINTOUT

W-HE013

HENDRY CO. T45S R29E SEC 20BB 26 35 32 N 81 26 10 W
TOTAL DEPTH- 380 FT. ELEV.- 34 FT. 37 SAMPLES- 0- 380 FT.
COMPLETED- 01.16.84 DEPTH WORKED 380 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

ELECTRIC
GAMMA
LATERLOG
NEUTRON

WELL NAME-
RIA-5 DRILLED BY ALVIN WEBSTER (SFWMD) MUD ROTARY; SR29 & CHURCH RD
REMARKS-
DESCRIBED BY SCOTT BURNS (6-15-84), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0	25.0	WATER TABLE AQUIFER
25.0	40.0	TAMIAMI CONFINING BEDS
40.0	90.0	LOWER TAMIAMI AQUIFER
20.0	155.0	UPPER HAWTHORN CONFINING ZONE
155.0	190.0	SANDSTONE AQUIFER
190.0	335.0	MID HAWTHORN CONFINING ZONE
335.0	380.0	MID HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	10.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
10.0-	25.0	TAMIAMI FORMATION
25.0-	90.0	MIOCENE COARSE CLASTICS
90.0-	380.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W-HE013 . HENDRY CO. T45S, R29E, SEC 20BB

.0- 10.0 SANDSTONE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, 10% SPAR, 03% PHOSPHATIC SAND, NO FOSSIL,

10.0- 20.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN TYPE: CALCILUTITE, INTRACLASTS, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, 40% QUARTZ SAND, 10% SPAR, 02% PHOSPHATIC SAND, NO FOSSIL,

20.0- 30.0 SILT, VERY LIGHT GRAY, POROSITY, NONE OBSERVED, STREAKED, 05% QUARTZ SAND, 15% CLAY, 30% DOLOMITE, IRON STAIN, CALCAREOUS, PLASTIC,

ELECTRIC LOGS INDICATE CONTACT OF SILT AND LIMESTONE AT 25FT

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W-HE013 . HENDRY CO. T45S, R29E, SEC 2088

30.0- 40.0 AS ABOVE,

40.0- 50.0 SAND, YELLOWISH GRAY TO LIGHT GRAY, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: VERY COARSE, RANGE: FINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 15% DOLOMITE, FROSTED, FOSSIL FRAGMENTS, PLANT REMAINS,

50.0- 60.0 NO SAMPLE,

60.0- 70.0 SAND, YELLOWISH GRAY TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO GRANULE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED, 10% CALCILUTITE, 01% PHOSPHATIC GRAVEL, FROSTED,

70.0- 80.0 SAND, GRAYISH OLIVE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO GRANULE, ANGULAR, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 15% CLAY, NO FOSSIL,

80.0- 90.0 AS ABOVE W/ LARGE MOLLUSK FRAG. 15% MICRITE CEMENT, 10% QUARTZ GRANULES

90.0- 100.0 SAND, LIGHT OLIVE GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: VERY COARSE, RANGE: MEDIUM TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 35% DOLOMITE, C3% PHOSPHATIC GRAVEL, FROSTED, FOSSIL FRAGMENTS,

35% MOLLUSK FRAG REPLACED W/ DOLOMITE

100.0- 110.0 AS ABOVE,

110.0- 120.0 AS ABOVE WITH 30% MICRITE CEMENT

120.0- 130.0 SAND, VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 20% CALCILUTITE, FROSTED, FOSSIL FRAGMENTS,

130.0- 140.0 SANDSTONE, WHITE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 15% DOLOMITE,

140.0- 150.0 SANDSTONE, LIGHT GREENISH YELLOW, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 20% CALCILUTITE, 10% CLAY,

LITHOLOGIC LOG
W-HE013 . HENDRY CO. 14SS, R29E, SEC 20BB

150.0- 160.0 LIMESTONE, WHITE, 12% POROSITY, PIN POINT VUGS, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: CRYPTOCRYSTALLINE TO FINE, MODERATE INDURATION, 15% QUARTZ SAND, 20% DOLOMITE,

ELECTRIC LOGS INDICATE LMS/SS CONTACT OCCURS AT 155FT

160.0- 170.0 AS ABOVE,

170.0- 180.0 DOLOMITE, MODERATE ORANGE PINK, 12% POROSITY, PIN POINT VUGS, INTERGRANULAR, SUBHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE, GOOD INDURATION, 15% CALCILUTITE, 10% SPAR,

180.0- 190.0 AS ABOVE,

190.0- 200.0 SILT, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, MODERATE INDURATION, 40% CALCILUTITE, 30% DOLOMITE, 15% LIMESTONE, 05% QUARTZ SAND, CALCAREOUS, CHALKY, NO FOSSIL,

200.0- 210.0 AS ABOVE,

210.0- 220.0 SILT, VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 30% QUARTZ SAND, 35% CALCILUTITE, 25% DOLOMITE, CALCAREOUS, CHALKY, NO FOSSIL,

220.0- 230.0 AS ABOVE,

230.0- 240.0 AS ABOVE,

240.0- 250.0 AS ABOVE WITH 5% SHELL FRAG.

250.0- 260.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 75% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: CRYPTOCRYSTALLINE TO GRANULE, POOR INDURATION, 35% QUARTZ SAND, 20% DOLOMITE, 02% PHOSPHATIC SAND,

260.0- 270.0 SANDSTONE, YELLOWISH GRAY, GRAIN SIZE: VERY COARSE, RANGE: MEDIUM TO GRANULE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% DOLOMITE, 30% CALCILUTITE, 02% PHOSPHATIC SAND,

270.0- 280.0 LIMESTONE, YELLOWISH GRAY, 13% POROSITY, INTERGRANULAR, PIN POINT VUGS, GRAIN TYPE: CALCILUTITE, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: CRYPTOCRYSTALLINE TO GRANULE, MODERATE INDURATION, 45% QUARTZ SAND, 20% DOLOMITE, 02% PHOSPHATIC SAND,

LITHOLOGIC LOG
W-HE013 . HENDRY CO. T45S, R29E, SEC 20EB

260.0- 290.0 SILT, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, POOR INDURATION, 20% QUARTZ SAND, 25% CALCILUTITE, 02% PHOSPHATIC SAND,

290.0- 300.0 CLAY, LIGHT OLIVE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, 45% QUARTZ SAND, 03% PHOSPHATIC SAND, PLASTIC,

300.0- 310.0 AS ABOVE WITH PHOSPHATIC GRAVEL

310.0- 320.0 CLAY, LIGHT OLIVE, 08% POROSITY, LOW PERMEABILITY, POOR INDURATION, 20% QUARTZ SAND, 15% LIMESTONE, 08% PHOSPHATIC SAND, PLASTIC,

320.0- 330.0 AS ABOVE WITH 6% PHOSPHATIC GRANULES

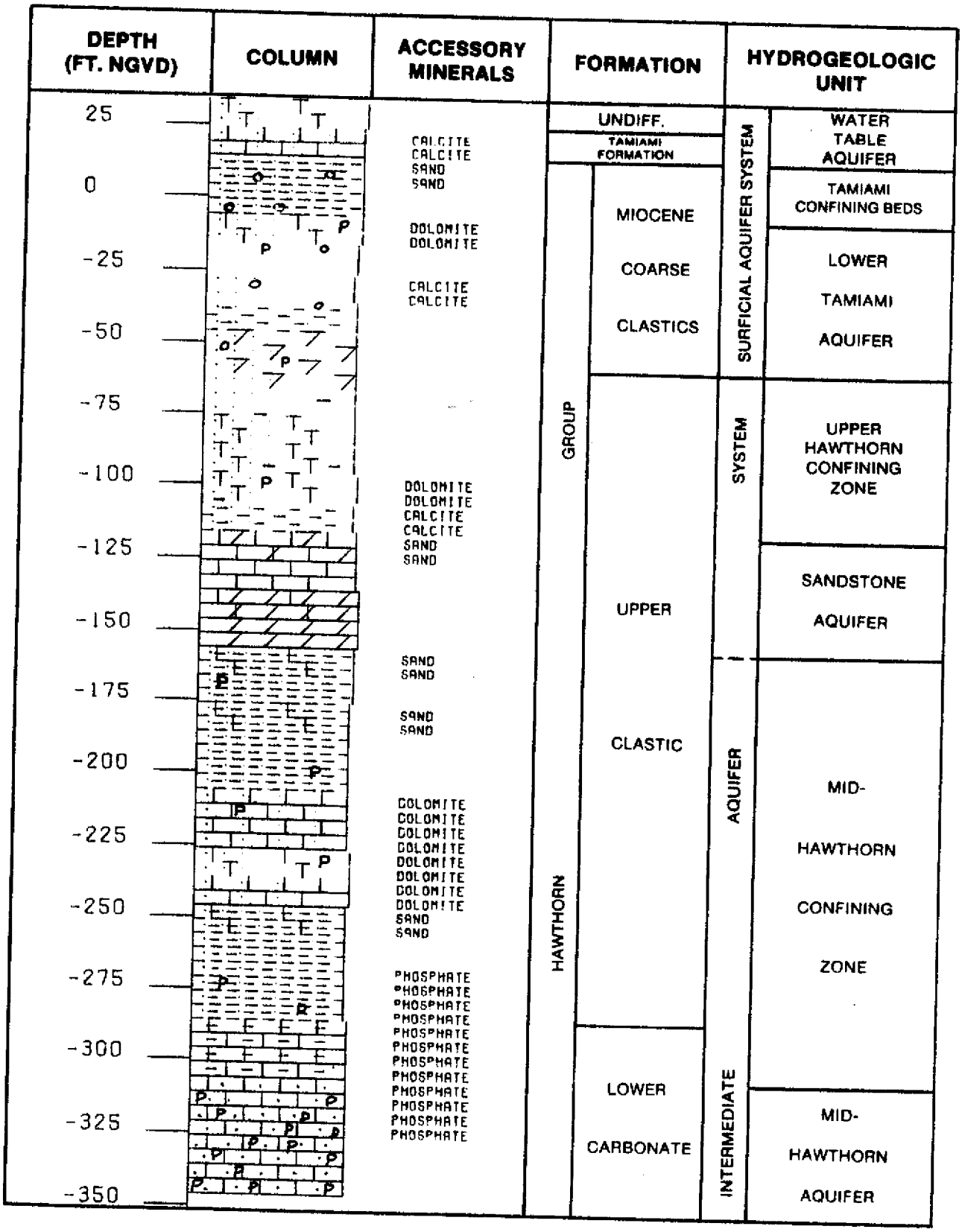
330.0- 340.0 LIMESTONE, VERY LIGHT GRAY TO LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO GRANULE, MODERATE INDURATION, 25% CLAY, 20% QUARTZ SAND, 08% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

ELECTRIC LOGS INDICATE DOLOSILTI/LMS CONTACT OCCURS AT 335 FT

340.0- 360.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, 70% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY COARSE, RANGE: MICROCRYSTALLINE TO GRANULE, MODERATE INDURATION, 15% QUARTZ SAND, 08% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

360.0- 370.0 AS ABOVE,

370.0- 380.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
CALCITE
CALCITE
SAND
SAND
DOLOMITE
DOLOMITE
CALCITE
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PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
MIOCENE COARSE CLASTICS
UPPER CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
SYSTEM
AQUIFER
INTERMEDIATE
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WHE013

GEOPHYSICAL LOGS, HENDRY COUNTY, HE013

SOUTH FLORIDA WMD - LITHOLOGIC PRINTOUT

W-LEG11

LEE CO. T47S R26E SEC 19BB 26 22 15 N 81 44 19 W
TOTAL DEPTH- 565 FT. ELEV.- 15 FT. 50 SAMPLES- 0- 565 FT.
COMPLETED- . . DEPTH WORKED FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
ELECTRIC

WELL NAME-
USGS EOS,MOBIL LIL.
REMARKS-
SAMPLES WORKED BY MIKE KNAPP (1-19-81), QUALITY FAIR.

HYDROGEOLOGIC UNITS

0.0- 60.0 SURFICIAL AQUIFER SYSTEM
0.0- 40.0 WATER TABLE AQUIFER
40.0- 50.0 TAMIAMI CONFINING BEDS
50.0- 80.0 LOWER TAMIAMI AQUIFER
80.0- 90.0 UPPER HAWTHORN CONFINING ZONE
90.0- 295.0 SANDSTONE AQUIFER
295.0- 345.0 MID-HAWTHORN CONFINING ZONE
345.0- 420.0 MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 10.0 UNDIFFERENTIATED SAND AND CLAY
10.0- 80.0 SCHOFEE LIMESTONE MEMBER OF TAMIAMI FORMATION
80.0- 565.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W-LEG11 . LEE CO. T47S, R26E, SEC 19BB

.0- 10.0 SANDSTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 35% CALCILUTITE, 30% CLAY, PELLETS,

10.0- 20.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, FOSSIL MOLDS, PELLETS,

20.0- 30.0 AS ABOVE,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W-LC011 . LEE CO. T47S, R26E, SEC 1988

30.0- 40.0 LIMESTONE, VERY LIGHT ORANGE, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CRYSTALS, CALCILUTITE, BIOGENIC, 12% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 03% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

MICA (3%) LOOSE IN SAMPLE

40.0- 50.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 10% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY, GRAIN TYPE: CRYSTALS, CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 30% DOLOMITE, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL MOLDS,

50.0- 60.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH BROWN, 13% POROSITY, INTERGRANULAR, MOLDIC, 30-50% ALTERED, SUBHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% CALCILUTITE, 02% QUARTZ SAND, 01% MICA,

60.0- 75.0 CLAY, LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 12% CLAY, 15% CALCILUTITE, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

MICA (1%) AND PYRITE (1%)

75.0- 90.0 AS ABOVE,

90.0- 105.0 LIMESTONE, LIGHT OLIVE GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CRYSTALS, CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 30% DOLOMITE, 15% QUARTZ SAND, MOLLUSKS, ECHINOID,

105.0- 120.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELETAL, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 04% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

120.0- 135.0 AS ABOVE,

135.0- 150.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% CALCILUTITE, 15% DOLOMITE, 02% MICA, MOLLUSKS,

150.0- 165.0 SAMPLES AT 165,180,AND 195 AS ABOVE.

LITHOLOGIC LOG
W-LOGAN . LEE CO. 1975, R20E, SEC 19BB

165.0- 225.0 DOLOMITE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% CALCILUTITE, 15% QUARTZ SAND, MOLLUSKS,

225.0- 240.0 SANDSTONE, YELLOWISH GRAY, 14% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% DOLOMITE, 15% CALCILUTITE, 02% MICA, MOLLUSKS,

240.0- 265.0 AS ABOVE,

265.0- 280.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 03% QUARTZ SAND, MOLLUSKS, BRYOZOA,

280.0- 295.0 SANDSTONE, LIGHT OLIVE, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% DOLOMITE, 10% CALCILUTITE, 10% SPAR, 01% PHOSPHATIC SAND, MOLLUSKS,

295.0- 310.0 SANDSTONE, LIGHT OLIVE TO GRAYISH OLIVE, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 02% CLAY, 02% MICA, 15% CALCILUTITE, 03% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA,

SAMPLE IS A MIXTURE OF LIMESTONE,DOLOMITE,CLAY,AND MICA.

310.0- 325.0 AS ABOVE WITH SOME VERY COARSE PHOSPHORITE GRAINS.

325.0- 345.0 SANDSTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT, 05% CLAY, 20% DOLOMITE, 10% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS,

MICA (1%)

345.0- 360.0 DOLOMITE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 15% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

LITHOLOGIC LOG
W-LE011 . LEE CO. 1475, KCOE, SEC 1968

360.0- 375.0 DOLOMITE, VERY LIGHT ORANGE-TO GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS,

375.0- 390.0 AS ABOVE,

390.0- 405.0 AS ABOVE WITH SOME SAND (2%)

405.0- 420.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 13% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% CALCILUTITE, 12% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

420.0- 435.0 DOLOMITE, LIGHT OLIVE, 14% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 03% CLAY, 01% PHOSPHATIC SAND, 10% QUARTZ SAND,

435.0- 450.0 SAMPLE IS A MIXTURE OF ABOVE TWO LITHOS. (CAVINGS?)

450.0- 465.0 AS ABOVE,

465.0- 480.0 AS ABOVE WITH VERY COARSE PHOS.(3%)

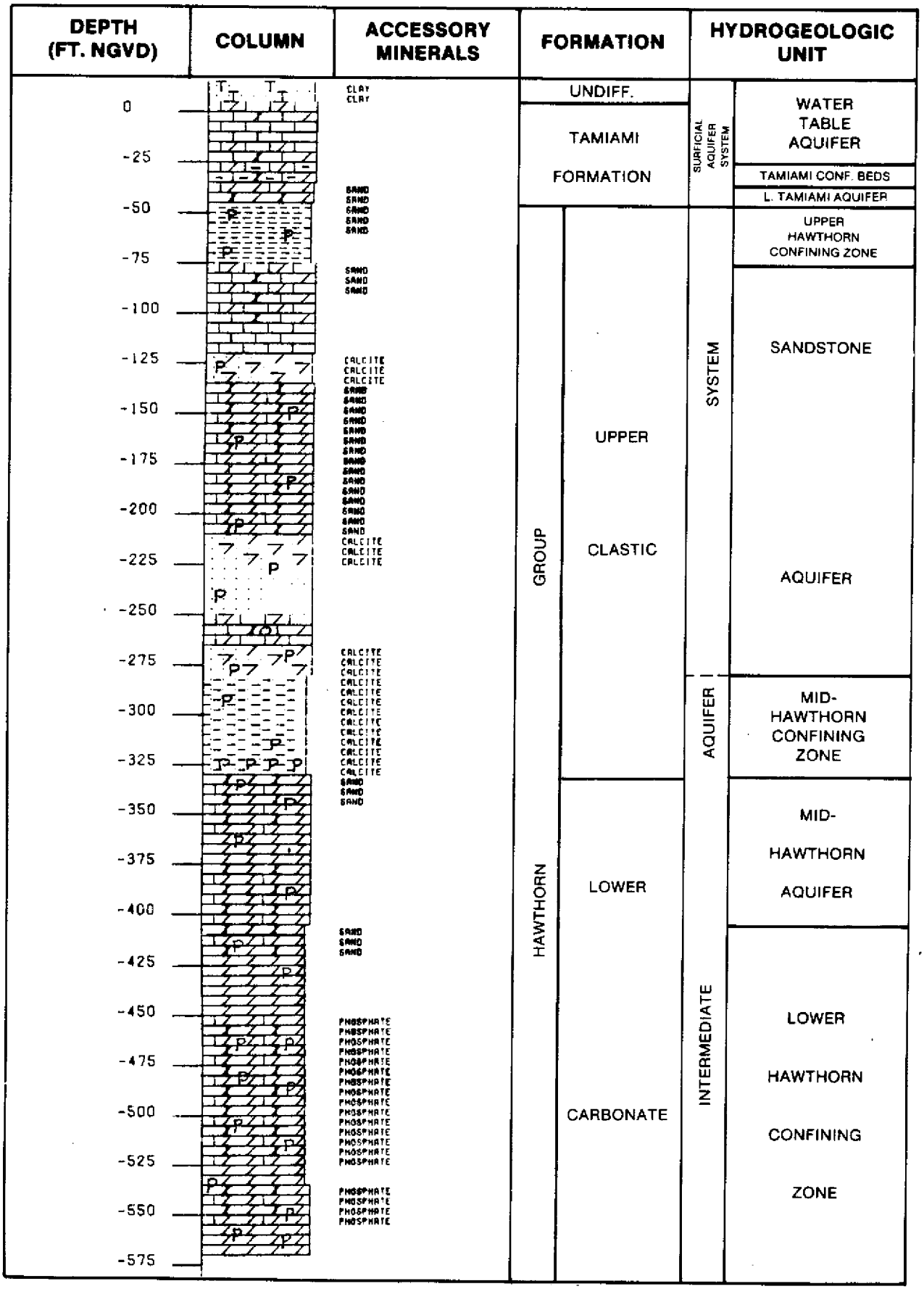
480.0- 495.0 SAMPLES AT 495,510,AND 525 SAME AS 435.

495.0- 540.0 DOLO-SILT, LIGHT OLIVE TO GRAYISH OLIVE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 06% CLAY, 25% CALCILUTITE, 12% PHOSPHATIC SAND, SHARK TEETH,

540.0- 555.0 AS ABOVE,

555.0- 570.0 DOLOMITE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% CALCILUTITE, 05% PHOSPHATIC SAND, FOSSIL MOLDS,

570.0- 585.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
-425
-450
-475
-500
-525
-550
-575
CLAY
SAND
CALCITE
PHOSPHATE
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
SYSTEM
AQUIFER
INTERMEDIATE
WATER TABLE AQUIFER
TAMIAMI CONF. BEDS
L. TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER
LOWER HAWTHORN CONFINING ZONE

LEO11

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W-LEO20C

LEE CO. T46S R26E SEC 15CC 26 28 41 N 81 48 02 W
TOTAL DEPTH- 310 FT. ELEV.- 25 FT. 25 SAMPLES- 0-- 310 FT.
COMPLETED- 81.06.19 DEPTH WORKED 0 310 FT.

WELL NAME-
BUREAU OF GEOLOGY W14072,CORE,DRILLED BY JUSTIN HODGES
REMARKS-
WORKED BY MIKE KNAPP,12-21-90,QUAL.(GOOD).

INTERVAL FROM 0-17 IS FROM W14071.

HYDROGEOLOGIC UNITS

0.0-	60.0	SURFICIAL AQUIFER SYSTEM
0.0-	30.0	WATER TABLE AQUIFER
30.0-	55.0	TAMIAMI CONFINING BEDS
55.0-	60.0	LOWER TAMIAMI AQUIFER
60.0-	94.0	UPPER HAWTHORN CONFINING ZONE
94.0-	173.0	SANDSTONE AQUIFER
173.0-	230.0	MID-HAWTHORN CONFINING ZONE
230.0-	310.0	MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0-	17.0	UNDIFFERENTIATED SAND, CLAY AND SHELLS
17.0-	60.0	TAMIAMI FORMATION
60.0-	310.0	HAWTHORN FORMATION *

LITHOLOGIC LOG
W-LEO20C. LEE CO. T46S, R26E, SEC 15CC

.0- 2.0 SAND, LIGHT BROWN, 32% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 01% CLAY,

2.0- 9.5 AS ABOVE,

9.5- 11.5 SAND, LIGHT BROWN, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, 02% CLAY,

11.5- 12.0 SAND, VERY LIGHT GRAY, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 01% CLAY, 04% CALCILUTITE,

12.0- 15.0 AS ABOVE,

15.0- 16.5 SAND, VERY LIGHT GRAY, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 06% CALCILUTITE, 01% CLAY, MOLLUSKS,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W-LE0200. LEE CO. 1965, R26E, SEC 15CC

16.5- 17.0 LITHO GRADES INTO A LESS CALCAREOUS SAND (NO SHELL)

17.0- 20.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% CLAY, FOSSIL MOLDS,

20.0- 25.0 LIMESTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, FOSSIL MOLDS, MOLLUSKS,

25.0- 30.0 AS ABOVE,

30.0- 35.0 SAND, VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 06% CLAY, MOLLUSKS,

35.0- 40.0 AS ABOVE,

40.0- 45.0 AS ABOVE,

45.0- 50.0 SAND, VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 40% CALCILUTITE, 04% CLAY, MOLLUSKS,

50.0- 55.0 AS ABOVE,

55.0- 60.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, 20% CLAY, 20% DOLOMITE, MOLLUSKS, BENTHONIC FORAMINIFERA,

60.0- 65.0 CLAY, GRAYISH OLIVE, 06% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 15% QUARTZ SAND, 01% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, SPICULES, PLANKTONIC FORAMINIFERA,

65.0- 80.0 CLAY, GRAYISH OLIVE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 12% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, PLANKTONIC FORAMINIFERA,

80.0- 92.0 AS ABOVE,

LITHOLOGIC LOG
W-LE0200. LEE CO. T46S, R26E, SEC 15CC

92.0- 94.0 DOLO-SILT, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX, 30% CALCILUTITE, 30% CLAY, BENTHONIC FORAMINIFERA, MOLLUSKS, SHARK TEETH,

CLAY, LIGHT OLIVE GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX,

94.0- 100.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 12% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

100.0- 105.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND,

105.0- 108.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 45% QUARTZ SAND,

108.0- 113.0 AS ABOVE,

113.0- 118.0 SHELL BED, WHITE TO VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, POOR INDURATION, CALCILUTITE MATRIX, 30% QUARTZ SAND, MOLLUSKS,

118.0- 120.0 SANDSTONE, WHITE, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 35% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS,

120.0- 125.0 SANDSTONE, WHITE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 20% SPAR, FOSSIL MOLDS, MOLLUSKS,

125.0- 126.0 AS ABOVE,

126.0- 132.0 SANDSTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% CALCILUTITE, 15% DOLOMITE, 02% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

LITHOLOGIC LOG
W-LEC200. LEE CO. T46S, R20E, SEC 15CC

132.0- 140.0 SANDSTONE, YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 18% CALCILUTITE, 12% CLAY, 01% PHOSPHATIC SAND, MOLLUSKS,

140.0- 143.0 SANDSTONE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS, CORAL,

143.0- 152.0 SANDSTONE, VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 25% CALCILUTITE, FOSSIL MOLDS, MOLLUSKS,

152.0- 165.0 SAND, LIGHT OLIVE, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, UNCONSOLIDATED, 01% CALCILUTITE, 01% CLAY,

165.0- 173.0 SANDSTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, 20% CALCILUTITE, 01% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

173.0- 210.0 NO SAMPLE,

210.0- 215.0 SAND, LIGHT OLIVE GRAY, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 01% CALCILUTITE, 02% CLAY, NO FOSSIL,

215.0- 215.5 SAND, GRAYISH OLIVE, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 01% CALCILUTITE, 20% CLAY, 03% PHOSPHATIC SAND, MOLLUSKS,

215.5- 225.0 SAND, GRAYISH OLIVE, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, HIGH SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 04% CALCILUTITE, 05% CLAY, 03% PHOSPHATIC SAND, 04% PHOSPHATIC GRAVEL, MOLLUSKS,

225.0- 230.0 CLAY, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 40% CALCILUTITE, 20% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS,

LITHOLOGIC LOG
W-LEO20C. LEE CO. T46S, R26E, SEC 15CC

230.0- 232.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 10% CLAY, 20% QUARTZ SAND, 03% PHOSPHATIC SAND,

232.0- 235.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, POOR INDURATION, CALCILUTITE MATRIX, 03% QUARTZ SAND,

235.0- 242.0 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

242.0- 248.0 AS ABOVE,

248.0- 250.0 CLAY, YELLOWISH GRAY, 00% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, CALCILUTITE MATRIX, 30% CALCILUTITE, 02% PHOSPHATIC SAND, OSTRACODS, BENTHONIC FORAMINIFERA,

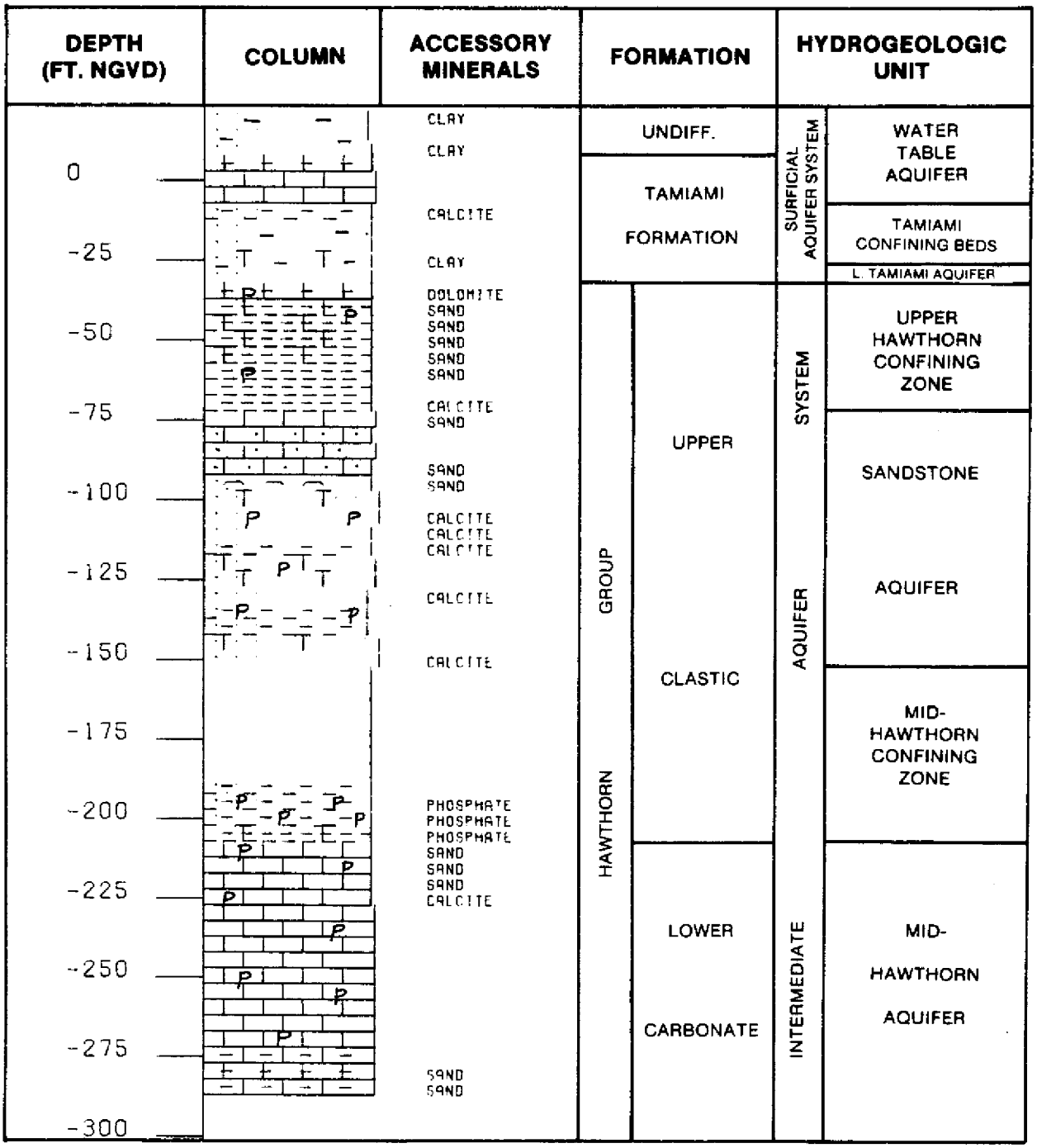
250.0- 295.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 50% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 01% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS, BENTHONIC FORAMINIFERA, CORAL,

LIMESTONE IS A COQUINA OF MOLLUSKS - GOOD POROSITY

295.0- 295.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

295.0- 300.0 LIMESTONE, LIGHT OLIVE, 08% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CLAY, 01% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

300.0- 310.0 LIMESTONE, YELLOWISH GRAY, GRAIN TYPE: CALCILUTITE, BIOGENIC, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 15% CLAY, 12% QUARTZ SAND, 03% PHOSPHATIC SAND,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
CLAY
CLAY
CALCITE
CLAY
DOLOMITE
SAND
SAND
SAND
SAND
SAND
CALCITE
SAND
SAND
SAND
CALCITE
CALCITE
CALCITE
CALCITE
CALCITE
PHOSPHATE
PHOSPHATE
PHOSPHATE
SAND
SAND
SAND
CALCITE
SAND
SAND
UNDIFF.
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER
CLASTIC
LOWER
CARBONATE
SURFICIAL AQUIFER SYSTEM
SYSTEM
AQUIFER
INTERMEDIATE
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
L. TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

WLE020

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 027C

LEE CO. T46S R27E SEC 8BB 26 29 00 N 81 37 57 W
TOTAL DEPTH- 382 FT. ELEV.- 20 FT. 20 SAMPLES- 0- 382 FT.
COMPLETED- 82.03.08 DEPTH WORKED 382 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
ELECTRIC

WELL NAME-
CORKSCREW #1,CORE,JUSTIN HOLGES DRILLER,BUREAU OF GEOLOGY
REMARKS-
DESCRIBED AND CODED BY MIKE KNAPP (9-82),SAMPLE QUALITY (EXCELLENT),
X-RAY DIFFRACTOGRAM ANALYSIS CONDUCTED BY UNIVERSITY OF SOUTH FLORIDA.

HYDROGEOLOGIC UNITS

0.0- 15.0 WATER TABLE AQUIFER
15.0- 20.0 TAMIAMI CONFINING BEDS
20.0- 99.0 LOWER TAMIAMI AQUIFER
99.0-138.0 UPPER HAWTHORN CONFINING ZONE
138.0-246.0 SANDSTONE AQUIFER
246.0-332.0 MID-HAWTHORN CONFINING ZONE
332.0-382.0 MID-HAWTHORN AQUIFER

X-RAY DIFFRACTOGRAM RESULTS (SELECTED INTERVALS)

77 FT.- %CO2 - 43.3, IF AS CACO3 = 98.6%
CALCITE/DOLOMITE RATIO 3.5:1, CALC.78% - DOLO.22%
82 FT.- %CO2 - 43.0, IF AS CACO3 = 98.0%
CALCITE/DOLOMITE RATIO 1.4:1, CALC. 58.0% - DOLO. 42.0%
110 FT.- %CO2 - 18.6%, IF AS CACO3 = 42.6%
CLAY ANALYSIS <2 MICRON FRACTION - PRINCIPAL COMPONENT IS
MONTMORILLONITE WITH MINOR (<5%) KAOLINITE AND ILLITE. A
VERY MINOR PHASE OF POSSIBLE CLINOPTILONITE IS PRESENT.
250 FT.- %CO2 - 6.2%, IF AS CACO3 14.2%
CLAY ANALYSIS <2 MICRON FRACTION - PRINCIPAL COMPONENT IS
MONTMORILLONITE WITH MINOR (<5%) KAOLINITE AND ILLITE.

STRATIGRAPHIC FORMATIONS -

.0- 35.0 UNDIFFERENTIATED SAND AND CLAY
35.0- 99.0 TAMIAMI FORMATION
99.0- 382.0 HAWTHORN FORMATION *

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W- 0270. LEE CO. T46S, R27E, SEC 6BB

.0- 1.0 SAND, MODERATE BROWN, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 01% CLAY, NO FOSSIL,

1.0- 2.5 SAND, MODERATE BROWN, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% CALCILUTITE, 01% CLAY, NO FOSSIL,

2.5- 3.5 SAND, DARK BROWN TO DARK GRAY, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, NO FOSSIL,

3.5- 4.0 SAND, GREENISH GRAY TO DARK YELLOWISH ORANGE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, MOTTLED, 04% CLAY, 04% CALCILUTITE, NO FOSSIL,

4.0- 4.5 SAND, GRAYISH YELLOW TO LIGHT OLIVE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, CALCILUTITE MATRIX, MOTTLED, STREAKED, 05% CLAY, 05% CALCILUTITE, NO FOSSIL,

4.5- 6.0 SAND, YELLOWISH GRAY TO LIGHT GRAY, 14% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 02% CLAY, 02% CALCILUTITE, NO FOSSIL,

6.0- 7.0 SAND, YELLOWISH GRAY TO WHITE, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, 15% CALCILUTITE, 01% HEAVY MINERALS, MOLLUSKS,

INTERMIXED SHELL (15%),CHIONE CANCELATA

7.0- 8.0 LIMESTONE, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, INTERBEDDED, 25% DOLOMITE, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

INTERBEDDED WITH QUARTZ SAND

8.0- 9.0 SANDSTONE, GRAYISH ORANGE, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 02% CLAY, MOLLUSKS,

BECOME LESS SANDY TOWARDS BOTTOM

LITHOLOGIC LOG
W- 0270. LEE CO. T40S, R27E, SEC 8EB

9.0- 10.0 LIMESTONE, GRAYISH ORANGE, 11% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 40% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

10.0- 10.5 AS ABOVE,

10.5- 11.0 SAND, YELLOWISH GRAY TO GRAYISH ORANGE, 14% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 02% CLAY, MOLLUSKS,

11.0- 12.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC,

12.0- 15.0 SANDSTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 13% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 02% CLAY, CALCAREOUS, MOLLUSKS, FOSSIL FRAGMENTS,

UNCONSOLIDATED MICRITIC QTZ SAND IN INTERVAL

15.0- 16.0 SANDSTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, CALCAREOUS, MOLLUSKS, FOSSIL FRAGMENTS,

16.0- 17.0 AS ABOVE,

17.0- 18.0 SAND, WHITE, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 15% CALCILUTITE, CHALKY, MOLLUSKS, FOSSIL FRAGMENTS,

18.0- 20.0 AS ABOVE,

20.0- 22.0 SANDSTONE, WHITE TO VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 20% CALCILUTITE, CALCAREOUS, CHALKY, MOLLUSKS, FOSSIL FRAGMENTS,

22.0- 24.0 AS ABOVE,

24.0- 25.0 NO SAMPLE,

LITHOLOGIC LOG
#- 0270. LEE CO. T46S, R27E, SEC 8BB

25.0- 29.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 16% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

29.0- 30.0 AS ABOVE,

30.0- 33.0 SANDSTONE, VERY LIGHT ORANGE TO WHITE, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 30% CALCILUTITE, CHALKY, MOLLUSKS, FOSSIL FRAGMENTS,

33.0- 35.0 NO SAMPLE,

35.0- 36.2 DOLOMITE, GRAYISH ORANGE TO DARK YELLOWISH BROWN, 14% POROSITY, INTERGRANULAR, MOLDIC, INTERCRYSTALLINE, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, DOLOMITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS,

EXTINCT PLIOCENE MOLLUSK REPORTED BY J.MEELER AT 35FT.

36.2- 38.5 LIMESTONE, LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

38.5- 42.0 LIMESTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 20% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

LOST CIRC.AT 41FT.DUE TO HIGH PERM.AND CHANNEL PORO.

42.0- 44.0 LIMESTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, CHALKY, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

44.0- 46.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: OOLITE, CRYSTALS, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

LITHOLOGIC LOG
W- 027C.

LEE CO. T46S, R27E, SEC 06B

VERY HIGH PERM.&POROSITY AT 46' -LARGE (30MM) MOLDS

40.0- 47.5 DOLOMITE, DARK YELLOWISH BROWN, 10% POROSITY, INTERCRYSTALLINE, MOLDIC, VUGULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% SPAR, MOLLUSKS, FOSSIL MOLDS,

47.5- 50.0 LIMESTONE, GRAYISH BROWN TO VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, SKELETAL, CRYSTALS, 70% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL MOLDS,

CALCITE CRYSTALS LINING FOSSIL MOLDS

50.0- 51.5 LIMESTONE, GRAYISH BROWN TO VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CRYSTALS, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, CALCILUTITE MATRIX, INTERBEDDED, 35% DOLOMITE, MOLLUSKS, CORAL, FOSSIL MOLDS,

51.5- 54.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS,

54.0- 55.0 LIMESTONE, GRAYISH BROWN TO LIGHT OLIVE GRAY, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 35% DOLOMITE, FOSSIL MOLDS, MOLLUSKS,

55.0- 56.0 DOLOMITE, GRAYISH BROWN, 12% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 10% SPAR, 20% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

FRESH WATER MOLLUSKS

56.0- 57.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, MOLLUSKS, BRYOZOA,

LITHOLOGIC LOG
W- 0270. LEE CO. T40S, R27E, SEC 8BB

57.0- 58.0 DOLOMITE, LIGHT GRAY TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

58.0- 62.0 LIMESTONE, VERY LIGHT ORANGE, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 25% DOLOMITE, MOLLUSKS, FOSSIL MOLDS,

DOLOMITE INTERBEDDED

62.0- 63.0 AS ABOVE WITH SAND (10%)

63.0- 64.0 AS ABOVE,

64.0- 65.0 DOLOMITE, GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

LARGE MOLLUSK CASTS AND MOLDS

65.0- 67.0 AS ABOVE,

67.0- 70.5 DOLOMITE, LIGHT OLIVE BROWN, 10% POROSITY, MOLDIC, VUGULAR, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% SPAR, MOLLUSKS, FOSSIL MOLDS,

PYCHNODONT OYSTER AT 68FT.

70.5- 75.0 AS ABOVE,

75.0- 77.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% DOLOMITE, MOLLUSKS, FOSSIL MOLDS,

77.0- 79.0 AS ABOVE,

79.0- 82.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 17% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 10% SPAR, 20% CALCILUTITE, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

LITHOLOGIC LOG
W- 0270. LEE CO. T46S, R27E, SEC BBB

82.0- 86.0 AS ABOVE WITH MANY MOLLUSKS CASTS AND MOLDS

86.0- 87.0 AS ABOVE,

87.0- 88.0 LIMESTONE, MODERATE DARK GRAY, 12% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 30% DOLOMITE, 15% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

88.0- 89.0 AS ABOVE WITH MORE SAND (35%) - POOR INDURATION

89.0- 92.0 AS ABOVE,

92.0- 95.0 AS ABOVE,

95.0- 99.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, MOLLUSKS,

LITTLE RECOVERY

99.0- 102.0 SAND, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS,

102.0- 106.0 AS ABOVE,

106.0- 108.0 AS ABOVE,

108.0- 109.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 15% CALCILUTITE, 02% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

109.0- 110.0 CLAY, GRAYISH OLIVE TO OLIVE GRAY, 06% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 02% QUARTZ SAND, 04% CALCILUTITE, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA,

FLORILUS SP.,ELPHIDIUM SP.

110.0- 110.5 AS ABOVE,

LITHOLOGIC LOG
W- 0270. LEE CO. T46S, R27E, SEC 866

116.5- 117.0 SAND, DARK YELLOWISH BROWN TO WHITE, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, INTERBEDDED, 25% DOLOMITE, 20% CALCILUTITE, 10% PHOSPHATIC SAND, MOLLUSKS, SHARK TEETH,

117.0- 119.0 CLAY, GRAYISH OLIVE, 06% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, MASSIVE, 05% CLAY, DIATOMS,

119.0- 119.2 SAND, DARK YELLOWISH BROWN, 12% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: COARSE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, INTERBEDDED, 25% DOLOMITE, 25% PHOSPHATIC SAND, SHARK TEETH,

119.2- 120.0 CLAY, GRAYISH OLIVE, 06% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, MASSIVE, 02% QUARTZ SAND, DIATOMS,

120.0- 122.0 AS ABOVE,

122.0- 126.0 AS ABOVE WITH MANY DIATOMS (DIPLONEIS SP.)

126.0- 131.0 AS ABOVE,

131.0- 131.2 LIMESTONE, WHITE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, SKELETAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, INTERBEDDED, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, CHALKY, MOLLUSKS, BRYOZOA,

131.2- 135.0 CLAY, GRAYISH OLIVE, 06% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, MASSIVE, 05% QUARTZ SAND, DIATOMS, BENTHONIC FORAMINIFERA,

MANY DIATOMS

135.0- 136.0 CLAY, GRAYISH OLIVE, 09% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, DIATOMS, BENTHONIC FORAMINIFERA, PLANKTONIC FORAMINIFERA,

136.0- 136.2 SAND, DARK YELLOWISH BROWN TO VERY LIGHT ORANGE, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 06% PHOSPHATIC SAND, 04% LIMESTONE, MOLLUSKS, FOSSIL MOLDS,

136.2- 137.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, 25% QUARTZ SAND, 05% CALCILUTITE, 04% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

LITHOLOGIC LOG
W- 027C. LEE CO. T46S, R27E, SEC 8BB

137.0- 138.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 25% DOLOMITE, 04% PHOSPHATIC SAND, 10% CALCILUTITE, BENTHONIC FORAMINIFERA, MOLLUSKS,

138.0- 138.6 DOLOMITE, YELLOWISH GRAY TO LIGHT OLIVE, 15% POROSITY, INTERGRANULAR, VUGULAR, INTERCRYSTALLINE, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, 10% QUARTZ SAND, 05% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

138.6- 147.0 LIMESTONE, VERY LIGHT GRAY, 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: COARSE TO MICROCRYSTALLINE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 04% PHOSPHATIC SAND, 15% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS, BRYOZOA,

147.0- 150.0 SANDSTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS, BENTHONIC FORAMINIFERA,

150.0- 151.0 AS ABOVE,

151.0- 152.0 AS ABOVE VERY GOOD MOLDIC POROSITY

152.0- 155.0 LIMESTONE, YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 40% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

155.0- 157.0 AS ABOVE,

157.0- 158.0 SANDSTONE, YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 15% DOLOMITE, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

158.0- 160.0 AS ABOVE WITH MODERATE INDURATION

160.0- 162.0 AS ABOVE,

LITHOLOGIC LOG
W- 027C. LEE CO. T46S, R27E, SEC 688

162.0- 164.0 SANDSTONE, DARK GRAYISH YELLOW, 16% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% CALCILUTITE, 10% DOLOMITE, 01% PHOSPHATIC SAND, FOSSIL MOLDS,

164.0- 172.0 SANDSTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 10% DOLOMITE, 01% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

172.0- 177.0 SANDSTONE, VERY LIGHT ORANGE TO WHITE, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 05% CALCILUTITE, FOSSIL MOLDS,

LITTLE RECOVERY DUE WEAK CEMENTATION

177.0- 187.0 NO RECOVERY-DRILLER REPORTS CLEAN SANDS

187.0- 189.0 SANDSTONE, VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 03% CALCILUTITE, 04% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

189.0- 190.0 SANDSTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 10% CALCILUTITE, 05% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

190.0- 192.0 NO RECOVERY-DRILLER REPORTS SILTY SAND

192.0- 194.0 SANDSTONE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% DOLOMITE, 10% CALCILUTITE, 05% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

194.0- 198.0 CLAY, LIGHT OLIVE GRAY, 15% POROSITY, INTERGRANULAR, MODERATE INDURATION, DOLOMITE CEMENT, 35% QUARTZ SAND, 05% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

LARGE MOLLUSK SHELLS INTERBEDDED

198.0- 199.0 AS ABOVE,

LITHOLOGIC LOG
W- 0270. LEE CO. 14S, R27E, SEC 08B

199.0- 200.0 DOLOMITE, LIGHT GRAY TO YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 35% QUARTZ SAND, 03% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

200.0- 202.0 AS ABOVE,

202.0- 204.0 AS ABOVE,SPARRY CALCITE LINING FOSSIL MOLDS.

204.0- 207.0 SANDSTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 15% CALCILUTITE, 01% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

207.0- 211.0 DOLOMITE, LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 30% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

211.0- 215.0 SANDSTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, 10% CALCILUTITE, 01% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

215.0- 217.0 NO RECOVERY-DRILLER REPORTS WEAKLY CEMENTED QTZ SANDS.

217.0- 221.0 SAND, VERY LIGHT ORANGE TO WHITE, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 05% CALCILUTITE, 05% DOLOMITE, 01% PHOSPHATIC SAND,

221.0- 222.0 DOLOMITE, WHITE TO VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 20% QUARTZ SAND, FOSSIL MOLDS, MOLLUSKS,

222.0- 227.0 AS ABOVE,

227.0- 232.0 SANDSTONE, YELLOWISH GRAY, 25% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% DOLOMITE, 05% CALCILUTITE, 03% PHOSPHATIC SAND,

232.0- 240.0 NO RECOVERY-DRILLER REPORTS QUARTZ SANDS

LITHOLOGIC LOG
W- 0270. LEE CO. T40S, R27E, SEC 888

240.0- 249.0 CLAY, OLIVE GRAY, 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, MASSIVE, 15% DOLOMITE, 12% SILT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND,

249.0- 255.0 AS ABOVE-THIN SEAMS OF SAND INTERBEDDED

255.0- 256.0 SAND, LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 10% DOLOMITE, 02% CLAY, 01% PHOSPHATIC SAND,

256.0- 262.0 NO RECOVERY-DRILLER REPORTS QUARTZ SANDS

262.0- 265.0 DOLOMITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 08% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

265.0- 305.0 NO RECOVERY-DRILLER REPORTS SANDS AND SILTS.

305.0- 308.0 PHOSPHATE, DARK YELLOWISH BROWN, 32% POROSITY, INTERGRANULAR, UNCONSOLIDATED, PHOSPHATE CEMENT, 05% DOLOMITE, PHOSPHATIC GRAVEL,

RUBBLE BED-PHOSPHATE RANGES FROM .5 TO 1.0 INCH DIAM.

308.0- 310.0 CLAY, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 05% CALCILUTITE, 05% PHOSPHATIC GRAVEL, 02% PHOSPHATIC SAND, 05% QUARTZ SAND,

310.0- 311.0 CLAY, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 05% PHOSPHATIC SAND, 30% QUARTZ SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, CORAL, FOSSIL FRAGMENTS,

311.0- 313.0 DOLOMITE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 25% QUARTZ SAND, 08% PHOSPHATIC SAND, FOSSIL FRAGMENTS,

313.0- 320.0 AS ABOVE,

320.0- 332.0 CLAY, GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 05% PHOSPHATIC GRAVEL, 05% PHOSPHATIC SAND, 15% QUARTZ SAND, MOLLUSKS,

LITHOLOGIC LOG
#- 0270. LEE CO. T46S, R27E, SEC 8BB

332.0- 335.0 DOLOMITE, VERY LIGHT ORANGE TO WHITE, 18% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, ECHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 05% SPAR, 08% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

335.0- 337.0 AS ABOVE,

337.0- 339.0 CLAY, VERY LIGHT ORANGE TO GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

339.0- 342.0 AS ABOVE WITH V.C.PHOSPHATE

342.0- 347.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

347.0- 352.0 LIMESTONE, VERY LIGHT ORANGE, 22% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

352.0- 353.0 AS ABOVE,

353.0- 355.0 SANDSTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% DOLOMITE, 10% CALCILUTITE, 05% PHOSPHATIC SAND, MOLLUSKS,

355.0- 357.0 CLAY, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 25% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS,

357.0- 359.0 AS ABOVE WITH INTERBEDDED OYSTER SHELLS

359.0- 362.0 AS ABOVE,

362.0- 367.0 LIMESTONE, VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 30% DOLOMITE, 01% PHOSPHATIC SAND, 03% QUARTZ SAND, CORAL, MOLLUSKS, FOSSIL MOLDS,

MANY WELL PRESERVED CORALS

LITHOLOGIC LOG
W- 027C. LEE CO. T40S, R27E, SEC BEB

367.0- 372.0 AS ABOVE-CLOCLINA OF MOLLUSKS

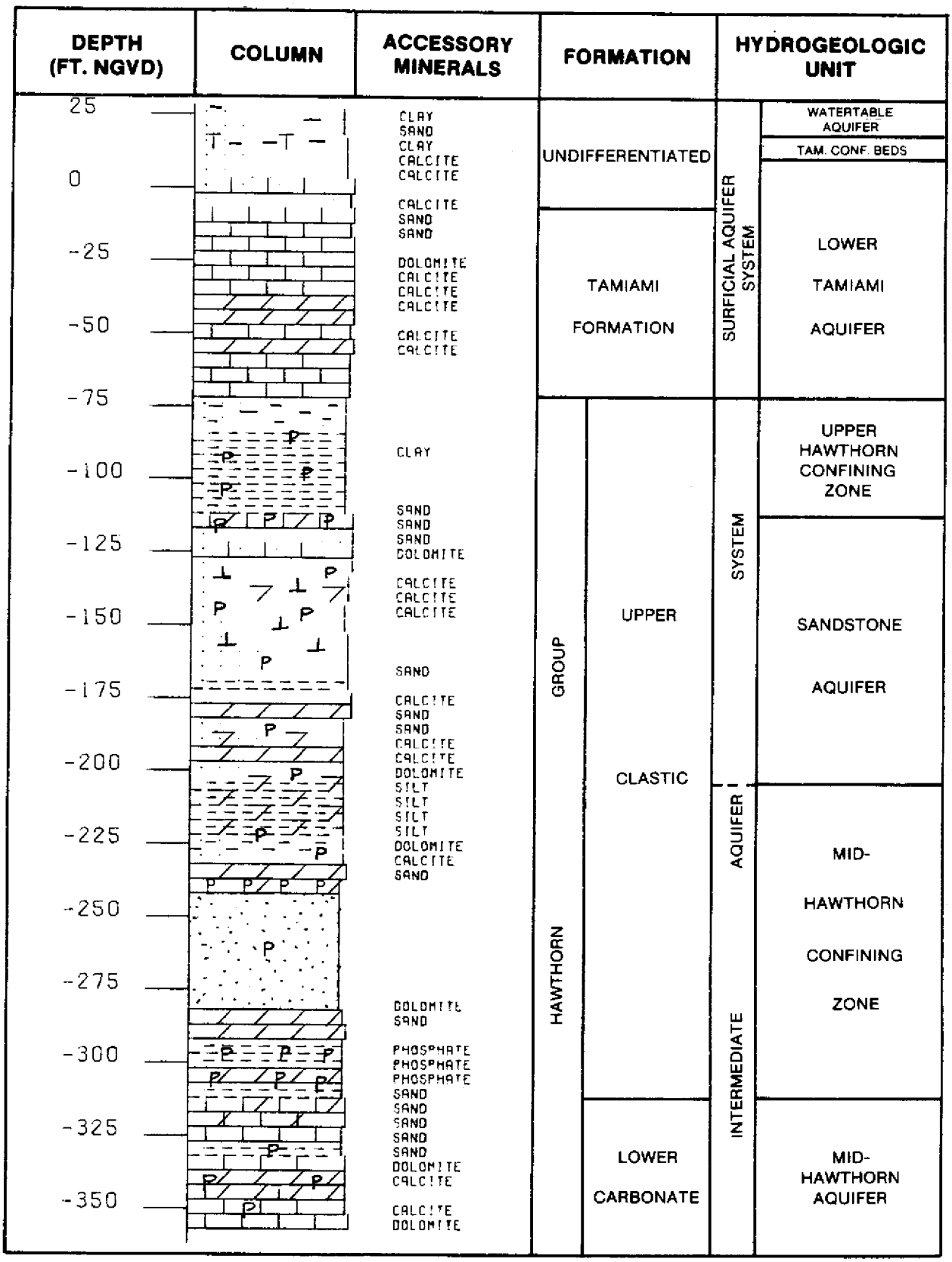
372.0- 377.0 DOLOMITE, GRAYISH ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

377.0- 376.0 LIMESTONE, VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% DOLOMITE, MOLLUSKS, FOSSIL MOLDS, CORAL,

378.0- 380.0 AS ABOVE WITH PHOSPHATE (5%)

380.0- 381.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 16% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 40% DOLOMITE, 01% PHOSPHATIC SAND, SPECKLED, MOLLUSKS, FOSSIL MOLDS,

381.0- 382.0 AS ABOVE,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
25
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
CLAY
SAND
CLAY
CALCITE
CALCITE
CALCITE
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SAND
DOLOMITE
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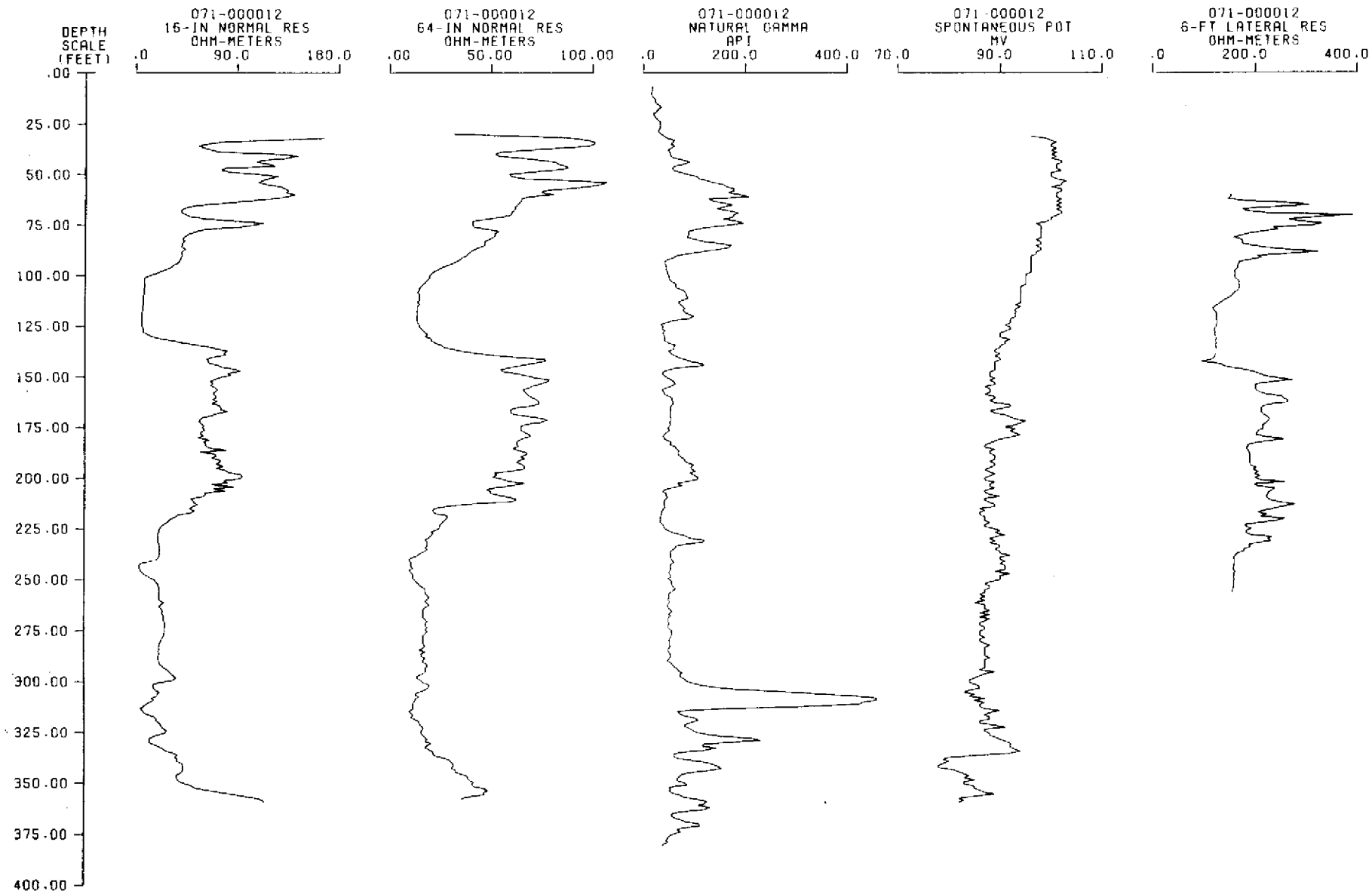
DOLOMITE
CALCITE
CALCITE
DOLOMITE
UNDIFFERENTIATED
TAMIAMI FORMATION
HAWTHORN GROUP
UPPER
CLASTIC
LOWER CARBONATE
SURFICIAL AQUIFER SYSTEM
HAWTHORN SYSTEM
AQUIFER
INTERMEDIATE
WATERTABLE AQUIFER
TAM. CONF. BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

LEO27



GEOPHYSICAL LOGS, LEE COUNTY, LE-027

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W- 026

LEE CO. T44S R26E SEC 15 26 38 34 N 81 41 50 W
TOTAL DEPTH- 770 FT. ELEV.- 30 FT. 65 SAMPLES- 0- 770 FT.
COMPLETED- 82.04.06 DEPTH WORKED 770 FT.

WELL NAME-
BUCKINGHAM #1,CONTINUOUS CORE,DRILLED BY JUSTIN HODGES(DNR).
REMARKS-
DESCRIBED BY MIKE KNAPP (AUG-SEPT 1982), SAMPLE QUILITY-EXCELLENT.

HYDROGEOLOGIC UNITS

0.0-	21.0	SURFICIAL AQUIFER SYSTEM
21.0-	56.0	UPPER HAWTHORN CONFINING ZONE
56.0-	164.0	SANDSTONE AQUIFER
164.0-	214.0	MID-HAWTHORN CONFINING ZONE
214.0-	360.0	MID-HAWTHORN AQUIFER
360.0-	591.0	LOWER HAWTHORN CONFINING ZONE
591.0-	732.0	LOWER HAWTHORN/TAMPA PRODUCING ZONE
732.0-	TD	SUWANNEE AQUIFER

REMARKS-THE SUWANNEE LIMESTONE WAS PICKED ON A DECREASE IN SAND AND PHOSPHATE. THIS UNIT,HOWEVER,DOES NOT RESEMBLE THE THE CHARACTERISTIC SUWANNEE BEDS IN CENTRAL AND NORTHERN FLORIDA. IT IS VERY SANDY (UP TO 20%) IN THIS CORE AND MAY BE A MIOCENE UNIT. THE TAMPA FORMATION, ALTHOUGH RECOGNIZED ON THIS LOG, IS INCLUDED IN THE HAWTHORN FORMATION BECAUSE OF THE HIGH PERCENTAGES OF PHOSPHATE PRESENT. THE FLORIDAN AQUIFER SYSTEM IS RECOGNIZED AT THE TOP OF THE LOWER HAWTHORN/TAMPA PRODUCING ZONE.

STRATIGRAPHIC FORMATIONS -

.0-	6.5	UNDIFFERENTIATED SAND, CLAY AND SHELLS
6.5-	21.0	TAMIAMI FORMATION
21.0-	591.0	HAWTHORN FORMATION *
591.0-	732.0	TAMPA LIMESTONE
732.0-	744.0	SUWANNEE LIMESTONE

LITHOLOGIC LOG
W- 026 . LEE CO. T44S, R26E, SEC 15

.0- 2.0 SAND, MODERATE LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED, ORGANICS,

2.0- 3.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

3.0- 4.0 SAND, MODERATE DARK GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG

W- 026 . LEE CO. T44S, R26E, SEC 15

4.0- 6.0 SAND, YELLOWISH GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, UNCONSOLIDATED,

6.0- 8.5 AS ABOVE,

8.5- 9.0 LIMESTONE, LIGHT YELLOWISH ORANGE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, 15% QUARTZ SAND, MOLLUSKS,

9.0- 9.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS,

9.0- 17.0 LIMESTONE, WHITE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO FINE, POOR INDURATION, CALCILUTITE MATRIX, 03% QUARTZ SAND, CHALKY, MOLLUSKS, FOSSIL FRAGMENTS,

17.0- 19.0 AS ABOVE,

19.0- 21.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, INTRACLASTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, 30% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, SHARK TEETH, FOSSIL FRAGMENTS,

BECOMES MORE PHOSPHATIC TOWARDS BOTTOM.

21.0- 22.0 SAND, LIGHT YELLOWISH ORANGE, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 35% CALCILUTITE, 02% CLAY, 05% PHOSPHATIC SAND, MOLLUSKS,

22.0- 23.0 SAND, GREENISH GRAY TO MODERATE YELLOWISH BROWN, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 10% CALCILUTITE, 08% PHOSPHATIC SAND, MOLLUSKS, SHARK TEETH,

23.0- 24.5 CLAY, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, CLAY MATRIX, MOTTLED, 65% CLAY, 15% QUARTZ SAND, 10% SILT,

24.5- 26.0 SHELL BED, LIGHT GRAY TO VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 10% QUARTZ SAND, MOLLUSKS,

MOSTLY OYSTERS AND CHIONE SP.

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26.0- 27.3 CLAY, YELLOWISH GRAY TO LIGHT OLIVE GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, MOTTLED, 15% CLAY, 02% QUARTZ SAND, 15% SILT, 20% CALCILUTITE, FOSSIL FRAGMENTS,

27.3- 28.5 CLAY, GRAYISH OLIVE, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, MOTTLED, 15% CLAY, 05% QUARTZ SAND, 15% SILT, 20% CALCILUTITE, BENTHONIC FORAMINIFERA,

MANY BENTHICS BULIMINA SP.,ROTALIA SP.

28.5- 29.2 SAND, MODERATE GRAYISH GREEN, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT, INTERBEDDED, 03% CLAY, 10% DOLOMITE, 10% CALCILUTITE, 04% PHOSPHATIC SAND, MOLLUSKS,

29.2- 30.0 CLAY, YELLOWISH GRAY TO LIGHT OLIVE GRAY, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CLAY, 05% CALCILUTITE, MOLLUSKS, BENTHONIC FORAMINIFERA,

30.0- 34.0 SAND, VERY LIGHT ORANGE TO WHITE, 14% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 35% DOLOMITE, 04% PHOSPHATIC SAND, NO FOSSIL,

CLAY BLEBS

34.0- 35.0 AS 34 FEET

35.0- 39.0 SAND, YELLOWISH GRAY, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 05% CLAY, 20% DOLOMITE, 04% PHOSPHATIC SAND, CALCAREOUS, NO FOSSIL,

39.0- 43.0 AS ABOVE WITH MOLLUSK FRAGS.AND MORE PHOS.(7%).

43.0- 44.0 AS ABOVE,

44.0- 45.0 CLAY, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, 05% CLAY,

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45.0- 47.0 SAND, YELLOWISH GRAY, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 10% CLAY, 25% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS,

47.0- 49.0 NO RECOVERY-DRILLER REPORTS SOFT CLAY.

49.0- 52.0 CLAY, GRAYISH OLIVE GREEN, 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% DOLOMITE, 15% CALCILUTITE, 08% QUARTZ SAND, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS, OSTRACODS,

52.0- 52.5 GRADES INTO UNDERLYING SANDSTONE.

52.5- 53.0 SANDSTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 35% DOLOMITE, 10% CALCILUTITE, 03% CLAY, FOSSIL FRAGMENTS,

53.0- 54.0 DOLOMITE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, 50-50% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 50% CALCILUTITE, 35% QUARTZ SAND, 01% PHOSPHATIC SAND,

54.0- 55.0 SANDSTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% DOLOMITE, 25% CALCILUTITE, 05% CLAY, FOSSIL FRAGMENTS,

55.0- 56.0 LIMESTONE, VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% DOLOMITE, 25% QUARTZ SAND,

LOST CIRCULATION

56.0- 58.0 LIMESTONE, VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, FOSSIL MOLDS, MOLLUSKS,

58.0- 59.0 AS ABOVE WITH VERY HIGH POROSITY AND PERMEABILITY.

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59.0- 60.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, SKELETAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

60.0- 61.0 AS ABOVE,

61.0- 62.0 LIMESTONE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 15% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

62.0- 65.0 AS ABOVE,

65.0- 69.0 LIMESTONE, YELLOWISH GRAY, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 30% DOLOMITE, 06% QUARTZ SAND, 02% PHOSPHATIC SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

69.0- 71.0 LIMESTONE, YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 30% DOLOMITE, 25% QUARTZ SAND, 03% PHOSPHATIC SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

71.0- 72.0 LOST CIRCULATION-DRILLER REPORTS CAVITY

72.0- 74.0 AS 69 TO 71 FEET.

74.0- 76.0 LIMESTONE, VERY LIGHT ORANGE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 35% QUARTZ SAND, 01% PHOSPHATIC SAND, FOSSIL MOLDS,

76.0- 78.0 SANDSTONE, VERY LIGHT ORANGE TO GRAYISH BROWN, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, HIGH SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 25% CALCILUTITE, 20% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS,

78.0- 80.0 NO RECOVERY-DRILLER REPORTS CLAY,SHELL,AND SAND.

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80.0- 81.0 LIMESTONE, YELLOWISH GRAY TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, CRYSTALS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 55% DOLOMITE, 35% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, FOSSIL MOLDS,

81.0- 82.0 AS ABOVE,

82.0- 87.0 SAND, YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO VERY COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% DOLOMITE, 05% CLAY, 06% PHOSPHATIC SAND, 01% PHOSPHATIC GRAVEL, MOLLUSKS,

QUARTZITE GRANULES

87.0- 88.0 SAND, YELLOWISH GRAY TO LIGHT OLIVE GRAY, 18% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 20% CALCILUTITE, 02% CLAY, 02% PHOSPHATIC SAND, MOLLUSKS,

88.0- 90.0 DOLOMITE, DARK GRAY TO DARK YELLOWISH BROWN, 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 04% PHOSPHATIC SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

PHOSPHATE LINING FOSSIL MOLDS.

90.0- 91.0 DOLOMITE, GRAYISH ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

91.0- 92.0 AS ABOVE,

92.0- 94.0 LIMESTONE, GRAYISH ORANGE, 16% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 55% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 35% DOLOMITE, 04% QUARTZ SAND, HIGH RECRYSTALLIZATION, COQUINA, MOLLUSKS, FOSSIL MOLDS,

94.0- 97.0 AS ABOVE,

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97.0- 101.0 LIMESTONE, GRAYISH BROWN, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE, 95% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 25% DOLOMITE, HIGH RECRYSTALLIZATION, COQUINA, MOLLUSKS, FOSSIL MOLDS,

FRIABLE LIMESTONE

101.0- 101.3 LIMESTONE, WHITE, 10% POROSITY, INTERCRYSTALLINE, LOW PERMEABILITY, GRAIN TYPE: CRYSTALS, CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% DOLOMITE, MOLLUSKS,

101.3- 103.5 DOLOMITE, MODERATE YELLOWISH BROWN, 14% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 10% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

103.5- 104.0 DOLOMITE, WHITE TO VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 25% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

104.0- 106.0 CLAY, WHITE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 10% SILT, 02% CLAY, MOLLUSKS,

106.0- 108.0 AS ABOVE WITH SLEBS OF PHOSPHATIC SAND AT 107 FT.

108.0- 109.0 AS ABOVE,

109.0- 112.0 AS ABOVE,

112.0- 114.0 CLAY, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

114.0- 116.0 CLAY, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 35% CALCILUTITE, 01% CLAY, 03% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

116.0- 118.0 AS ABOVE,

118.0- 120.0 AS ABOVE,

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120.0- 122.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% DOLOMITE, 01% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

122.0- 124.0 SLIGHTLY SANDY CARBONATE MUD

124.0- 129.0 AS ABOVE,

129.0- 132.0 AS ABOVE,

132.0- 134.0 LIMESTONE, WHITE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 03% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

134.0- 136.0 LIMESTONE, GRAYISH ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 40% DOLOMITE, 20% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

136.0- 140.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS,

140.0- 142.0 AS ABOVE,

142.0- 146.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS,

146.0- 148.0 AS ABOVE,

148.0- 148.5 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 10% QUARTZ SAND, 01% PHOSPHATIC SAND, 01% MICA, FOSSIL FRAGMENTS,

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148.5- 150.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% DOLOMITE, 05% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

150.0- 152.0 SAND, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 05% CLAY, 10% DOLOMITE, 04% PHOSPHATIC SAND,

152.0- 154.0 CLAY, GRAYISH OLIVE, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 15% CLAY, 04% QUARTZ SAND, 01% PHOSPHATIC SAND, 01% MICA, BENTHONIC FORAMINIFERA, MOLLUSKS,

TEXTULARIA SP.

154.0- 156.0 AS ABOVE,

156.0- 163.0 SAND, GRAYISH OLIVE, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, INTERBEDDED, 15% DOLOMITE, 05% CLAY, 06% PHOSPHATIC SAND, 02% MICA, MOLLUSKS, FOSSIL FRAGMENTS,

SHELL BEDS INTERBEDDED - ROUND DOLOMITE PEBBLES (160').

163.0- 165.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, INTERBEDDED, 10% CLAY, 04% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

165.0- 172.0 CLAY, GRAYISH OLIVE GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, 20% CLAY, 01% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS,

172.0- 180.0 CLAY, GRAYISH OLIVE GREEN, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 01% PHOSPHATIC SAND, 20% DOLOMITE, BENTHONIC FORAMINIFERA, MOLLUSKS, SHARK TEETH,

180.0- 182.0 AS ABOVE,

182.0- 188.0 SAND, GRAYISH OLIVE GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 10% CLAY, 10% DOLOMITE, 10% PHOSPHATIC SAND, MOLLUSKS, SHARK TEETH,

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188.0- 190.0 SAND, GRAYISH OLIVE GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 10% CLAY, 05% DOLOMITE, 15% PHOSPHATIC SAND, 02% PHOSPHATIC GRAVEL, MOLLUSKS, SHARK TEETH,

190.0- 194.0 CLAY, GRAYISH OLIVE GREEN, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, BIOTURBATED, 10% CLAY, 10% QUARTZ SAND, 06% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL FRAGMENTS,

194.0- 197.0 AS ABOVE,

197.0- 199.0 CLAY, YELLOWISH GRAY, 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CLAY MATRIX, BIOTURBATED, 20% CLAY, 06% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

199.0- 207.0 SAND, YELLOWISH GRAY TO LIGHT OLIVE GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, 04% CLAY, 04% DOLOMITE, 15% PHOSPHATIC SAND, MOLLUSKS,

207.0- 207.5 SAND, YELLOWISH GRAY TO LIGHT GREENISH YELLOW, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, DOLOMITE CEMENT, 05% DOLOMITE, 04% PHOSPHATIC SAND, MOLLUSKS,

207.5- 210.0 CLAY, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 06% PHOSPHATIC SAND, 06% QUARTZ SAND, MOLLUSKS,

210.0- 214.0 AS ABOVE WITH PHOS.LIMESTONE INTERBEDDED.,

214.0- 217.0 LIMESTONE, VERY LIGHT GRAY TO YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, 02% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS,

DRILLER REPORTS WELL FLOW (5-10GPM)

217.0- 222.0 OYSTER BED

222.0- 224.0 CLAY, LIGHT GREENISH YELLOW, 10% POROSITY, INTERGRANULAR, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, INTERBEDDED, 15% CALCILUTITE, 05% CLAY, 04% PHOSPHATIC SAND, 04% QUARTZ SAND, MOLLUSKS, BRYOZOA, CORAL,

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224.0- 227.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 04% PHOSPHATIC SAND, 03% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

227.0- 232.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 05% DOLOMITE, 10% PHOSPHATIC SAND, 20% QUARTZ SAND, MOLLUSKS,

232.0- 237.0 AS ABOVE,

237.0- 247.0 LIMESTONE, LIGHT OLIVE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CRYSTALS, SKELETAL, 75% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO VERY COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, INTERBEDDED, 05% CLAY, 15% DOLOMITE, 06% QUARTZ SAND, 04% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, CORAL, CRUSTACEA,

OYSTER BED TO 242'.

247.0- 252.0 AS ABOVE,BUT MODERATELY INDURATED,OYSTER BEDS

252.0- 257.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

257.0- 264.0 AS ABOVE,

264.0- 269.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 10% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, FOSSIL FRAGMENTS,

269.0- 271.0 LIMESTONE, YELLOWISH GRAY TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 10% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

271.0- 275.0 DRILLER REPORTS CAVITY - GOOD FLOW (300GPM)

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273.0- 282.0 LIMESTONE, YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% DOLOMITE, 10% QUARTZ SAND, 15% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

282.0- 290.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 15% DOLOMITE, 06% PHOSPHATIC SAND, 10% QUARTZ SAND, BRYOZOA, MOLLUSKS, FOSSIL MOLDS,

CAVITIES AT 285'.

290.0- 300.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, FOSSIL FRAGMENTS,

300.0- 302.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, SKELETAL, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 20% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

302.0- 307.0 CLAY, GREENISH GRAY, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 02% CLAY, 30% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

307.0- 308.5 AS ABOVE,

308.5- 310.0 CLAY, YELLOWISH GRAY, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, BIOTURBATED, 04% CLAY, 10% QUARTZ SAND, 10% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

310.0- 319.0 CLAY, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, INTERBEDDED, 05% CLAY, 15% CALCILUTITE, MOLLUSKS, BENTHONIC FORAMINIFERA,

PHOSPHATE AND QUARTZ SAND INTERBEDDED

319.0- 321.0 AS ABOVE,

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321.0- 326.0 CLAY, LIGHT OLIVE TO YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 05% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA,

BRYOZOAN BIOHERM

326.0- 327.5 CLAY, LIGHT OLIVE, 16% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 05% PHOSPHATIC SAND, 20% QUARTZ SAND, BRYOZOA, FOSSIL FRAGMENTS,

327.5- 329.0 CLAY, LIGHT GREENISH GRAY, 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 02% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, BRYOZOA,

329.0- 332.0 AS ABOVE,

332.0- 335.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% DOLOMITE, 03% PHOSPHATIC SAND, 03% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS, BRYOZOA,

335.0- 337.0 AS ABOVE,

337.0- 342.0 AS ABOVE WITH MORE PHOSPHATE (07%)

342.0- 345.0 LIMESTONE, VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 15% DOLOMITE, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, ECHINOID, BRYOZOA, FOSSIL FRAGMENTS,

345.0- 352.0 LIMESTONE, LIGHT OLIVE GRAY, 13% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 25% PHOSPHATIC SAND, 25% QUARTZ SAND, MOLLUSKS,

352.0- 362.0 AS ABOVE,

362.0- 367.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 10% PHOSPHATIC SAND, 20% QUARTZ SAND, MOLLUSKS,

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367.0- 368.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, BIOTURBATED, 20% DOLOMITE, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS,

368.0- 371.0 LIMESTONE, YELLOWISH GRAY, 18% POROSITY, INTERGRANULAR, MOLLIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% DOLOMITE, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, ECHINOID,

371.0- 375.0 LIMESTONE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 35% DOLOMITE, 08% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,

375.0- 376.0 DOLOMITE, GRAYISH BROWN, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 12% PHOSPHATIC SAND, 08% QUARTZ SAND, MOLLUSKS,

376.0- 377.0 AS ABOVE WITH LARGE MOLLUSK MOLDS

377.0- 382.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 30% DOLOMITE, 03% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

382.0- 392.0 AS ABOVE,

392.0- 397.0 AS ABOVE WITH MORE PHOSPHATE (07%)

397.0- 407.0 LIMESTONE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 35% DOLOMITE, 01% CLAY, 03% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA,

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407.0- 709.0 LIMESTONE, WHITE TO LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 10% PHOSPHATIC SAND, 04% QUARTZ SAND, MOLLUSKS, ECHINOID, BRYOZOA,

709.0- 412.0 AS ABOVE WITH MORE PHOSPHATE (15%)

412.0- 415.0 LIMESTONE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 12% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS,

415.0- 417.0 AS ABOVE WITH HEAVY PHOSPHATE CONCENTRATION AT 416.

417.0- 425.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 10% DOLOMITE, 14% PHOSPHATIC SAND, 20% QUARTZ SAND, MOLLUSKS,

425.0- 429.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 05% PHOSPHATIC SAND, 02% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL FRAGMENTS,

429.0- 430.0 AS ABOVE WITH LESS ALLOCHEMS-PHOSPHATIC SAND INTERBEDS

430.0- 431.0 CLAY, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 04% PHOSPHATIC SAND, 04% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS,

INTERBEDS OF HIGHLY PHOSPHATIC SANDS.

431.0- 433.0 AS ABOVE,

433.0- 435.0 CLAY, MODERATE OLIVE BROWN, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, CLAY MATRIX, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% DOLOMITE, 04% CALCILUTITE, MOLLUSKS,

435.0- 440.0 AS ABOVE,

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440.0- 442.0 CLAY, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 05% CLAY, 10% PHOSPHATIC SAND, 05% QUARTZ SAND, FOSSIL FRAGMENTS,

442.0- 443.0 AS ABOVE,

443.0- 445.0 CLAY, LIGHT OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 02% CLAY, 08% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA,

BRYOZOAN BIOHERM

445.0- 446.0 CLAY, LIGHT GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 15% CALCILUTITE, 02% CLAY, 10% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA, SHARK TEETH, FOSSIL FRAGMENTS,

446.0- 450.0 LIMESTONE, WHITE TO LIGHT GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 10% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

450.0- 452.0 LIMESTONE, MODERATE LIGHT GRAY, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 20% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS,

452.0- 457.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 06% PHOSPHATIC SAND, 04% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

PHOSPHATIC SAND INTERBEDDED

457.0- 463.0 AS ABOVE,

463.0- 465.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 50% DOLOMITE, 03% PHOSPHATIC SAND, 01% QUARTZ SAND, BRYOZOA, MOLLUSKS,

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465.0- 467.0 DOLOMITE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 03% PHOSPHATIC SAND, 01% QUARTZ SAND, BRYOZOA, MOLLUSKS,

467.0- 469.0 DOLOMITE, VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 03% PHOSPHATIC SAND, 01% QUARTZ SAND, BRYOZOA, MOLLUSKS,

469.0- 473.0 AS ABOVE,

473.0- 475.0 LIMESTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 40% DOLOMITE, 01% PHOSPHATIC SAND, 01% QUARTZ SAND, BRYOZOA, MOLLUSKS, FOSSIL MOLDS,

475.0- 476.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 40% DOLOMITE, 06% PHOSPHATIC SAND, 04% QUARTZ SAND, BRYOZOA, MOLLUSKS,

476.0- 477.0 AS ABOVE WITH ZONED LAYERING OF HIGH % OF PHOSPHATE

477.0- 479.0 AS ABOVE,

479.0- 481.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 35% DOLOMITE, 06% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, FOSSIL FRAGMENTS, BRYOZOA,

481.0- 483.0 AS ABOVE,

483.0- 485.0 DOLOMITE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% CALCILUTITE, 02% PHOSPHATIC SAND, 01% QUARTZ SAND, BRYOZOA, MOLLUSKS,

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485.0- 495.0 DOLOMITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 06% PHOSPHATIC SAND, 10% QUARTZ SAND, BRYOZOA, MOLLUSKS,

495.0- 496.0 AS ABOVE,

496.0- 500.0 DOLOMITE, WHITE TO MODERATE LIGHT GRAY, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 10% PHOSPHATIC SAND, 10% QUARTZ SAND, BRYOZOA, MOLLUSKS,

500.0- 503.0 AS ABOVE WITH MORE PHOSPHATE (20%)

503.0- 506.0 DOLOMITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 15% PHOSPHATIC SAND, 20% QUARTZ SAND, BRYOZOA, MOLLUSKS,

506.0- 514.0 AS ABOVE WITH INCREASING SAND AND PHOSPHATE %'S.

514.0- 523.0 DOLOMITE, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 05% PHOSPHATIC SAND, 06% QUARTZ SAND, BRYOZOA, MOLLUSKS,

523.0- 524.0 CLAY, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 25% CALCILUTITE, 15% PHOSPHATIC SAND, 15% QUARTZ SAND, MOLLUSKS,

524.0- 526.0 DOLOMITE, WHITE TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 30% CALCILUTITE, 02% PHOSPHATIC SAND, 01% QUARTZ SAND, MOLLUSKS, BRYOZOA,

526.0- 530.0 CLAY, GREENISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 30% CALCILUTITE, 01% PHOSPHATIC SAND, 02% CLAY, 05% SILT, MOLLUSKS,

530.0- 532.0 CLAY, DARK GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 10% CLAY, 02% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS,

532.0- 538.0 AS ABOVE WITH HIGHLY PHOSPHATIC DOLOMITE AT 538.

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538.0- 540.0 DOLOMITE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 35% CALCILUTITE, 07% PHOSPHATIC SAND, 03% QUARTZ SAND, MOLLUSKS, ECHINOID, BRYOZOA,

540.0- 541.5 DOLOMITE, YELLOWISH GRAY TO DARK GREENISH GRAY, 12% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 14% PHOSPHATIC SAND, 02% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

541.5- 554.0 DOLOMITE, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 45% CALCILUTITE, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, MOLLUSKS, BRYOZOA, FOSSIL FRAGMENTS,

554.0- 556.0 GRADES INTO UNDERLYING LITHOLOGY

556.0- 560.0 CLAY, LIGHT OLIVE GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% CALCILUTITE, 01% PHOSPHATIC SAND, BRYOZOA, MOLLUSKS,

560.0- 561.0 CLAY, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE,

561.0- 563.0 CLAY, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 01% PHOSPHATIC SAND, BRYOZOA, MOLLUSKS,

563.0- 566.0 DOLOMITE, YELLOWISH GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

566.0- 572.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 30% DOLOMITE, MOLLUSKS, FOSSIL FRAGMENTS, BRYOZOA,

572.0- 574.0 AS ABOVE,

LITHOLOGIC LOG
#- 026 . LEE CO. T44S, R26E, SEC 15

574.0- 575.0 DOLOMITE, LIGHT OLIVE GRAY, 14% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 20% CALCILUTITE, 02% PHOSPHATIC SAND, BRYOZOA, MOLLUSKS,

575.0- 579.0 DOLOMITE, VERY LIGHT ORANGE TO GRAYISH BROWN, 16% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

DRILLER REPORTS INCREASE FLOW AT 576'-WATER SAMPLE

579.0- 582.0 AS ABOVE WITH CLAY BED 580.

582.0- 585.0 CLAY, YELLOWISH GRAY TO GREENISH GRAY, 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 06% PHOSPHATIC SAND, SHARK TEETH,

585.0- 591.0 DOLOMITE, YELLOWISH GRAY, 12% POROSITY, INTERGRANULAR, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 01% PHOSPHATIC SAND, HIGH RECRYSTALLIZATION,

591.0- 597.0 LIMESTONE, VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 60% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: VERY FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% QUARTZ SAND, BRYOZOA, MOLLUSKS, BENTHONIC FORAMINIFERA, FOSSIL MOLDS,

597.0- 606.0 DOLOMITE, YELLOWISH GRAY TO LIGHT OLIVE GRAY, 12% POROSITY, INTERGRANULAR, MOLDIC, 50-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

606.0- 609.0 LIMESTONE, YELLOWISH GRAY TO VERY LIGHT ORANGE, 16% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

SORITES, QUINQUELOCULINA SP., PHOS. OCCURS IN THIN SEAMS

LITHOLOGIC LOG
W- 028 . LEE CO. T44S, R26E, SEC 15

609.0- 612.0 LIMESTONE, VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, SKELETAL, 75% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MEDIUM, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 01% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, CORAL, MOLLUSKS, FOSSIL MOLDS, ECHINOID,

DRILLER REPORTS INCREASE FLOW AT 612'-WATER SAMPLE

612.0- 617.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CRYSTALS, SKELETAL, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 15% DOLOMITE, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

617.0- 627.0 LIMESTONE, VERY LIGHT ORANGE, 18% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, ECHINOID, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS,

627.0- 632.0 AS ABOVE WITH ARCHIAS SP.AND SORITES

632.0- 637.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 05% PHOSPHATIC SAND, 03% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, ECHINOID,

637.0- 644.0 AS ABOVE,

644.0- 647.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 10% DOLOMITE, 05% PHOSPHATIC SAND, 05% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, ECHINOID,

DRILLER REPORTS INCREASED FLOW

647.0- 652.0 AS ABOVE,

LITHOLOGIC LOG
W- 620 . LEE CO. T44S, R20E, SEC 15

652.0- 657.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 13% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% PHOSPHATIC SAND, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA, ECHINOID, MOLLUSKS, FOSSIL MOLDS, CORAL,

MANY SORITES

657.0- 662.0 AS ABOVE WITH MORE PHOSPHATE (8%) AND QTZ SAND (8%)

662.0- 667.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 09% PHOSPHATIC SAND, 10% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, ECHINOID, FOSSIL MOLDS, BRYOZOA,

667.0- 670.0 AS ABOVE,

670.0- 672.0 LIMESTONE, VERY LIGHT ORANGE TO VERY LIGHT GRAY, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 02% PHOSPHATIC SAND, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

672.0- 673.0 AS ABOVE,

673.0- 677.0 LIMESTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 40% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 01% PHOSPHATIC SAND, 05% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

677.0- 682.0 AS ABOVE WITH MORE PHOSPHATE (7%) AND QTZ SAND (10%)

682.0- 685.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% PHOSPHATIC SAND, 07% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

685.0- 687.0 SANDSTONE, LIGHT GRAY, 15% POROSITY, INTERGRANULAR, GRAIN SIZE: FINE, RANGE: VERY FINE TO MEDIUM, SUB-ANGULAR, ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 35% CALCILUTITE, 05% SPAR, 06% PHOSPHATIC SAND, MOLLUSKS, FOSSIL FRAGMENTS,

LITHOLOGIC LOG
W- 028 . LEE CO. T44S, R20E, SEC 15

APPEARS REWORKED AND/OR WEATHERED

687.0- 692.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% PHOSPHATIC SAND, 02% QUARTZ SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

DRILLER REPORTS INCREASED FLOW 682 TO 692.

692.0- 694.0 AS ABOVE,

694.0- 699.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% QUARTZ SAND, 05% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS,

699.0- 705.0 LIMESTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 04% QUARTZ SAND, 04% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS,

705.0- 707.0 LIMESTONE, VERY LIGHT ORANGE TO LIGHT GRAY, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 25% QUARTZ SAND, 06% PHOSPHATIC SAND, MOLLUSKS, BENTHONIC FORAMINIFERA,

707.0- 709.0 AS ABOVE,

709.0- 710.0 GRADES INTO UNDERLYING LITHO

710.0- 715.0 DOLOMITE, VERY LIGHT GRAY TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, LOW PERMEABILITY, 30-90% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 10% CALCILUTITE, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, HIGH RECRYSTALLIZATION,

LITHOLOGIC LOG
W- 026 . LEE CO. T44S, R26E, SEC 15

715.0- 717.0 DOLOMITE, LIGHT GRAY, 14% POROSITY, INTERGRANULAR, MOLDIC, 50-50% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 15% QUARTZ SAND, 02% PHOSPHATIC SAND, HIGH RECRYSTALLIZATION, MOLLUSKS, FOSSIL MOLDS,

717.0- 722.5 LIMESTONE, VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 20% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS, CRUSTACEA,

722.5- 723.0 LIMESTONE, LIGHT GRAY TO VERY LIGHT ORANGE, 14% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 30% DOLOMITE, 55% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

723.0- 729.0 AS ABOVE WITH MORE SAND (45%)

729.0- 732.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 14% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, LAMINATED, 10% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS,

DRILLER REPORTS INCREASED FLOW AT 732'

732.0- 735.0 AS ABOVE WITH LENSE OF DOLOMITE AT 733'

735.0- 737.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, BRECCIATED, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

737.0- 742.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 06% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

LITHOLOGIC LOG
W- 026 . LEE CO. T44S, R26E, SEC 15

742.0- 747.0 LIMESTONE, VERY LIGHT ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, BRECCIATED, LAMINATED, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

747.0- 752.0 AS ABOVE-DRILLER REPORTS VERY SOFT L/S AT 752'-NO REC.

752.0- 756.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: BIOGENIC, CALCILUTITE, 10% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, MODERATE INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND, MOLLUSKS,

756.0- 760.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 10% QUARTZ SAND, MOLLUSKS,

760.0- 762.0 LIMESTONE, WHITE, 10% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO VERY FINE, POOR INDURATION, CALCILUTITE MATRIX, 10% QUARTZ SAND,

762.0- 764.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 12% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT, 10% DOLOMITE, 12% QUARTZ SAND, MOLLUSKS,

764.0- 767.0 LIMESTONE, VERY LIGHT ORANGE TO GRAYISH ORANGE, 15% POROSITY, INTERGRANULAR, GRAIN TYPE: CALCILUTITE, BIOGENIC, 05% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, 20% QUARTZ SAND, MOLLUSKS,

767.0- 770.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

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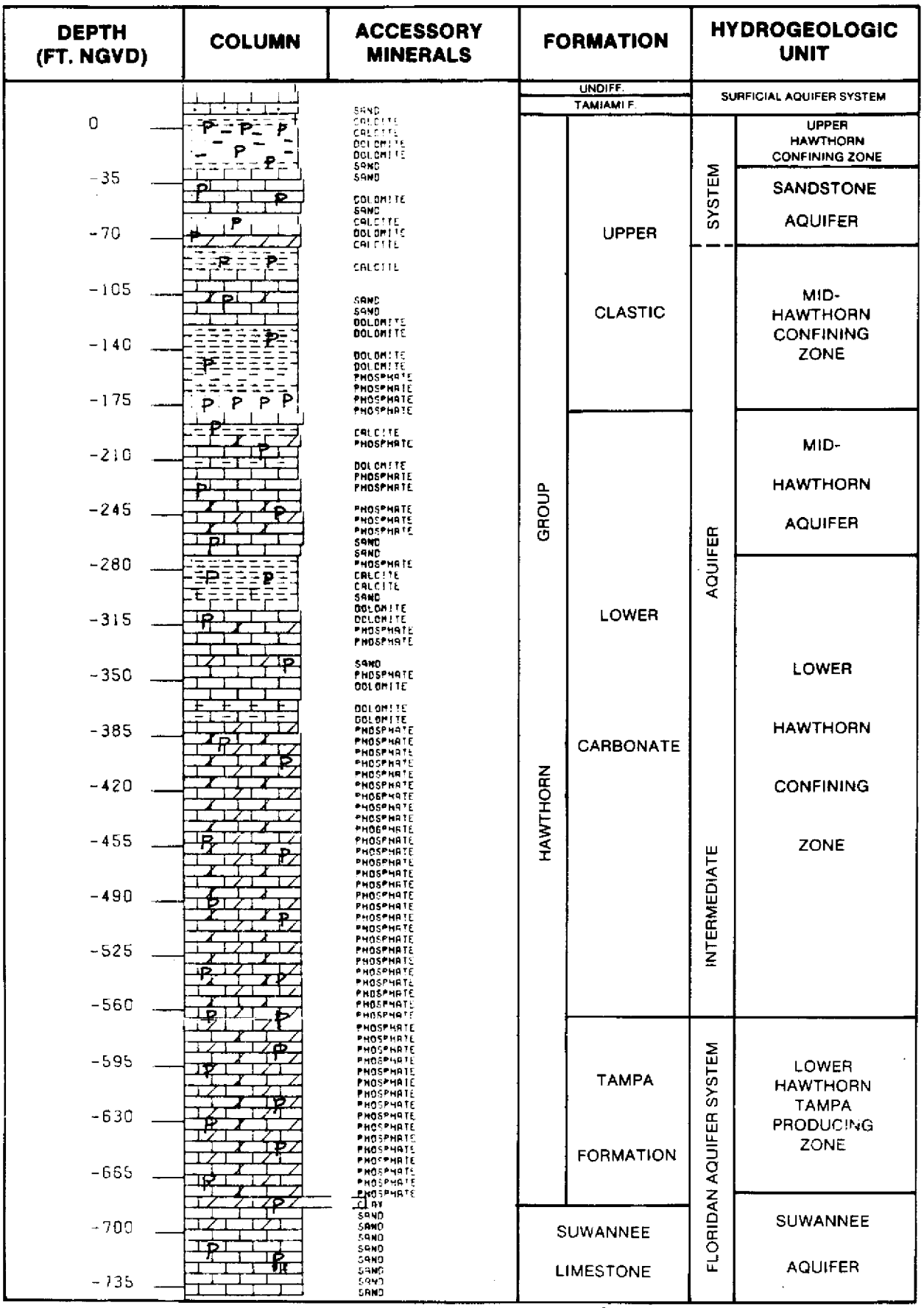
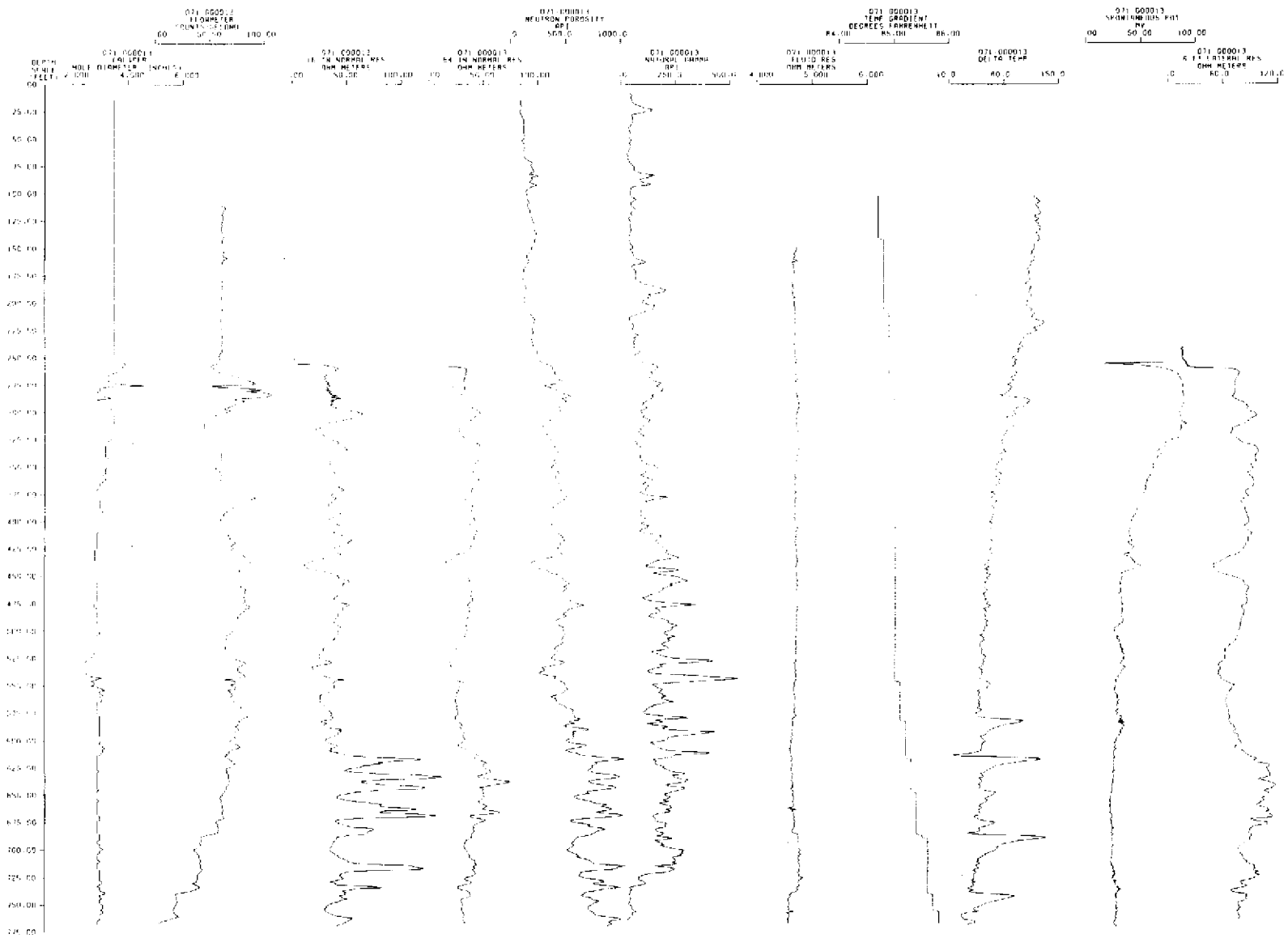

DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-35
-70
-105
-140
-175
-210
-245
-280
-315
-350
-385
-420
-455
-490
-525
-560
-595
-630
-665
-700
-735
UNDIFF.
TAMIAMI F.
SURFICIAL AQUIFER SYSTEM
HAWTHORN GROUP
UPPER
CLASTIC
LOWER
CARBONATE
TAMPA
FORMATION
SUWANNEE
LIMESTONE
SYSTEM
AQUIFER
INTERMEDIATE
FLORIDAN AQUIFER SYSTEM
UPPER HAWTHORN CONFINING ZONE
SANDSTONE
AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-
HAWTHORN
AQUIFER
LOWER
HAWTHORN
CONFINING
ZONE
LOWER HAWTHORN TAMPA PRODUCING ZONE
SUWANNEE
AQUIFER

WLEO28



GEOPHYSICAL LOGS, LEE COUNTY, LE-028

SOUTH FLORIDA WMD - LITHO LOG PRINTOUT

W-LEGGS

LEE CO. 1975 R26E SEC 36 26 26 15 N 81 39 53 W
TOTAL DEPTH- 460 FT. ELEV.- 20 FT. 46 SAMPLES- 0- 460 FT.
COMPLETED- 07.26.85 DEPTH WORKED 460 FT.

OTHER GEOPHYSICAL LOGS AVAILABLE -

GAMMA
CALIPER
ELECTRIC
NEUTRON

WELL NAME-
SOD SOUTH,LEGGS,SFWMD-DRILLER (ALVIN WOOSTER)
REMARKS-
DESCRIBED BY MIKE KNAPP (1-10-84),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0 100.0 SURFICIAL AQUIFER SYSTEM
0.0 85.0 WATER TABLE AQUIFER
95.0 180.0 LOWER TAMIAMI AQUIFER
180.0 270.0 UPPER HAWTHORN CONFINING ZONE
270.0 310.0 SANDSTONE AQUIFER
310.0 410.0 MID-HAWTHORN CONFINING ZONE
410.0 460.0 MID-HAWTHORN AQUIFER

STRATIGRAPHIC FORMATIONS -

.0- 15.0 UNDIFFERENTIATED SAND, CLAY AND SHELLS
15.0- 150.0 TAMIAMI FORMATION
150.0- 180.0 MIOCENE COARSE CLASTICS
180.0- 460.0 HAWTHORN FORMATION *

LITHOLOGIC LOG
W-LEGGS . LEE CO. 1975, R26E, SEC 36

.0- 10.0 SAND, LIGHT GRAY, 35% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, UNCONSOLIDATED,

10.0- 15.0 SHELL BED, MODERATE ORANGE PINK TO WHITE, 30% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 20% QUARTZ SAND, 15% CALCILUTITE, MOLLUSKS,

15.0- 20.0 SANDSTONE, MODERATE ORANGE PINK, 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, GOOD INDURATION, CALCILUTITE MATRIX, 40% CALCILUTITE, MOLLUSKS, CORAL,

* THE MIOCENE COARSE CLASTICS, HAWTHORN FORMATION AND TAMPA LIMESTONE ARE CONSIDERED A PART OF THE HAWTHORN GROUP IN THIS REPORT.

LITHOLOGIC LOG
W-LEOSS . LEE CO. 1973, R20E, SEC 36

20.0- 30.0 SHELL BED, MODERATE ORANGE PINK TO WHITE, 30% POROSITY, INTERGRANULAR, UNCONSOLIDATED, 15% QUARTZ SAND, 20% CALCILUTITE, MOLLUSKS, CORAL,

30.0- 40.0 SANDSTONE, MODERATE ORANGE PINK TO WHITE, 30% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, 20% CALCILUTITE, MOLLUSKS,

40.0- 50.0 LIMESTONE, VERY LIGHT ORANGE, 25% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 15% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 25% QUARTZ SAND, MOLLUSKS, CORAL, FOSSIL MOLDS,

50.0- 60.0 AS ABOVE,

60.0- 65.0 LIMESTONE, MODERATE LIGHT GRAY TO YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 15% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

65.0- 75.0 CLAY, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 20% CALCILUTITE, 10% SILT, 15% QUARTZ SAND, MOLLUSKS,

75.0- 95.0 AS ABOVE,

95.0- 100.0 LIMESTONE, LIGHT GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 10% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS,

100.0- 115.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 25% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 02% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,

115.0- 130.0 AS ABOVE- PURE SAND (25%)

LITHOLOGIC LOG
#-LEGSS . LEE CO. T47S, R20E, SEC 35

130.0- 140.0 LIMESTONE, VERY LIGHT ORANGE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE, 35% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: FINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 20% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, PLANT REMAINS, FOSSIL MOLDS,

140.0- 150.0 AS ABOVE,

150.0- 160.0 SANDSTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% CALCILUTITE, MOLLUSKS, FOSSIL MOLDS,

160.0- 170.0 AS ABOVE (LARGE SHELL CEMENTED IN MATRIX)

170.0- 180.0 SANDSTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 20% POROSITY, INTERGRANULAR, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, MODERATE INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 40% CALCILUTITE, MOLLUSKS,

180.0- 190.0 SANDSTONE, VERY LIGHT ORANGE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 25% CALCILUTITE, 20% DOLOMITE, MOLLUSKS,

190.0- 200.0 SAND, VERY LIGHT ORANGE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX, 05% CLAY, 20% DOLOMITE, 20% CALCILUTITE, 02% PHOSPHATIC SAND, MOLLUSKS,

200.0- 210.0 LIMESTONE, WHITE TO VERY LIGHT ORANGE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN TYPE: CALCILUTITE, BIOGENIC, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, POOR INDURATION, CALCILUTITE MATRIX, 05% QUARTZ SAND, MOLLUSKS,

210.0- 220.0 AS ABOVE,

220.0- 230.0 SAND, VERY LIGHT ORANGE TO YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, 40% CALCILUTITE, MOLLUSKS,

230.0- 240.0 AS ABOVE (LARGE SHELL FRAGS)

240.0- 250.0 AS ABOVE,

250.0- 260.0 SAND, YELLOWISH GRAY, 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY, GRAIN SIZE: MEDIUM, RANGE: VERY FINE TO COARSE, SUB-ANGULAR, ROUNDED, MEDIUM SPHERICITY, POOR INDURATION, CALCILUTITE MATRIX, CLAY MATRIX, 10% CALCILUTITE, 02% PHOSPHATIC SAND, 02% CLAY, MOLLUSKS,

260.0- 270.0 AS ABOVE,

270.0- 280.0 LIMESTONE, VERY LIGHT ORANGE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, DOLOMITE CEMENT, 20% DOLOMITE, 03% PHOSPHATIC SAND, 03% QUARTZ SAND, 01% PHOSPHATIC GRAVEL, MOLLUSKS, FOSSIL MOLDS,

280.0- 290.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 30% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 03% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, FOSSIL MOLDS, BRYOZOA,

290.0- 300.0 AS ABOVE,

300.0- 310.0 DOLOMITE, LIGHT OLIVE GRAY, 20% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, PIN POINT VUGS, 50-60% ALTERED, EUHEDRAL, GRAIN SIZE: VERY FINE, RANGE: VERY FINE TO MICROCRYSTALLINE, GOOD INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 03% QUARTZ SAND, 03% PHOSPHATIC SAND, MOLLUSKS,

310.0- 320.0 CLAY, GREENISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, 15% CALCILUTITE, 05% QUARTZ SAND, MOLLUSKS,

320.0- 330.0 AS ABOVE,

330.0- 340.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 35% QUARTZ SAND, 04% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

340.0- 350.0 AS ABOVE,

350.0- 360.0 AS ABOVE-LESS SAND (05%)-PLANKTICS

360.0- 370.0 CLAY, YELLOWISH GRAY, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 25% QUARTZ SAND, 03% PHOSPHATIC SAND, BENTHONIC FORAMINIFERA, MOLLUSKS,

370.0- 380.0 AS ABOVE-INCREASE PHOSPHATE (08%)

LITHOLOGIC LOG
W-LE033 . LEE CO. T47S, R26E, SEC 36

360.0- 390.0 CLAY, GRAYISH OLIVE, 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POOR INDURATION, DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX, 05% CLAY, 10% PHOSPHATIC SAND, 05% PHOSPHATIC GRAVEL, 25% QUARTZ SAND, MOLLUSKS,

390.0- 400.0 PHOSPHATE NODULE

400.0- 410.0 AS ABOVE,

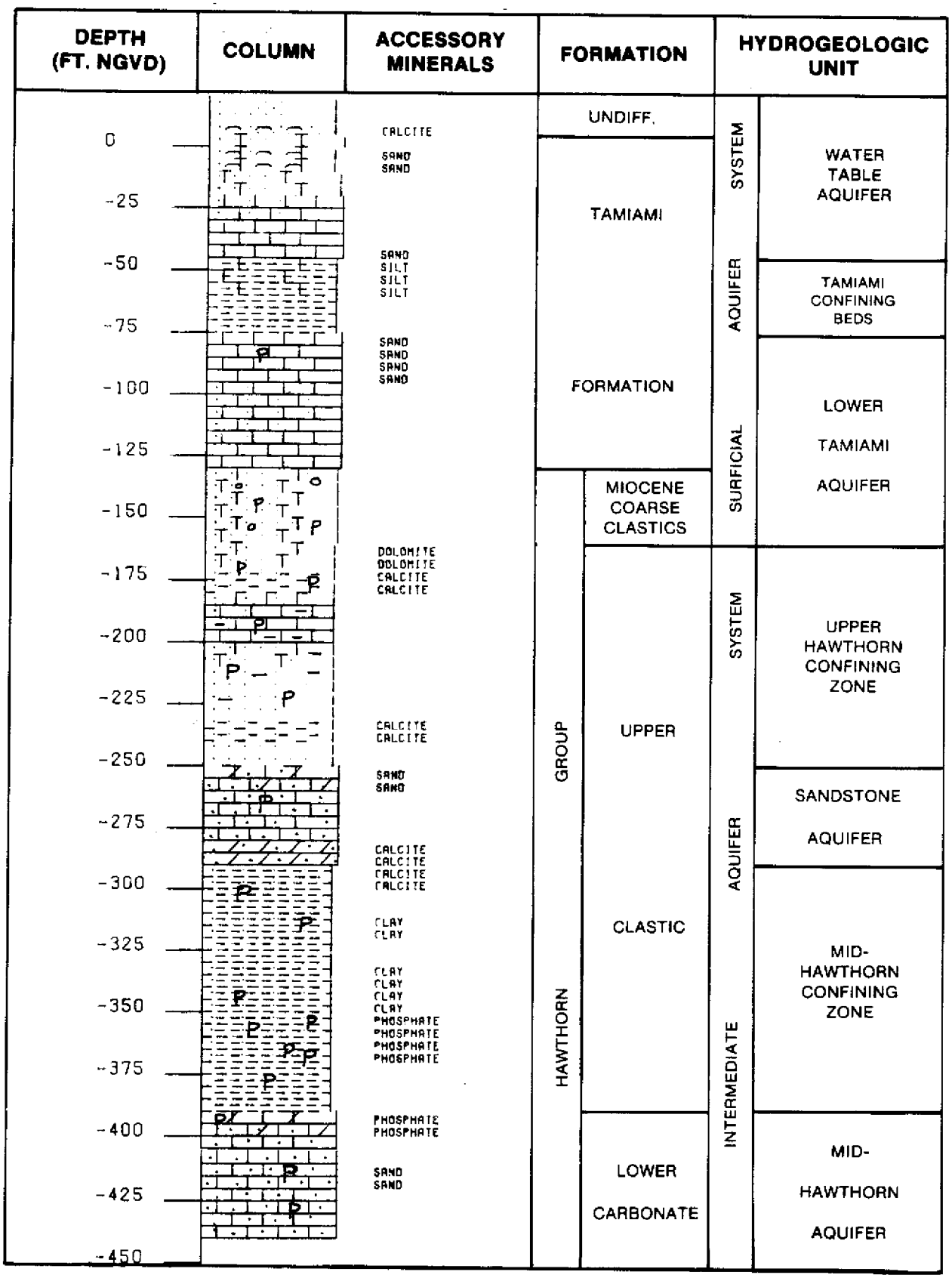
410.0- 420.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 15% POROSITY, INTERGRANULAR, MOLDIC, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO MEDIUM, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT, 20% DOLOMITE, 05% PHOSPHATIC SAND, 10% QUARTZ SAND, MOLLUSKS, FOSSIL MOLDS,

420.0- 430.0 AS ABOVE,

430.0- 440.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 20% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 05% QUARTZ SAND, 05% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,

440.0- 450.0 AS ABOVE,

450.0- 460.0 LIMESTONE, VERY LIGHT ORANGE TO WHITE, 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY, GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS, 45% ALLOCHEMICAL CONSTITUENTS, GRAIN SIZE: MICROCRYSTALLINE, RANGE: MICROCRYSTALLINE TO COARSE, GOOD INDURATION, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, 01% QUARTZ SAND, 01% PHOSPHATIC SAND, MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS,


DEPTH (FT. NGVD)
COLUMN
ACCESSORY MINERALS
FORMATION
HYDROGEOLOGIC UNIT
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
-375
-400
-425
-450
CALCITE
SAND
SAND
SAND
SILT
SILT
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SAND
SAND
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SAND
DOLOMITE
DOLOMITE
CALCITE
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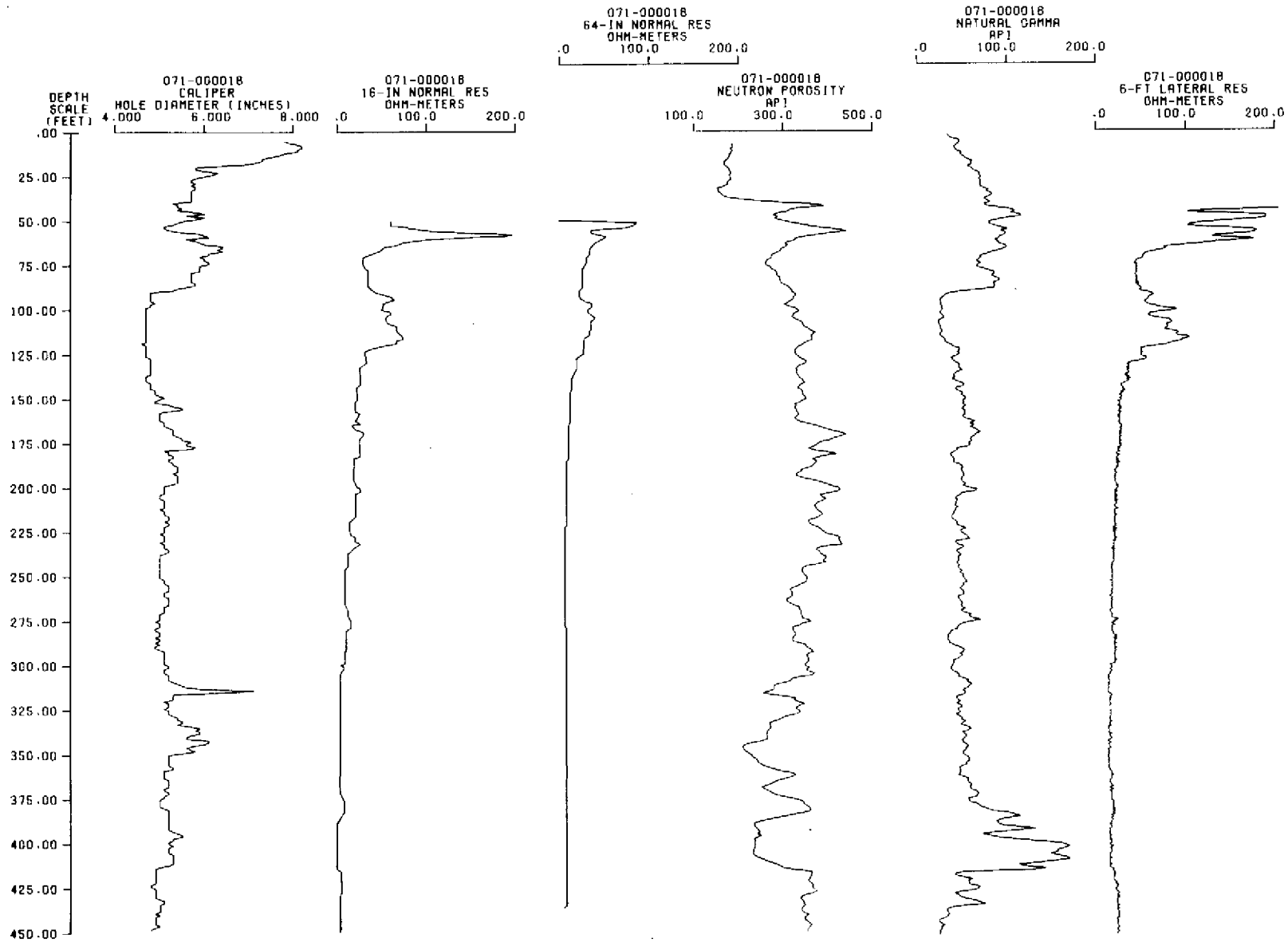
CALCITE
CLAY
CLAY
CLAY
CLAY
CLAY
CLAY
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
PHOSPHATE
SAND
SAND
UNDIFF.
TAMIAMI
FORMATION
MIOCENE COARSE CLASTICS
UPPER
CLASTIC
LOWER
CARBONATE
HAWTHORN
GROUP
SURFICIAL
AQUIFER
SYSTEM
INTERMEDIATE
AQUIFER
SYSTEM
WATER TABLE AQUIFER
TAMIAMI CONFINING BEDS
LOWER TAMIAMI AQUIFER
UPPER HAWTHORN CONFINING ZONE
SANDSTONE AQUIFER
MID-HAWTHORN CONFINING ZONE
MID-HAWTHORN AQUIFER

LEO33



GEOPHYSICAL LOGS, LEE COUNTY, LE-033

APPENDIX II-1

INTRODUCTION

Introduction

The data collected for use in the Water Level section was obtained from several sources and is presented here within the following pages.

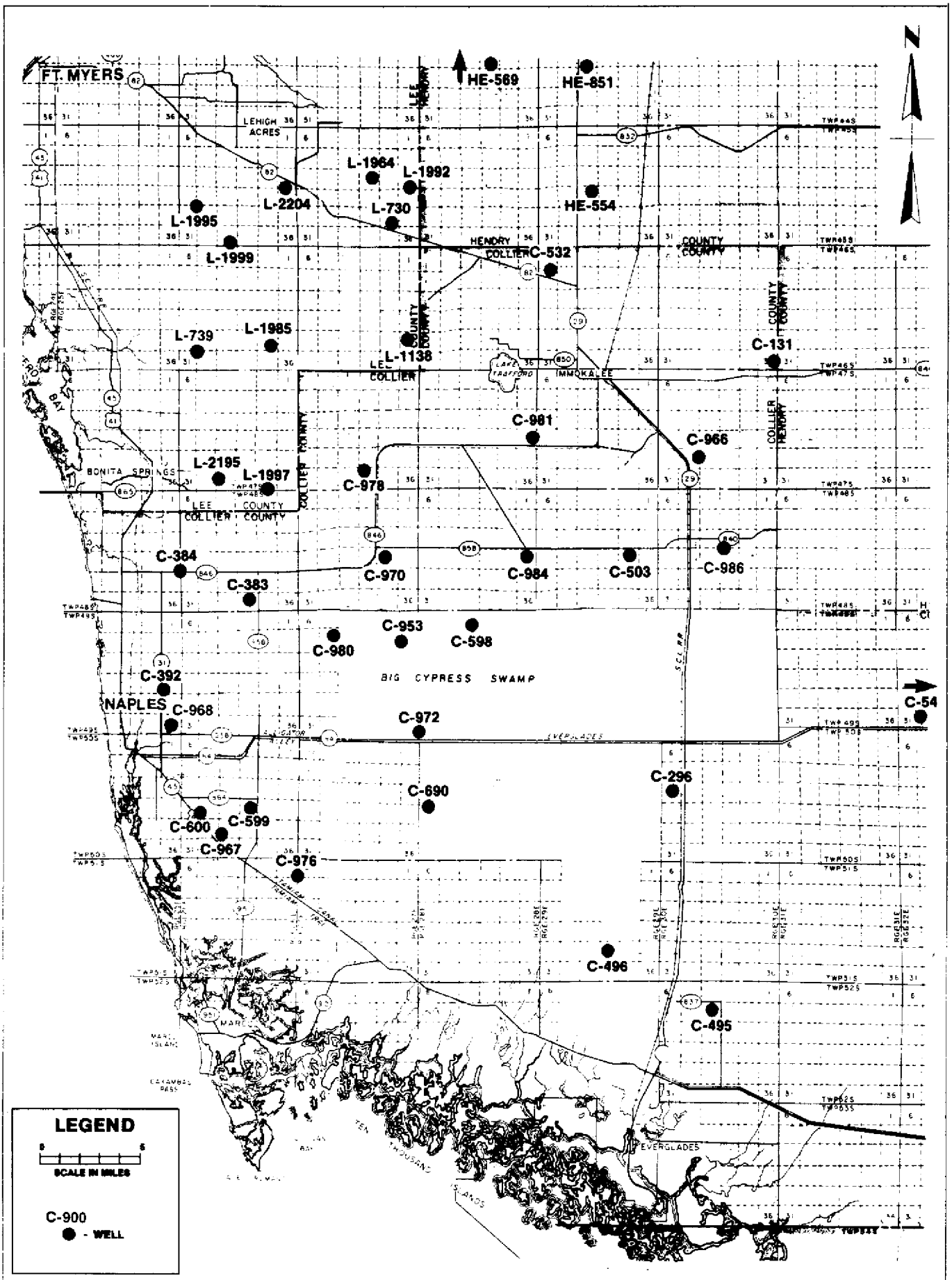
The actual water level data for the water level maps in the text were obtained from the USGS in Ft. Myers. These data were collected at the end of each month from several wells scattered throughout the study area. The locations of each well and their accompanying water levels for the end of the dry (April, 1984) and wet (October, 1984) seasons are presented here (Appendix II-2).

Wells from each aquifer were chosen from selected sections within the study area to depict monthly water level fluctuations since 1976. These monthly water level fluctuations are drawn as hydrographs and are presented here and within the text. Locations maps accompany each set of hydrographs (Appendix II-8).

Rainfall and evaporation data were collected from several stations owned and maintained by the SFWMD. The rainfall data presented were taken from a few selected stations within the study area. These data are shown using bar graphs depicting total monthly rainfall since 1976. The evaporation data are presented in tables with an accompanying monthly evaporation summary index. The locations of the rainfall and evaporation stations are also presented here (Appendix II-22).

APPENDIX II-2

WATER LEVEL DATA

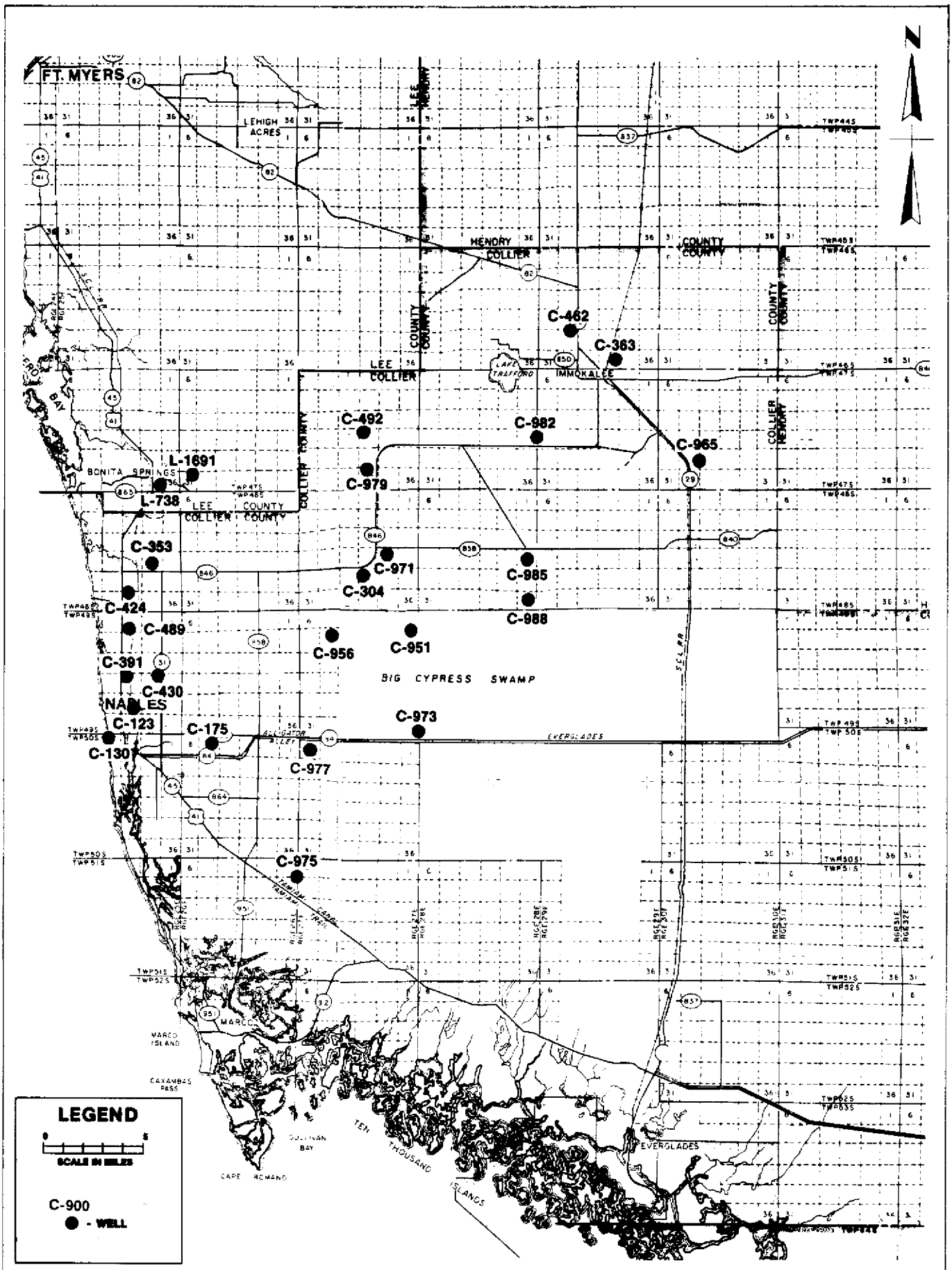


LOCATIONS OF WATER TABLE AQUIFER WELLS WITH WATER LEVEL DATA

APPENDIX

WATER LEVELS
END OF DRY AND WET SEASONS
WATER TABLE AQUIFER

USGS WELL NO.	APRIL (1984) (END OF DRY)	OCTOBER (1984) (END OF WET)	DIFFERENCE
C-54	10.30	10.90	0.60
C-131	20.87	25.05	4.18
C-296	9.15	11.22	2.07
C-383	8.05	10.45	2.40
C-384	6.46	8.46	2.00
C-392	5.68	6.96	1.28
C-495	3.10	4.98	1.88
C-496	5.62	6.97	1.35
C-503	14.07	14.06	-0.01
C-532	36.42	38.16	1.74
C-598	9.22	13.22	4.00
C-599	5.39	7.43	2.04
C-600	2.72	3.17	0.45
C-690	4.54	6.95	2.41
C-953	--	7.47	--
C-966	--	18.97	--
C-967	--	2.78	--
C-968	--	5.56	--
C-970	--	11.14	--
C-972	--	7.63	--
C-976	--	9.18	--
C-978	--	16.32	--
C-980	--	7.67	--
C-981	--	14.30	--
C-984	--	21.58	--
C-986	--	13.59	--
L-730	26.33	27.13	0.08
L-739	16.63	15.80	-0.83
L-1138	21.95	22.21	0.26
L-1964	24.68	25.60	0.92
L-1985	14.13	15.60	1.47
L-1992	22.72	23.32	0.61
L-1995	22.25	22.97	0.72
L-1997	10.08	11.83	1.75
L-1999	23.57	22.64	-0.93
L-2195	9.70	10.66	0.96
L-2204	25.29	25.82	0.53
HE-554	30.20	30.05	-0.15
HE-569	22.36	--	--
HE-851	25.43	26.07	0.64

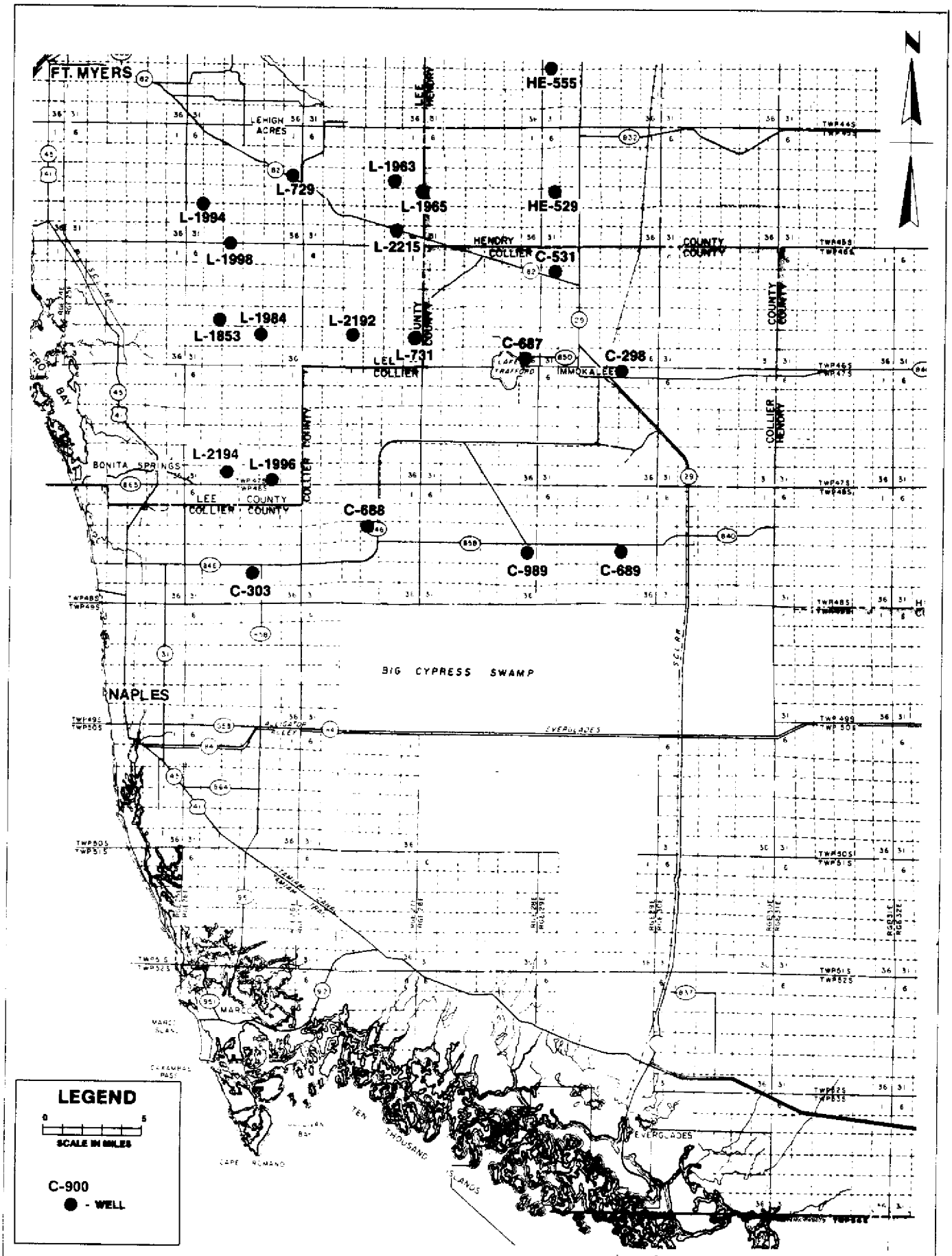


LOCATIONS OF LOWER TAMIAMI AQUIFER WELLS WITH WATER LEVEL DATA

APPENDIX

WATER LEVELS
END OF DRY AND WET SEASONS
LOWER TAMIAMI AQUIFER

USGS WELL NO.	APRIL (1984) (END OF DRY)	OCTOBER (1984) (END OF WET)	DIFFERENCE
C-123	-4.25	1.39	5.64
C-130	1.41	1.90	0.49
C-175	5.23	7.52	2.29
C-304	6.73	10.28	3.55
C-353	-1.92	2.04	3.96
C-363	30.57	31.47	0.90
C-391	-2.94	0.73	3.67
C-424	-1.98	1.68	3.66
C-430	2.76	5.34	2.58
C-462	33.25	33.63	0.38
C-489	-1.55	1.29	2.84
C-492	16.50	17.27	0.77
C-951	--	7.41	--
C-956	--	7.96	--
C-965	--	20.18	--
C-971	--	12.94	--
C-973	--	7.93	--
C-975	--	4.88	--
C-977	--	9.13	--
C-979	--	14.63	--
C-982	--	18.17	--
C-985	--	15.31	--
C-988	--	13.84	--
L-738	0.23	1.36	1.13
L-1691	0.52	4.54	4.02



LOCATIONS OF SANDSTONE AQUIFER WELLS WITH WATER LEVEL DATA

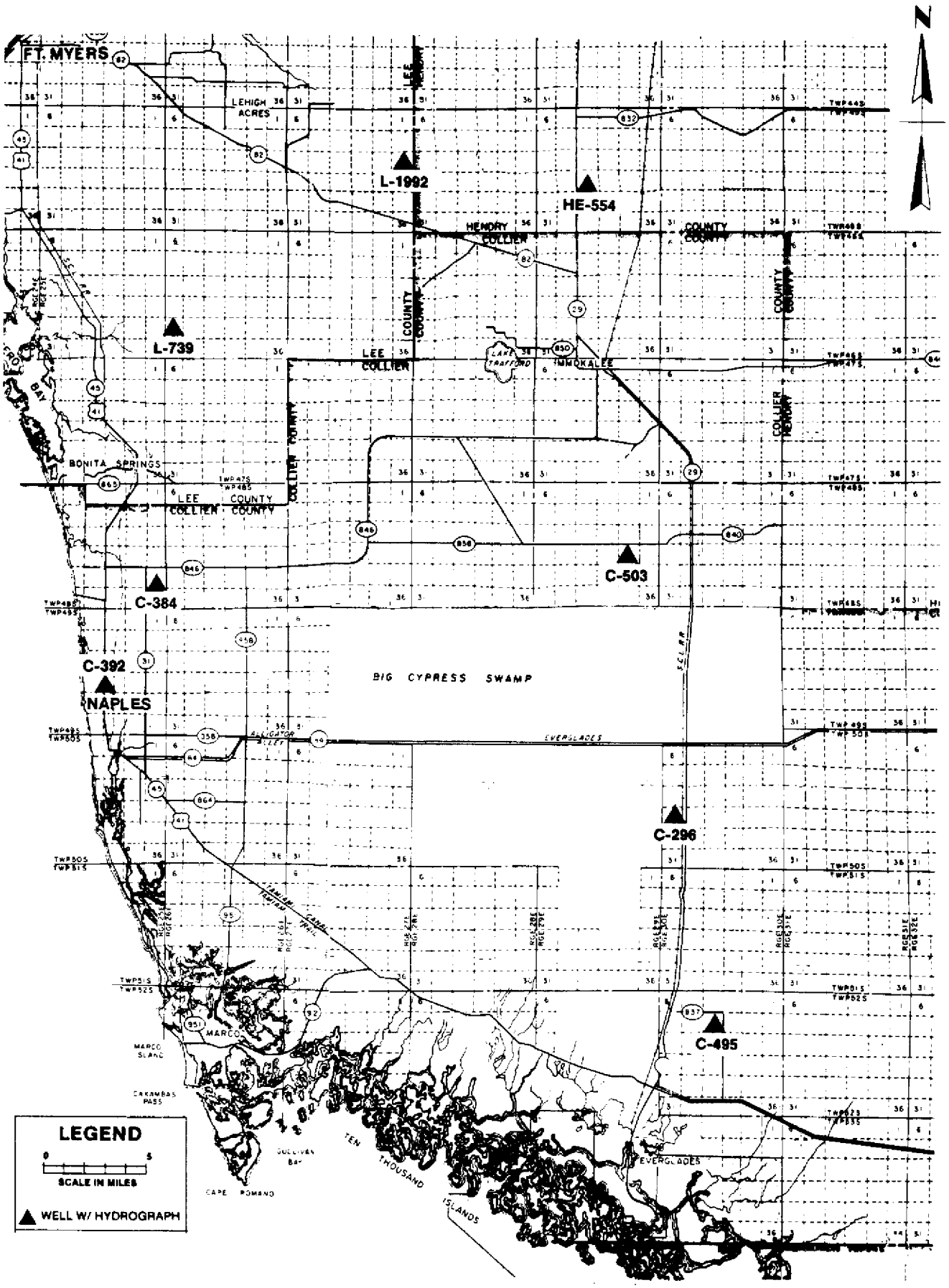
APPENDIX

WATER LEVELS
END OF DRY AND WET SEASONS
SANDSTONE AQUIFER

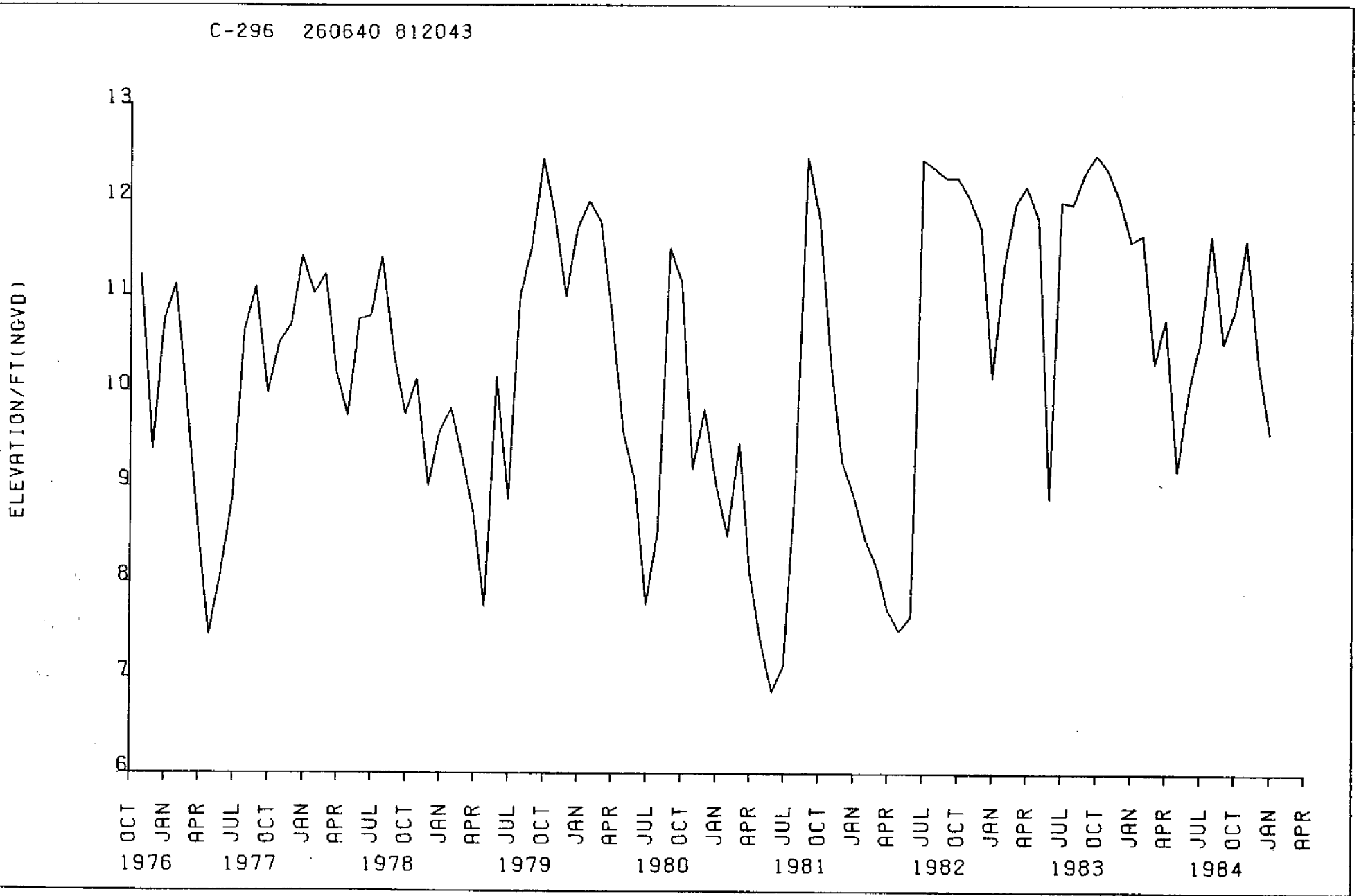
USGS WELL NO.	APRIL (1984) (END OF DRY)	OCTOBER (1984) (END OF WET)	DIFFERENCE
C-298	21.60	24.25	2.65
C-303	3.47	7.81	4.34
C-531	20.90	22.70	1.80
C-687	3.01	6.41	3.40
C-688	9.08	13.56	4.48
C-689	12.49	11.06	1.43
C-989	--	7.86	--
L-729	17.30	17.39	0.09
L-731	13.22	12.89	-0.33
L-1853	7.23	13.29	6.06
L-1963	17.51	19.56	2.05
L-1965	16.89	22.99	6.10
L-1984	8.34	9.30	0.96
L-1994	15.58	16.06	0.48
L-1996	3.90	8.27	4.37
L-1998	-18.47	-8.08	10.39
L-2192	12.89	15.33	2.44
L-2194	2.07	7.52	5.45
L-2215	18.17	22.48	4.31
HE-529	29.63	30.92	1.29
HE-555	21.76	23.56	1.80

APPENDIX II-3

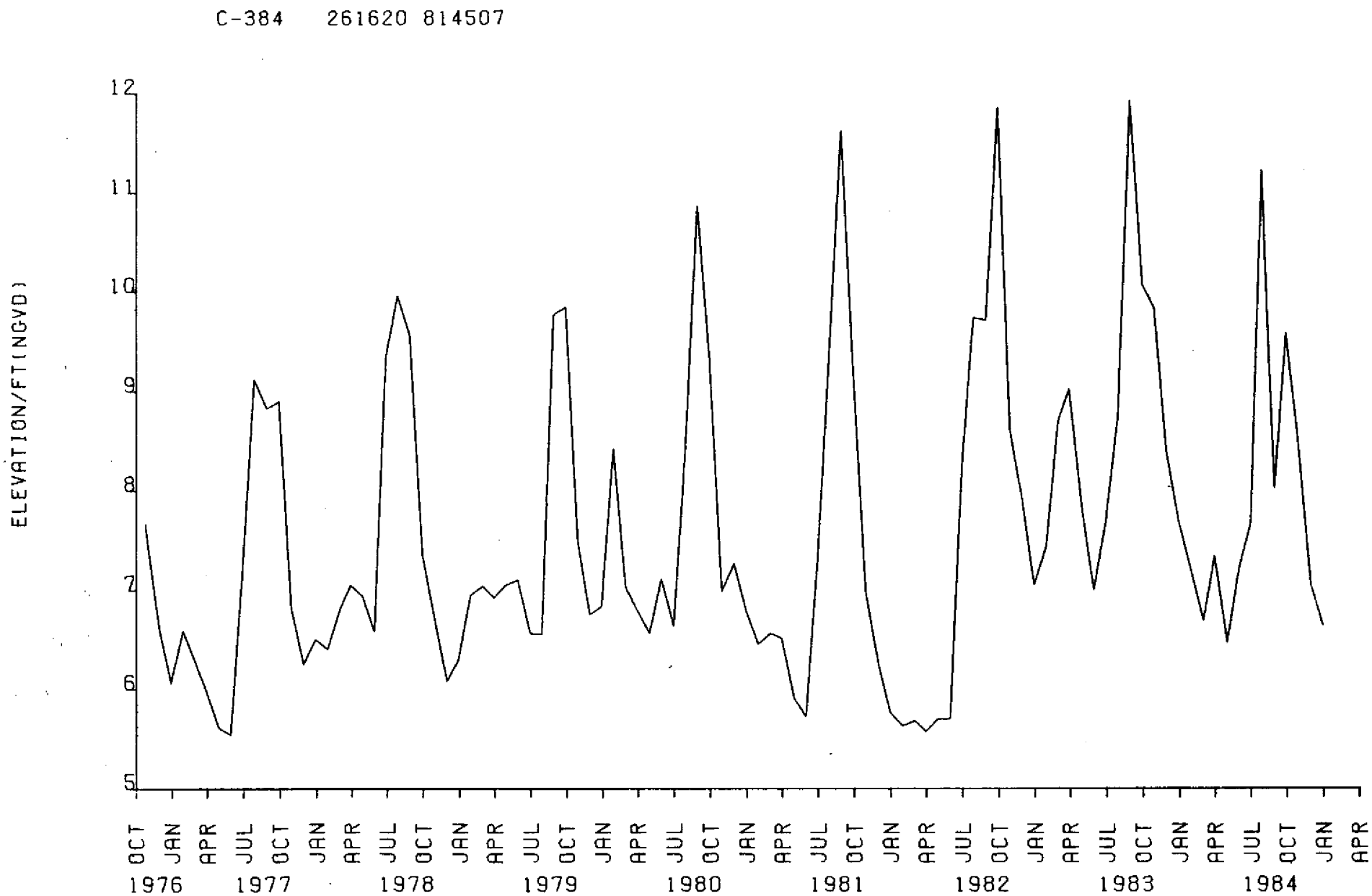
WATER LEVEL HYDROGRAPHS FROM SELECTED MONITOR WELLS



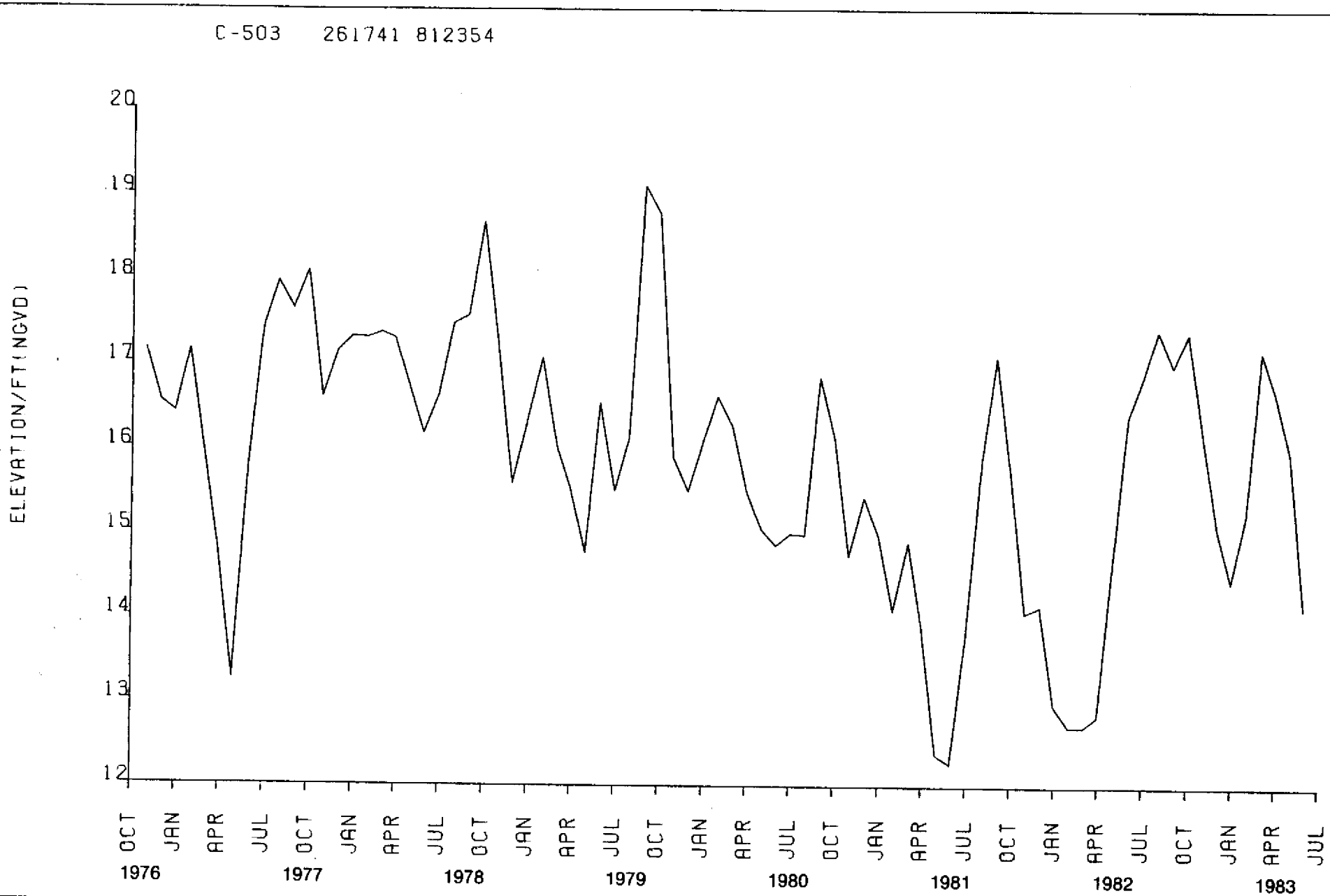
LOCATIONS OF SELECTED HYDROGRAPH STATIONS FROM THE WATER TABLE AQUIFER



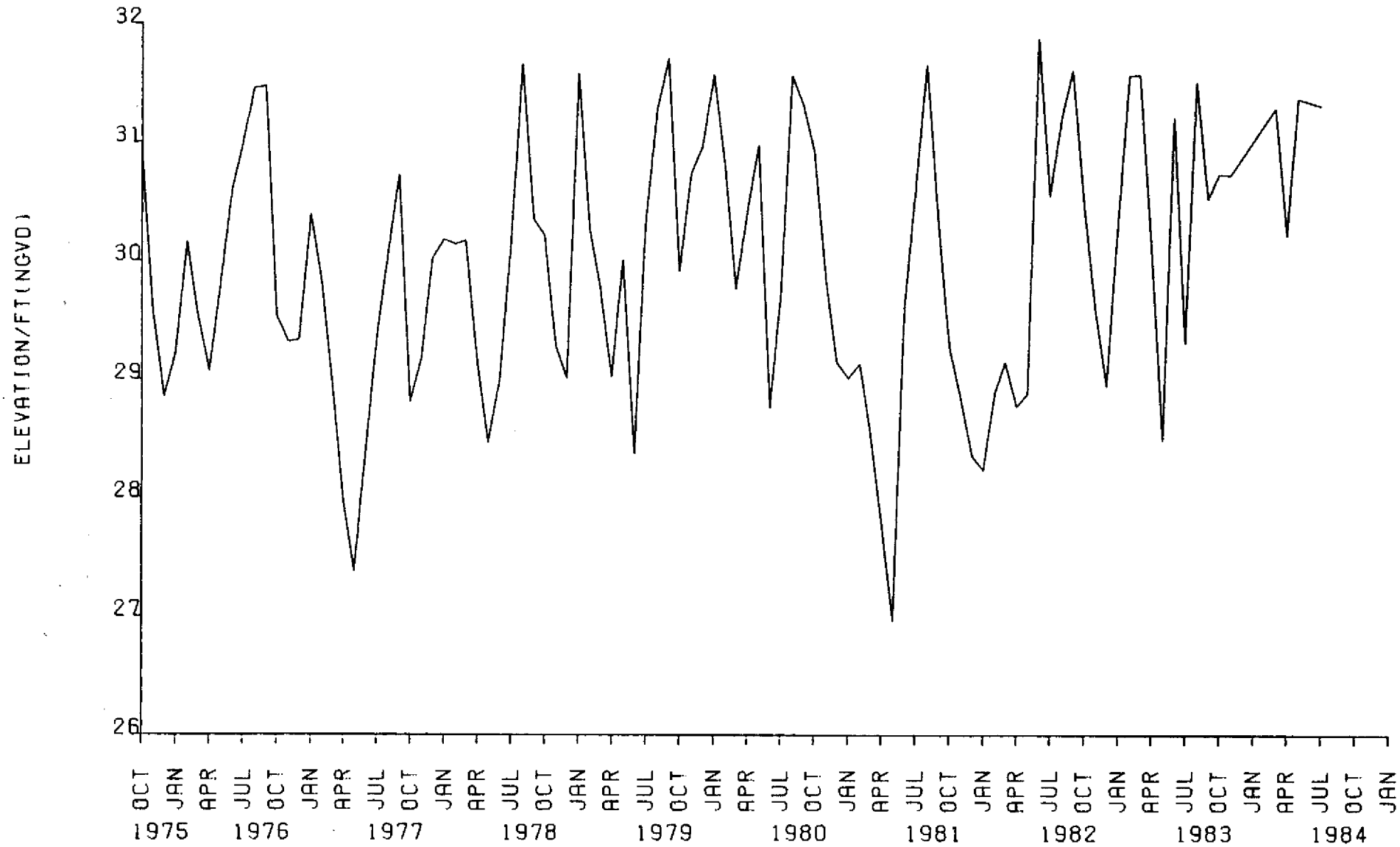
HYDROGRAPH OF THE WATER TABLE AQUIFER / COLLIER COUNTY 76-84



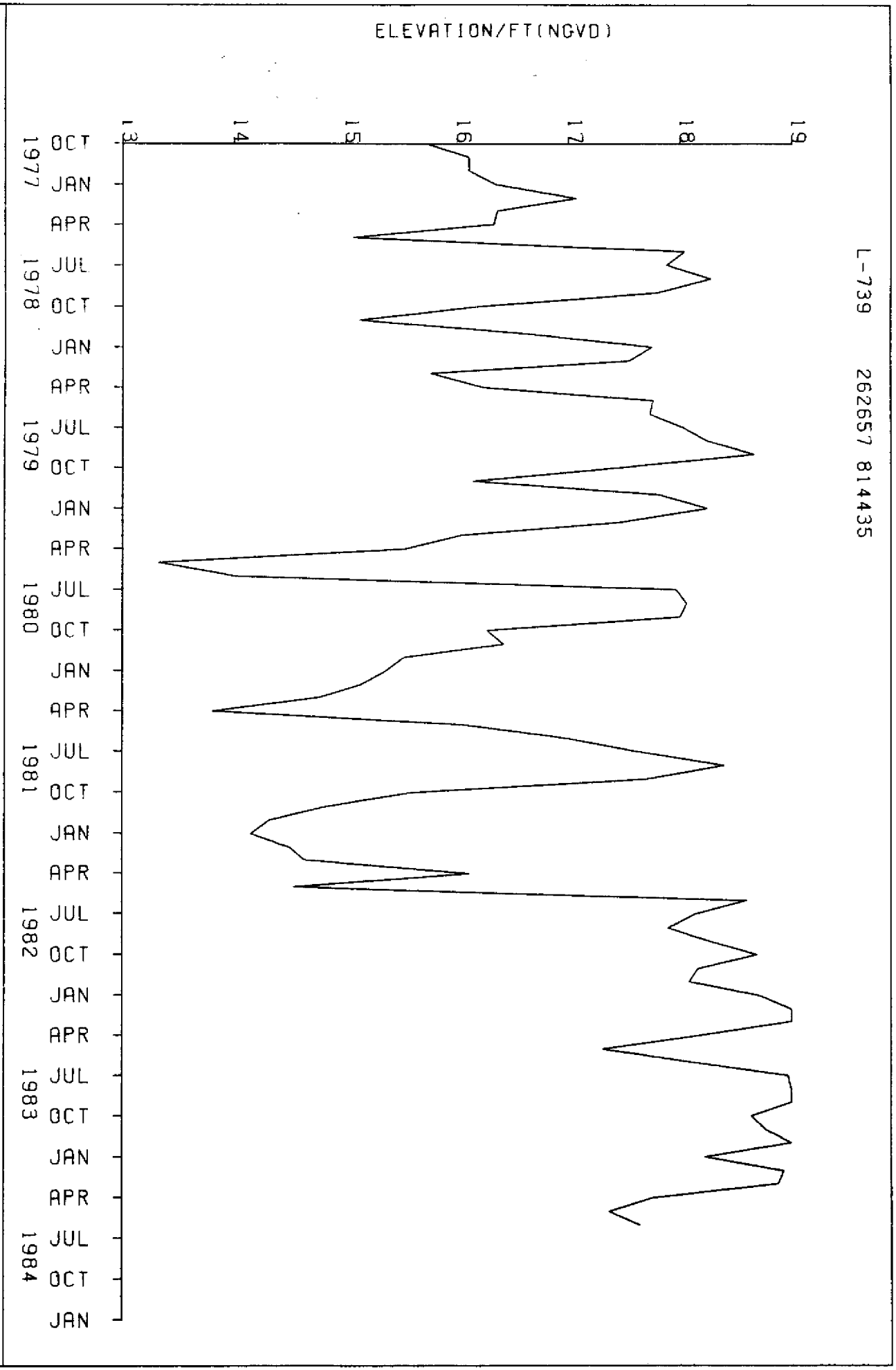
HYDROGRAPH OF THE WATER TABLE AQUIFER / COLLIER COUNTY 76-84



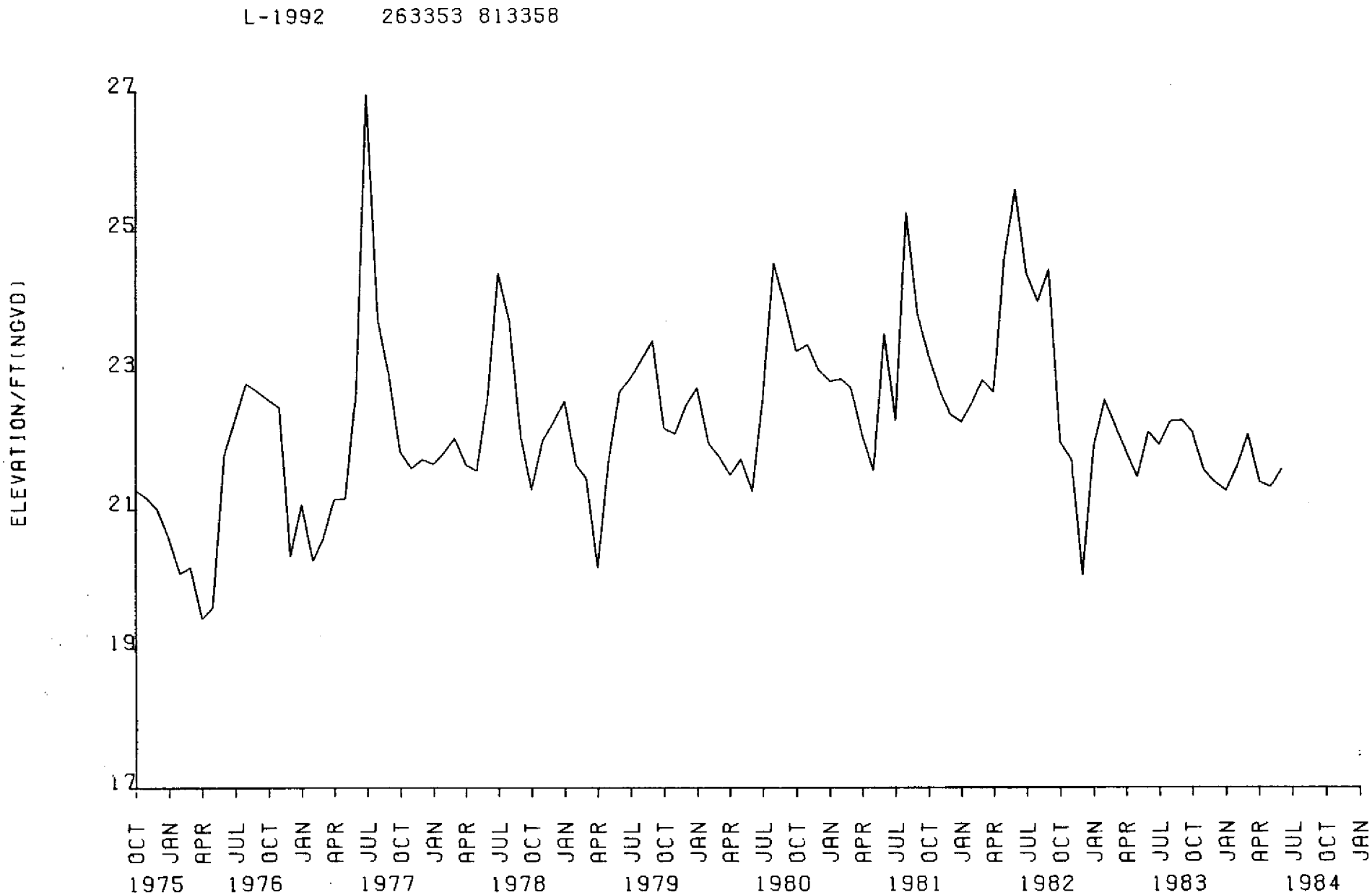
HYDROGRAPH OF THE WATER TABLE AQUIFER / COLLIER COUNTY 76-83



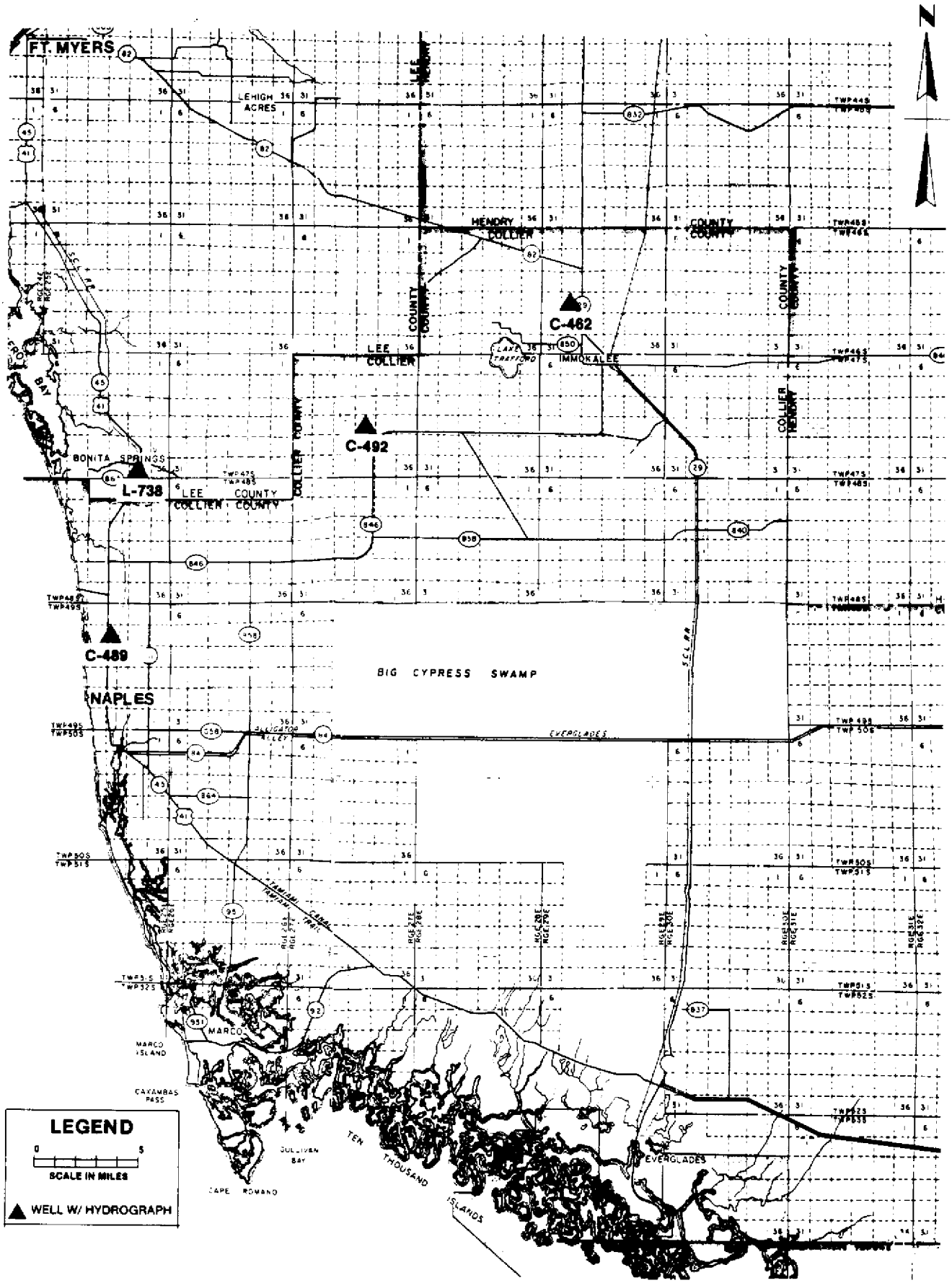
HYDROGRAPH OF THE WATER TABLE AQUIFER / HENDRY COUNTY 75-84



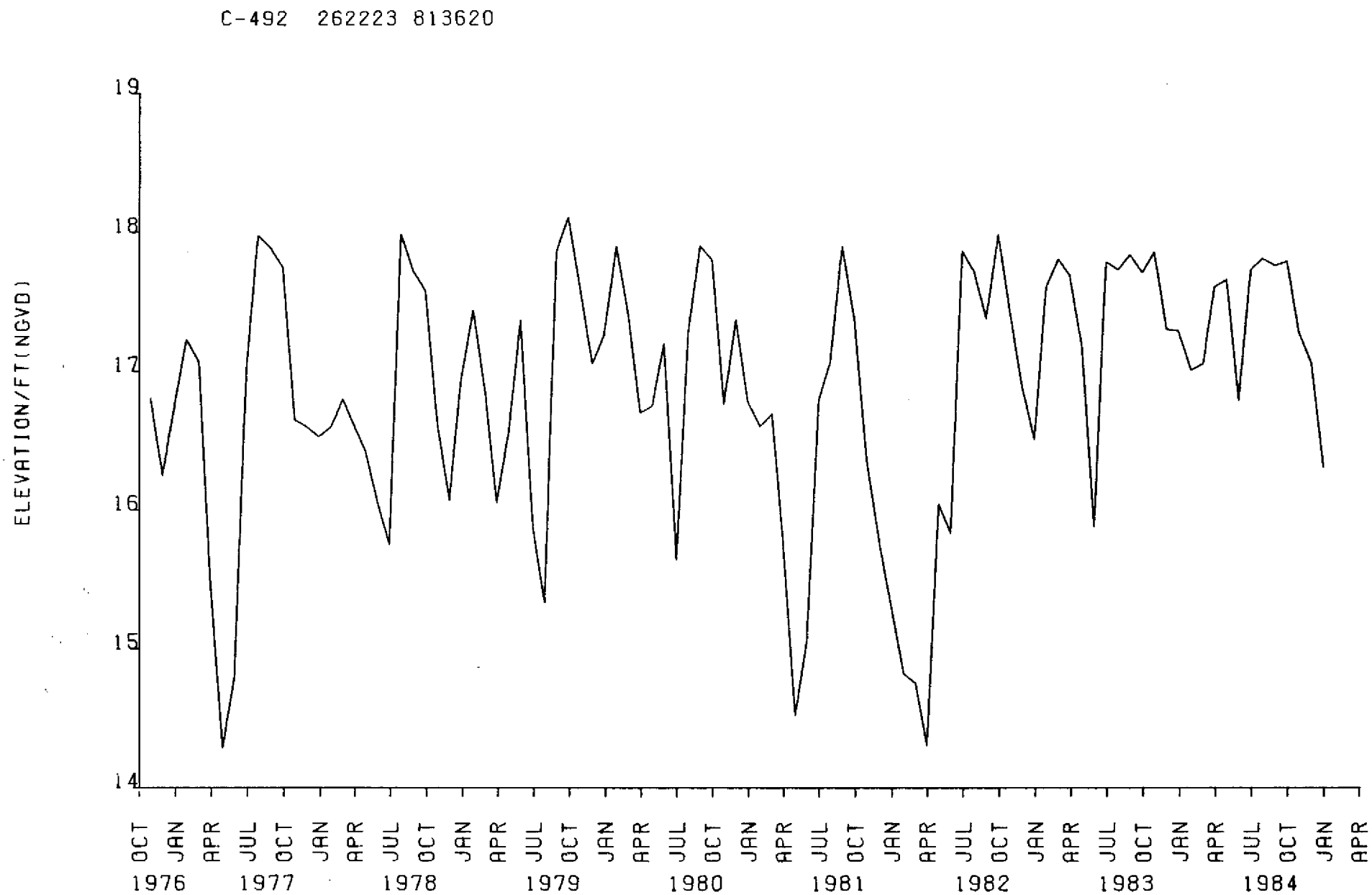
HYDROGRAPH OF THE WATER TABLE AQUIFER / COLLIER COUNTY 75-84



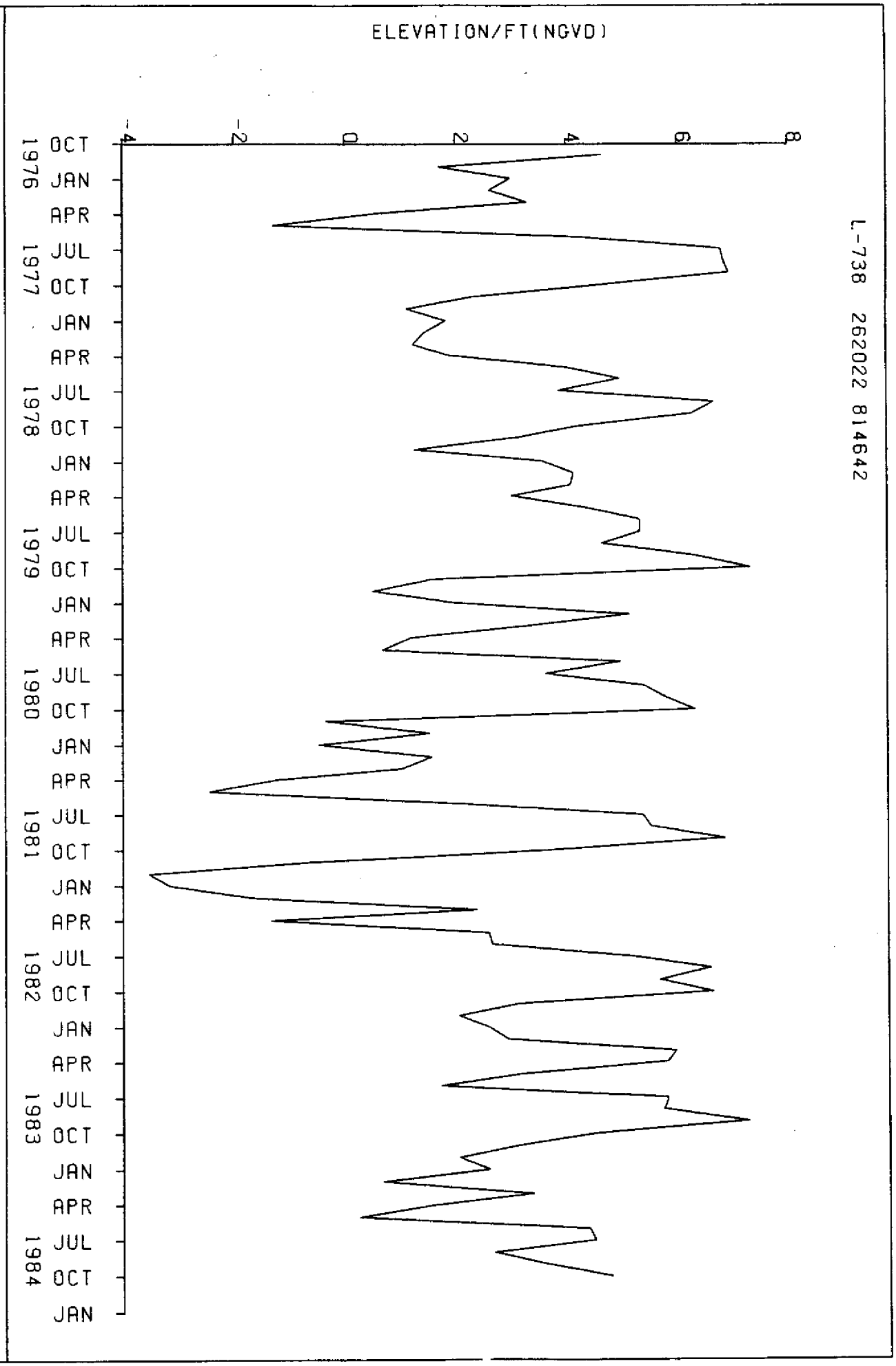
HYDROGRAPH OF THE WATER TABLE AQUIFER / COLLIER COUNTY 75-84



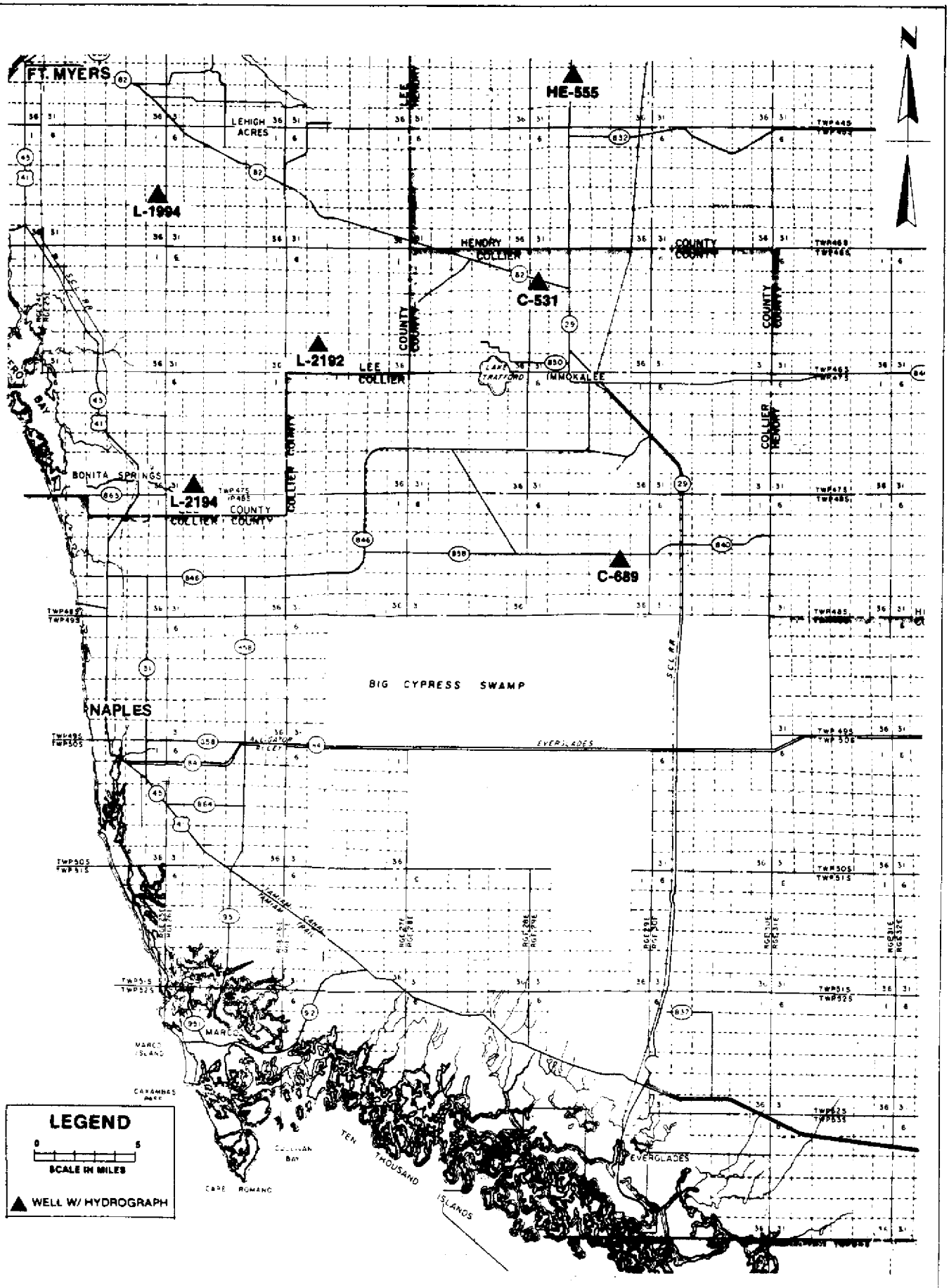
LOCATIONS OF SELECTED HYDROGRAPH STATIONS FROM THE LOWER TAMIAMI AQUIFER



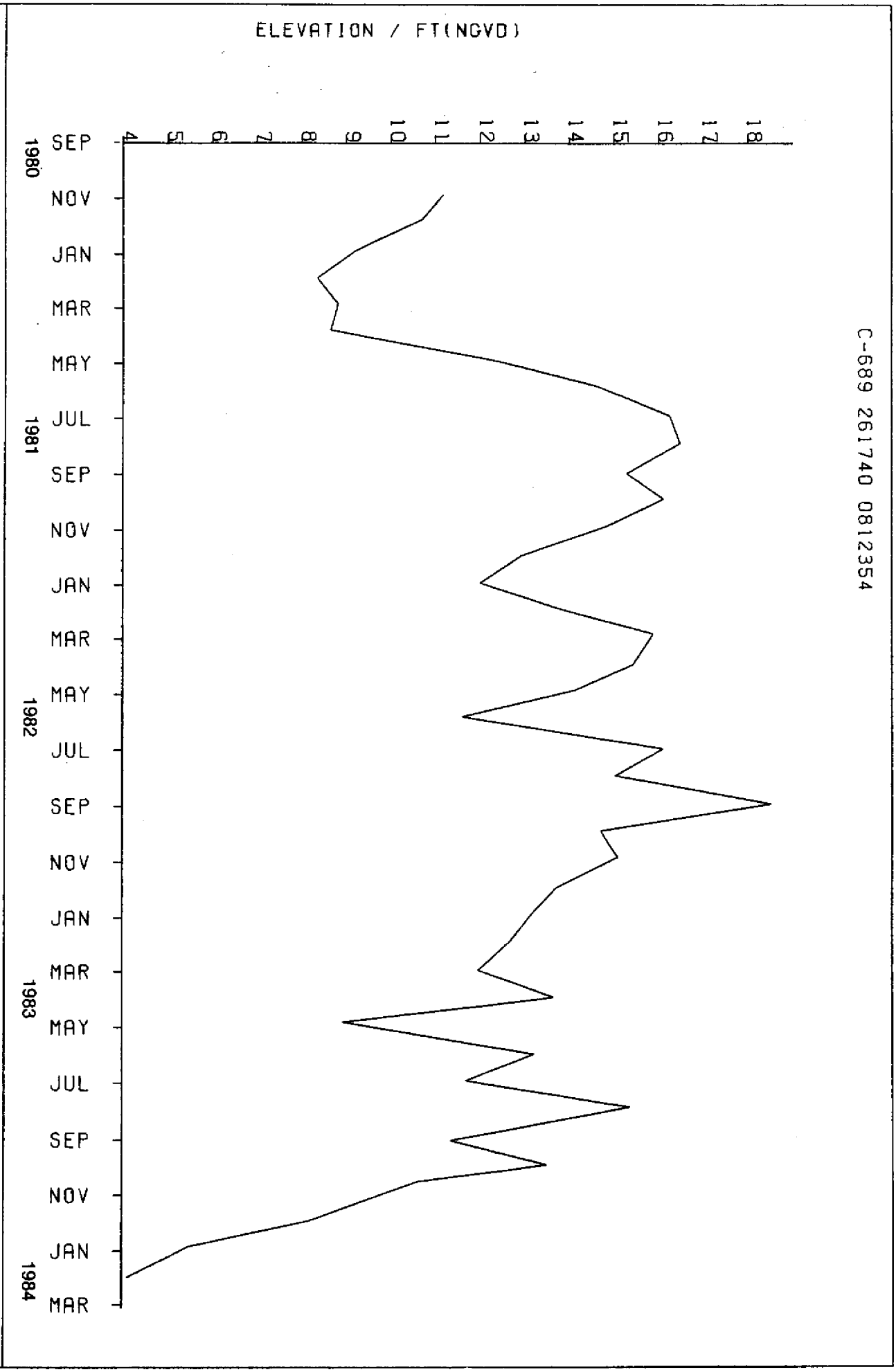
HYDROGRAPH OF THE LOWER TAMIAMI AQUIFER / COLLIER COUNTY 76-84



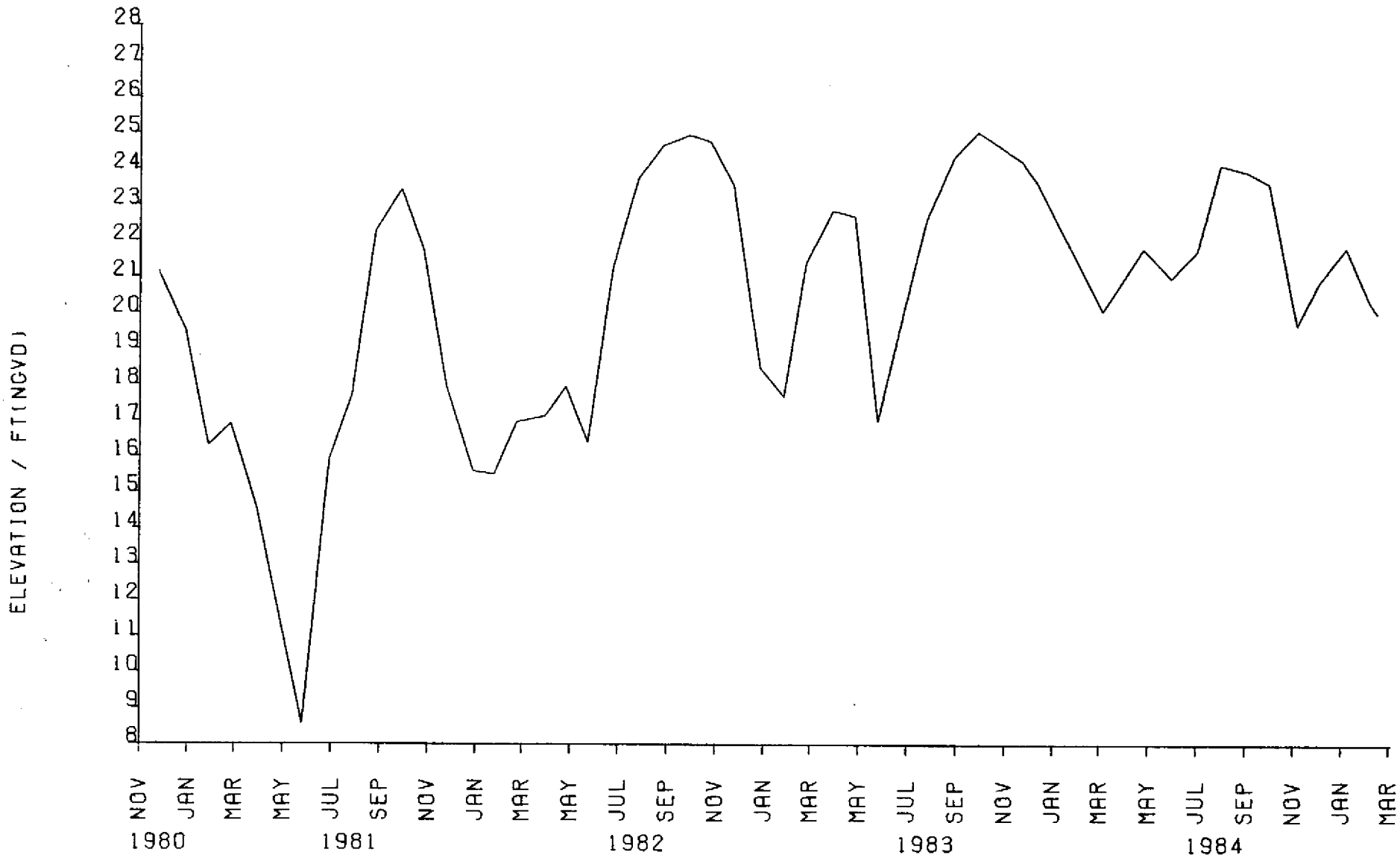
HYDROGRAPH OF THE LOWER TAMIAMI AQUIFER / LEE COUNTY 76-84



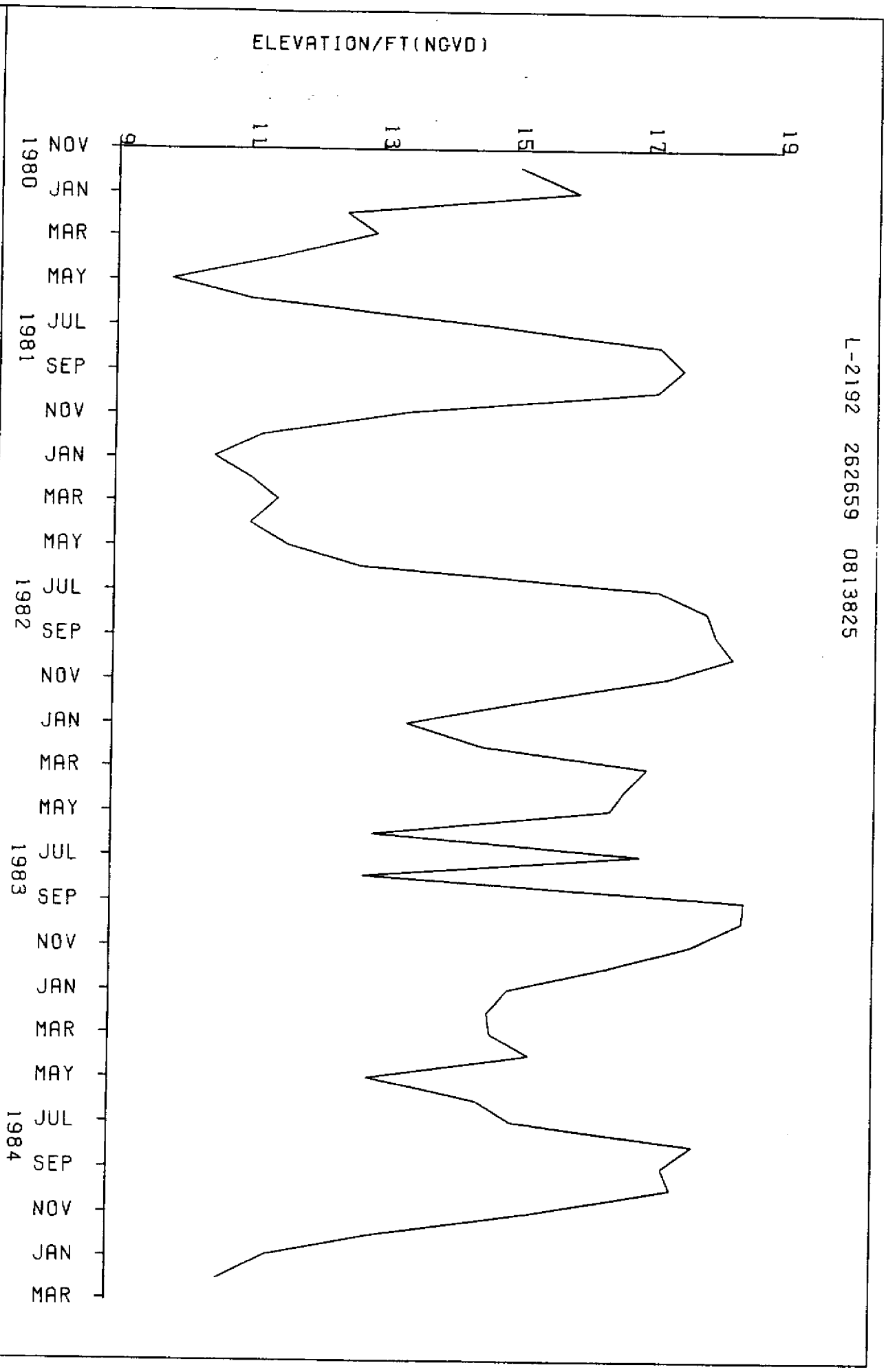
LOCATIONS OF SELECTED HYDROGRAPH STATIONS FROM THE SANDSTONE AQUIFER



HYDROGRAPH OF THE SANDSTONE AQUIFER / COLLIER COUNTY 80-84



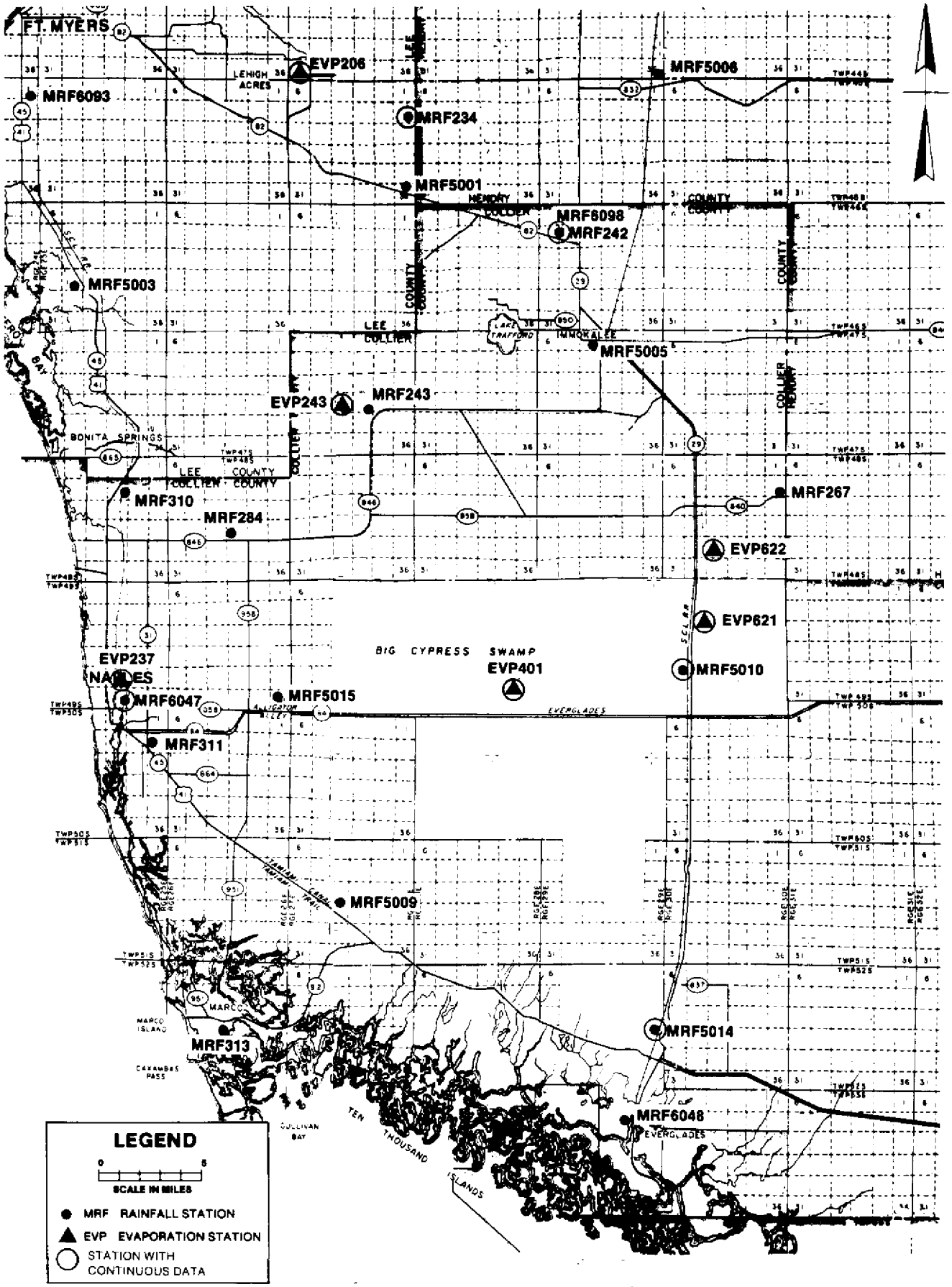
HYDROGRAPH OF THE SANDSTONE AQUIFER / HENDRY COUNTY 80-84



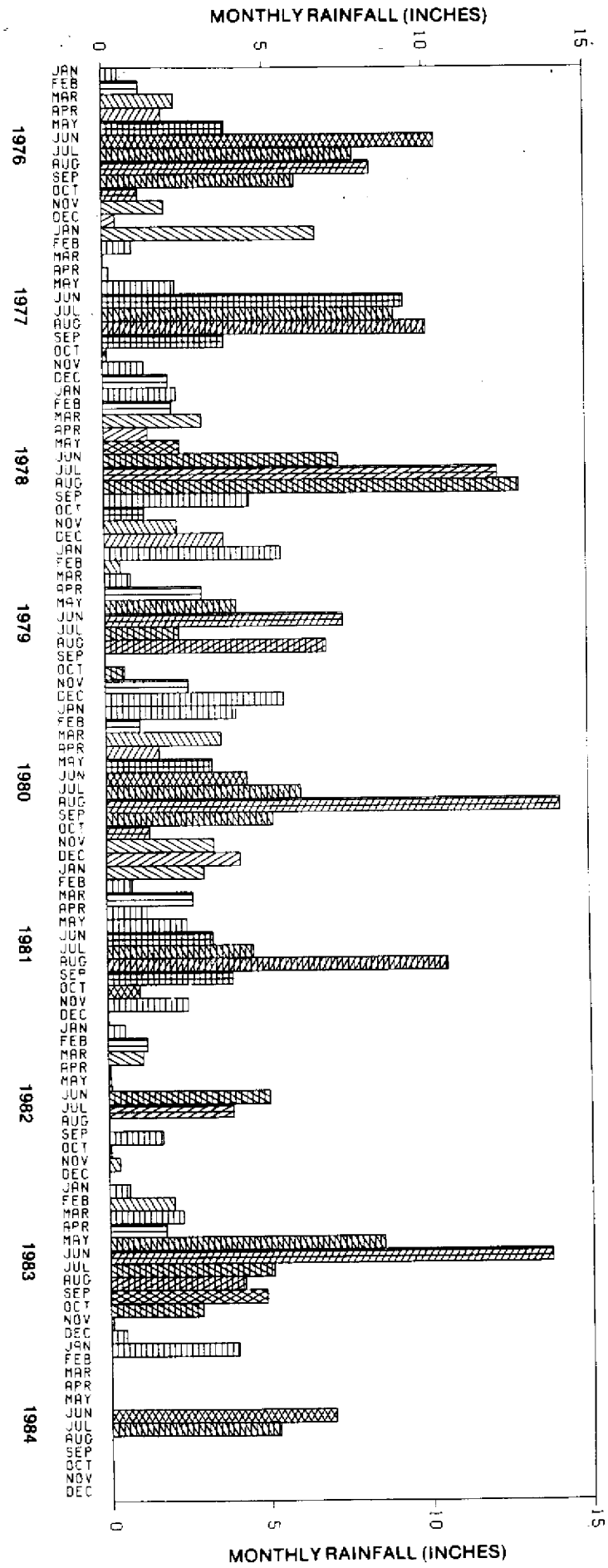
HYDROGRAPH OF THE SANDSTONE AQUIFER / LEE COUNTY 80-84

APPENDIX II-4

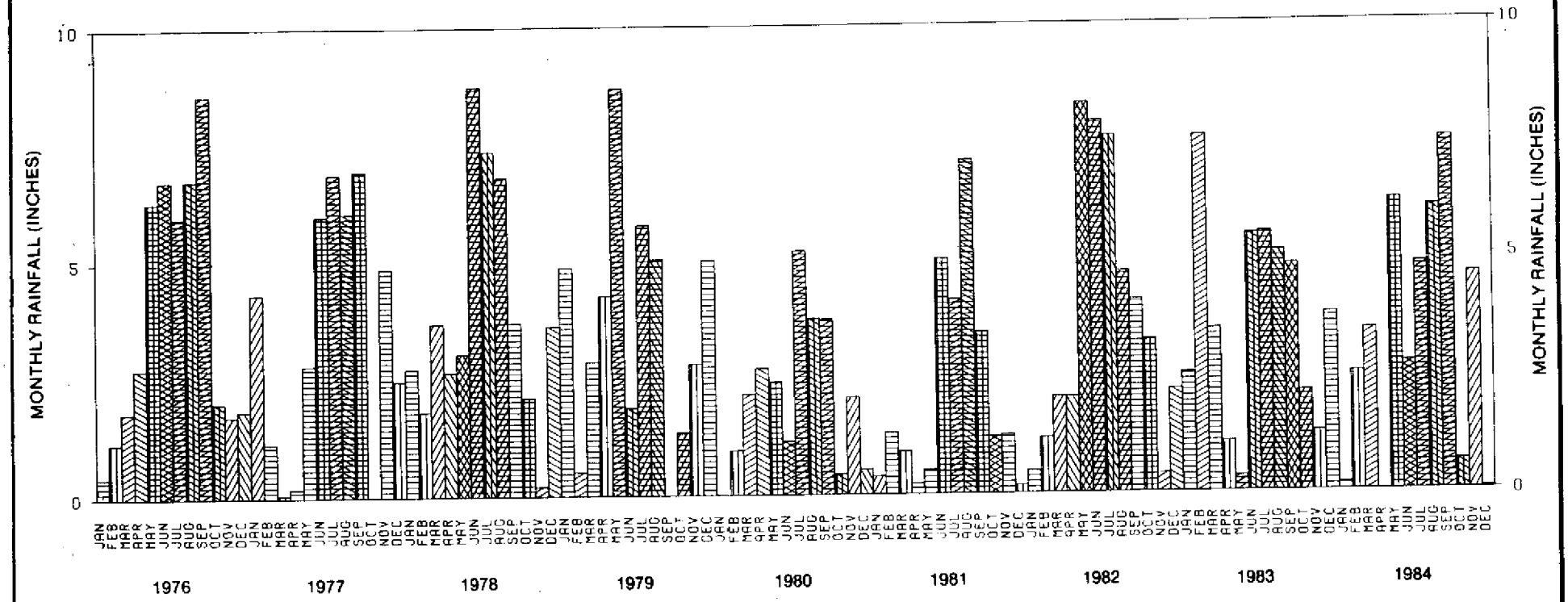
RAINFALL AND EVAPORATION DATA



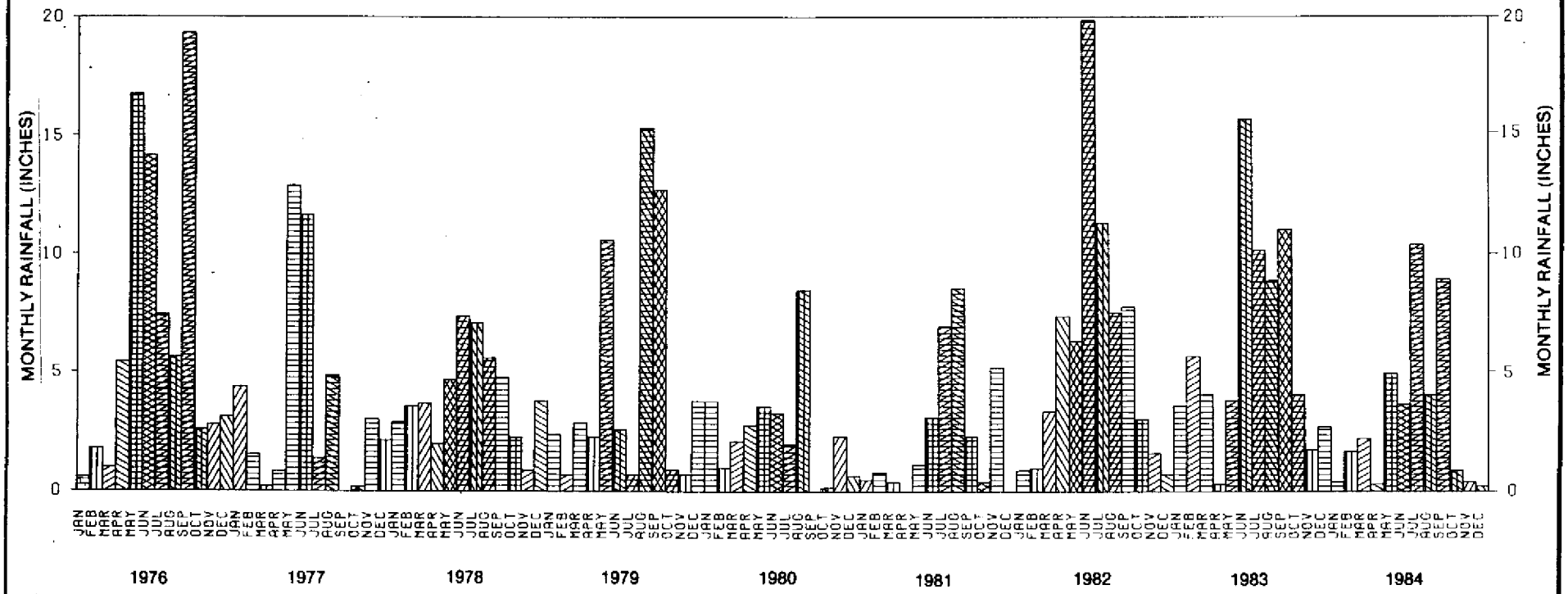
LOCATION OF RAINFALL AND EVAPORATION STATIONS



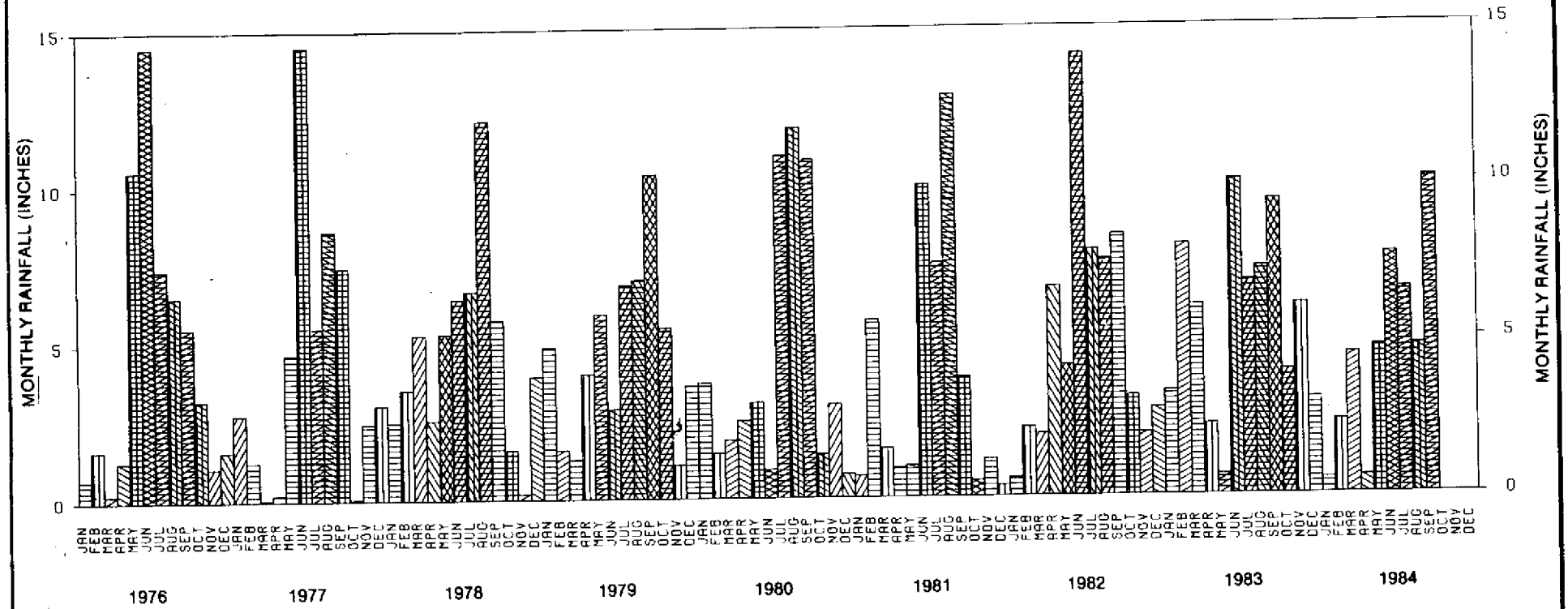
MONTHLY RAINFALL MRF234 / LEE COUNTY 1976-1983



MONTHLY RAINFALL MRF242 / COLLIER COUNTY 1976-1984



MONTHLY RAINFALL MRF5010 / COLLIER COUNTY 1976-1984



MONTHLY RAINFALL MRF6047 / COLLIER COUNTY 1976-1984

MONTHLY EVAPORATION SUMMARY
EVP 206
LEHIGH ACRES 1 - CLASS A PAN - LEE COUNTY - S31 T44 R27

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1978	.00F	.00F	.00F	.00F	.00F	.00F	.00F	4.49M	5.57	5.04	4.20	3.91	23.21M
1979	3.89M	3.67	5.63	7.10	6.30M	8.49	7.16	6.63M	4.56M	4.79	3.68	2.49M	64.39M
1980	4.02	4.18	5.53M	6.80M	7.78	8.18	7.48	5.60M	5.65M	5.32	3.30	3.07	66.91M
1981	3.27	4.29	6.08	7.03M	8.74M	6.51M	7.59	5.90M	4.69	4.81	3.76	3.37	66.04M
1982	3.69M	4.31	5.98	6.69	7.03M	6.52M	7.31	5.99	4.51	4.32	3.27	2.86M	62.48M
1983	2.45M	3.08M	6.63	5.90X	7.46A	5.07M	6.72M	5.67M	4.55	4.25M	3.37	2.82	57.97M
1984	2.42M	3.97	5.06M	6.51	7.74	7.74	5.62M	6.49	5.64	5.78	4.39	3.56	64.92M
YRS.	2	5	4	4	3	3	4	2	5	6	7	5	0
AVG.	3.65	4.08	6.08	6.55	7.66	8.14	7.39	6.24	4.99	5.01	3.71	3.35	.00

MONTHLY EVAPORATION SUMMARY
EVP 237
CARIBBEAN GARDENS - CLASS A PAN - COLLIER COUNTY - S27 T49 R25

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1978	.00M	.00M	.00M	6.47M	7.22	6.25M	4.93	6.51M	7.08	5.40	4.02	2.88	50.76M
1979	--	--	--	--	--	--	--	--	--	--	--	--	--
1980	--	--	--	--	--	--	--	--	--	--	--	--	--
1981	3.22	5.82	6.10	8.21	8.63M	8.22M	7.58M	6.71M	6.04	5.78	4.31	3.46	74.08M
1982	3.99	4.82	6.21M	7.49M	8.14M	7.39	6.24	7.13	5.55M	5.07M	4.10M	4.12	70.25M
1983	2.87	4.15M	6.96	7.04	8.06	7.36	6.90	6.44	5.28M	5.05	2.89M	.00F	63.00M
YRS.	3	2	2	2	2	2	3	2	2	3	2	3	0
AVG.	3.36	5.32	6.53	7.63	7.64	7.38	6.02	6.79	6.56	5.41	4.17	3.49	.00

MONTHLY EVAPORATION SUMMARY
EVP 243
CORKSCREW SANCTUARY - COLLIER COUNTY - S21 T47 R27

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1974	.00F	.00F	.00F	.00F	.00F	3.13M	5.23	6.05	5.32	5.55	3.83	3.16	32.27M
1975	3.69	4.34	6.32	7.71	7.85	7.32	6.40	6.22	5.25	4.79	4.01	3.47	67.37
1976	3.62	4.30	6.10	7.53	7.00	5.81	6.61	5.74	5.28	5.07	3.29	2.62	62.97
1977	2.88	3.55	5.78M	7.53M	7.54M	6.24M	6.31M	5.04M	.00F	.00F	.00F	.00F	44.87M
YRS.	3	3	2	2	2	2	3	3	3	3	3	3	2
AVG.	3.40	4.06	6.21	7.62	7.43	6.57	6.08	6.00	5.28	5.14	3.71	3.08	65.17

MONTHLY EVAPORATION SUMMARY
EVP 401
GOLDEN GATE WATER PLANT - COLLIER COUNTY - S28 T49 R26

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1978	.00M	.00M	.00M	8.20	7.57M	8.23M	8.05M	.37M	.00M	.00M	.00M	1.64M	34.06M
YRS.	0	0	0	1	0	0	0	0	0	0	0	0	0
AVG.	.00	.00	.00	8.20	.00	.00	.00	.00	.00	.00	.00	.00	.00

MONTHLY EVAPORATION SUMMARY
EVP 621
MILES CITY TOWER - COLLIER COUNTY - S17 T49 R30

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1956	.00M	.00M	.00M	.00M	.00M	.00M	.00M	.00M	.00M	.00M	2.01E	2.30	4.31M
1957	3.74E	4.29E	6.09M	8.75E	.00M	4.35E	2.37E	4.81	3.24	3.77	3.26	2.63	47.30M
1958	2.76E	2.54	3.56	5.70	6.16E	6.06	6.61	5.39	6.35	5.10E	3.23	3.05	56.51
1959	2.79	4.02	4.98	5.83	5.99E	5.81E	2.75	4.36E	4.81E	5.37E	3.98	2.92	53.61
1960	3.52	3.81	5.77E	5.44E	6.84E	5.41	5.96E	5.26E	2.19M	4.56E	3.30E	2.50	54.56M
1961	2.34	3.48	5.77E	10.61E	8.34E	.00M	.00M	.00M	.00M	.00M	.00M	.00M	30.54M
YRS.	5	5	4	5	4	4	4	4	3	4	5	5	2
AVG.	3.03	3.63	5.02	7.27	6.83	5.41	4.42	4.96	4.80	4.70	3.16	2.68	55.06

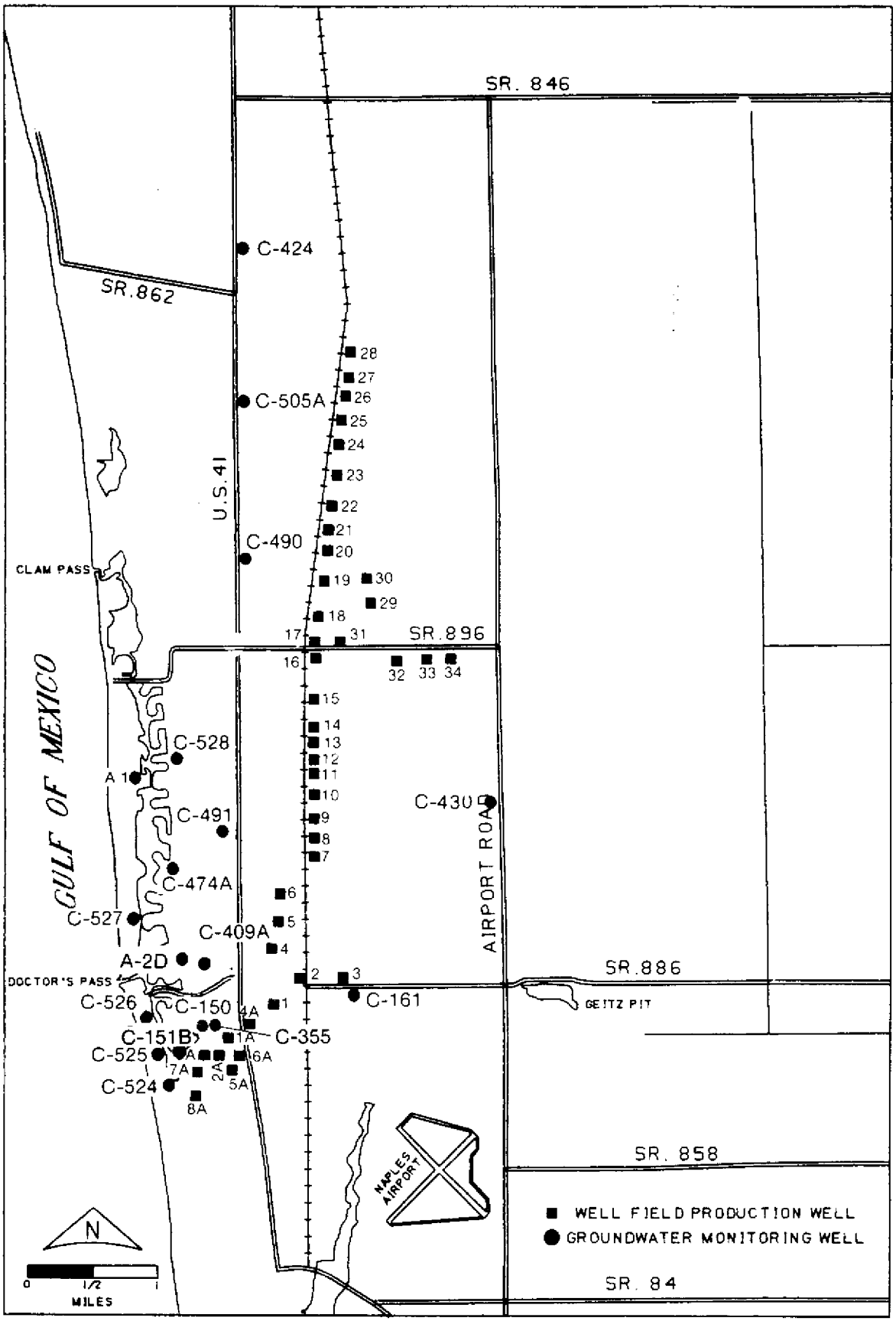
MONTHLY EVAPORATION SUMMARY
EVP 622
SUNNILAND - COLLIER COUNTY - S29 T48 R30

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1952	.00M	.00M	.00M	.00M	.00M	.00M	.00M	.00M	.00M	3.44E	.00M	2.93	6.37M
1953	3.10	4.04	5.98	7.04	8.46	6.05E	.00M	5.19	4.03	3.98	3.00	3.00	53.87M
1954	3.14	4.00E	5.49	5.90	6.79E	6.23E	5.53E	6.19E	4.62E	4.51E	3.15	2.77	58.32
1955	3.12	3.54	5.98	6.57E	8.11E	6.48E	5.73	6.27	5.26E	4.43	3.38E	2.93E	61.80
1956	2.90E	4.50E	6.46	7.27	7.31	7.06E	.00M	.00M	.00M	.00M	.00M	.00M	35.50M
YRS.	4	4	4	4	4	4	2	3	3	4	3	4	2
AVG.	3.07	4.02	5.98	6.70	7.67	6.46	5.63	5.88	4.64	4.09	3.18	2.91	60.06

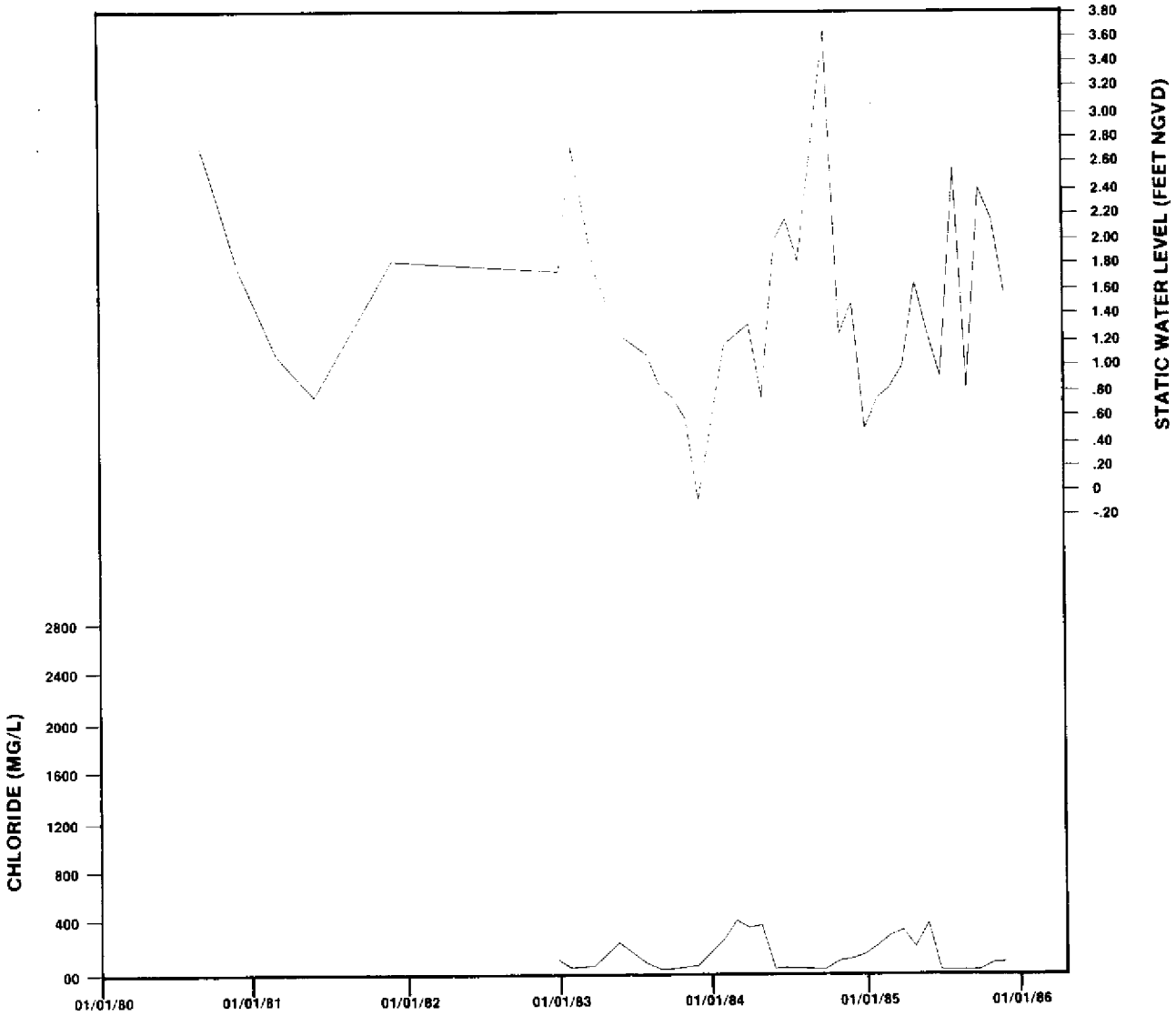
APPENDIX II-5

WATER LEVEL AND CHLORIDE DATA FOR THE

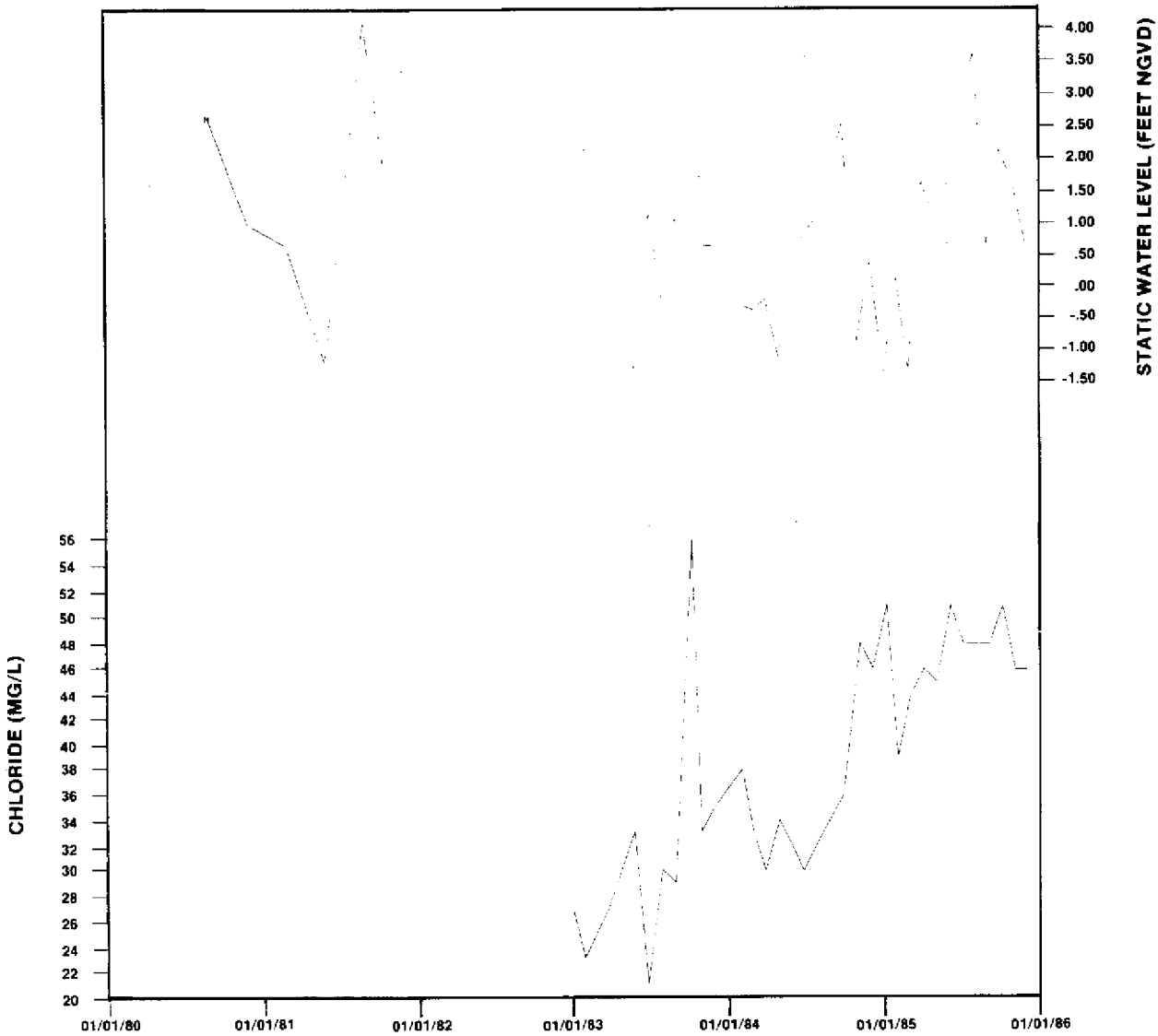
CITY OF NAPLES COASTAL RIDGE WELLFIELD SWIMM PROGRAM



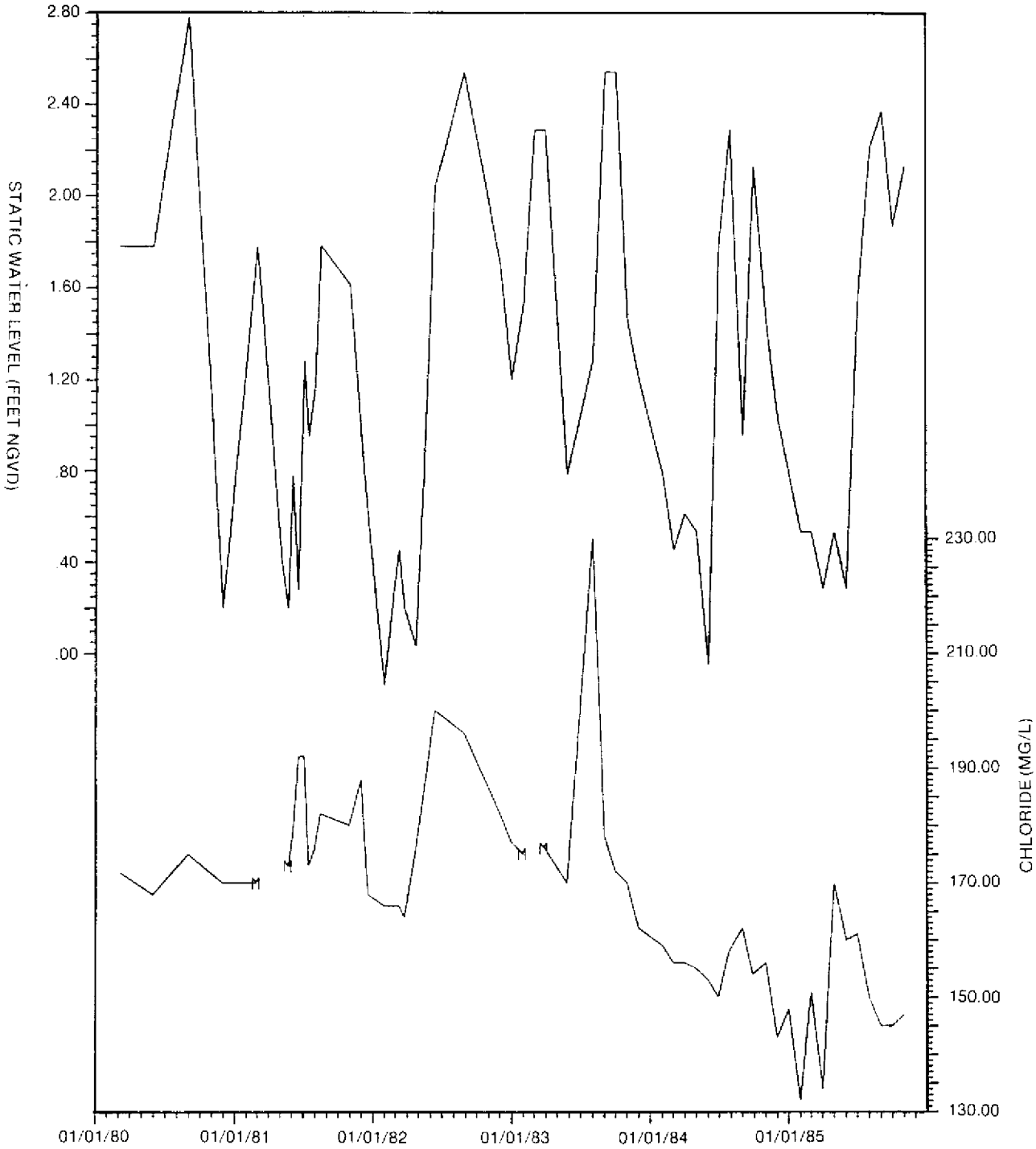
OBSERVATION AND PRODUCTION WELL LOCATIONS FOR THE CITY OF NAPLES COASTAL RIDGE SWIMM PROGRAM



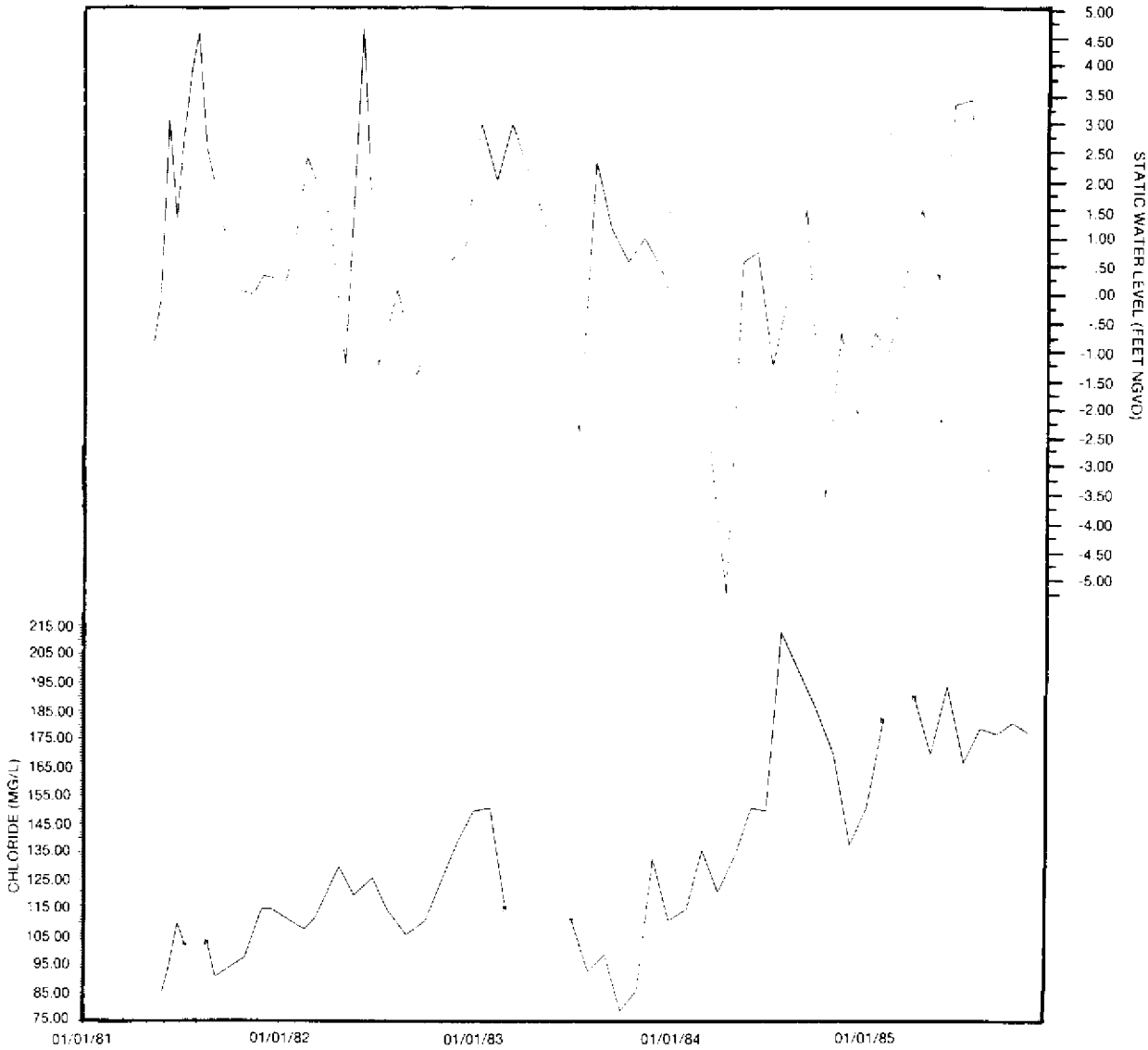
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL A-1 (Lower Tamiami Aquifer)



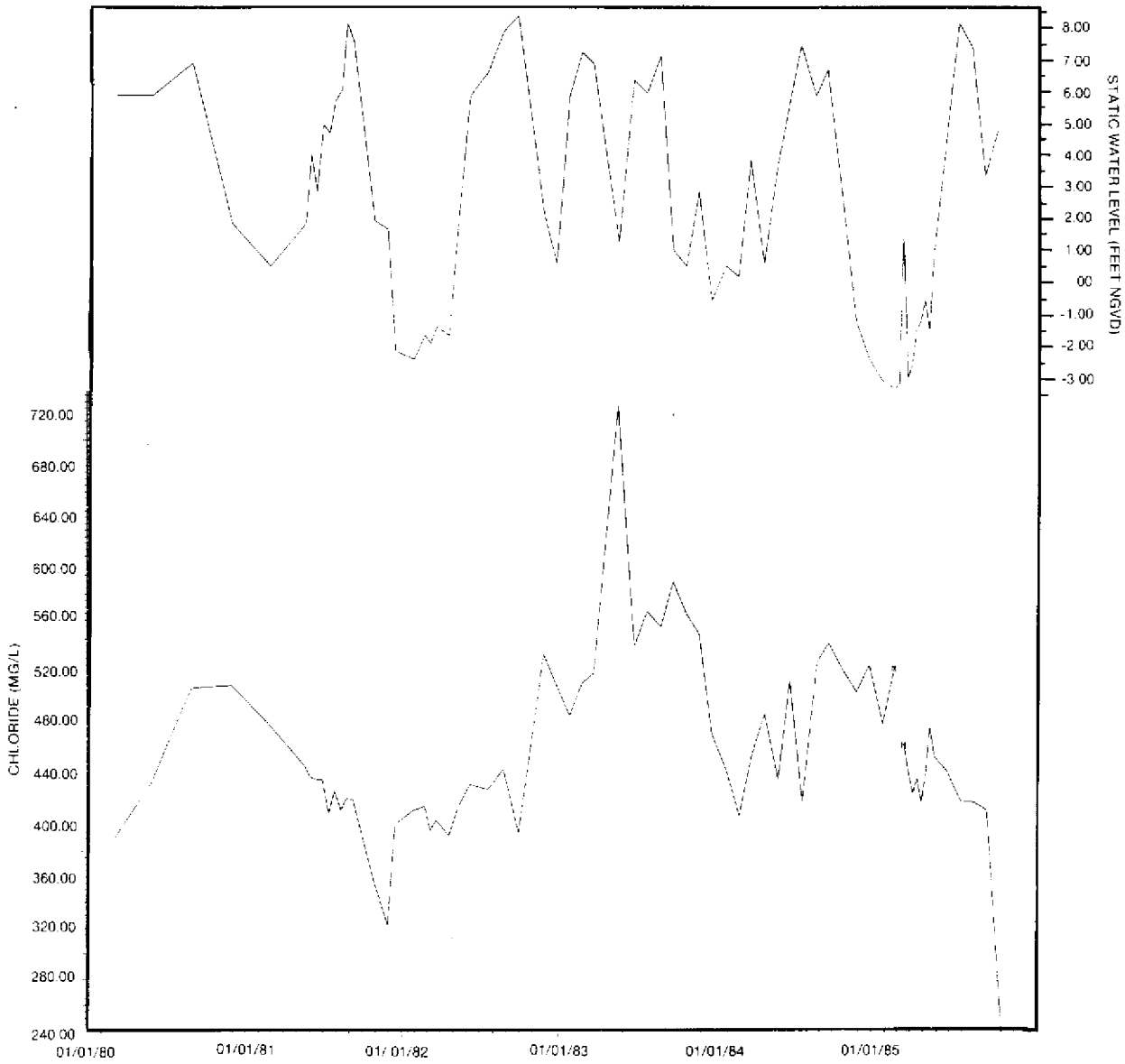
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL A-2D (Lower Tamiami Aquifer)



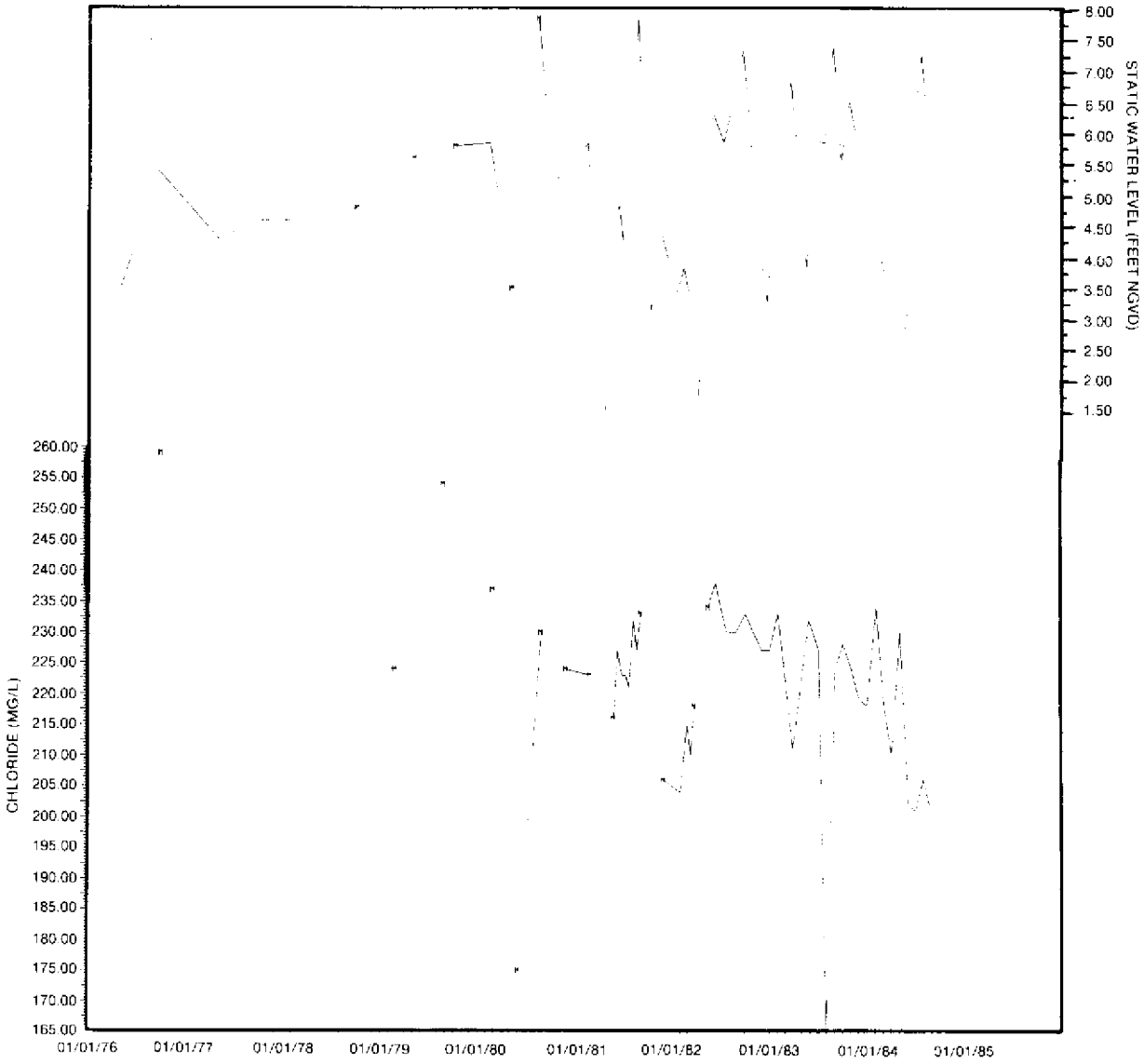
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-161 (Lower Tamiami Aquifer)



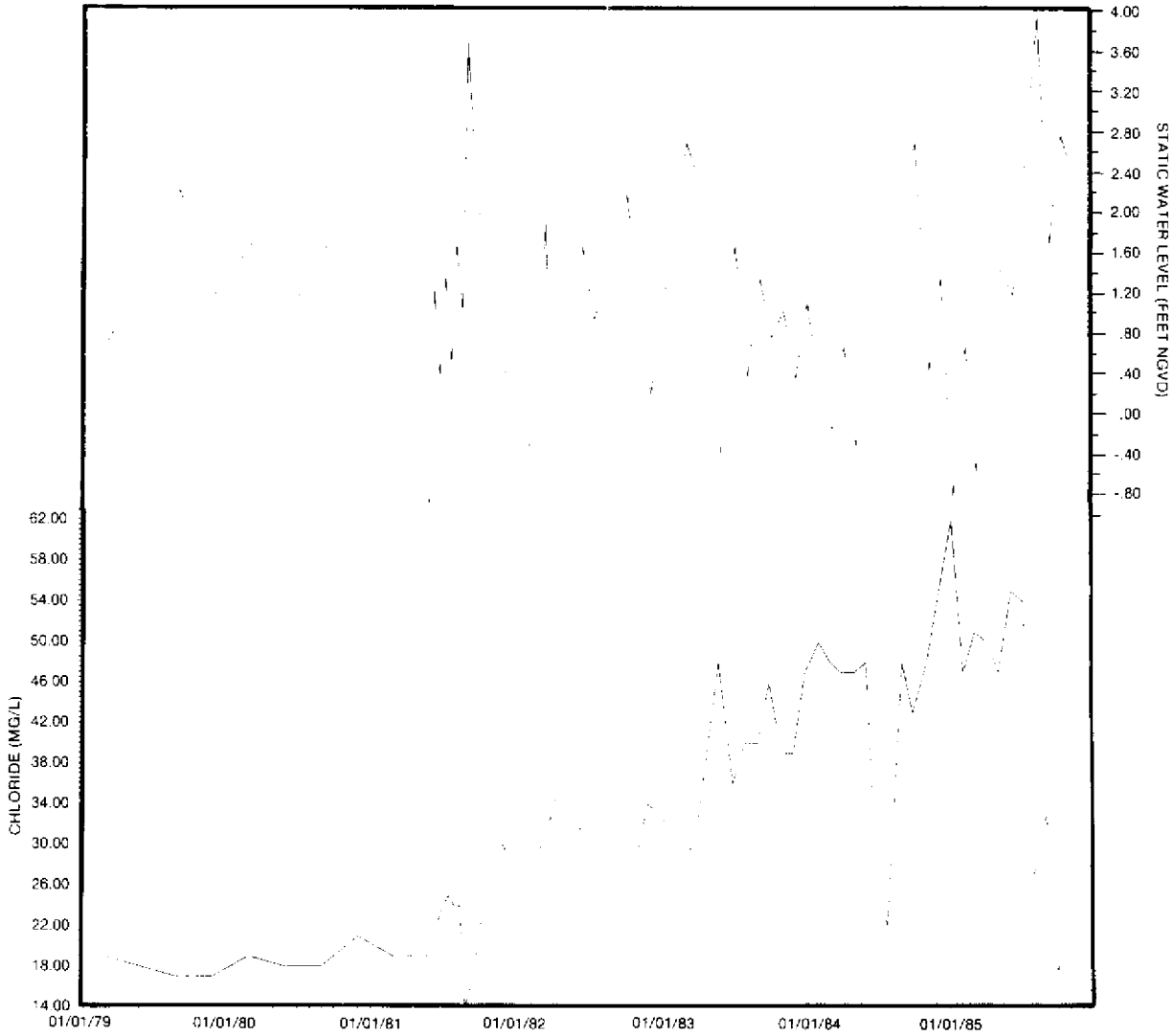
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-355 (Lower Tamiami Aquifer)



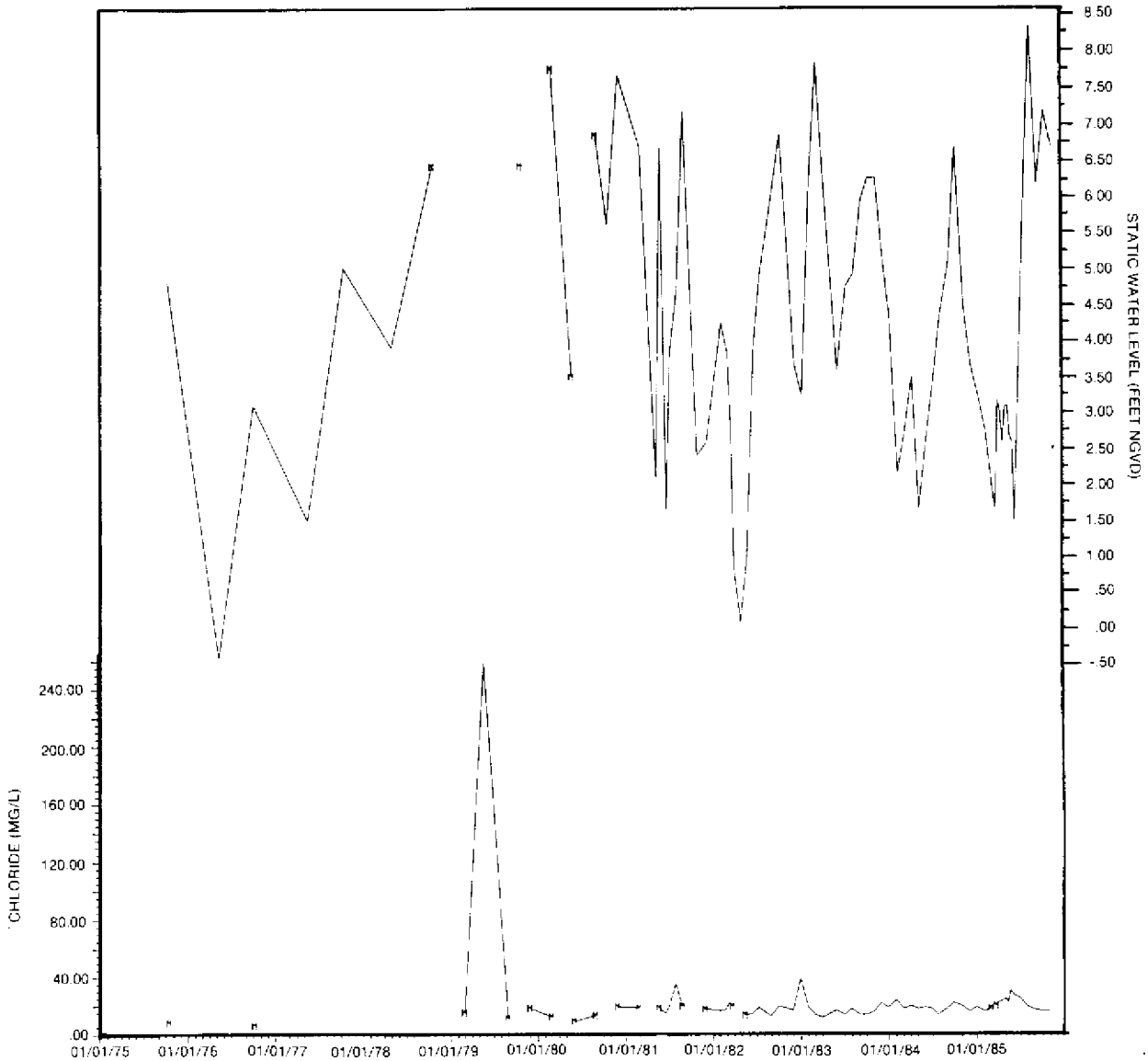
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-424 (Lower Tamiami Aquifer)



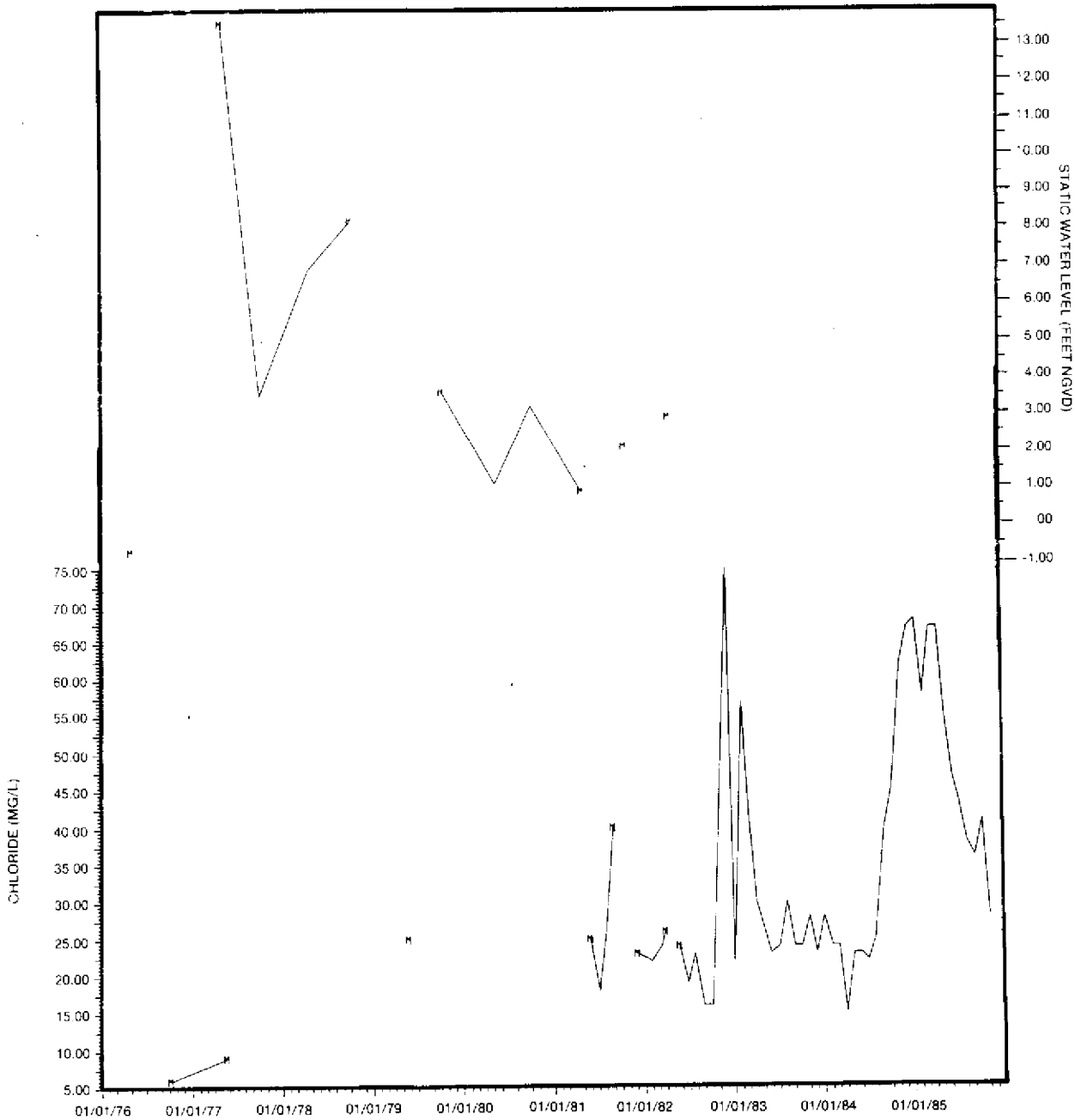
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-430 (Lower Tamiami Aquifer)



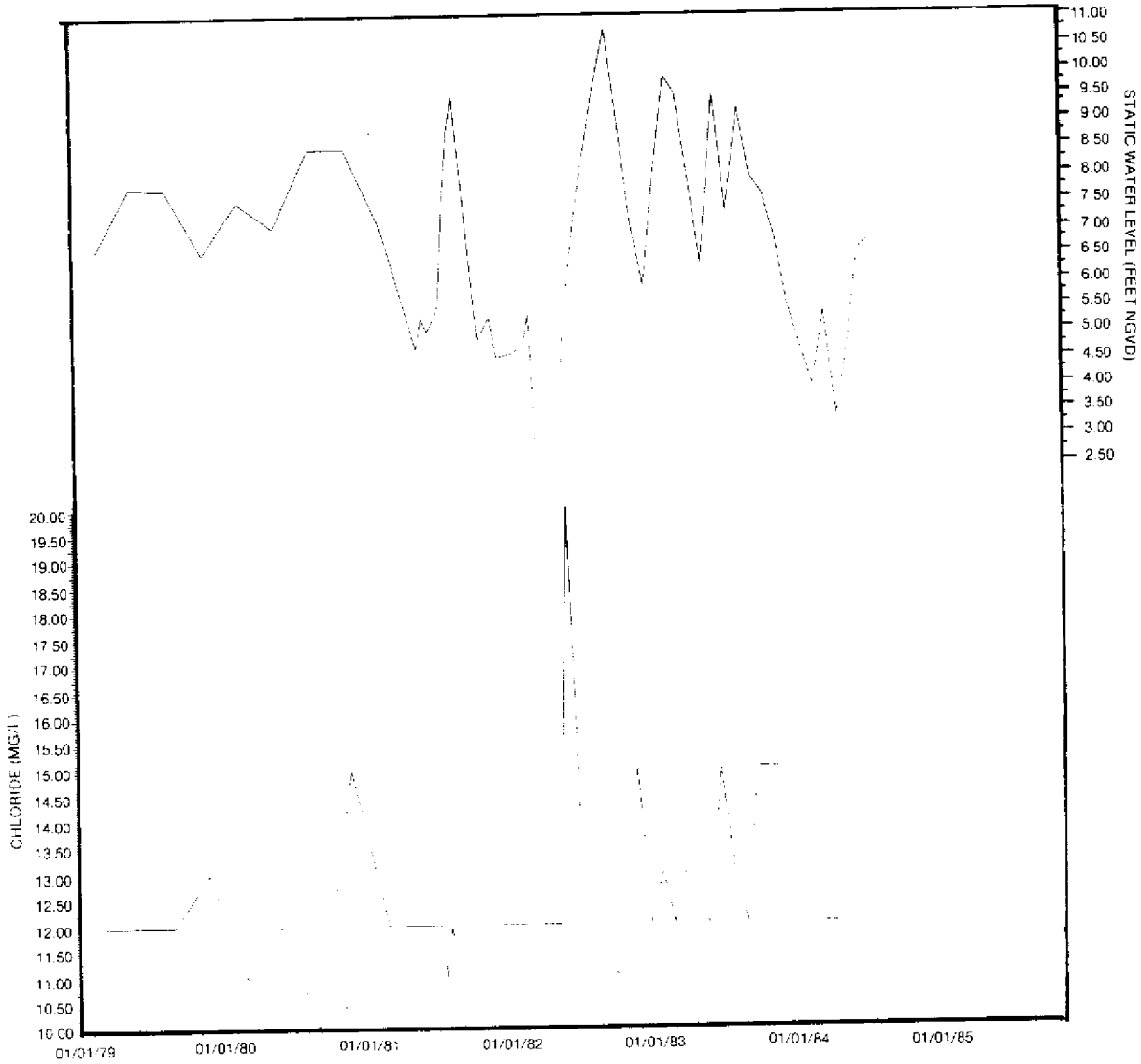
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-474A (Lower Tamiami Aquifer)



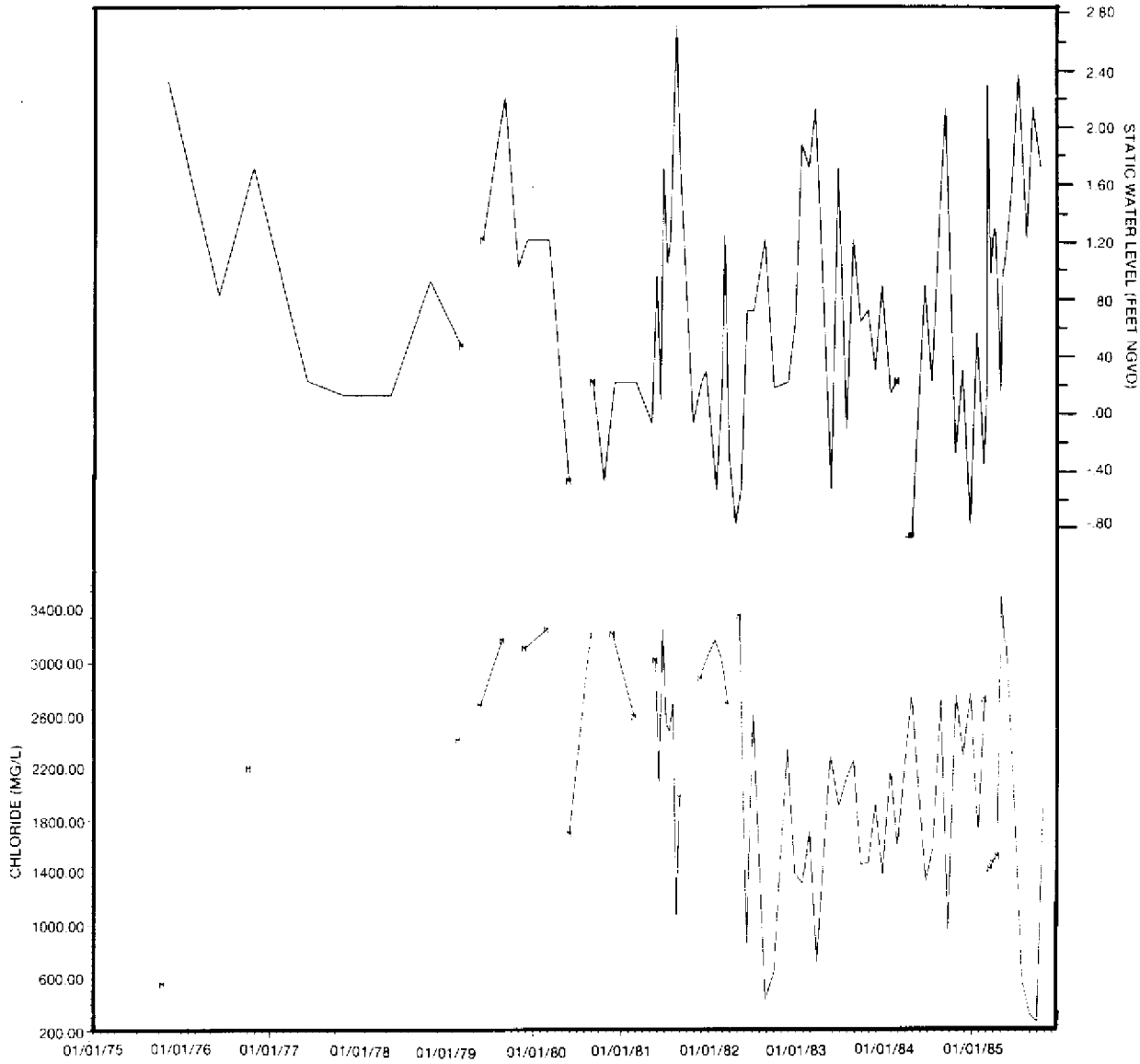
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-490 (Lower Tamiami Aquifer)



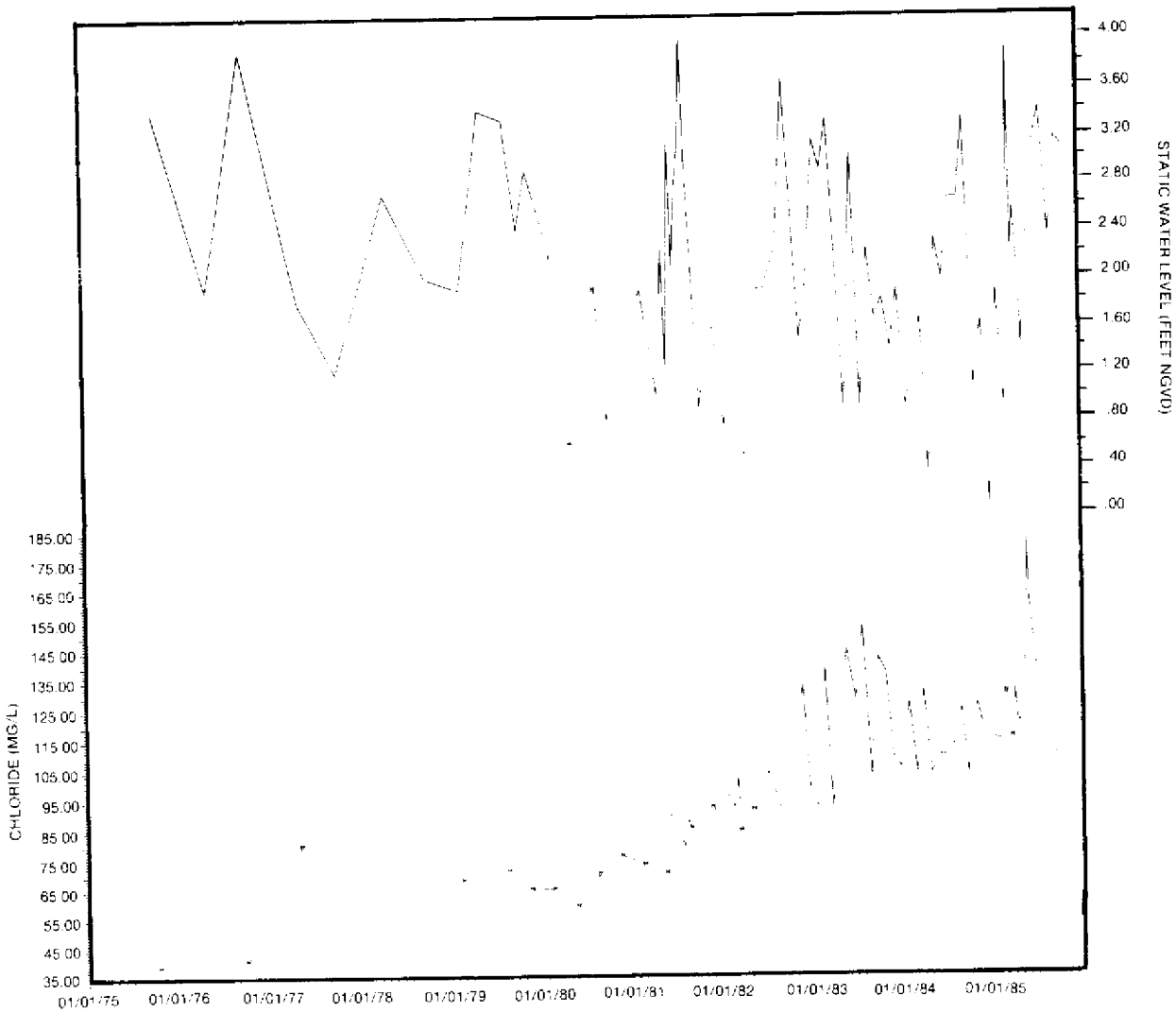
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-491 (Lower Tamiami Aquifer)



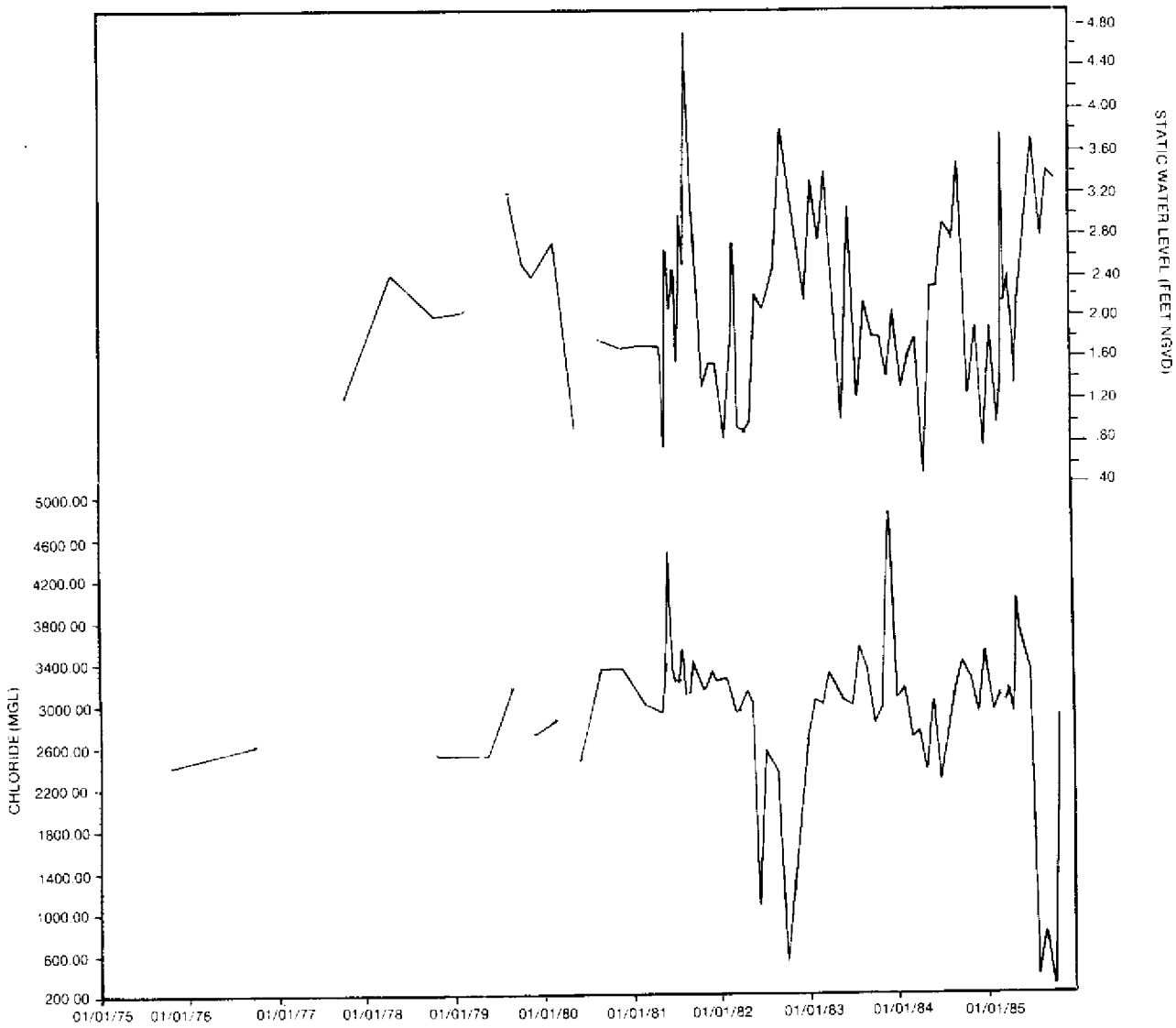
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-505A (Lower Tamiami Aquifer)



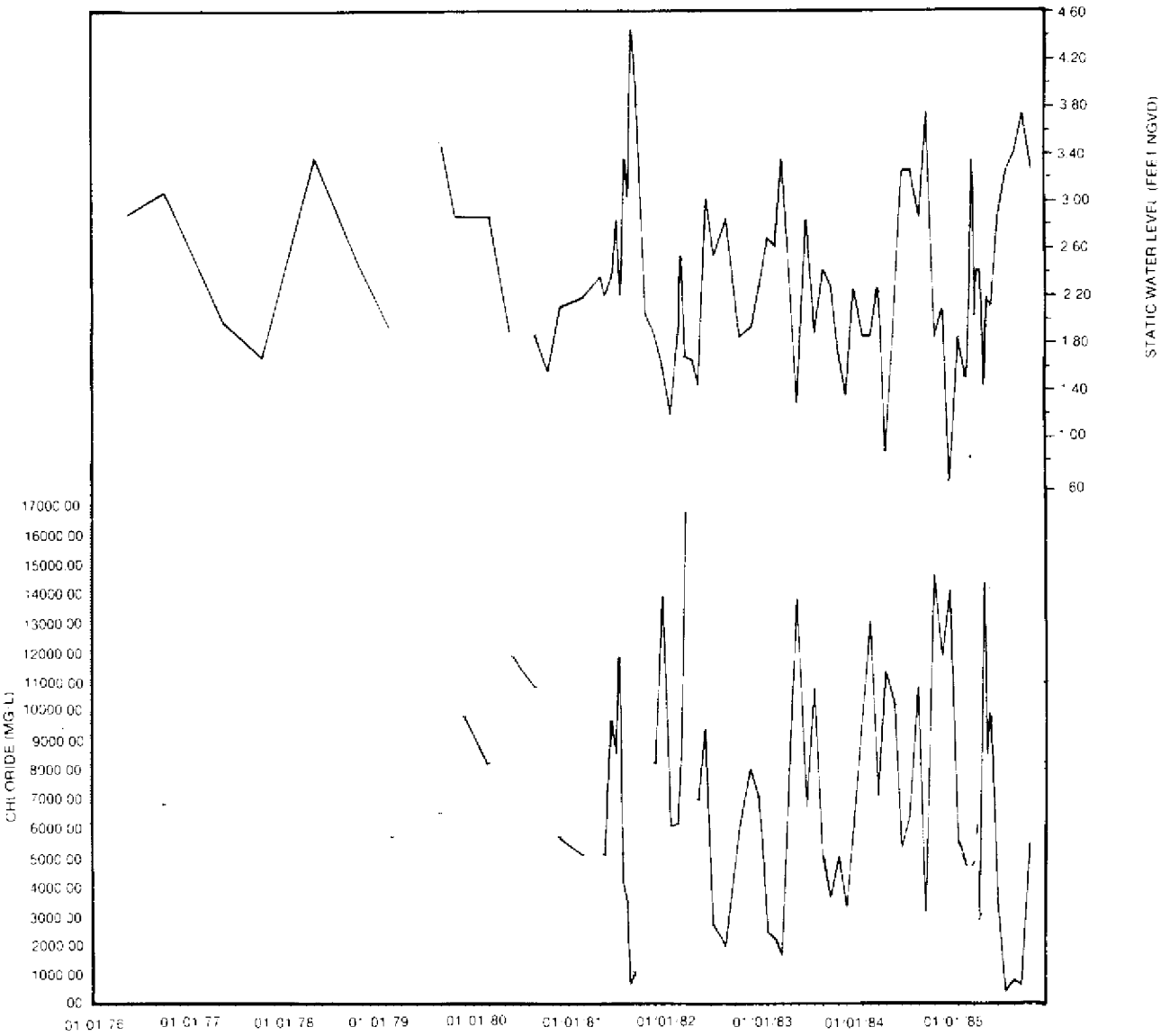
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-524 (Lower Tamiami Aquifer)



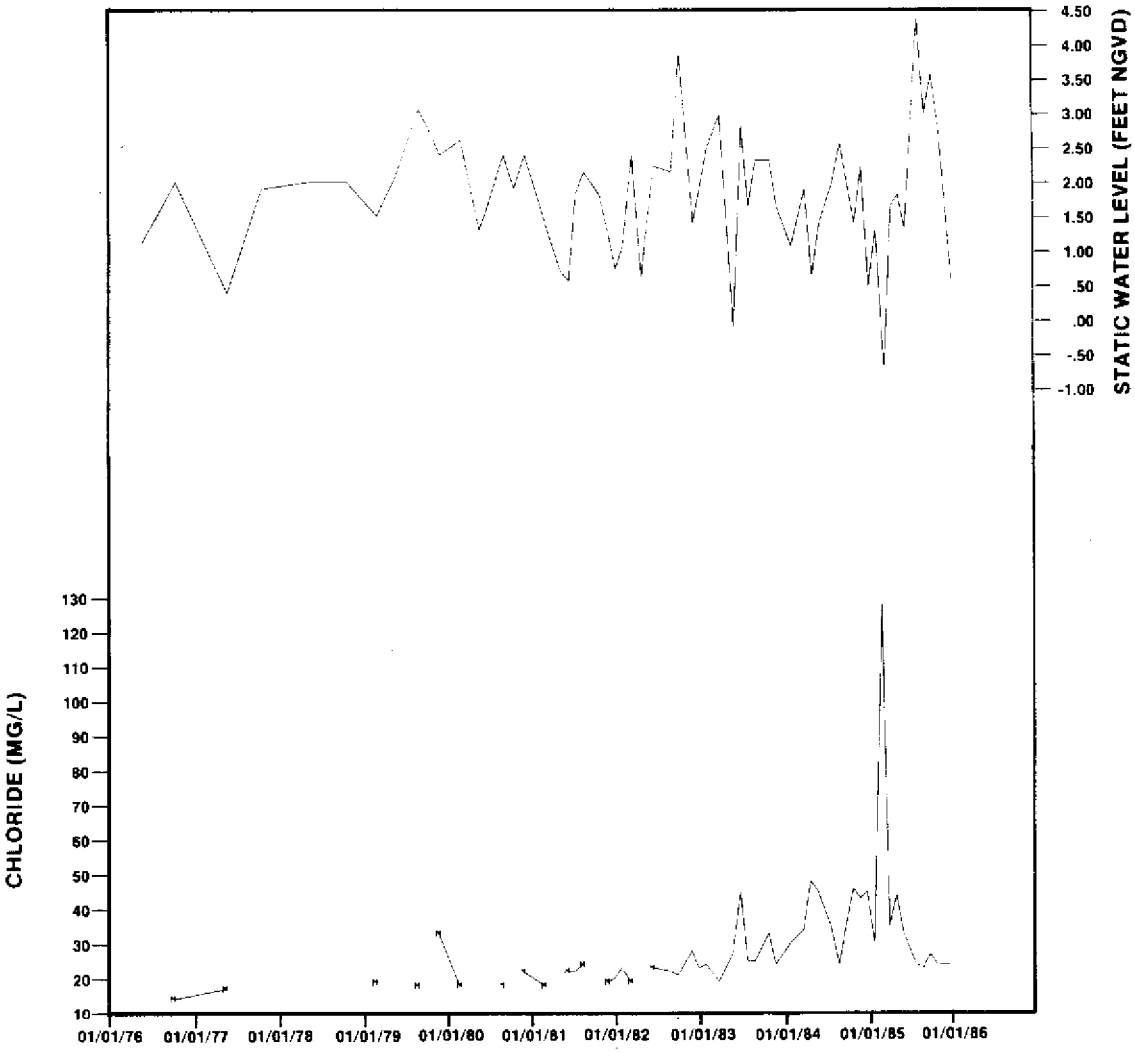
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-525 (Lower Tamiami Aquifer)



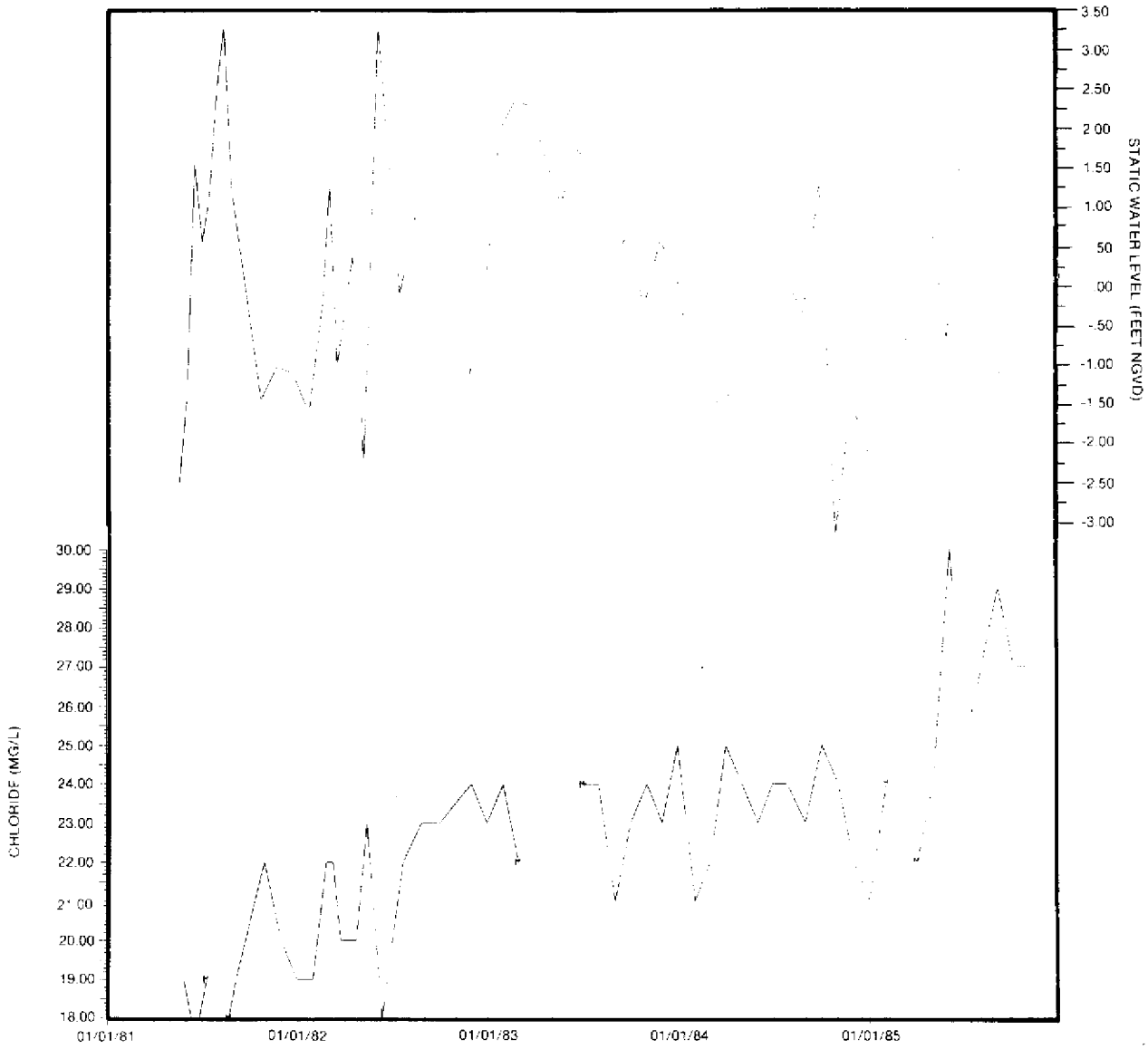
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-526 (Lower Tamiami Aquifer)



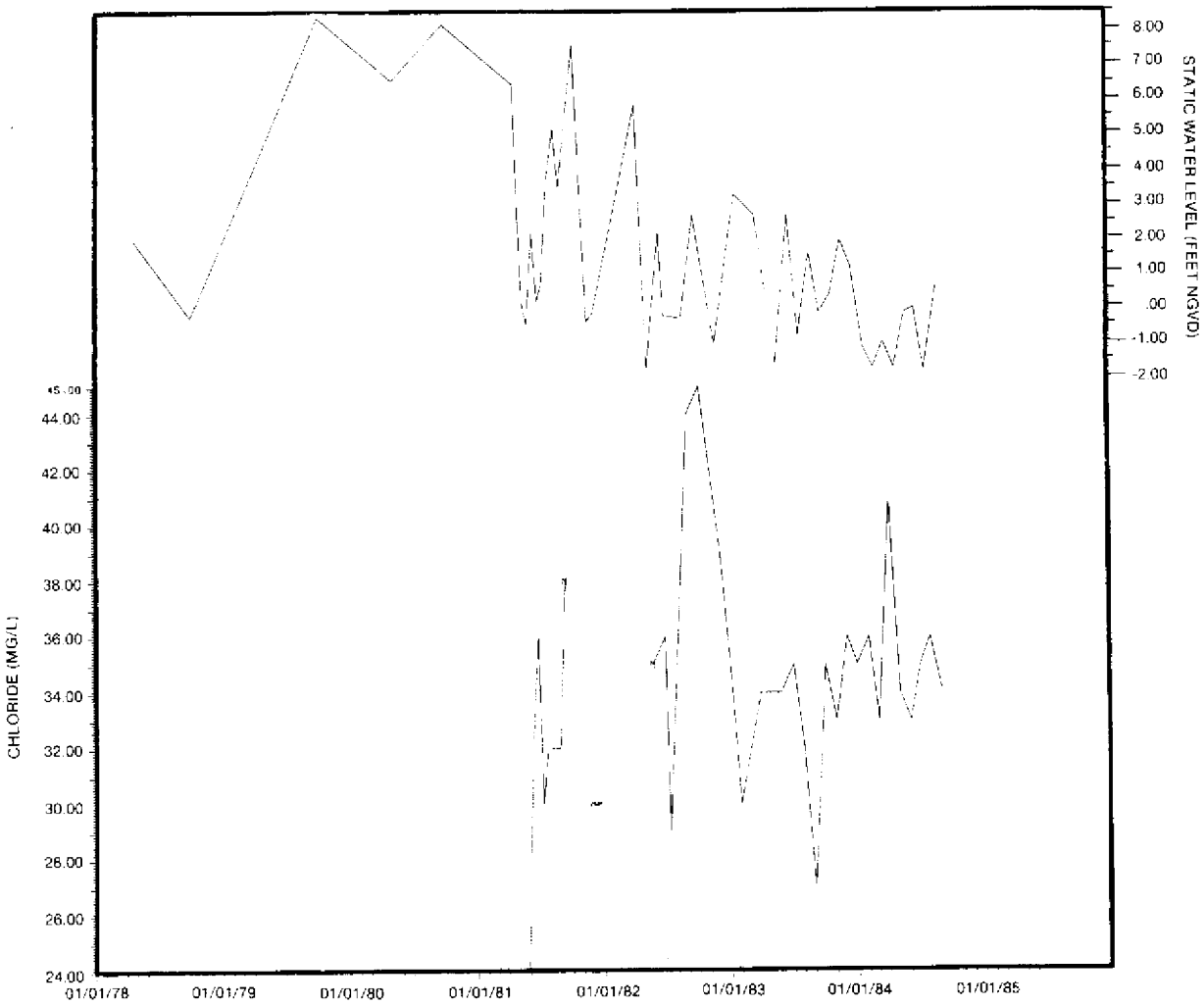
WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-527 (Lower Tamiami Aquifer)



WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-528 (Lower Tamiami Aquifer)



WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-151B (Water Table Aquifer)



WATER LEVEL AND CHLORIDE CONCENTRATION FOR WELL C-409A (Water Table Aquifer)

APPENDIX III-1

INTRODUCTION

Introduction

The data used in the Water Quality section was collected from USGS and SFWMD wells. The complete water quality analyses came from the District's Chemistry Laboratory except for a select few that were completed by the USGS within the 1982 water year.

The data used to construct the chloride concentration and conductivity maps are presented here. Along with April 1984 values, known maximum and minimum values are presented to show the relationship between past and present chloride concentrations and conductivities. The beginning of record column indicates when the data collection began for each station. In most cases, water quality data was measured semi-annually or annually and many stations were not sampled regularly since the well was constructed. This explains the narrow range of values for many stations. Those wells with an identification number above 900 were not sampled until 1984; therefore, in most cases, only one value is presented.

The data summarized here may not represent all the available data collected for each station from all sources but represents all data available at the U. S. Geological Survey, Ft. Myers Field Station. Earlier water quality data is available in the USGS's archive files in Reston, Virginia.

APPENDIX III-2

WATER QUALITY DATA FROM SELECTED MONITOR WELLS

WATER QUALITY
WATER TABLE AQUIFER

Well No.	LOCATION Latitude	Longitude	Beginning of Record	CHLORIDE (mg/l) # of Samples	Maximum	April Minimum	1984	CONDUCTIVITY (umhos/cm) # of Samples	Maximum	April Minimum	1984
C-8	25°56'37"	81°21'38"	1946	15	81	27	62	8	810	520	720
C-54	26°10'18"	80°53'02"	1951	15	38	10	20	7	500	250	300
C-131	26°25'21"	81°16'19"	1952	17	85	24	80	12	900	390	850
C-296	26°06'40"	81°20'43"	1959	16	750	24	215	10	3000	430	1280
C-319	26°15'24"	81°48'04"	1959	1	98	98	98	1	530	530	530
C-321	26°14'35"	81°47'25"	1959	2	24	19	24	1	340	340	340
C-322	26°12'40"	81°48'04"	1959	2	24	20	20	1	500	500	500
C-383	26°15'30"	81°41'21"	1963	22	55	8	18	13	1100	395	490
C-384	26°16'20"	81°45'05"	1963	37	30	6	8	27	900	245	420
C-392	26°11'24"	81°47'30"	1964	28	69	24	44	23	810	540	660
C-409	26°10'24"	81°48'01"	1964	1	26	26	26	1	430	430	430
C-446	26°04'49"	81°41'15"	1968	15	250	42	106	11	1680	620	900
C-450	26°09'13"	81°41'13"	1968	17	98	12	18	10	1080	490	490
C-475	26°11'11"	81°48'01"	1969	1	30	30	30	1	370	370	370
C-495	25°57'53"	81°18'43"	1970	14	78	12	14	10	500	320	330
C-496	26°01'11"	81°24'39"	1970	11	90	22	40	10	750	380	570
C-503	26°17'40"	81°23'54"	1972	15	42	15	38	9	740	220	650
C-532	26°29'28"	81°27'29"	1975	5	30	4	18	5	550	310	310
C-598	26°14'17"	81°30'54"	1980	8	56	20	24	8	800	590	670
C-599	26°06'30"	81°41'14"	1980	9	175	14	65	9	1440	300	900
C-600	26°05'49"	81°44'19"	1980	9	92	70	88	9	950	770	820
C-690	26°06'29"	81°32'36"	1980	8	118	80	84	8	1160	830	860
C-953	26°13'47"	81°35'12"	1984	1	8	8	8	1	440	420	440
C-966	26°21'36"	81°20'42"	1984	1	16	16	16	1	420	420	420
C-967	26°05'40"	81°43'06"	1984	1	50	50	50	1	720	720	720
C-968	26°03'34"	81°39'16"	1984	1	80	80	80	1	760	760	760
C-970	26°17'21"	81°35'13"	1984	1	6	6	6	1	510	510	510
C-972	26°08'43"	81°32'42"	1984	1	10	10	10	1	550	550	550
C-976	26°09'15"	81°38'59"	1984	1	24	24	24	1	700	700	700
C-978	26°21'21"	81°35'55"	1984	1	140	140	140	1	950	950	950
C-980	26°13'43"	81°38'48"	1984	1	6	6	6	1	650	650	650
C-981	26°21'58"	81°28'34"	1984	1	36	36	36	1	575	575	575
C-984	26°17'33"	81°28'55"	1984	1	36	36	36	1	530	530	530
C-986	26°12'00"	81°20'49"	1984	1	62	62	62	1	670	670	670
L-730	26°31'27"	81°35'16"	1968	9	20	4	6	9	380	255	280
L-739	26°26'57"	81°44'35"	1968	4	34	25	34	4	570	300	530
L-1138	26°27'03"	81°34'02"	1970	2	38	36	36	2	290	280	280
L-1964	26°33'44"	81°36'17"	1974	3	64	32	44	3	720	620	630
L-1985	26°27'13"	81°41'47"	1974	3	36	28	30	3	700	590	590
L-1992	26°33'53"	81°33'58"	1974	2	26	22	22	2	600	530	530
L-1995	26°32'51"	81°45'28"	1975	2	30	28	28	2	430	360	360
L-1997	26°19'54"	81°41'01"	1975	3	40	32	36	3	440	420	430
L-1999	26°30'41"	81°43'31"	1974	3	30	12	21	3	650	620	635
L-2195	26°19'57"	81°43'22"	1975	7	40	22	26	7	630	455	455
L-2204	26°33'29"	81°39'43"	1975	2	30	16	16	2	510	380	380
HE-554	26°33'10"	81°25'09"	1975	7	25	10	14	7	395	310	352
HE-569	26°39'30"	81°30'15"	1975	1	58	58	58	1	630	630	630

WATER QUALITY
LOWER TAMIAMI AQUIFER

Well No.	LOCATION Latitude	Longitude	Beginning of Record	CHLORIDE (mg/l) # of Samples	Maximum	Minimum	April 1984	CONDUCTIVITY (umhos/cm) # of Samples	Maximum	Minimum	April 1984
C-123	26°10'03"	81°48'37"	1952	42	46	8	20	19	470	65	400
C-130	26°09'02"	81°48'04"	1952	42	350	114	139	25	1500	640	1006
C-161	26°10'23"	81°47'07"	1957	30	685	128	128	19	1500	780	770
C-175	26°09'12"	81°43'47"	1958	9	1750	1300	1460	7	5200	4450	5000
C-304	26°16'35"	81°36'13"	1959	7	45	39	42	6	680	610	610
C-353	26°16'25"	81°46'42"	1960	34	460	280	370	22	2900	1850	1950
C-363	26°25'56"	81°24'26"	1961	2	23	6	6	1	130	130	130
C-391	26°11'24"	81°47'33"	1964	36	26	10	16	30	600	229	420
C-409A	26°10'24"	81°48'01"	1965	25	90	20	22	20	435	410	420
C-424	26°15'24"	81°48'04"	1965	33	750	180	410	24	2900	1300	1420
C-430	26°11'46"	81°46'07"	1965	34	355	40	175	22	1240	880	1160
C-459	26°14'03"	81°47'07"	1968	1	40	40	40	1	990	990	990
C-460	26°14'05"	81°46'55"	1968	35	180	10	12	22	1700	520	770
C-462	26°27'25"	81°26'13"	1968	14	48	8	28	8	540	170	250
C-472A	26°09'25"	81°47'52"	1973	30	57	28	50	22	610	155	580
C-474A	26°11'14"	81°48'23"	1973	32	40	12	34	22	500	340	400
C-489	26°13'30"	81°47'33"	1965	30	34	8	26	29	445	275	305
C-490	26°12'43"	81°48'03"	1971	33	130	6	8	24	340	90	310
C-491	26°11'17"	81°48'01"	1971	32	40	6	16	20	440	220	285
C-492	26°22'23"	81°36'20"	1970	15	460	10	46	9	1220	640	640
C-505A	26°14'14"	81°48'03"	1973	31	20	4	6	22	450	265	285
C-506A	26°12'33"	81°48'02"	1973	35	92	8	8	24	440	330	350
C-515	26°13'46"	81°48'02"	1973	1	12	12	12	1	365	365	365
C-516	26°11'56"	81°47'58"	1973	1	20	20	20	1	250	250	250
C-524	26°09'48"	81°48'33"	1973	35	3600	100	1460	25	9700	810	5100
C-525	26°10'02"	81°48'37"	1973	35	352	42	165	25	930	450	930
C-526	26°10'18"	81°48'41"	1973	33	3400	2400	2840	23	9600	7600	9400
C-527	26°10'48"	81°48'48"	1973	32	10450	1240	10450	23	32000	4100	30600
C-528	26°12'00"	81°48'30"	1973	34	40	12	16	25	465	380	385
C-951	26°13'47"	81°35'12"	1984	1	36	36	36	1	630	630	630
C-956	26°13'43"	81°38'48"	1984	1	56	56	56	1	770	770	770
C-965	26°21'36"	81°20'42"	1984	1	254	254	254	1	920	920	920
C-971	26°17'21"	81°35'13"	1984	1	30	30	30	1	580	550	565
C-973	26°08'43"	81°32'42"	1984	1	134	134	134	1	880	880	880
C-975	26°03'04"	81°39'14"	1984	1	160	160	160	1	1160	1160	1160
C-977	26°09'15"	81°38'59"	1984	1	30	30	30	1	790	790	790
C-979	26°21'21"	81°35'55"	1984	1	20	20	20	1	450	450	450
C-982	26°21'58"	81°28'34"	1984	1	38	38	38	1	560	560	560
C-985	26°17'33"	81°28'55"	1984	1	38	38	38	1	650	650	650
C-988	26°14'44"	81°28'49"	1984	1	46	46	46	1	690	690	690
L-738	26°20'22"	81°46'42"	1973	2	230	220	230	2	1020	1000	1000
L-1691	26°20'24"	81°45'50"	1973	8	78	32	78	8	780	300	700

WATER QUALITY
SANDSTONE AQUIFER

Well No.	LOCATION Latitude	LOCATION Longitude	Beginning of Record	CHLORIDE (mg/l) # of Samples	CHLORIDE (mg/l) Maximum	CHLORIDE (mg/l) Minimum	April 1984	CONDUCTIVITY (umhos/cm) # of Samples	CONDUCTIVITY (umhos/cm) Maximum	CONDUCTIVITY (umhos/cm) Minimum	April 1984
C-298	26°25'07"	81°23'52"	1959	8	89	38	62	7	720	410	410
C-303	26°16'22"	81°41'23"	1959	8	1100	615	615	7	3300	2180	2180
C-531	26°29'28"	81°27'29"	1975	5	48	32	48	5	740	640	680
C-687	26°25'54"	81°28'38"	1981	7	110	56	56	7	860	460	620
C-688	26°18'02"	81°35'48"	1981	6	45	42	42	6	780	620	780
C-689	26°17'40"	81°23'54"	1981	6	92	85	88	6	820	730	730
C-989	26°17'33"	81°28'55"	1984	1	180	180	180	1	1260	1260	1260
L-729	26°33'35"	81°39'43"	1968	2	68	40	40	2	710	500	500
L-731	26°27'03"	81°34'02"	1968	8	37	20	20	8	490	380	380
L-1853	26°07'06"	81°43'54"	1973	2	22	6	22	2	420	360	360
L-1963	26°33'44"	81°36'17"	1974	3	170	150	150	3	1100	1010	1010
L-1965	26°33'53"	81°33'58"	1974	2	300	195	195	2	1420	1180	1180
L-1984	26°27'13"	81°41'46"	1974	3	26	26	26	3	640	560	600
L-1994	26°32'51"	81°45'28"	1975	2	80	78	80	2	760	700	700
L-1998	26°30'41"	81°43'31"	1976	2	64	52	52	2	700	560	560
L-2192	26°26'59"	81°38'25"	1975	5	160	50	50	5	1120	600	600
L-2194	26°19'57"	81°43'22"	1975	2	82	80	80	2	810	760	760
L-2215	26°31'27"	81°35'16"	1975	2	46	36	36	2	740	590	590
HE-529	26°33'10"	81°25'09"	1976	1	40	40	40	1	650	650	650
HE-555	26°38'45"	81°26'07"	1976	1	180	180	180	1	1380	1380	1380

WATER QUALITY
MID HAWTHORN & FLORIDAN AQUIFER SYSTEM AQUIFERS

Well No.	LOCATION Latitude	LOCATION Longitude	Beginning of Record	CHLORIDE (mg/l) # of Samples	CHLORIDE (mg/l) Maximum	CHLORIDE (mg/l) Minimum	April 1984	CONDUCTIVITY (umhos/cm) # of Samples	CONDUCTIVITY (umhos/cm) Maximum	CONDUCTIVITY (umhos/cm) Minimum	April 1984
C-39	25°48'50"	81°21'47"	1951	13	1958	1250	1840	11	7000	5200	6900
C-258	26°25'04"	81°24'54"	1959	8	1040	950	1000	6	5400	3750	3850
C-269	25°56'25"	81°28'12"	1959	12	551	330	520	11	2700	2100	2250
C-308	26°09'19"	81°15'59"	1959	14	2000	1740	1800	9	8000	6060	6750
C-311	25°54'37"	81°21'54"	1959	16	520	385	440	11	2700	2000	2240
C-445A	25°51'27"	81°23'09"	1967	11	1000	230	1000	8	2900	2050	2900
C-575	26°13'10"	81°48'07"	1979	23	1450	1040	1150	23	5500	3400	4200
C-684	26°17'40"	81°23'54"	1980	8	224	150	200	8	4700	3200	3700
C-948	26°13'47"	81°35'17"	1984	1	180	180	180	1	1700	1700	1700
C-955	26°17'21"	81°35'13"	1984	1	30	30	30	1	580	550	565
C-963	26°21'21"	81°35'55"	1984	1	135	135	135	1	930	930	930
C-974	26°09'41"	81°32'42"	1984	1	2050	2050	2050	1	7000	7000	7000
C-983	26°21'58"	81°28'34"	1984	1	660	660	660	1	4200	4200	4200
C-987	26°03'09"	81°27'26"	1984	1	680	680	680	1	3000	3000	3000

APPENDIX IV-1

INTRODUCTION

Introduction

Information regarding Collier County community planning areas, service area information (e.g.; populations, water plants, per capita use per month, etc.), projected populations (up to the year 2000), and household and resident populations were provided by the Utility Division of Collier County; specifically Thomas T. Crandall, Utilities Administrator, and are presented here in Appendix IV-3. In addition, well construction specifications, installation dates, and pump capacities were provided by the same for both the City of Naples Coastal Ridge and East Golden Gate wellfields.

Information from permitted public water suppliers, agricultural, recreational, and aesthetic groundwater users within the Naples area were provided by the SFWMD's Water Use Planning Division. This information is provided in Appendix IV-14 in tabular form. This table depicts water use from the lower Tamiami aquifer for the months of September and October, 1984 and April and May, 1985 for all the permitted users within the aforementioned area. Included are estimates of water use in gpd, number of hours the pumps were in operation, and the capacity of each well for each permitted user.

Appendix IV-36 portrays the analytical analyses used to determine the aquifer parameters from aquifer pumping test data. Each figure displays all the data points, match points, and calculations of aquifer parameters for each well tested. The wells are labeled as C-2030-I, where the letter C means Collier County, the number is a SFWMD identification for each exploration site, and the letter following the number represents the aquifer that was being tested (i.e., S - water table, I - lower Tamiami, D - Sandstone, m -mid-Hawthorn).

The title under each figure is followed by a /(name); the name represents the method used to analytically analyze the data. The Boulton method was used

for unsteady-state flow in unconfined aquifers with delayed yield and in semi-confined aquifers; the Hantush method was used for unsteady-state flow in semi-confined aquifers; the Jacob method was used for steady-state and unsteady-state flow in semi-confined aquifers; the Stallman method was used in the case of aquifers limited by one or more boundaries; and the Jacob recovery method was used where insufficient data was collected during the drawdown phase of a pumping test (e.g., pump may have inadvertently shut-off). In several cases, more than one method of analysis was used in order to verify the calculated aquifer parameters for each site. Further information describing the above-mentioned methods can be found in Kruseman and DeRidder, 1970.

APPENDIX IV-2

COLLIER COUNTY PLANNING AREAS

AND POPULATION PROJECTIONS

Board of County Commissioners
COLLIER COUNTY GOVERNMENT COMPLEX
Utility Division
Courthouse Complex
Bldg. F-5th Floor
Naples, FL 33962-4967

February 28, 1985

Mr. Scott Burns
South Florida Water Management
District
3301 Gun Club Road
West Palm Beach, Fl. 33402

Re: County Regional Water System - Water Use Information

Dear Mr. Burns:

As stated in our telephone conversation of this date, our report regarding your request for water use information is enclosed.

The remainder of the information you requested will be forwarded to you as soon as it has been completed, hopefully by the end of next week.

If you have any questions regarding the above, please do not hesitate to contact this office.

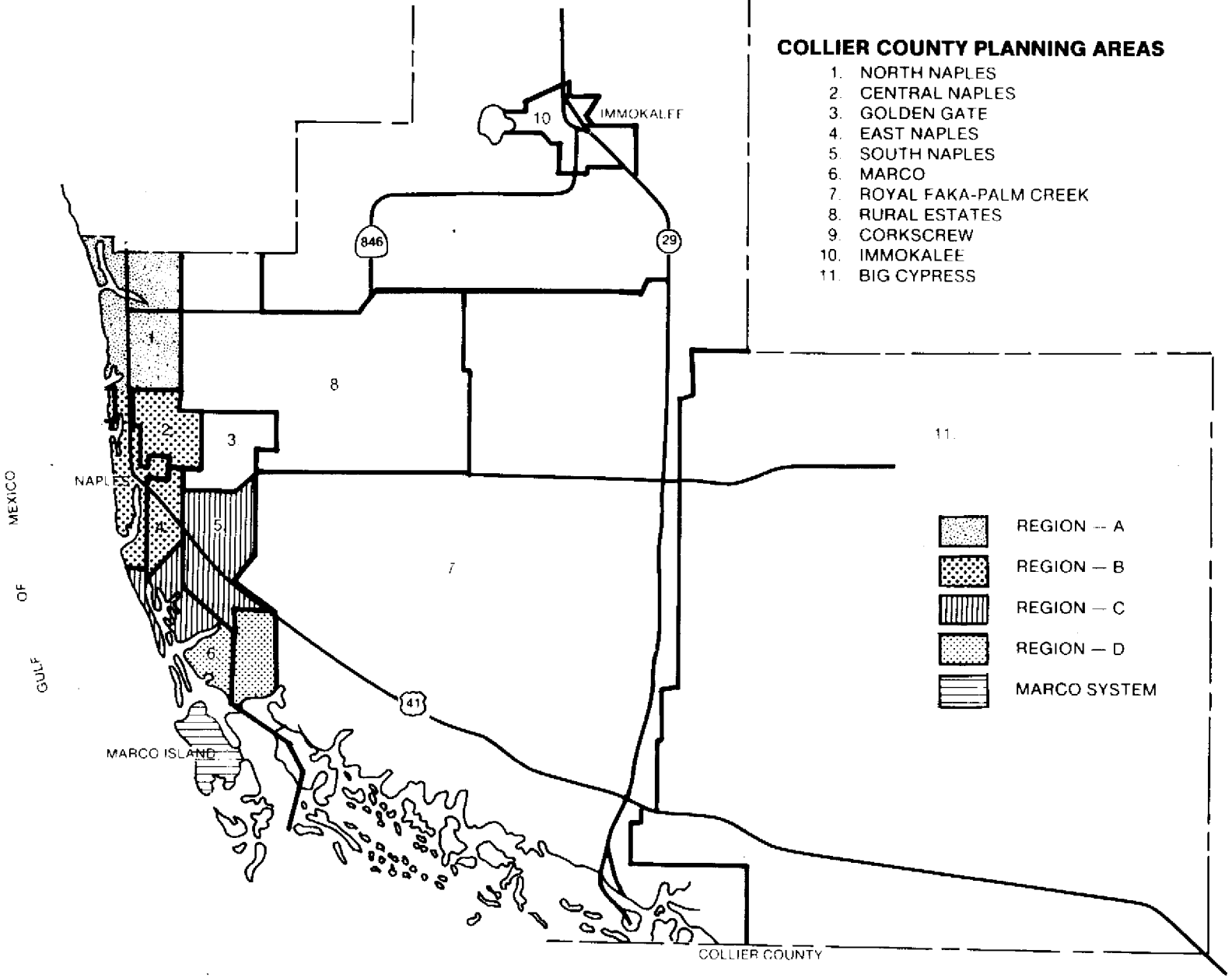
Very truly yours,

Thomas T. Crandall
Utilities Administrator

TTC/bp

cc: John F. Madajewski
Shannon Howell

3301 TAMIAMI TRAIL EAST NAPLES, FLORIDA 33962-4977 813-774-8999



COLLIER COUNTY COMMUNITY PLANNING AREAS

COLLIER COUNTY
SERVICE AREA INFORMATION SHEET

SERVICES AREAS	AREA A	AREA B	AREA C	AREA D
POPULATION	16,815	44,625	9,132	2,722
FUTURE POPULATION	1990-22,778	1990-54,527	1990-12,371	1990-no
	1995-27,893	1995-63,081	1995-15,149	1995-infor.
WATER PLANTS	Naples Supp.	Naples 30M.G.D Water Plant	COUNTY 4M.G.D Water Plant	No Plant County Supp.
FUTURE PLANTS	8M.G.D Plant Proposed	No Expansion	8M.G.D Plant Proposed	No Plants Proposed
WELLS	None	See Naples Information	5 wells 12 in. 1 m.g.d.	None
FUTURE WELLS	8 wells 12 in. 1 m.g.d.	On information	10 wells Same as above	None
METERED CONNECTIONS	4,840	13,028	2,808	1,089
FUTURE CONNECTIONS	1990-6,500	1990-15,918	1990-3,800	1990-NO
	1995-8,000	1995-18,416	1995-4,600	1995-infor.
	2000-9,700	2000-21,207	2000-5,600	2000-avail.
PER CAPITA USE PER-MONTH	4100/capita gal	8000/capita gal	9500/capita gal	7200/capita gal

COMUNIT

HOUSING UNIT PROJECTIONS PER COMMUNITY DISTRICT
APRIL 1, 1984

COMMUNITY	1984		1985	1990	1995	2000
NORTH NAPLES	8346	HIGH	9163	12527	15411	18662
		MEDIUM	8732	11432	13510	15763
CENTRAL NAPLES	7300	HIGH	8015	10957	13480	16323
		MEDIUM	7637	10000	11817	13787
EAST NAPLES	8375	HIGH	9195	12570	15465	18727
		MEDIUM	8762	11472	13557	15818
SOUTH NAPLES	5469	HIGH	6005	8209	10099	12229
		MEDIUM	5722	7491	8853	10329
GOLDEN GATE	4476	HIGH	4914	6718	8265	10009
		MEDIUM	4683	6131	7246	8454
RURAL ESTATES	1412	HIGH	1550	2119	2607	3157
		MEDIUM	1477	1934	2286	2667
ROYAL FAKAPALM	1610	HIGH	1768	2416	2973	3600
		MEDIUM	1684	2205	2606	3041
CORKSCREW	767	HIGH	842	1151	1416	1715
		MEDIUM	802	1051	1242	1449
IMMOKALEE	4780	HIGH	5248	7174	8826	10688
		MEDIUM	5001	6548	7738	9028
MARCO	10395	HIGH	11413	15602	19195	23244
		MEDIUM	10875	14239	16827	19633
BIG CYPRESS	168	HIGH	184	252	310	376
		MEDIUM	176	230	272	317
UNINCORPORATED	53098	HIGH	58298	79696	98046	118730
		MEDIUM	55551	72733	85954	100286
EVERGLADES CITY	292	HIGH	315	410	492	583
		MEDIUM	303	380	439	503
CITY OF NAPLES	12726		12833	13177	13514	13839
SEASONAL OR MIGRATORY	1016		992	992	992	992
COLLIER (TOTAL)	67132	HIGH	72438	94275	113044	134144
		MEDIUM	69679	87282	100899	115620

Source: Collier County Planning Department

COLLIER COUNTY

COMPROJ

POPULATION PROJECTIONS PER COMMUNITY DISTRICT
APRIL 1, 1984

COMMUNITY	1984		1985	1990	1995	2000
NORTH NAPLES	15371	HIGH	16815	22778	27893	33657
		MEDIUM	16051	20842	24531	28528
CENTRAL NAPLES	11806	HIGH	12915	17495	21424	25851
		MEDIUM	12328	16008	18841	21912
EAST NAPLES	12469	HIGH	13640	18477	22627	27303
		MEDIUM	13020	16907	19899	23142
SOUTH NAPLES	8348	HIGH	9132	12371	15149	18279
		MEDIUM	8717	11319	13323	15494
GOLDEN GATE	10167	HIGH	11122	15066	18450	22262
		MEDIUM	10616	13786	16226	18870
RURAL ESTATES	4244	HIGH	4643	6289	7701	9293
		MEDIUM	4432	5755	6773	7877
ROYAL FAKAPALM	3997	HIGH	4372	5923	7253	8752
		MEDIUM	4174	5420	6379	7418
CORKSCREW	2522	HIGH	2759	3737	4577	5522
		MEDIUM	2633	3420	4025	4681
IMMOKALEE	12388	HIGH	13552	18357	22480	27125
		MEDIUM	12936	16797	19770	22992
MARCO	8439	HIGH	9232	12505	15314	18478
		MEDIUM	8812	11443	13468	15663
BIG CYPRESS	320	HIGH	350	474	581	701
		MEDIUM	334	434	511	594
UNINCORPORATED	90071	HIGH	98531	133473	163449	197224
		MEDIUM	94053	122129	143745	167171
EVERGLADES CITY	534	HIGH	576	750	899	1067
		MEDIUM	554	694	803	920
CITY OF NAPLES	17920		18071	18555	19030	19487
SEASONAL OR MIGRATORY	922		922	922	922	922
COLLIER (TOTAL)	109447	HIGH	118100	153700	184300	218700
		MEDIUM	113600	142300	164500	188500

Note: These projections are based on the University of Florida, State and County estimates of April 1, 1984.

The 1984 population and housing unit counts for each community, the City of Naples and Everglades City were derived from a combination of U.S. Census figures and County data.

The high and medium rates of increase in Collier County's popula as estimated by the University of Florida, were applied to the base populations of each community to obtain the projections.

Collier County Planning Department

COMPOP84

COLLIER COUNTY HOUSEHOLDS AND RESIDENT POPULATION: APRIL 1, 1984

COMMUNITY	HOUSING TYPE	NUMBER OF HOUSING UNITS 1984	ESTIMATED PERCENT OCCUPIED YEAR-ROUND	NUMBER OCCUPIED HOUSING UNITS 1984 (1)	AVERAGE NUMBER OF PERSONS PER OCCUPIED UNIT 1984 (2)	ESTIMATED 1984 RESIDENT POPULATION	PERCENT OF TOTAL POPULATION
NORTH NAPLES	S.F.	4451					
	DUP.	688					
	M.F.	2414					
	M.H.	793					
	TOTAL	8346	0.7205	6013	2.56	15371	0.14
CENTRAL NAPLES	S.F.	2137					
	DUP.	358					
	M.F.	4255					
	M.H.	550					
	TOTAL	7300	0.7021	5126	2.30	11806	0.11
EAST NAPLES	S.F.	3014					
	DUP.	806					
	M.F.	3318					
	M.H.	1237					
	TOTAL	8375	0.6901	5779	2.16	12469	0.11
SOUTH NAPLES	S.F.	1501					
	DUP.	338					
	M.F.	1397					
	M.H.	2233					
	TOTAL	5469	0.6333	3464	2.41	8348	0.08
GOLDEN GATE	S.F.	2770					
	DUP.	386					
	M.F.	829					
	M.H.	491					
	TOTAL	4476	0.8172	3658	2.78	10167	0.09
RURAL ESTATES	S.F.	1400					
	DUP.						
	M.F.						
	M.H.	12					
	TOTAL	1412	0.9428	1331	3.19	4244	0.04

(1) Rounded off to nearest whole unit
(2) Rounded off to nearest 1/10

COMPOP84

COLLIER COUNTY HOUSEHOLDS AND RESIDENT POPULATION: APRIL 1, 1984

COMMUNITY	HOUSING TYPE	NUMBER OF HOUSING UNITS 1984	ESTIMATED PERCENT OCCUPIED YEAR-ROUND	NUMBER OCCUPIED HOUSING UNITS 1984 (1)	AVERAGE NUMBER OF PERSONS PER OCCUPIED UNIT 1984 (2)	ESTIMATED 1984 RESIDENT POPULATION	PERCENT OF TOTAL POPULATION
ROYAL PAKAPALM	S.F.	341					
	DUP.	12					
	M.F.	440					
	M.H.	817					
	TOTAL	1610	0.7648	1231	3.25	3997	0.04
CORKSCREW	S.F.	381					
	DUP.	6					
	M.F.	8					
	M.H.	372					
	TOTAL	767	0.9193	705	3.58	2522	0.02
IMMOKALEE	S.F.	2153					
	DUP.	278					
	M.F.	887					
	M.H.	1462					
	TOTAL	4780	0.8801	4207	2.94	12388	0.11
MARCO ISLAND	S.F.	2957					
	DUP.	138					
	M.F.	7084					
	M.H.	216					
	TOTAL	10395	0.3680	3825	2.21	8439	0.08
BIG CYPRESS	S.F.	69					
	DUP.						
	M.F.	7					
	M.H.	92					
	TOTAL	168	0.8242	138	2.31	320	.00
	UNINCORPORATED	53098	0.6682	35478	2.54	90071	0.82
	EVERGLADES CITY	292	0.5700	166	3.21	534	.00
	CITY OF NAPLES*	12726	0.6770	8616	2.08	17920	0.16
	SEASONAL UNITS**	1016				922	0.01
	COLLIER (TOTAL)	67132	0.6761	44260	2.42	109447	1.00

(1) Rounded off to nearest whole unit

(2) Rounded off to nearest 1/10

*Includes group housing and guest homes. Population estimate is April 1,1984

**In the 1980 Census Data vacant units intended for seasonal occupancy and vacant units held for migratory labor are excluded because of the difficulty of obtaining characteristic data for them. However, they are included in the total counts.

Source: COLLIER COUNTY PLANNING DEPARTMENT

COASTAL RIDGE WELL FIELD EQUIPMENT AND CONSTRUCTION

Well Number	Installation Date (Yr)	Well Diameter (inches)	Total Depth	Rated Capacity	Motor Horsepower	Motor Manufacturer	Pump Manufacturer
1	1958	8	90	350	7.5	Fairbanks-Morse	Fairbanks-Morse
2	1958	8	87	350	7.5	Fairbanks-Morse	Fairbanks-Morse
3	1958	8	89	350	7.5	Fairbanks-Morse	Fairbanks-Morse
4	1962	8	82	350	7.5	U. S. Motors	U. S. Pumps
5	1962	8	82	350	7.5	U. S. Motors	U. S. Pumps
6	1962	8	82	350	7.5	U. S. Motors	U. S. Pumps
7	1964	8	89	350	10.0	Continental	Peerless
8[1]	1964	8	80	350[3]	25.0	Diesel	
9	1964	8	87	350	10.0	U. S. Motors	U. S. Pumps
10[1]	1964	8	87	350[3]	25.0	Continental	Peerless
11	1965	8	87	350	15	U. S. Motors	U. S. Pumps
12	1965	8	83	350	15	U. S. Motors	U. S. Pumps
13	1965	8	83	350	15	U. S. Motors	U. S. Pumps
14	1965	8	83	350	15	U. S. Motors	U. S. Pumps
15	1965	8	83	350	15	U. S. Motors	U. S. Pumps
16	1968	10	80	350	20	Franklin	Worthington
17	1969	8	85	350	20	Franklin	Peerless
18	1969	8	85	350	20	Franklin	Peerless
19	1969	8	85	350	20	Franklin	Peerless
20	1969	8	85	350	20	Franklin	Peerless
21	1969	8	85	350	20	Franklin	Peerless
22	1969	8	85	350	20	Franklin	Peerless
23[2]	1971	8	85	350	20	Franklin	National
24[2]	1971	8	85	350	20	Franklin	National
25[2]	1971	8	85	350	20	Franklin	National
26[2]	1971	8	85	350	20	Franklin	National
27[2]	1971	8	85	350	20	Franklin	National
28[2]	1971	8	85	350	20	Franklin	National
29	1974	8	Unknown	350	30	Franklin	Peerless
30	1974	8	Unknown	350	30	Franklin	Peerless
31	1974	8	Unknown	350	30	Franklin	Peerless
32	1974	8	Unknown	350	30	Franklin	Peerless

CITY OF NAPLES

COASTAL RIDGE WELL FIELD EQUIPMENT AND CONSTRUCTION CON'T.

Well Number	Installation Date (Yr)	Well Diameter (inches)	Total Depth	Rated Capacity	Motor Horsepower	Motor Manufacturer	Pump Manufacturer
33	1974	8	Unknown	350	30	Franklin	Peerless
34	1974	8	Unknown	350	30	Franklin	Peerless
1A	1953	6	95.6	350	15	Allis-Chalmers	Allis-Chalmers
2A	New Well 1976	8	85	350	15	Deming	Deming-Crane Co.
3A	1954	6	76	350	15	Deming 1967	Deming-Crane Co.
4A	1956	6	73	350	7.5	Allis-Chalmers	Allis-Chalmers
5A	1956	6	Unknown	350	10.0	Allis-Chalmers	Allis-Chalmers
6A	1968	10	95	350	10.0	Franklin	Worthington
7A	1968	10	85	350	10.0	Franklin	Worthington
8A	1968	10	86	350	10.0	Franklin	Worthington
WP #2	1968	8	95	350	47.5	Ford Diesel	Gorman-Rupp

1 New auxiliary engine installed in 1983.
2 The motors for these wells replaced in 1983. Auxiliary generator power was installed in 1984.
3 500 gpm capacity, set at 350 gpm.

CITY OF NAPLES

EAST GOLDEN GATE WELL FIELD EQUIPMENT AND CONSTRUCTION

Well Number	Installation Date (Yr)	Well Diameter (inches)	Total Depth	Rated Capacity (gpm)	Motor Horsepower	Motor Manufacturer	Pump Manufacturer
1	1978	14	71	500	40	U. S. Motors	Goulds
2	1978	14	93	500	40	U. S. Motors	Goulds
3	1978	14	80	500	40	U. S. Motors	Goulds
4	1978	14	81	700	50	U. S. Motors	Goulds
5	1978	14	98	900	60	U. S. Motors	Goulds
6	1978	14	101	700	50	U. S. Motors	Goulds
7	1978	14	109	900	60	U. S. Motors	Goulds
8	1978	14	133	900	60	U. S. Motors	Goulds
9	1978	14	82	700	50	U. S. Motors	Goulds
10	1978	14	131	700	50	U. S. Motors	Goulds
11	1981	14	112	600	40	U. S. Motors	Goulds
12	1981	14	100	700	50	U. S. Motors	Goulds
13	1981	14	100	700	50	U. S. Motors	Goulds
14	1981	14	80	700	50	U. S. Motors	Goulds
15	1981	14	70	N/A	N/A	N/A	N/A
16	1981	14	137	1,000	60	U. S. Motors	Goulds
17	1981	14	117	1,000	60	U. S. Motors	Goulds
18	1981	14	100	1,000	60	U. S. Motors	Goulds

Note: Well No. 15 was constructed but not equipped because of poor yield.

COLLIER COUNTY GOLDEN GATE WELL FIELD

Well Number	Installation Date (Yr)	Well Diameter	Total Depth	Rated Capacity	Motor Horsepower	Motor Manufacturer	Motor Manufacturer
1	1984	12 in.	100	700 gpm	40	Siemens-Allis	Goulds
2	1984	12 in.	100	700 gpm	40	Siemens-Allis	Goulds
3	1984	12 in.	100	700 gpm	40	Siemens-Allis	Goulds
4	1984	12 in.	100	700 gpm	40	Siemens-Allis	Goulds
5	1984	12 in.	100	700 gpm	40	Siemens-Allis	Goulds

APPENDIX IV-3

ESTIMATED WATER USE OF THE LOWER TAMIAMI AQUIFER IN THE NAPLES AREA

MEMORANDUM

TO: William Scott Burns, Hydrogeologist, Groundwater Division

FROM: Raymond Burgess, Water Resource Engineer
Water Use Planning Division

DATE: August 27, 1985

SUBJECT: Data for the Coastal Ridge Flow Model in Collier County

The well flow data was acquired by communicating with the well user or compiling the data from information on the permit using data acquired from similar operations to estimate pumpage.

The well size or sizes and the flow, as indicated by the user, and the total hours of operation of the pumpage was used to determine the gallons pumped per day. If the user expressed the pumpage in gallons per month the total gallons per month was divided by 30 and expressed in GPD.

When the user expressed his total pumpage for wells for a given production area and he could not specify the well or wells used to supply the pumpage, the total pumpage was divided between each of the wells in the area when the GPM pumpage of the wells were known.

The procedure for acquiring the pumpage and type of usage is expressed following the data on the chart.

We are attaching a suggestive list for the District's consideration.

We will be available to present our raw data and explain the procedure for acquiring the data. We have acquired the best available data for past well pumpage. The reliability is questionable. In the future when it is known that a model study is to be done, we suggested that we would be given the opportunity to collect the flow data up front. However, we realize that this could not be done in this model study.

Most of the users did not have recorded information and much of the pumpage data was from their memory of crops grown, and in what specific area and the pumps used to provide water for their production.

This Division was pleased to be asked to assist with gathering the pumpage data.

RB:kh

Some suggestions the District might want to consider in the future:

When the well flow is indicated on the permit, secure the actual GPM from the installed system.

Request a yearly pumpage use from each well and the specific area the water is applied.

If a permit or modification is applied for and approved, stipulate a given time for the permit to be active. (There were several installations of wells which were applied for and were never drilled or used. I gave you a list of them. Trying to find those installations were very difficult).

We feel that data collection of the well pumpage would be advantageous to determine the available water for usage. This work should begin soon, in order that the data would be available for immediate and future studies.

AGRICULTURAL AND RECREATIONAL WATER USERS FROM THE LOWER TAMIAMI AQUIFER
IN THE NAPLES AREA

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00008				NAME: NAPLES BATH & TENNIS							
300	6"	#1	I16J12	45,000 0.02"/day	2.5	45,000 0.02"/day	2.5	90,000 0.04"/day	5.0	90,000 0.04"/day	5.0
Landscaping and tennis court. 80A The data was calculated from the permit.											
PERMIT NO.:11-00015				NAME: THE GLADES INC.							
RESOURCE CONTROL		#1	I26J14	9,021		13,964		18,188		17,625	
		#2	I26J14								
		#3	I26J14								
		#4	I26J14								
		#5	I27J14								
		#6	I27J14								
		#7	I27J14								
		#8	I27J14								
		#9	I27J14								
		#10	I27J14								
		#11	I27J14								
		#12	I27J14								
		#13	I27J14								
		#14	I28J14								
		#15	I28J14								
		#16	I28J14								
		#17	I28J14	9,021		13,964		18,188		17,265	

Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.: 11-00017				NAME: NAPLES, CITY OF							
		#1	I21J10	169,967		157,469		0		0	
		#2	I20J10	191,018		176,972		9,353		16,784	
		#3	I20J10								
		#4	I20J10								
		#5	I20J10								
		#6	I19J10	254,171		235,481		37,410		67,135	
		#7	I19J10								
		#8	I18J10								
		#9	I18J10								
		#10	I17J10								
		#11	I17J10								
		#12	I16J10								
		#13	I16J10								
		#14	I16J10								
		#15	I15J10	226,103		209,477				69,450	
RESOURCE		#16	I15J10								
CONTROL		#17	I15J10								
		#18	I14J10	198,035		183,473		38,700			
		#19	I14J10								
		#20	I14J11								
		#21	I13J11	169,967		157,469		37,410		67,135	
		#22	I13J11								
		#23	I12J10					38,700		69,450	
		#24	I12J10								
		#25	I12J10								

Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
		#26	I11J10	212,089		196,475		3,741		67,135	
		#27	I11J10	↓		↓		↓		↓	
		#28	I18J10	0		0		0		0	
		#29	I19J10	↓		↓		↓		↓	
		#30	I19J10	↓		↓		↓		↓	
		#31	I19J10	↓		↓		↓		↓	
		#32	I15J11	0		0		0		0	
		#33	I15J11	0		0		0		0	
		#34	I15J11	0		0		0		0	
		#35	I22J9	254,171		235,481		0		0	
		#36	I22J9	↓		↓		↓		↓	
		#37	I22J9	↓		↓		↓		↓	
		#38	I22J9	↓		↓		↓		↓	
		#39	I22J9	↓		↓		↓		↓	
		#40	I22J9	↓		↓		↓		↓	
		#41	I22J9	↓		↓		↓		↓	
		#42	I22J9	254,171		235,481		0		0	
		#43	I23J9	↓		↓		↓		↓	
		#44	I22J9	↓		↓		↓		↓	
		#45	I22J9	↓		↓		↓		↓	
		#46	I22J9	↓		↓		↓		↓	
PERMIT NO.:11-00020				NAME: THE GLADES INC.							
		#1	I26J13								
		#2	I26J13								
		#3	I26J13								
		#4	I26J13								
		#5	I26J13								
		#6	I26J13								
		#7	I26J13								
		#8	I26J13								
		#9	I27J13								
		#10	I27J13	167,403		320,645		388,908		672,857	

IV-19

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
		#11	I27J13	TOTAL PREVIOUS PAGE							
		#12	I27J13								
		#13	I27J13								
		#14	I27J13								
		#15	I27J13								
		#16	I27J13								
		#17	I27J13								
					0.14"/day		0.03"/day		0.03"/day		0.06"/day

Based on Water Shortage data. 435A
Could not determine which well or wells were used for the pumpage. The data was supplied on a total daily bases and not by wells.

PERMIT NO.:11-00019 NAME: HIGH POINT COUNTRY CLUB

500	8"	#1	I18J8	674	.1	597	.1	1,276	0.1	1,381	0.1
300	6"	#2	I18J8								
				0.002"day		0.0014"/day		0.003"/day		0.003"/day	

Based on Water Shortage data. 15A. An interview with the Superintendent. These figures are accurate because they were derived from metering readings. He stated he only pumped once or twice each month.

PERMIT NO.:11-00030 NAME: HOLE-IN-THE-WALL GOLF CLUB

520	8"	#1	I18J10	456,168	12.0	590,267	16.0	533,333	14.2	535,734	14.3
104	3"	#2	I18J10								
				0.09"/day		0.12"/day		0.11"/day		0.11"/day	

Based on Water Shortage data. 180A

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00052				NAME: PELICAN BAY IMP. DISTRICT							
		#1	I5J15	18,299		22,520		21,644		21,413	
		#2	I5J15	↓		↓		↓		↓	
		#3	I5J15	↓		↓		↓		↓	
		#4	I5J15	↓		↓		↓		↓	
RESOURCE		#5	I5J15	↓		↓		↓		↓	
CONTROL		#6	I6J15	↓		↓		↓		↓	
		#7	I6J15	↓		↓		↓		↓	
		#8	I6J15	↓		↓		↓		↓	
		#9	I6J15	↓		↓		↓		↓	
		#10	I6J15	18,299		22,520		21,644		21,413	
PERMIT NO.:11-00053				NAME: RIVIERA GOLF CLUB							
850	10"	#1	I28J16	249,748	4.9	278,070	5.5	172,072	3.4	364,323	7.1
				0.11"/day		0.12"/day		0.07"/day		0.16"/day	

Turf - sprinkler irrigation 85A
The monthly pumpage was supplied by the user. The total was divided by 30 (30 days/mo.) for each of the four months - GPD.

PERMIT NO.:11-00054				NAME: MOORINGS GOLF CLUB							
50	2"	#1	I20J8								
50	2"	#2	I20J8								
50	2"	#3	I20J8	0	0.0	233,000	7.8	242,748	8.1	185,920	6.2
350	4"	#4	I20J8								
						0.23"/day		0.24"/day	0.18"/day		

Based on Water Shortage data. 38A
The report gave the water pumped per day for the total of all wells.

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Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00057				NAME: WILDERNESS COUNTRY CLUB							
375	8"	#1	I19J10								
375	8"	#2	I20J10	358,328	5.3	449,952	6.7	158,571	2.3	248,582	3.7
375	8"	#3	I20J10								
				0.08"/day		0.10"/day		0.34"/day		0.54"/day	

Based on Water Shortage data. 170A.

PERMIT NO.:11-00058				NAME: IMPERIAL GOLF CLUB							
500	8"	#1	I4J12	432,000	14.4	432,000	14.4	720,000	24.0	720,000	24.0
				0.06"/day		0.06"/day		0.10"/day		0.10"/day	

Golf course - sprinkler irrigation. 260A
Repeat attempts to acquire data was fruitless. Estimated from pumpage and hours the pump could or should be operating per day. An 8" well capacity of 600 GPM x 60 min. x 12 hrs/day in September and October and 20 hrs/day in April and May was used to estimate the GPD. The ground was pumped into a lake for irrigating the landscape.

PERMIT NO.:11-00063				NAME: NAPLES GOLF & BEACH CLUB							
750	4"	#1	I23J8								
750	6"	#2	I23J8								
750	6"	#3	I23J8	700,400	5.2	774,000	5.7	324,129	2.4	540,968	4.0
750	6"	#4	I23J8								
750	8"	#5	I23J8								
				0.24"/day		0.27"/day		0.11"/day		0.19"/day	

Based on Water Shortage data. 107A
Wells #1 and #2 uses the same pump 750 GPM (pumping alternator)
Wells #3 & #4 uses the same pump 750 GPM (pumping alternator)
Well #5 uses 750 GPM pump.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00064				NAME: COUNTRY CLUB OF NAPLES							
200	6"	#1	I16J10								
1050	8"	#2	I16J10	101,667	0.7	120,581	0.9	390,000	2.8	314,516	2.2
1050	8"	#3	I16J10								
				0.03"/day		0.04"/day		0.12"/day		0.10"/day	

Golf course and landscaping - sprinkler irrigation system - The pumps discharge water into lakes to be used for irrigation water. 119A
September and October mailed in on form, April (22 days) and May called in pumpage. Data collected during field interview.

PERMIT NO.:11-00070				NAME: MANATEE FRUIT CO. (LANDMARK FARMS)							
800	8"	#1	I8J14	0	0.0	480,000	10.0	480,000	10.0	0	0.0
						0.74"/day		0.74"/day			

Vegetables - Flood irrigation 24A
GPD calculated from well pumpage and hours operated for October and April.

PERMIT NO.:11-00071				NAME: REGENCY (MANATEE FRUIT CO.)							
1200	10"	#1	I10J11	1,200,000	17.0	1,200,000	17.0	1,200,000	17.0	1,200,000	17.0
1000	8"	#2	I10J11	600,000	10.0	600,000	10.0	600,000	10.0	600,000	10.0
1000	8"	#3	I10J12	600,000	10.0	600,000	10.0	600,000	10.0	600,000	10.0
1000	8"	#4	I10J12	200,000	3.3	600,000	10.0	800,000	13.3	200,000	3.3
1000	8"	#5	I10J12	200,000	3.3	600,000	10.0	800,000	13.3	200,000	3.3
					0.44"/day		0.44"/day		0.63"/day		0.44"/day

Vegetables - Flood irrigation 233A
Pumpage expressed in hours, calculated in GPD.

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Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00086				NAME: COLLIER DEV. CORP.							
400	6"	#1	I29J13	0	0.0	0	0.0	120,000	5.0	0	0.0
600	8"	#2	I29J14	0	0.0	0	0.0	120,000	3.4	60,000	1.7
1000	8"	#3	I29J14	0	0	0	0	400,000	6.7	200,000	3.4
								0.20"/day		0.08"/day	

Vegetable - Flood irrigation 120A
There were no vegetables grown in September and October. In April the fields were flooded approximately twice weekly for an average of 5 hours/day for #1, 3 to 3½ hours/day for #2 and 6.7 hrs/day for #3 well. In May less water was required and the pump #1 was not used and the No. 2 well was used only 1½ to 2 hrs/day and pump #3 was used 3.4 hours/day.

PERMIT NO.:11-00087				NAME: REGENCY (COLLIER DEV. CORP).							
800	8"	#1	I10J1D	0	0.0	640,000	13	160,000	3.3	0	0.0
						0.78"/day		0.20"/day			

Vegetables - Flood irrigation 30A
The pumpage was expressed in hours of pumpage/month. Using pumpage rate and hours in operation the data is expressed in GPD.

PERMIT NO.:11-00089				NAME: M.R. COLLIER (JOHNSON FARMS)							
1000	8"	#1	I7J9	80,000	1.3	96,000	1.6	400,000	6.6	200,000	3.3
600	8"	#2	I7J9	0	0.0	0	0.0	120,000	3.3	60,000	1.7
400	6"	#3	I8J9	0	0.0	0	0.0	80,000	3.3	40,000	1.7
				0.02"/day		0.02"/day		0.13"/day		0.065"/day	

Vegetable - Flood irrigation 175A
The GPM pump capacity and hours of operation were used to determine the GPD application.
Little usage of irrigation during September and October. Probably Pump #1 delivered 4,000 GPD on September and 6,000 GPD in October 1984.
Pump #1 was operated approximately 200 hours in April and 100 hours in May.
Pump #2 was operated approximately 100 hours in April and 50 hours in May.
Pump #3 operated approximately 100 hours in April and was not operated in May.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00096				NAME: PINEWOOD DEVELOPERS (PINEWOODS)							
600	6"	#1	I17J12	45,000	1.2	45,000	1.2	90,000	2.2	90,000	2.2
				0.02"/day		0.02"/day		0.04"/day		0.04"/day	

Lawn irrigation - sprinkler system 80A
Data requested on 80/09/85 but received no reply.
Data was estimated as follows: The 6" well should produce 600 GPM (from permit file).
The data was compiled by using 67% of data reported from Country Club of Naples.

PERMIT NO.:11-00117				NAME: NFV CORP.							
800	8"	#1	I11J14	0	0	0	0.0	1,152,000	24.0	576,000	15 day/24 hr.
400	8"	#2	I11J15	0	0	0	0.0	422,400	22 day/24 hr.	192,000	10 day/24 hr.
800	8"	#3	I11J16	0	0	1,152,000	24.0	0	0.0	0	0.0
800	8"	#4	I11J16	0	0	0	0.0	0	0.0	0	0.0
800	8"	#5	I11J18	0	0	0	0.0	0	0.0	0	0.0
800	8"	#6	I11J19	0	0	0	0.0	0	0.0	0	0.0
800	8"	#7	I12J18	0	0	0	0.0	0	0.0	0	0.0
800	8"	#8	I12J19	0	0	0	0.0	0	0.0	0	0.0
800	8"	#9	I12J19	0	0	0	0.0	0	0.0	0	0.0
600	8"	#10	I13J18	0	0	864,000	24.0	0	0.0	0	0.0
800	8"	#11	I14J18	0	0	0	0.0	0	0.0	0	0.0
800	8"	#12	I14J18	0	0	1,152,000	24.0	0	0.0	0	0.0
800	8"	#13	I14J18	0	0	0	0.0	0	0.0	0	0.0
1000	14"	#14	I14J19	0	0	0	0.0	0	0.0	0	0.0
1000	14"	#15	I15J19	0	0	0	0.0	0	0.0	0	0.0
					0.52"/day			0.64"/day		0.64"/day	

Tomatoes - Flood irrigation (225A. Fall '84) (90A Spring '85)
Canal water was used for some irrigation in September and October. The GPM pumpage and hours in operation per day/month. The data is expressed in GPD.

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Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00118				NAME: PBA TEMPLE GROVE							
65	2"	#1	I13J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#2	I14J14	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#3	I14J14	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#4	I14J14	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
700	6"	#5	I14J15	378,000	9.0	756,000	18.0	756,000	18.0	756,000	18.0
65	2"	#6	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#7	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#8	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#9	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#10	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#11	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#12	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
65	2"	#13	I14J15	11,700	3.0	11,700	3.0	11,700	3.0	11,700	3.0
1000	8"	#14	I14J15	180,000	3.0	360,000	6.0	360,000	6.0	360,000	6.0
				0.09"/day		0.18"/day		0.18"/day		0.18"/day	

Citrus and Avocados - Low volume and flood irrigation systems 230A
The low volume GPD were determined by pump GPM and hours ran/day/mo. The flood system GPD were determined by well capacity x hours/day x % time operated per day divided by 30 days.

PERMIT NO.:11-00125				NAME: STALLINGS, ROYCE O.							
800	8"	#1	I15J13	192,000	4.0	144,000	3.0	288,000	6.0	96,000	2.0
800	8"	#2	I15J13	192,000	4.0	144,000	3.0	288,000	6.0	96,000	2.0
200	8"	#3	I16J13	0	0.0	0	0.0				
				0.13"/day		0.96"/day		0.19"/day		0.06"/day	

Trees - Drip and Flood irrigation systems. 110A
The drip is not in operation. Well #3 was not used. The GPM capacity of the pumps and the hours in operation per day provided the GPD usage of water.

Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00126				NAME: D. T. FARMS							
1000	8"	#1	I10J15	0	0.0	400,000	2.5	0	0.0	0	0.0
1000	8	#2	I10J15	0	0.0	0	0.0	0	0.0	0	0.0

Vegetables 60A 0.25"/day
Flood system
Used #1 pump for 200 hrs in October, 1984.
He expressed pumpage at 1,000 GPM.
1000 gpm x 60 min x 200 hrs ÷ 30 days = 400,000 GPD
No crops were grown in this area in 1985.

Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-000150				NAME: U.S. HOME CORP (LAKEWOOD C.C.)							
400	6"	#1	I28J14	0	0.0	0	0.0	381,428	8.0	0	0.0
400	6"	#2	I28J14	0	0.0	0	0.0	0	0.0	0	0.0
								0.26"/day			

Golf course - sprinkler irrigation. 53A
Wells used for recharging lake. Pumped 2,670,000 gallons first week of April, then he shut his pumps off.

Well GPM	Size	No.	Grid	1984 Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	1985 April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00157				NAME: MANATEE FRUIT CO. (D.T. FARMS, INC.)							
500	6"	#1	I8J14	0	0.0	300,000	10.0	0	0.0	0	0.0
700	8"	#2	I9J13	140,000	3.3	210,000	5.0	140,000	3.3	0	0.0
700	8"	#3	I9J14	0	0.0	0	0	0	0.0	0	0.0
800	8"	#4	I9J14	560,000	11.6	720,000	15.0	160,000	3.3	0	0.0
700	8"	#5	I9J14	490,000	11.6	630,000	15.0	0	0.0	0	0.0
				0.16"/day		0.24"/day		0.04"/day			

Vegetable
Flood System 282A
The well number and the number of hours operated was given and the calculations were obtained and so indicated for month.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00164				NAME: HARVEY BROS. FARM							
600	8"	#1	I10J19	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#2	I10J19	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#3	I10J19	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#4	I10J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#5	I10J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#6	I11J21	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#7	I11J22	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#8	I7J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#9	I7J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#10	I7J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#11	I7J21	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#12	I7J21	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#13	I8J21	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#14	I8J21	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#15	I9J19	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#16	I9J19	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#17	I9J19	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#18	I9J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
600	8"	#19	I9J20	113,684	3.2	181,894	5.0	682,105	18.9	7,578	0.2
				0.31"/day		0.32"/day		0.63"day		0.11/day	

Tomatoes - Potatoes
Flood System
He could not indicate what wells were used each month, however, he indicated how many wells were used and the number of hours of pumpage. The total water withdrawn was divided between the 19 wells. The average pumpage was 600 GPM.
600 gpm x 60 min x 12 hrs x 5 wells ÷ 19 wells = 113,684 GPD per well for September 1985 for 252A

600 x 60 x 12 x 8 ÷ 19 = 181,894 GPD /well for October 1984 for 404A.
600 x 60 x 24 x 15 ÷ 19 = 682,105 GPD/well for April 1985 for 758A.

Used little water in May probably 140,000 to 150,000 GPD total from all wells for 510A.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00167				NAME: WYNDEMERE HOLDINGS, INC.							
500	10"	#1	I18J16	0	0.0	0	0.0	0	0.0	0	0.0
500	10"	#2	I18J16	0	0.0	0	0.0	0	0.0	0	0.0

Based on Water Shortage data. 232A. The permittee was able to refill lakes from surface water. No groundwater was used.

PERMIT NO.:11-00170				NAME: PELICAN NURSERY							
200	4"	#1	I14J13	6,000	0.5	6,000	0.5	6,000	0.5	6,000	0.5
200	4"	#2	I14J13	19,375	1.6	25,574	2.2	33,018	2.8	37,208	3.1
500	6"	#3	I14J13	38,750	1.3	51,508	1.7	66,036	2.2	74,417	2.5
500	6"	#4	I14J13	38,750	1.3	51,508	1.7	66,036	2.2	74,417	2.5
200	6"	#5	I14J13	19,375	1.6	25,754	2.2	33,018	2.8	37,208	3.1
500	6"	#6	I14J13	38,750	1.3	51,508	1.7	66,036	2.2	74,417	2.5
				0.28"/day		0.36"/day		0.46"/day		0.52"/day	

Nursery - sprinkler, flood and low volume irrigation systems. 21A
The GPM of each well and the time in operation was used to determine the GPD. #1 well is used for bldgs. The monthly pumapge was supplied by the user.

PERMIT NO.:11-00175				NAME: G.A. SUTHERLAND (S&M FARM)							
500	6"	#1	I12J13	300,000	10.0	300,000	10.0	0	0.0	0	0.0
500	6"	#2	I12J13	0	0.0	0	0.0	0	0.0	0	0.0
500	6"	#3	I12J13	0	0.0	0	0.0	0	0.0	0	0.0
				0.46"/day		0.46"/day					

Vegetables - Flood 24A
Grew vegetables 1984 used 300 hrs each month. Calculated from pump capacity for hours in operation expressed in GPD.
No crops grown in 1985 irrigation season.

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Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00176 NAME: D.L. STONEBURNERS (STONEY CITRUS GROVE)											
700	8"	#1	I12J14	22,400	0.5	14,000	0.3	504,000	12.0	504,000	12.0
700	8"	#2	I12J14	22,400	0.5	14,000	0.3	504,000	12.0	504,000	12.0
					0.007"/day		0.004"/day	0.16"/day		0.16"/day	

Citrus-flood irrigation-twice weekly as required. 230A
Wells expressed in GPM x hours operated per month. The results is given in GPD.

PERMIT NO.:11-00180 NAME: A. L. LEINWEBER

800	8"	#1	I6J21	0	0.0	0	0.0	54,857	1.1	54,857	1.1
								0.10"/day		0.10"/day	

Nursery - sprinkler and hand application 20A

Did not use any irrigation in September and October. Operated his pump approximately 8 hours per week in April and May.

PERMIT NO.:11-00183 NAME: D.R.H. INC.

800	8"	#1	I6J22	0	0.0	0	0.0	68,571	1.4	68,571	1.4
								0.10"/day		0.10"/day	

Vegetables - Flood irrigation 25A
Did not use any irrigation in September and October. Operated his pump approximately 10 hours per week in April and May.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00193				NAME: MANCHESTER INVEST. INC.							
		#1	I3J18	Construction not begun							
		#2	I3J18								
		#3	I4J18								
		#4	I4J18								
		#5	I4J18								
PERMIT NO.:11-00196				NAME: MANCHESTER INVEST. INC.							
		#1	I23J21	Construction not begun							
PERMIT NO.:11-00199				NAME: MANLEY-KENT FARMS, INC.							
800	8"	#1	I14J14	400,000	8.3	400,000	8.3	400,000	8.3	400,000	8.3
				0.12"/day		0.12"/day		0.12"day		0.12"/day	
Vegetables - Flood irrigation system 120A											
GPD derived GPM pumpage x 250 hours per month for each of the four months.											
PERMIT NO.:11-00200				NAME: THE MOORINGS, INC.							
50	2"	#1	I16J10								
50	2"	#2	I17J10	37,617	3.1	44,615	3.7	144,300	12.0	116,370	9.6
50	2"	#3	I17J10								
50	2"	#4	I17J10								
				0.03"/day		0.04"/day		0.12"/day		0.10"day	

Landscaping - 44A sprinkler irrigation lakes recharged by wells. The pump capacity x hours per day in operation to determine the GPD for each pump at 37% of data reported from Country Club of Naples.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00210				NAME: WHISPERING PINES INC. (WINDSTAR)							
80	4"	#1	I29J12								
80	4"	#2	I29J12								
80	4"	#3	I29J12								
80	4"	#4	I29J12								
80	4"	#5	I29J12	40,000	0.8	50,000	1.0	0*	0.0	0*	0.0
80	4"	#6	I29J12								
80	4"	#7	I29J12								
80	4"	#8	I29J12								
80	4"	#9	I29J12								
80	4"	#10	I29J12								
54.16A				0.03"/day		0.04"/day					

The user pumped surface to irrigate his landscape and golf course with only supplementing the water requirement with ground water. The data submitted by permittee by request during the study.
*Did not pump from aquifer due to threat of salt water intrusion.

PERMIT NO.:11-00221				NAME: U.S. HOME CORP.							
		#1	I24J15	0	0.0	0	0.0	0	0.0	0	0.0

Did not use any groundwater for irrigation.

PERMIT NO.:11-00243				NAME: C.M.C. DEV. CORP (PAVILION SHOPPING CENTER)							
80	4"	#1	I9J8	19,200	4.0	19,200	4.0	28,000	6.0	28,000	6.0
				0.03"/day		0.03"/day		0.0047"/day		0.047"/day	

Landscaping - sprinkler irrigation 21.82A
Usage of GPM from pump and operating four hours/day in September and October and 6 hours/day in April and May.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.:11-00245				NAME: SMALLWOOD LANDSCAPING							
500	6"	#1	I13J12	5,820	0.2	8,728	0.3	11,637	0.4	11,637	0.4
				0.07"/day		0.11"/day		0.14"/day		0.14"/day	

Nursery - sprinkler irrigation 3A
The GPD were calculated from the pumpage capacity, the acreage involved in the operation, data from permit and pumpage based from other nurseries. These calculations were done without assistance from the user.

PERMIT NO.:11-00257 NAME: D.H. McCONVILLE (TREE PLATEAU CO. INC.)

	#1	I7J23
	#2	I7J23
	#3	I7J23
	#4	I7J23
	#5	I7J23

New operation was not in operation

PERMIT NO.:11-00260 NAME: COMMUNITY SCHOOL OF NAPLES, INC.

RESOURCE CONTROL	#1	I25J14
	#2	I15J14

PERMIT NO.:11-00265 NAME: DEV. CORP OF AMERICA

55	2"	#1	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#2	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#3	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#4	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#5	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#6	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#7	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#8	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#9	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
55	2"	#10	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#11	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#12	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#13	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#14	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#15	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#16	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#17	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#18	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#19	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#20	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#21	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#22	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#23	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
55	2"	#24	I20J22	3,300	1.0	3,300	1.0	3,300	1.0	3,300	1.0
				0.07"/day		0.07"/day		0.07"/day		0.07"/day	

We estimated irrigation one hour per day with 3300 gals/day per pump. 41.41A
The permit did not supply too much assistance with the estimation.

PERMIT NO.:11-00270 NAME: WIGGINS BAY ASSOC. LTD.

#1 I4J7 Not developed

PERMIT NO.:11-00312 NAME: NAPLES LAND YACHT HARBOR INC.

		#1	I27J11	Not using these wells							
		#2	I27J11								
		#3	I27J11								
		#4	I27J11								
400	6"	#5	I27J11	0	0.0	0	0.0	120,000	5.0	112,000	4.7
								0.22"/day		0.21"/day	

Landscaping - sprinkler irrigation. 20A
One - four pumps are not used any more. Pump #5 has a pumping capacity of 400 GPM and was not in operation in September and October, 1984. It was used in April (150 hrs) and May (140 hrs). The GPD was derived from pump cap. and operational hours.

Well				1984				1985			
GPM	Size	No.	Grid	Sept. GPD	Hrs. Pumped	Oct. GPD	Hrs. Pumped	April GPD	Hrs. Pumped	May GPD	Hrs. Pumped
PERMIT NO.: 11-00319				NAME: H.M. BUCKLEY & SONS, INC.							
250	6"	#1	I12J12		Backup pump						
300	6"	#2	I12J12	4,800	0.2	4,800	0.2	9,600	0.5	9,600	0.5
40	2"	#3	I12J12	4,800	2.0	4,800	2.0	9,600	4.0	9,600	4.0
40	2"	#4	I12J12	backup pump							
					0.06"/day		0.06"/day		0.12"/day		0.12"/day

Nursery - sprinkler irrigation 6.1A
Pumps #1 and #4 are back up pumps. The GPD was calculated by nursery from expressed hours of pumpage and pump GPM.

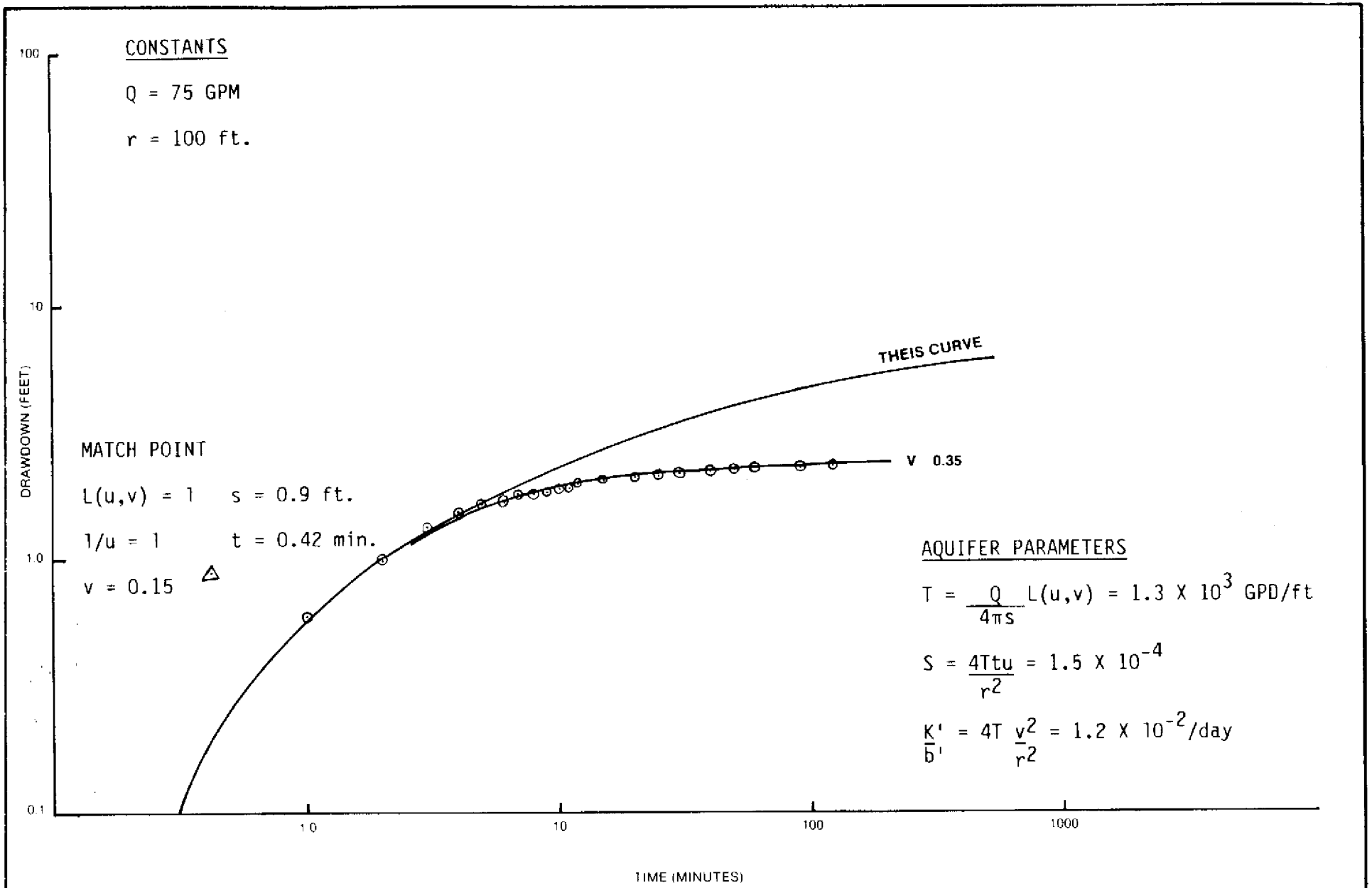
PERMIT NO.:11-00078 NAME: EDEN ISLAND NURSERY

I13J12 Out of Business

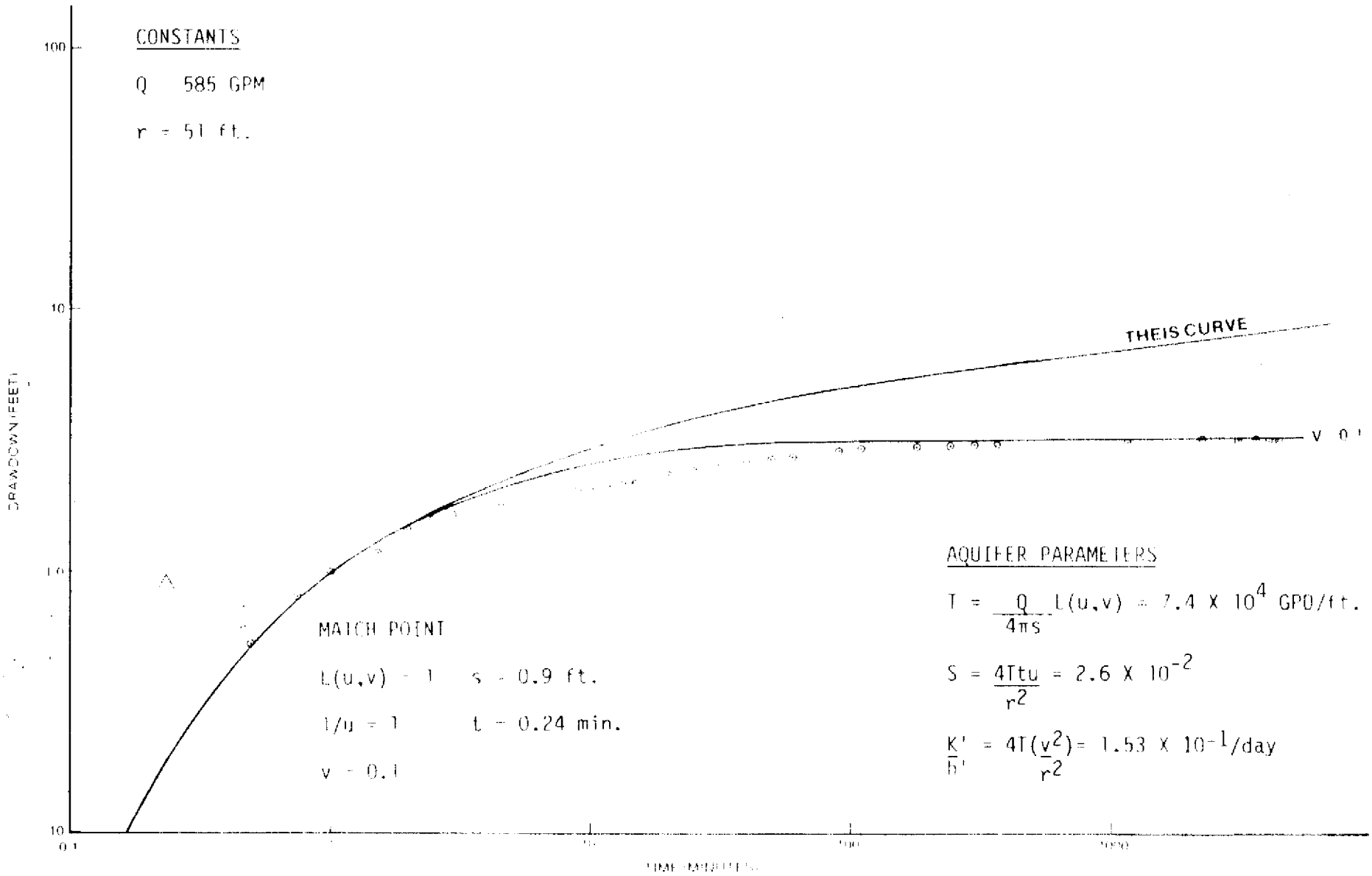
IV-35

APPENDIX IV-4

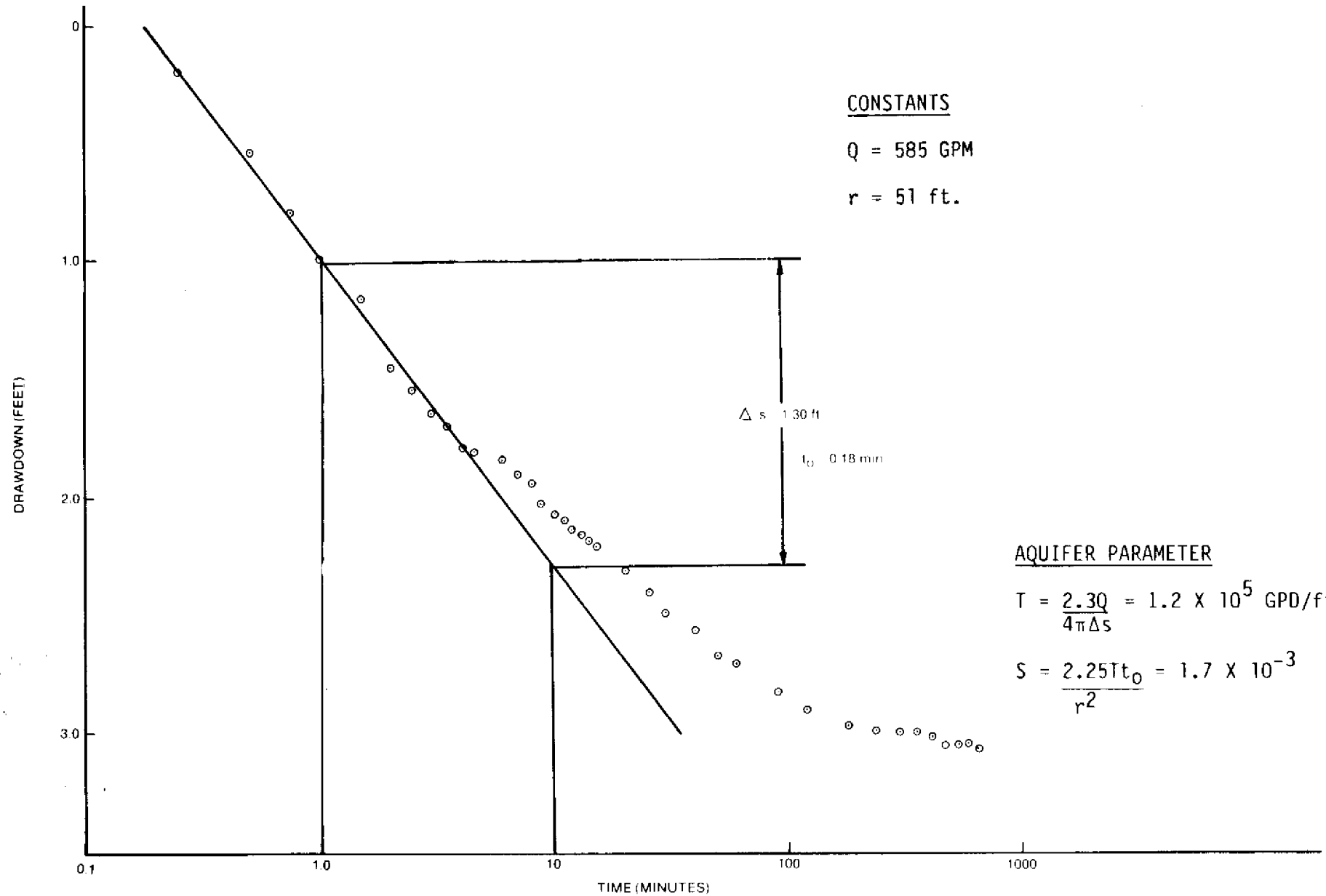
ANALYTICAL ANALYSES OF PUMPING TEST DATA



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2032-D/HANTUSH METHOD



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2032-I/HANTUSH METHOD



CONSTANTS

Q = 585 GPM

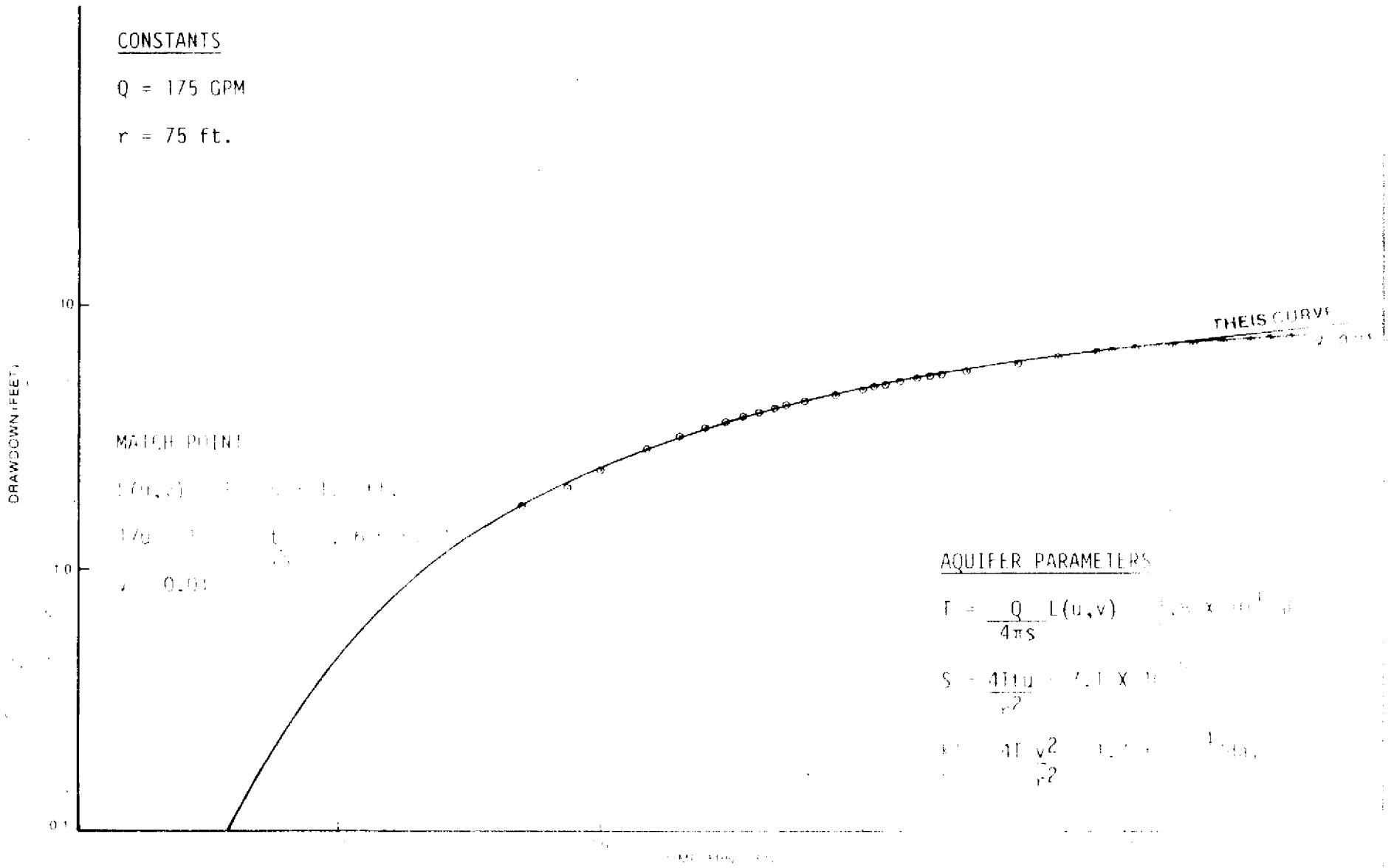
r = 51 ft.

AQUIFER PARAMETER

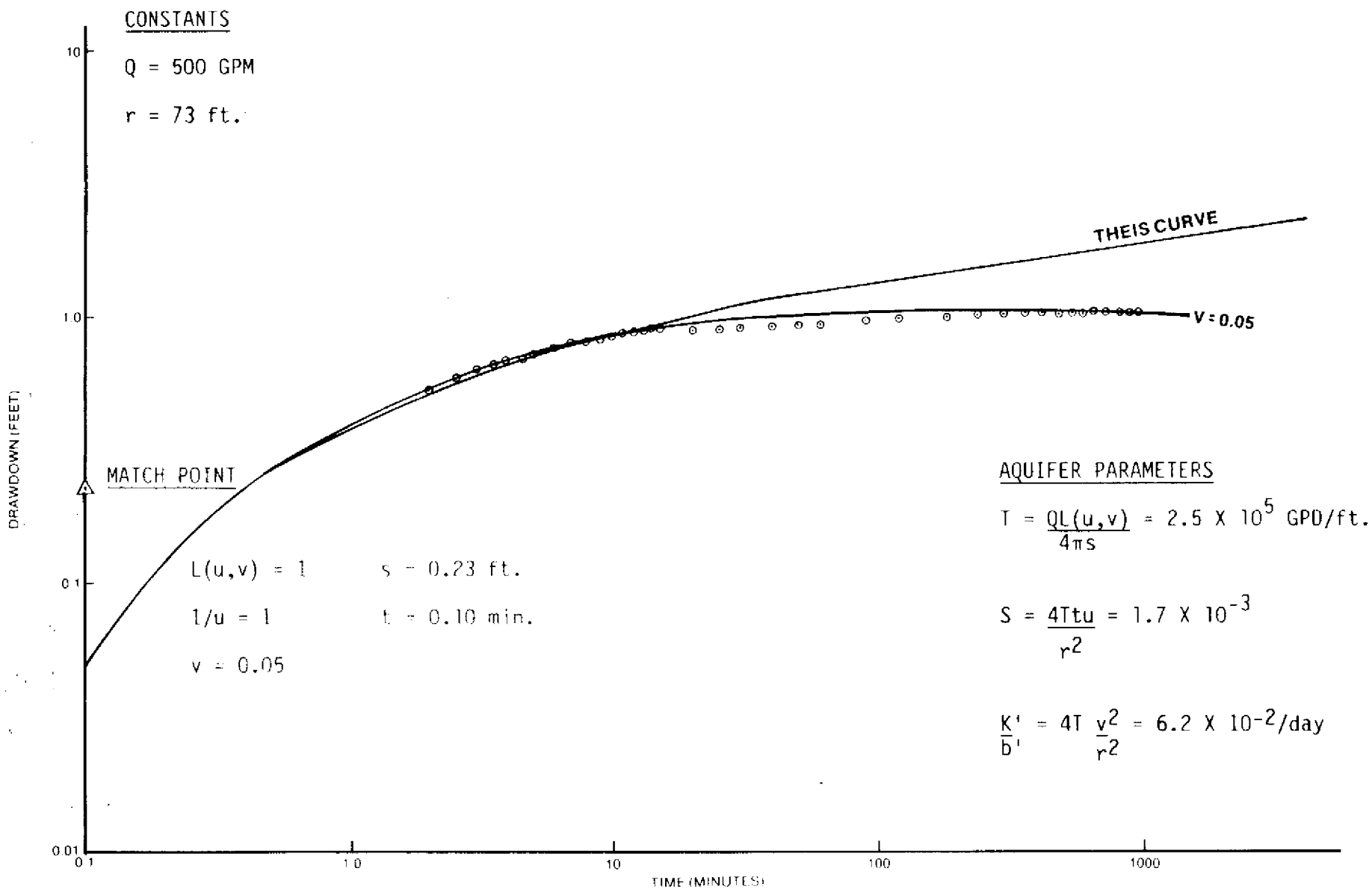
$$T = \frac{2.3Q}{4\pi\Delta s} = 1.2 \times 10^5 \text{ GPD/ft.}$$

$$S = \frac{2.25Tt_0}{r^2} = 1.7 \times 10^{-3}$$

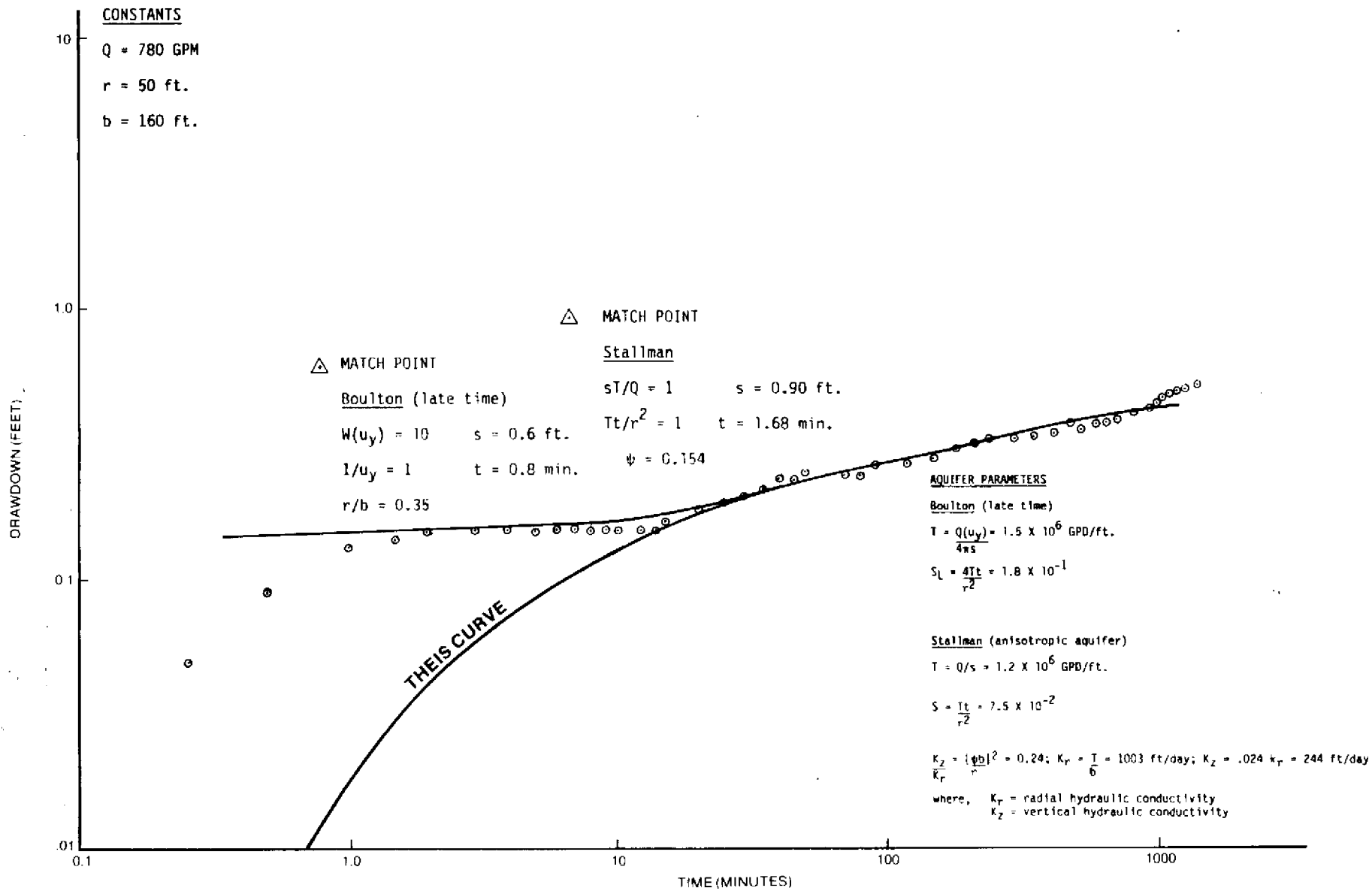
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2032-I/JACOB METHOD



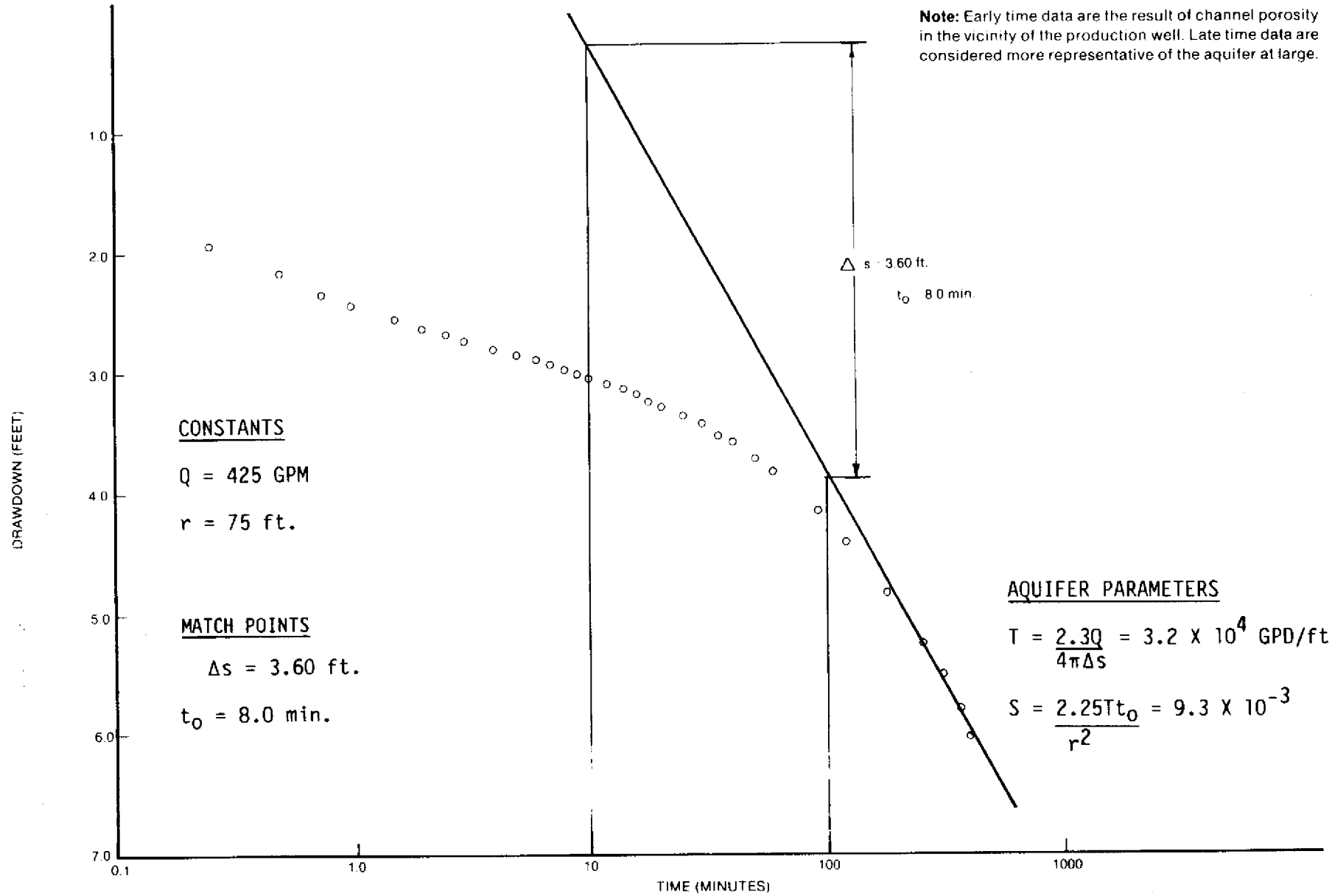
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2032 M'HANTUSH METHOD



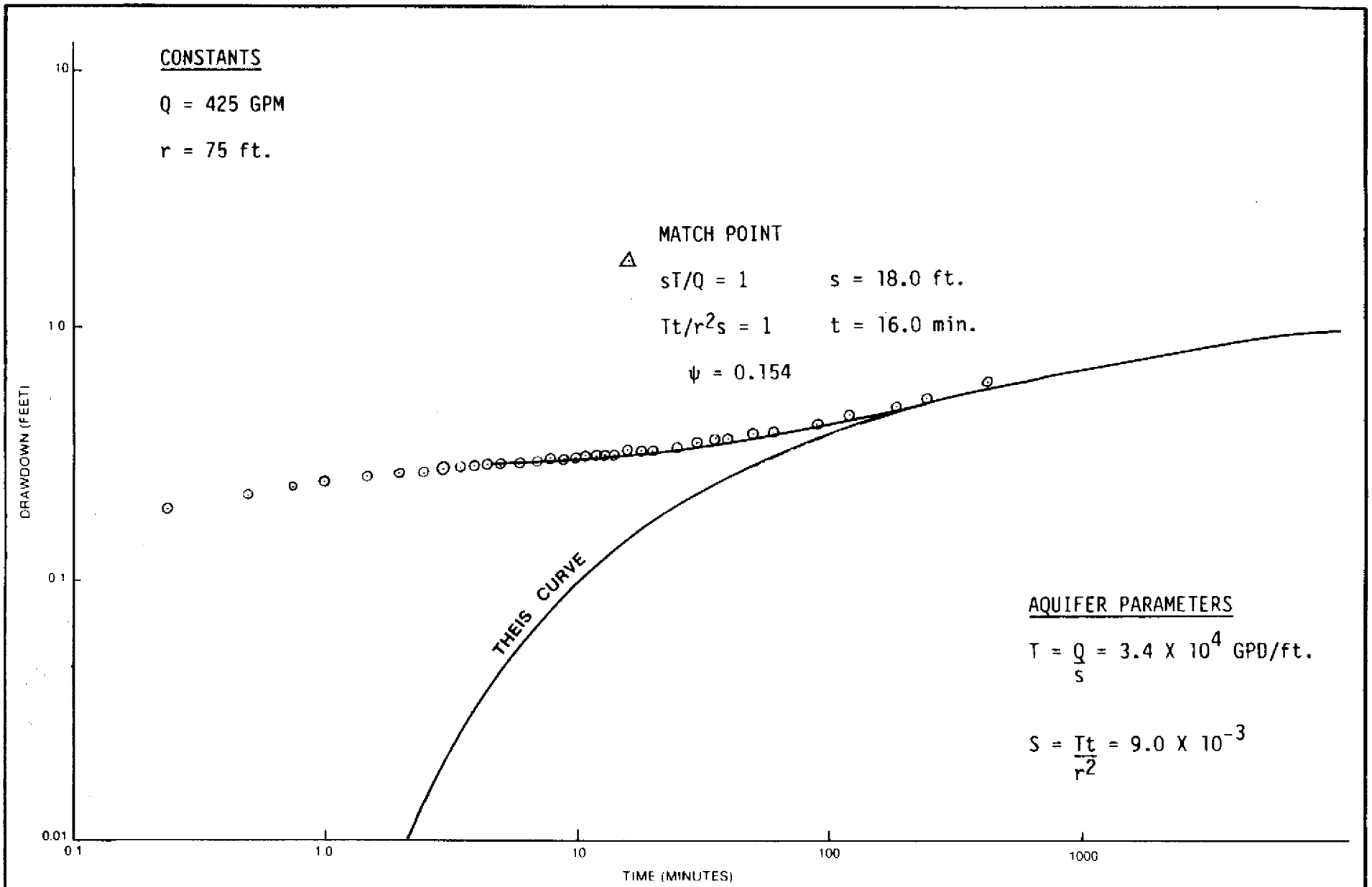
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2032-S/HANTUSH METHOD (r = 73 ft.)



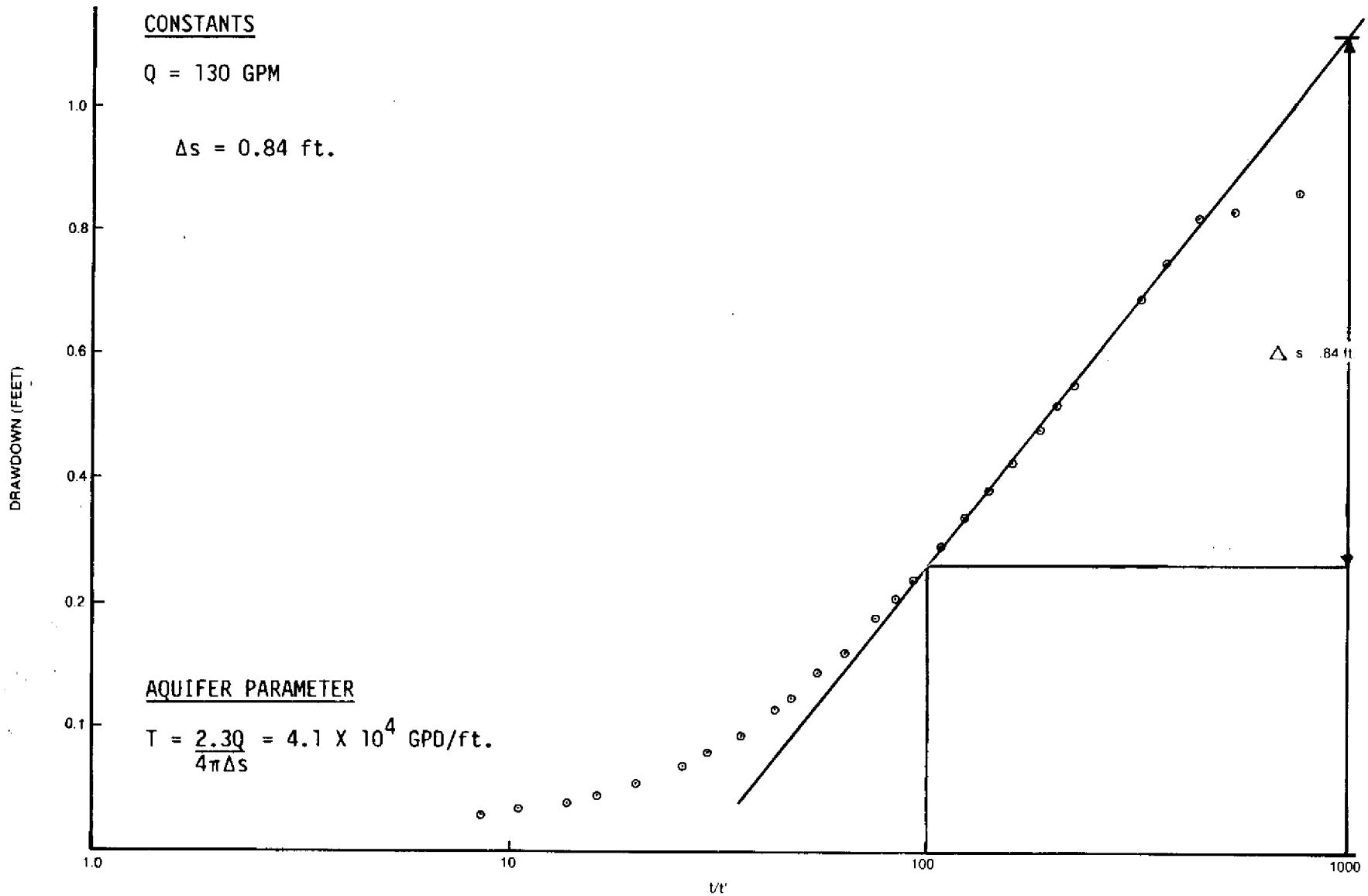
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2033-I/BOULTON AND STALLMAN METHODS



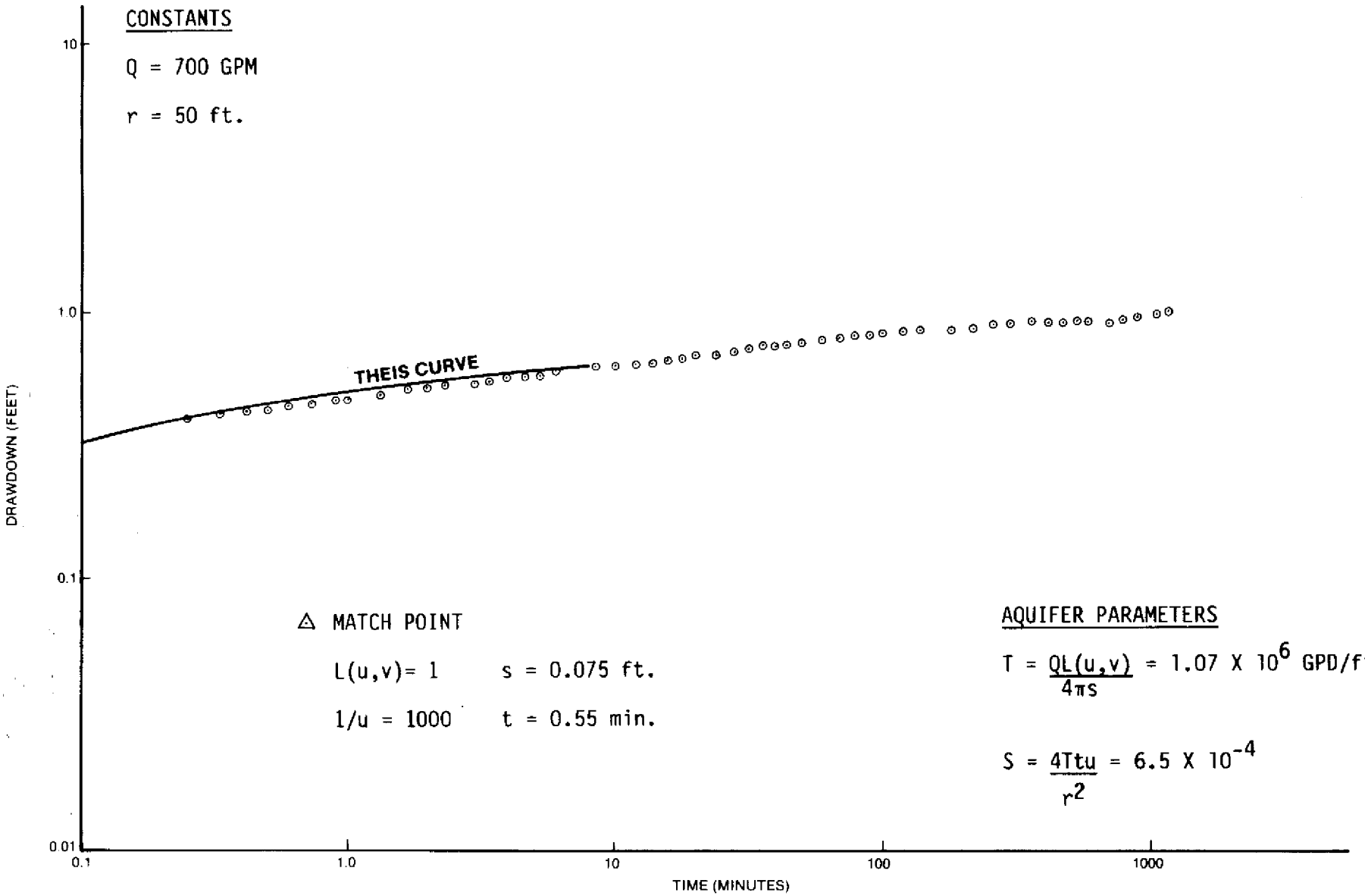
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2033-M/JACOB METHOD



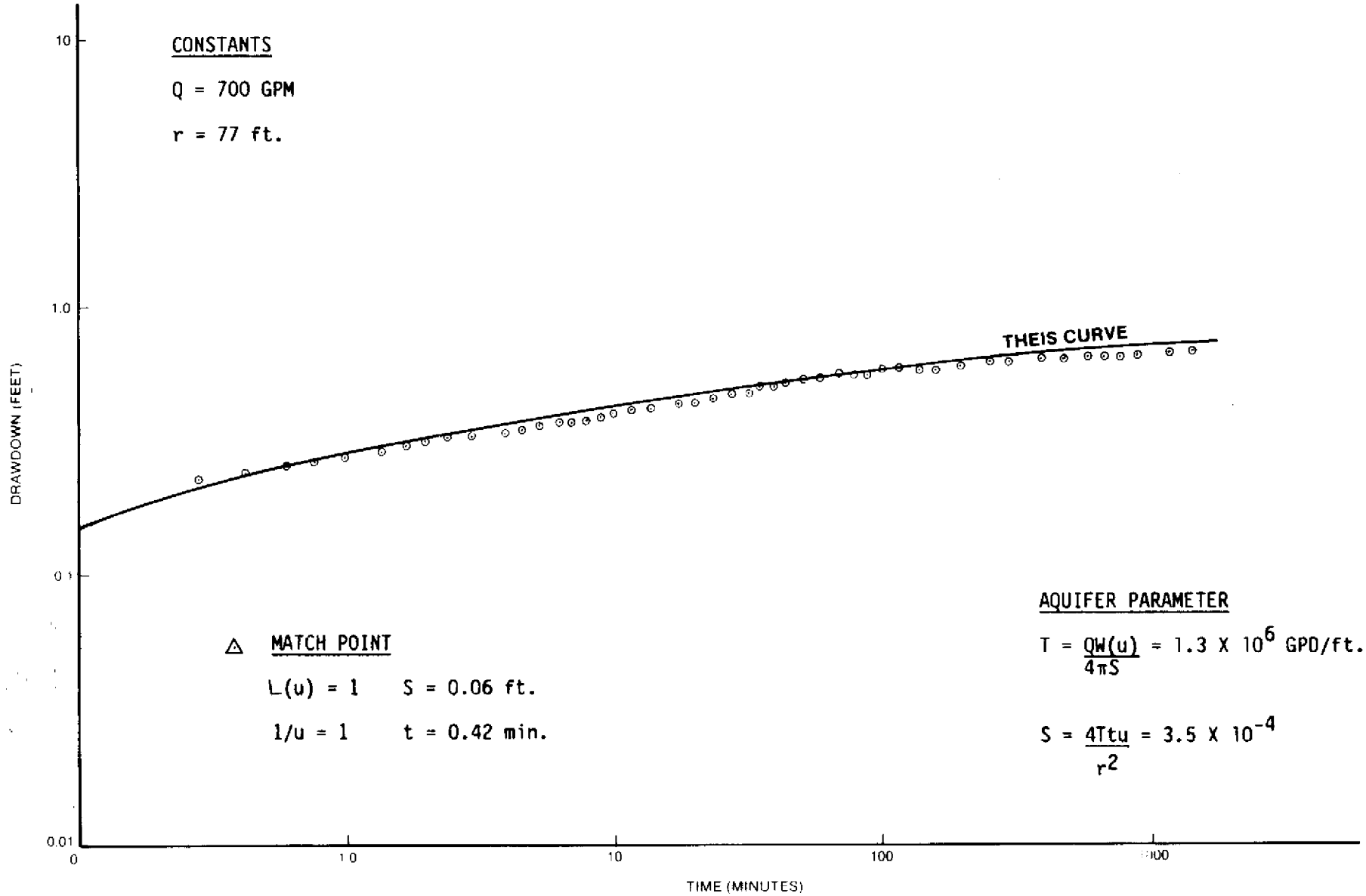
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2033-M/STALLMAN METHOD



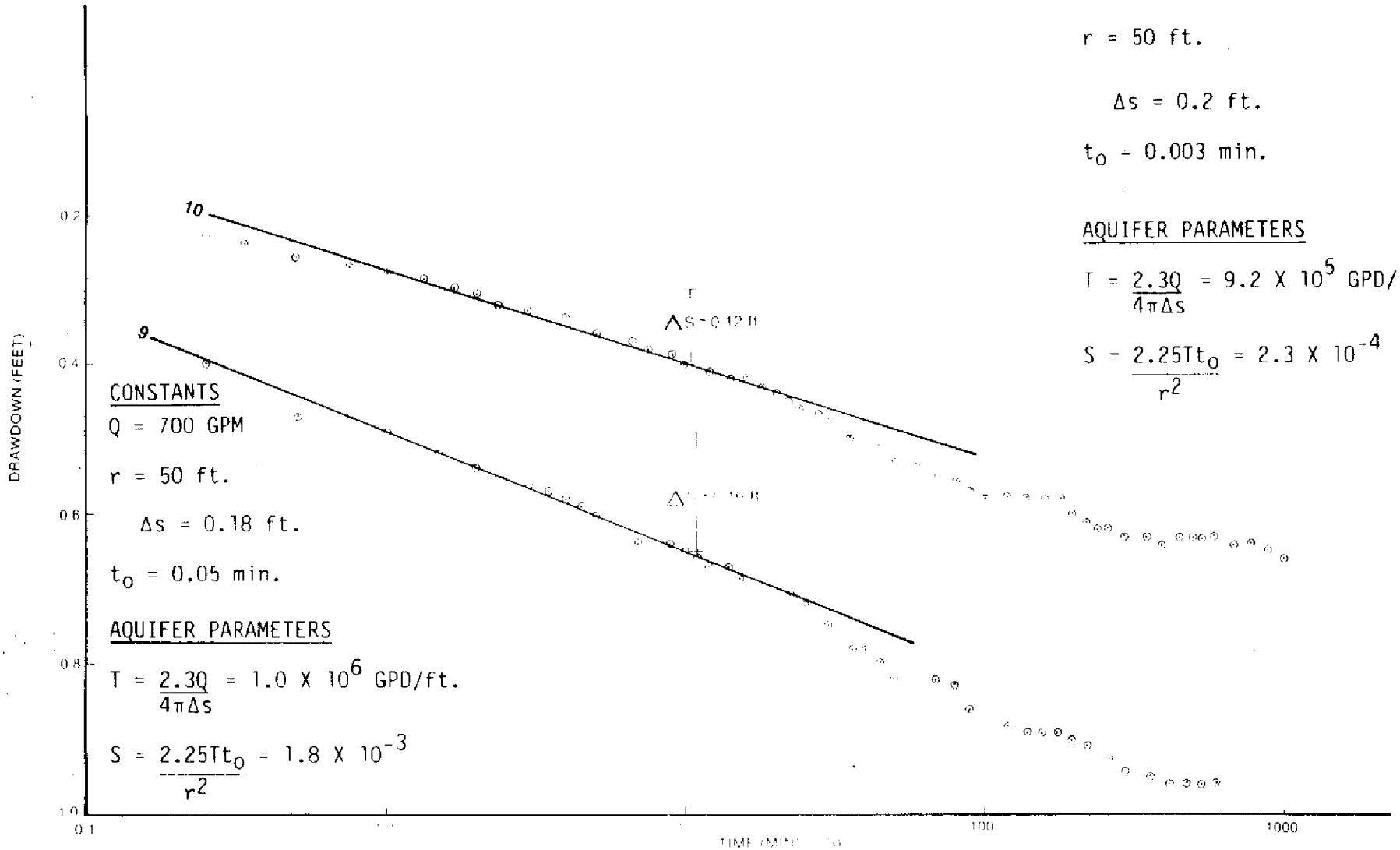
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-I/JACOB RECOVERY METHOD



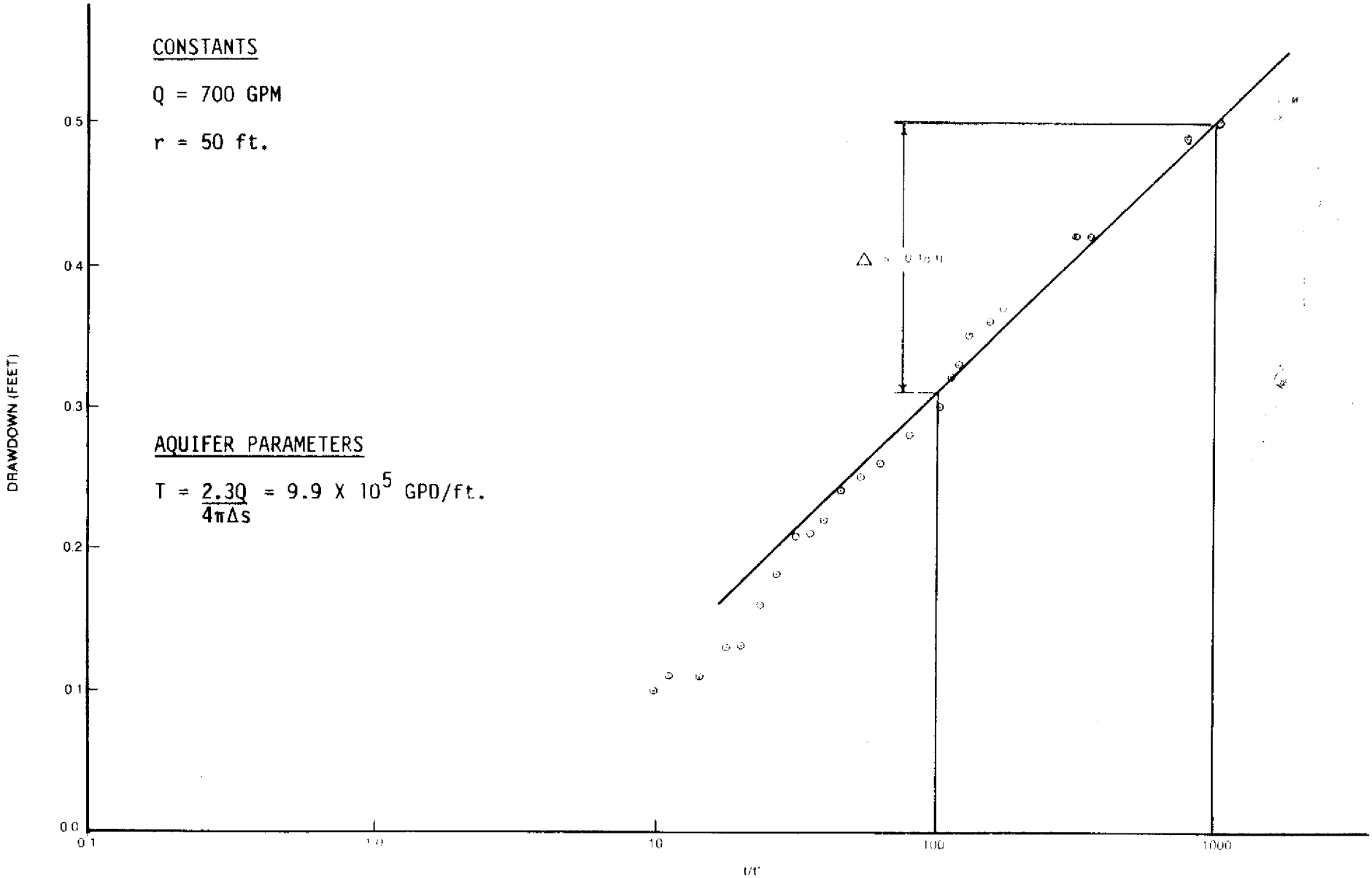
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-S/HANTUSH METHOD



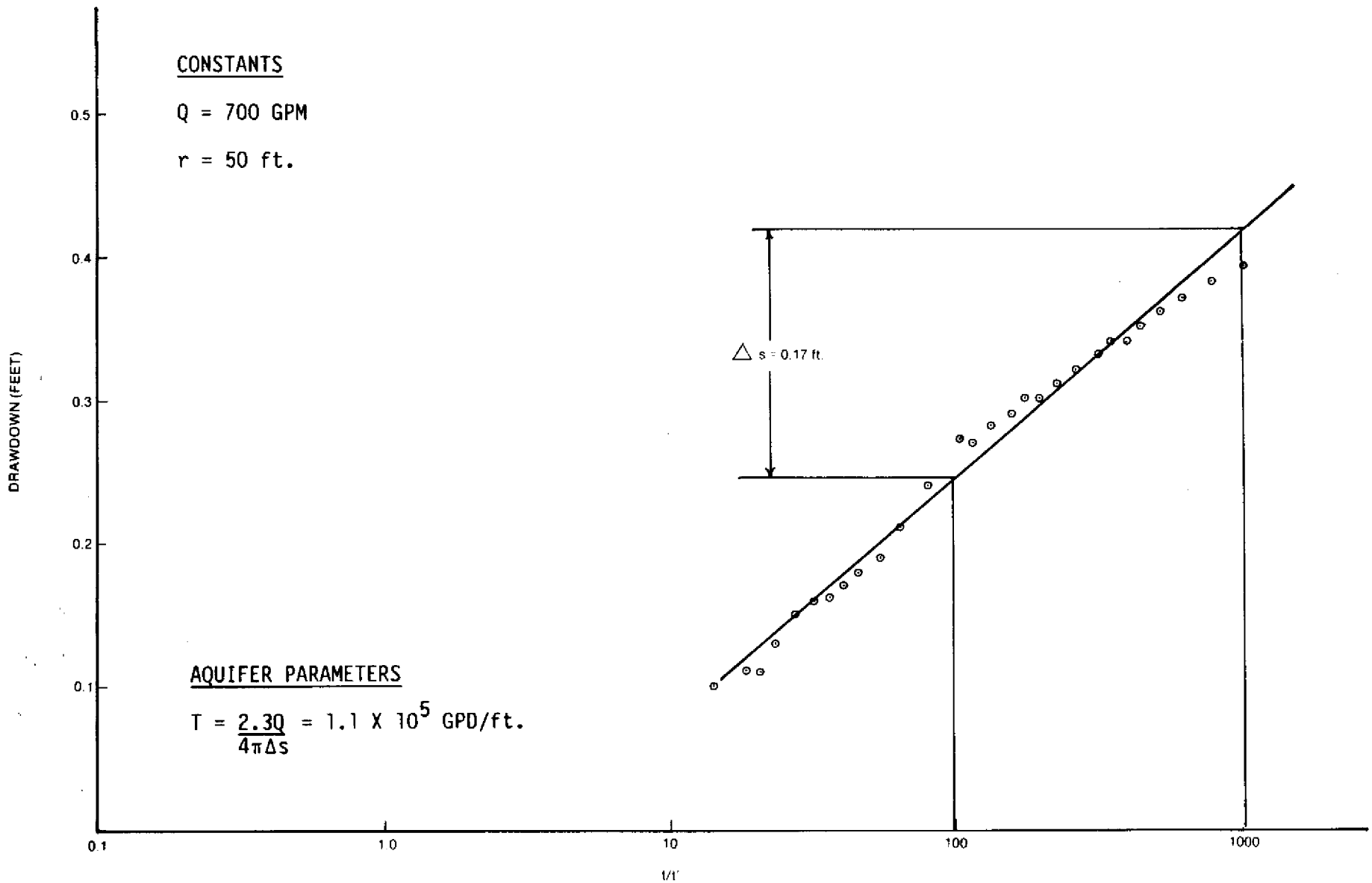
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-S/HANTUSH METHOD



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-S/JACOB METHOD



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-S/JACOB RECOVERY METHOD (r = 50 ft.)

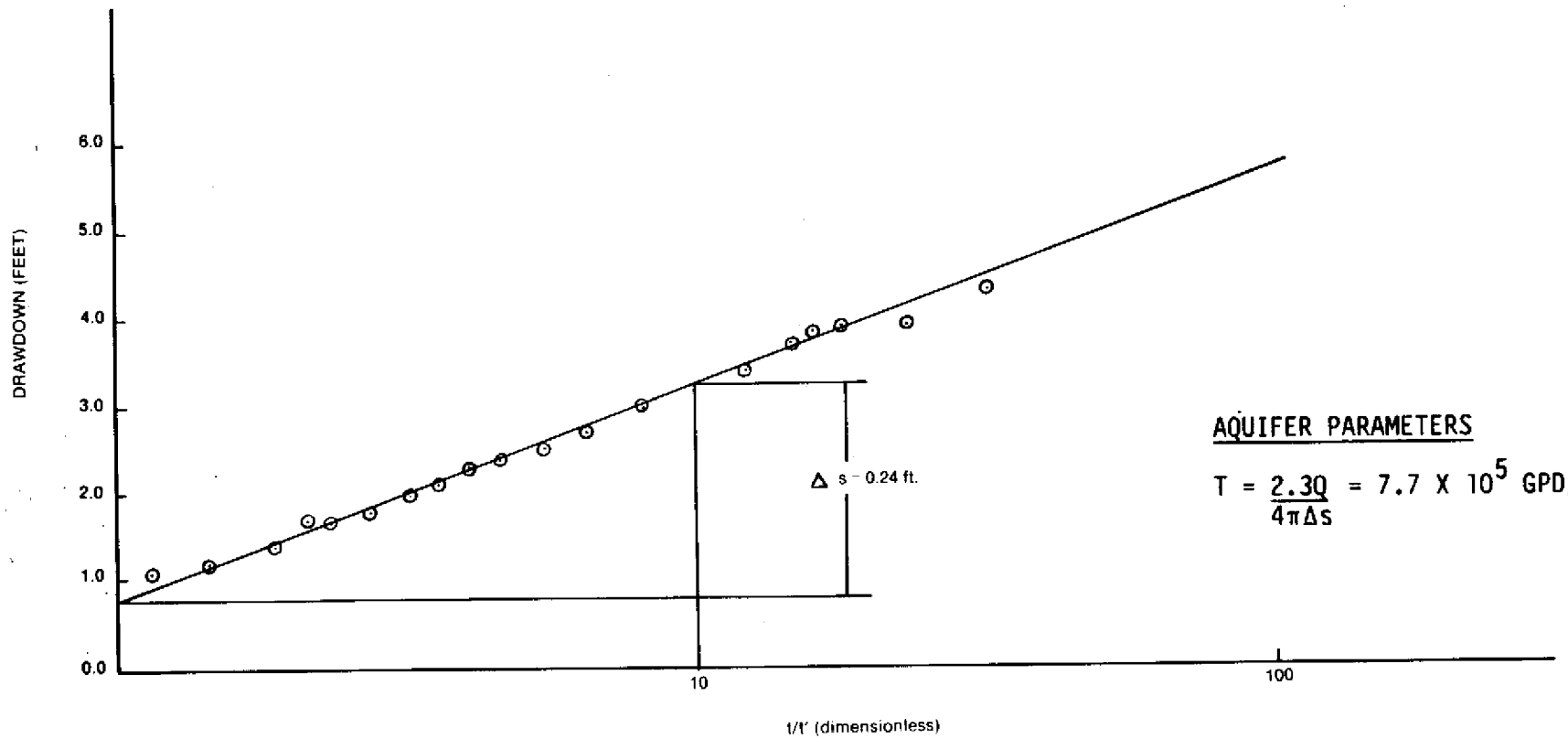


ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-S/JACOB RECOVERY METHOD (r = 77 ft.)

CONSTANTS

Q = 700 GPM

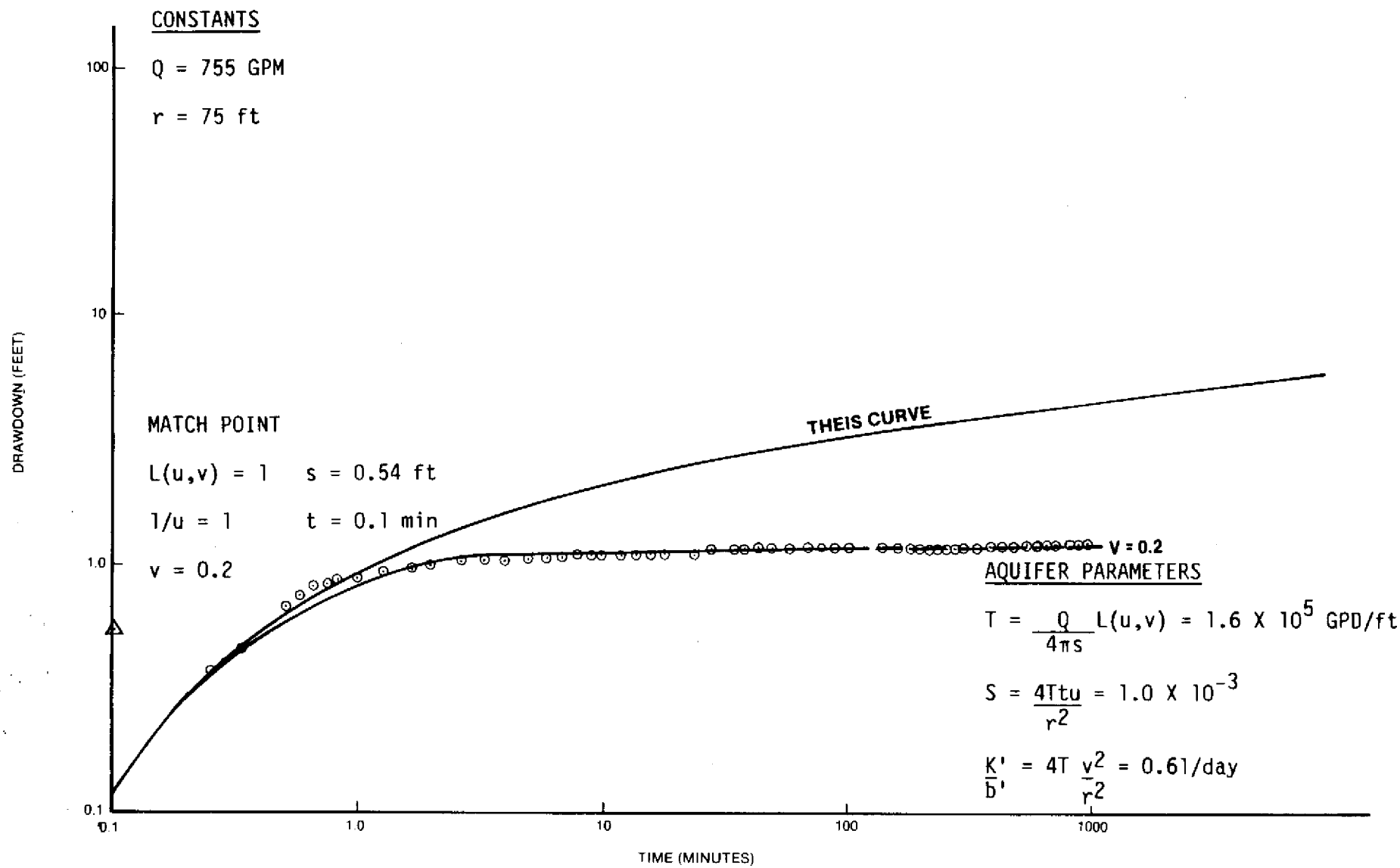
r = 50 ft.



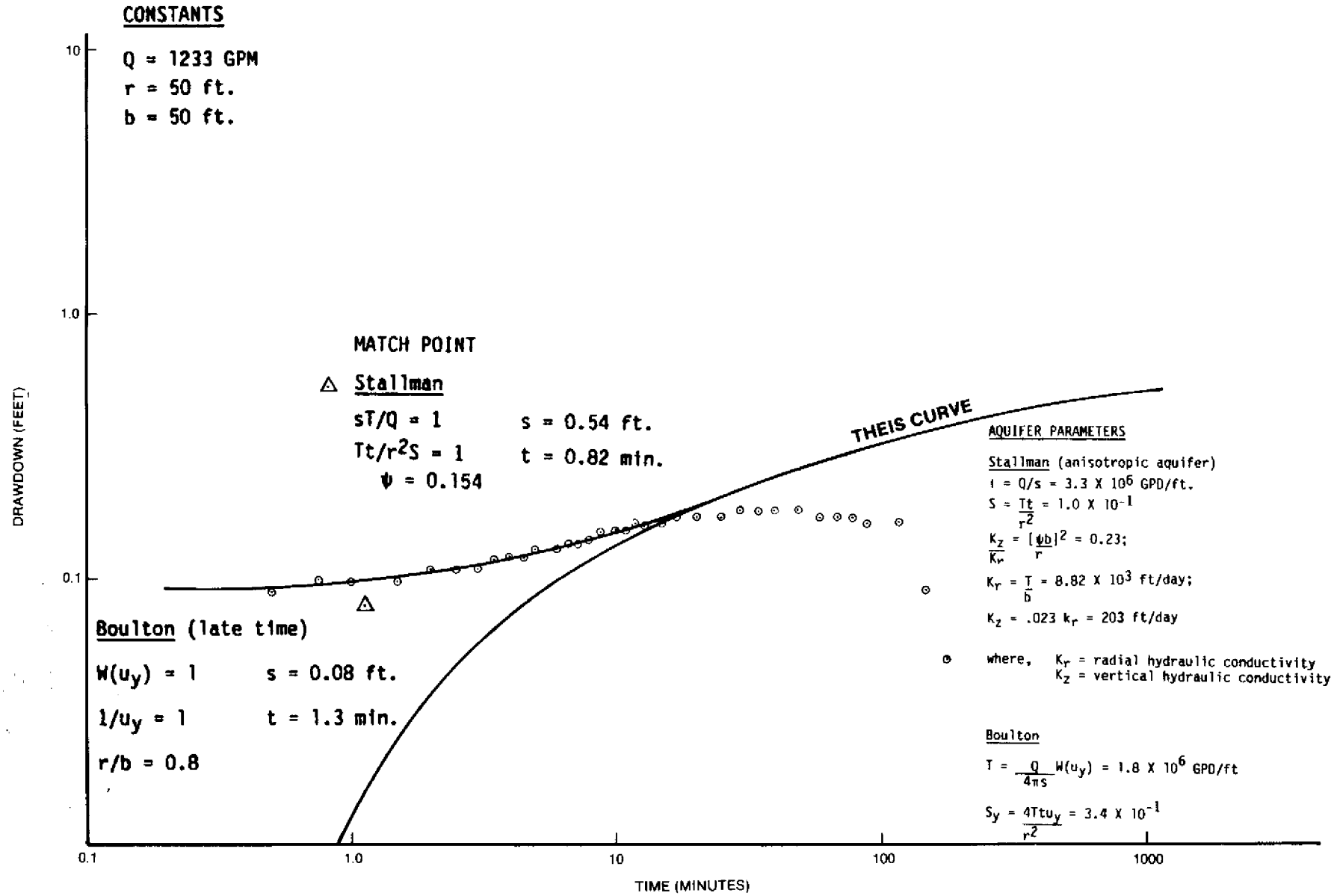
AQUIFER PARAMETERS

$$T = \frac{2.3Q}{4\pi\Delta s} = 7.7 \times 10^5 \text{ GPD/ft.}$$

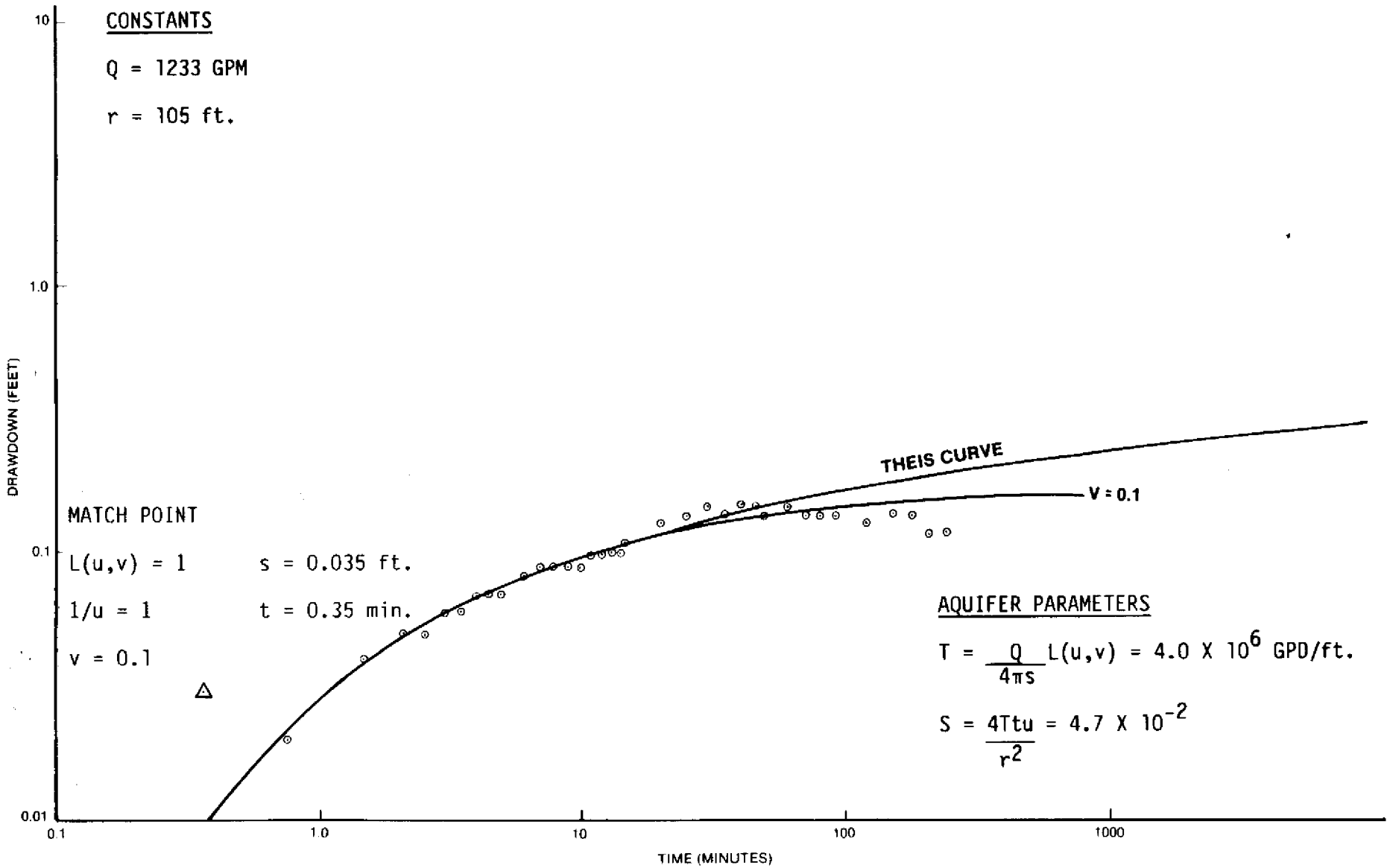
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2034-S/JACOB PUMPED WELL RECOVERY



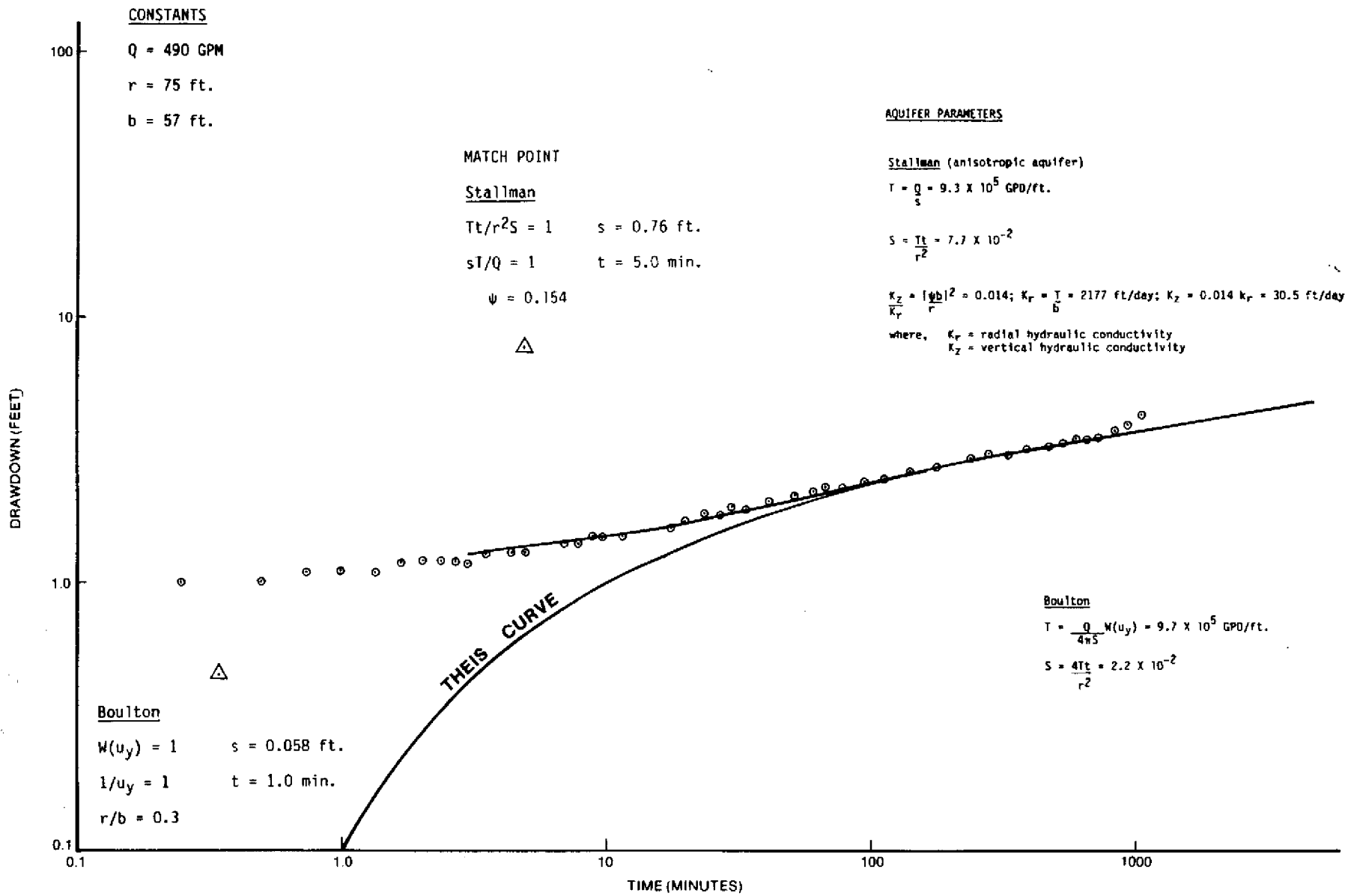
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2035-I/HANTUSH METHOD



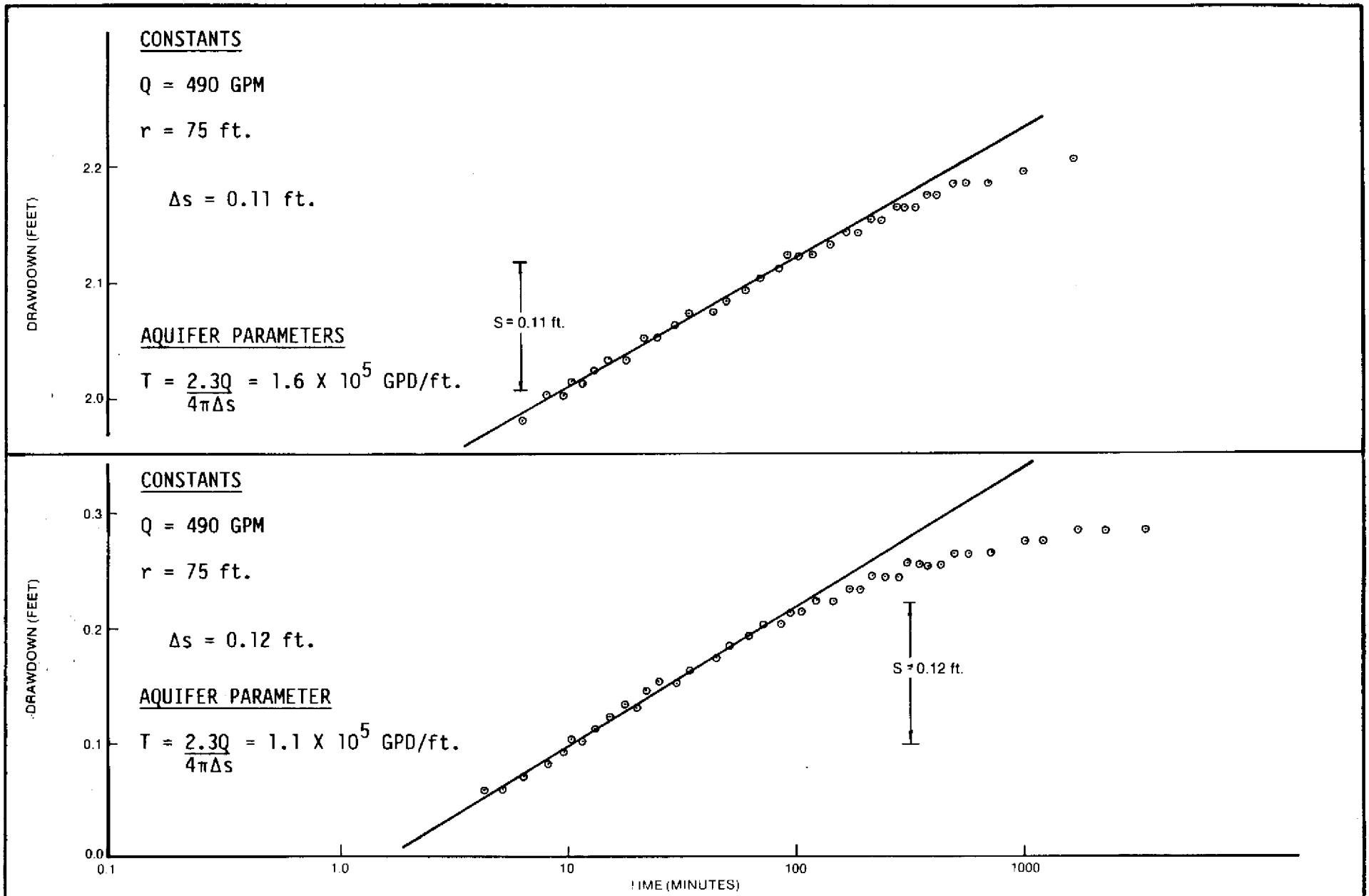
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2035-S/BOULTON AND STALLMAN METHODS



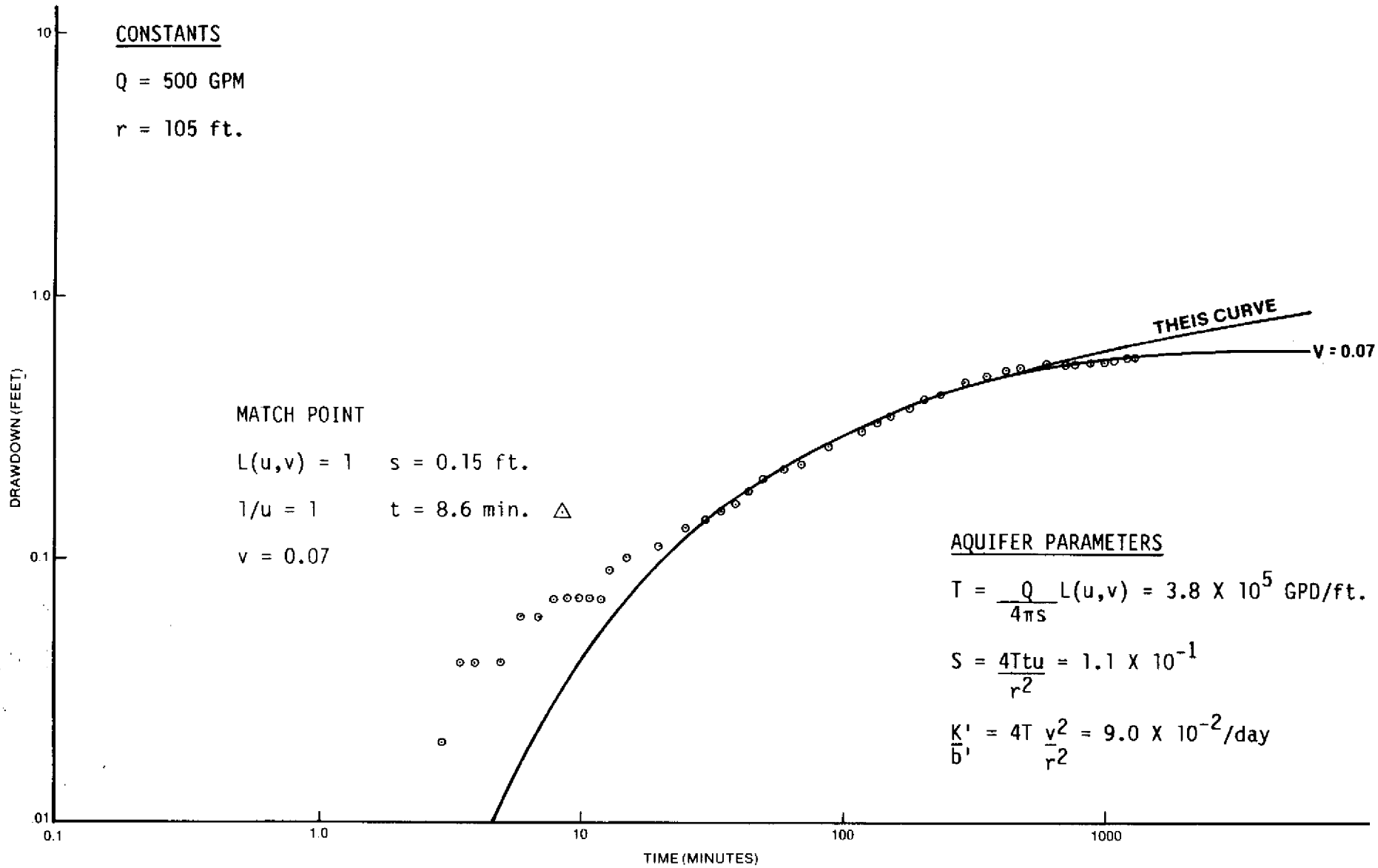
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2035-S/HANTUSH METHOD



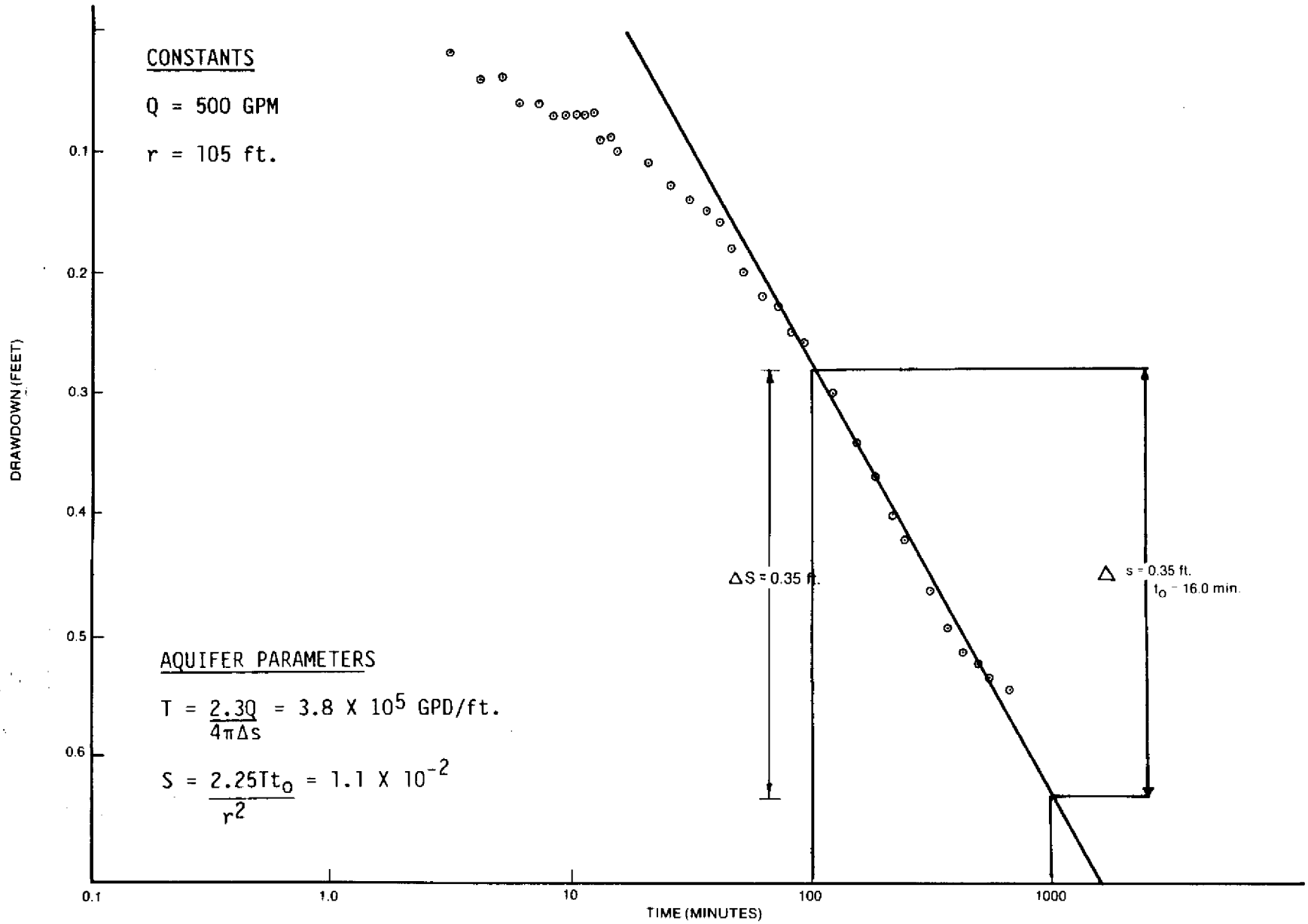
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2037-S/BOULTON AND STALLMAN METHODS



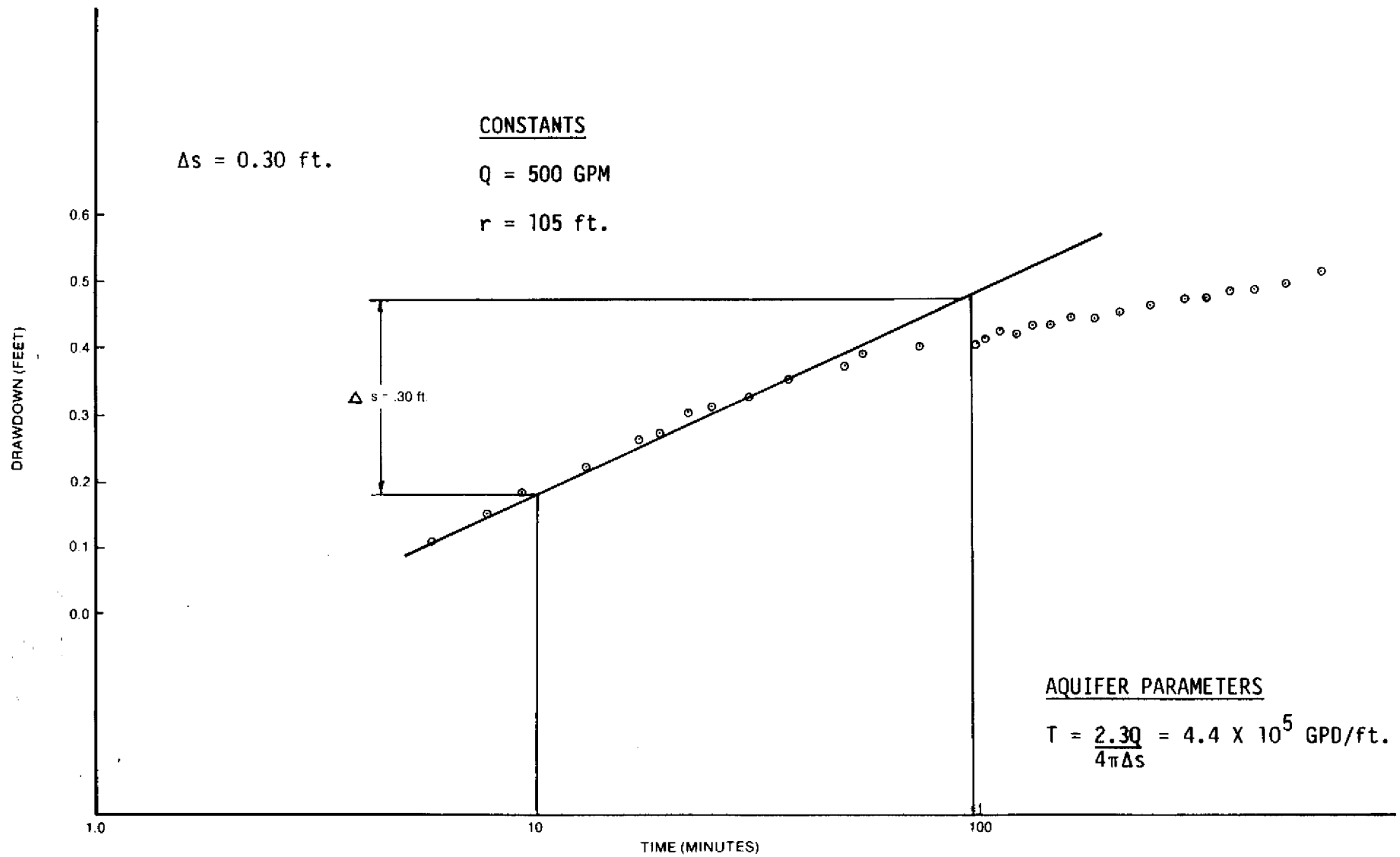
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2037-S/JACOB RECOVERY METHOD



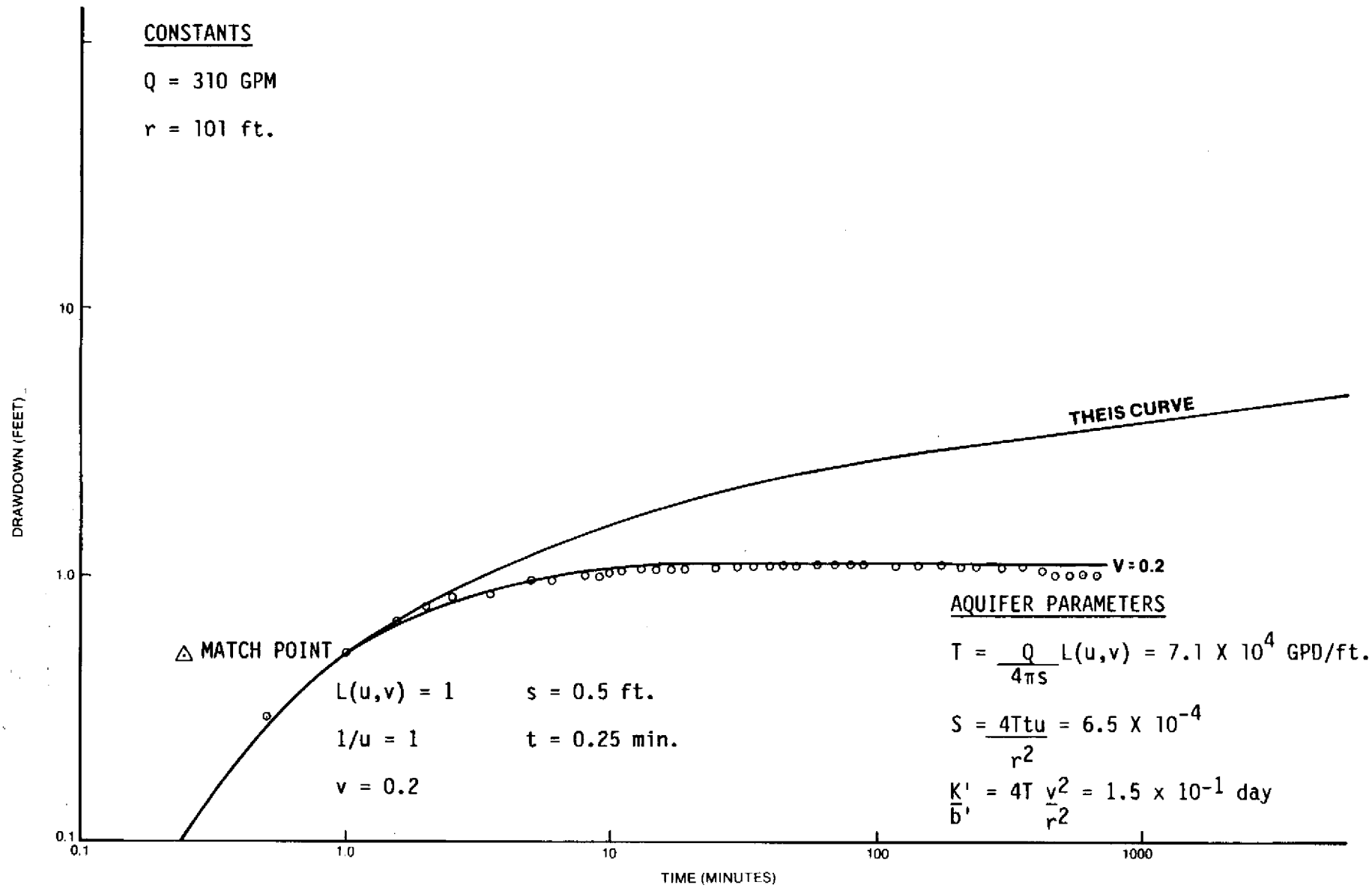
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2038-I/HANTUSH METHOD



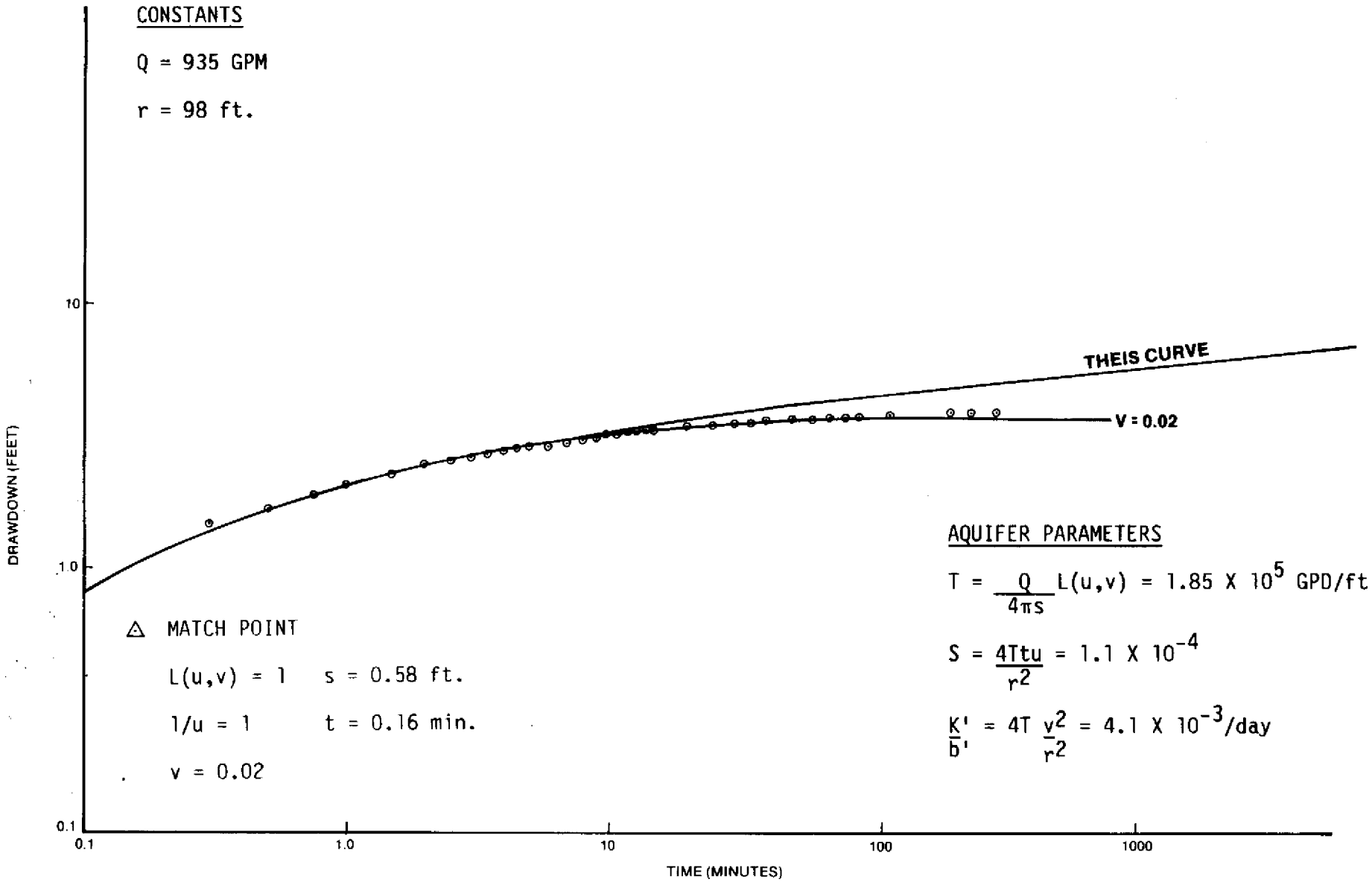
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2038-I/JACOB METHOD



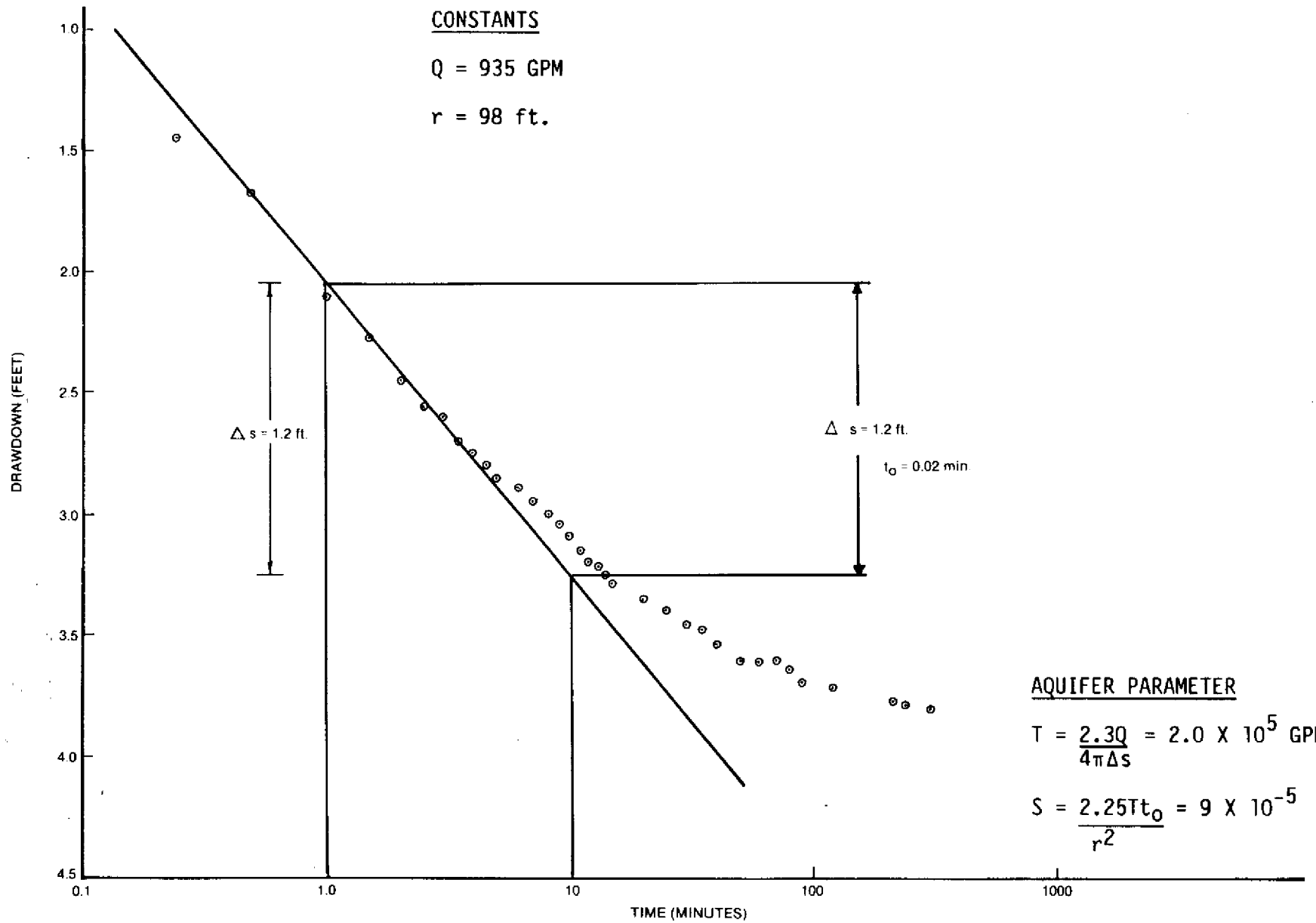
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2038-I/JACOB RECOVERY METHOD



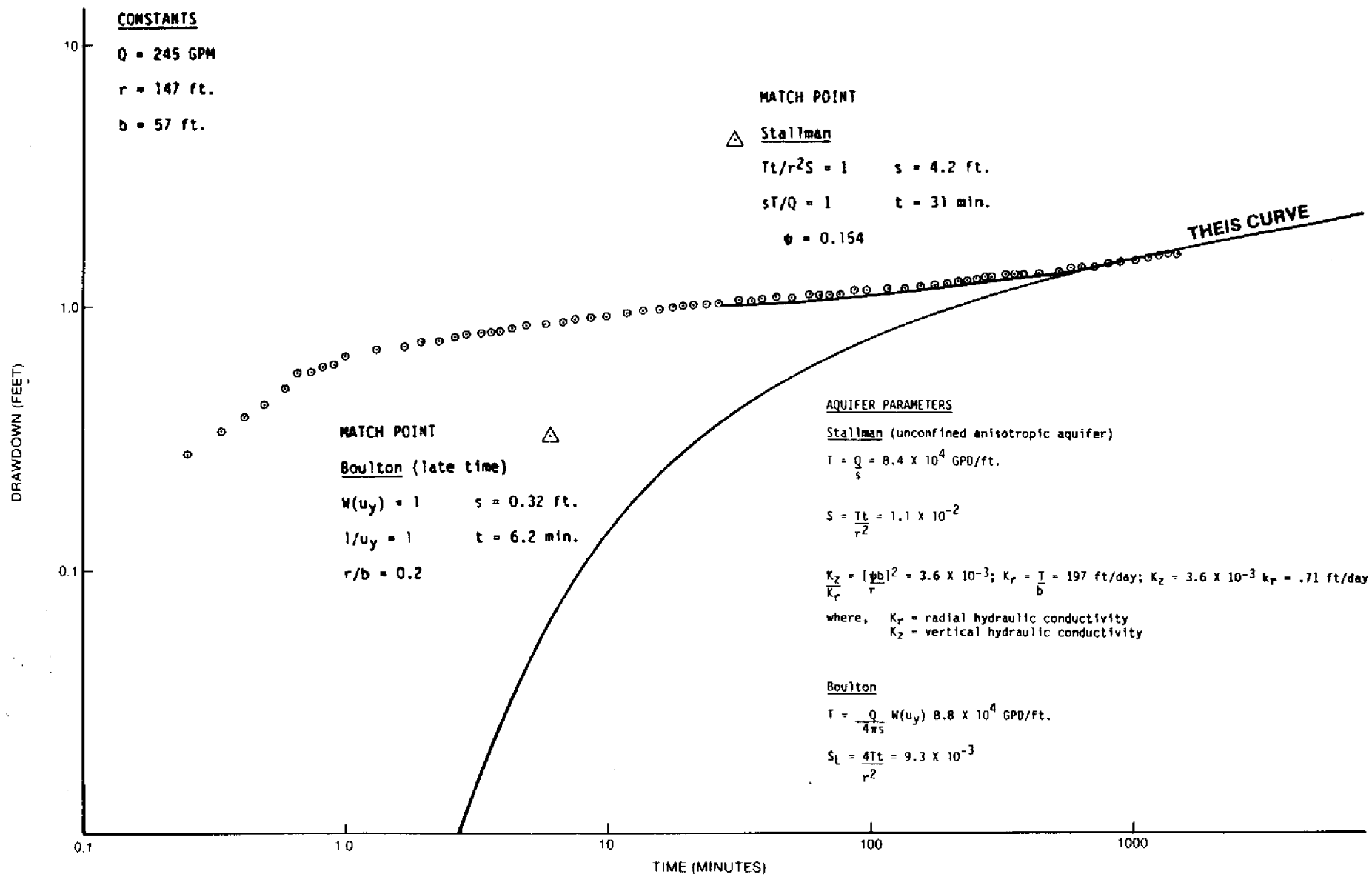
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2038-S/HANTUSH METHOD



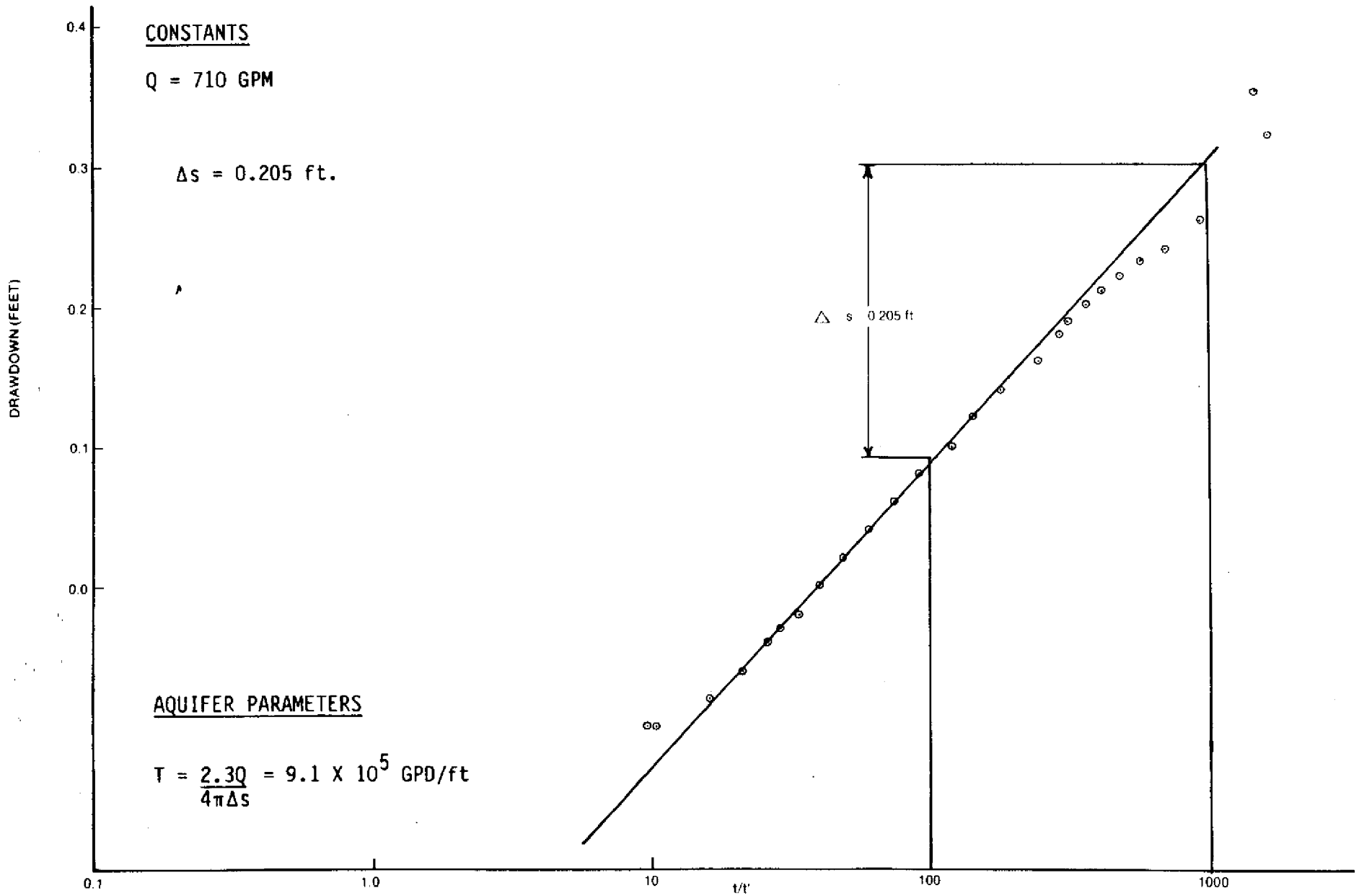
ANALYSIS OF PUMPING TEST DATA FROM WELL C-2046-I/HANTUSH METHOD



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2046-I/JACOB METHOD



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2046-S/BOULTON AND STALLMAN METHODS



ANALYSIS OF PUMPING TEST DATA FROM WELL C-2084-S/JACOB RECOVERY METHOD