

TECHNICAL PUBLICATION 88-12

GROUND WATER RESOURCE ASSESSMENT OF HENDRY COUNTY, FLORIDA

by
**Keith R. Smith
Karin M. Adams**

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PART II - APPENDICES

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**Hydrogeology Division
Resource Planning Department
South Florida Water Management District**

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APPENDIX A-1

INTRODUCTION

Introduction

Appendix A contains data used to develop the geologic and hydrogeologic information presented in this report. This portion of the appendix is presented in four parts. Appendix A-2 is a table listing all the wells used to evaluate the geologic and hydrogeologic system in the study area. The wells are listed in numerical order and grouped by county. All the wells were assigned a number for this study, and that number appears in the first column in the table. The first letter or letters indicate the county where the well is located. Hendry County wells start with HY, Glades county wells start with GL, Collier County wells start with C, and Lee County wells start with L. The first numeral in the Hendry County well numbers designate the portion of the county where the well is located. Wells with numbers between 100 and 199 are located in west of the range 30 - range 31 border. Wells with numbers between 200 and 299 are located east of this line and to the north of the township 45 - township 46 line. Wells with numbers between 300 and 399 are located to the south of the township 45 - township 46 line. Wells in Glades County are numbered between 400 and 499. Wells in Collier and Lee Counties are designated by numbers assigned previous to this study. These well numbers can be cross referenced to other well numbering systems listed in the table. Well locations are listed by section, township, and range, and latitude and longitude. Elevations of the wells, total depth, and available geophysics are also listed in appendix A-2.

Appendix A-3 is a table of the tops and thicknesses of the various geologic units described in this report. The wells are listed in the same order as in Appendix A-2. Data is presented as elevations relative to NGVD.

Appendix A-4 is a table of the tops and thicknesses of the various hydrostratigraphic units described in this report. The format of this table is similar to Appendix A-3.

Appendix A-5 contains lithologic descriptions and hydrostratigraphic columns of all the geologic control wells. In addition, reproductions of available geophysics are included here. The wells are listed in the same order as in the previous appendices. The lithologic log appears first, followed by the hydrostratigraphic column and the geophysical logs (if available). Figure A-1 is a legend for the hydrostratigraphic columns.

LITHOLOGY **COLUMN** **ACCESSORY
MINERALS**

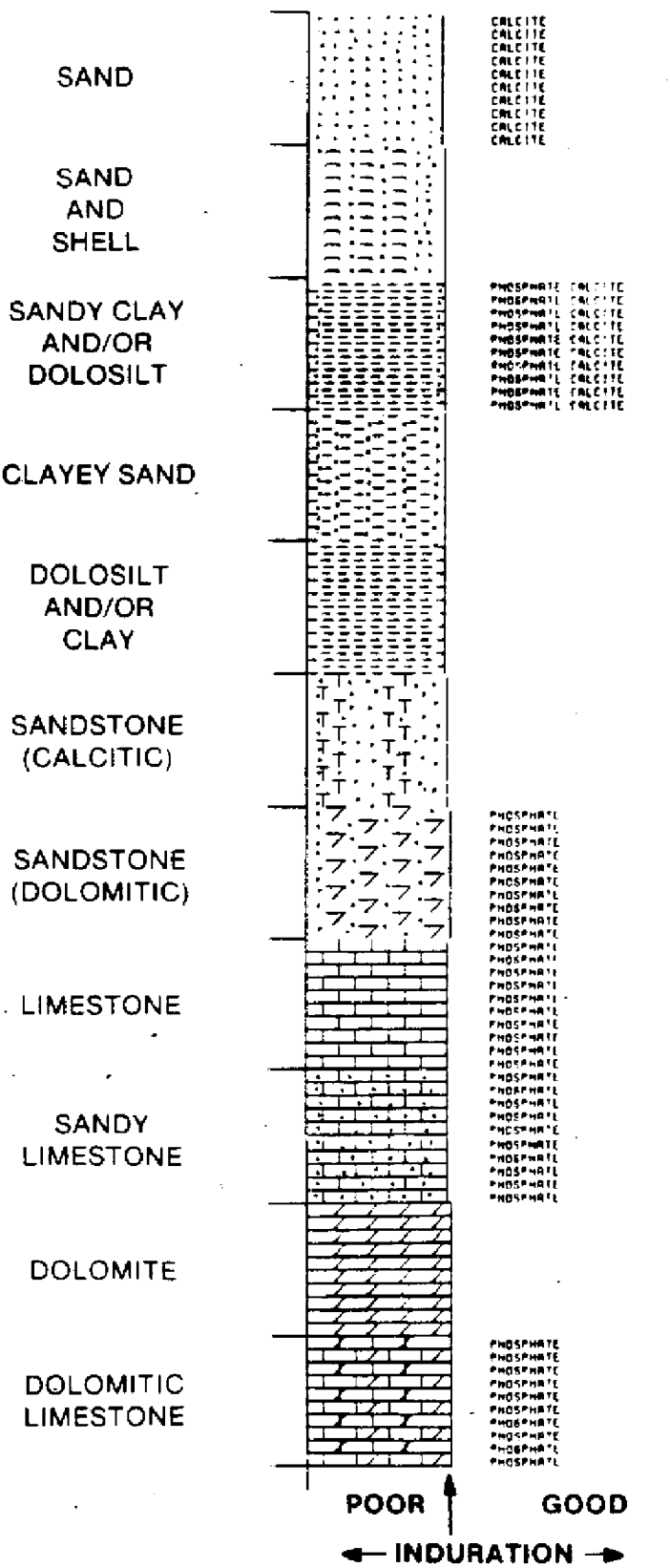


Figure A-1

APPENDIX A-2

**INFORMATION ON SELECTED
GEOLOGIC CONTROL WELLS**

INFORMATION ON GEOLOGIC CONTROL WELLS

| SFWMND WELL NUMBER | USGS WELL NUMBER | SFWMND RTA WELL NUMBER | MISSIMER WELL NUMBER | S/T/R | LAT | LONG | ELEVATION | TOTAL DEPTH | GEO- PHYSICS |
|--------------------------|------------------------|---------------------------------|----------------------------|----------|--------|--------|-----------|----------------|-----------------|
| HY101 | HE909 | | | 11/45/30 | 263453 | 811800 | 32 | 190 | E = ELECTRIC |
| HY102 | HE619 | | | 25/43/28 | 264337 | 812838 | 23 | 346 | E, G |
| HY103 | HE621 | | | 30/43/29 | 264258 | 812757 | 25 | 350 | G = GAMMA |
| HY104 | HE616 | | | 25/43/29 | 264258 | 812326 | 24 | 320 | E, G |
| HY105 | HE622 | | | 19/43/29 | 264533 | 812727 | 18 | 340 | N = NEUTRON |
| HY106 | HE618 | | | 32/42/29 | 264648 | 812617 | 20 | 300 | E, G |
| HY107 | HE617 | | | 10/43/29 | 264542 | 812448 | 14 | 302 | E, G |
| HY108 | HE083 | | | 10/43/28 | 264451 | 813030 | 15 | 125 | |
| HY109 | HE557 | | | 28/43/28 | 264235 | 813106 | 18 | 341 | |
| HY110 | HE529 | | | 22/45/29 | 263310 | 812509 | 33 | 413 | G |
| HY111 | HE555 | | | 21/44/29 | 263843 | 812607 | 28 | 440 | |
| HY112 | HE519 | | | 29/45/28 | 263157 | 813206 | 30 | 650 | |
| HY113 | HE559 | | | 10/44/28 | 263955 | 813030 | 28 | 340 | E, G |
| HY114 | HE773 | | | 24/44/29 | 263845 | 812240 | 30 | 180 | |
| HY115 | HE600 | | | 16/43/29 | 264430 | 812545 | 20 | 465 | |
| HY116 | HE429 | | | 9/46/29 | 264448 | 812616 | 15 | 303 | |
| HY117 | HE431 | | | 16/43/29 | 264357 | 812616 | 20 | 323 | E, G |
| HY118 | | RTA5 | | 20/45/29 | 263332 | 812610 | 34 | 380 | E, G, N |
| HY119 | HE008 | RTA6 | | 16/44/29 | 263845 | 812612 | 28 | 380 | E, G, N, C |
| HY120 | | RTA9 | | 16/44/28 | 263912 | 813158 | 25 | 380 | E, G, N |
| HY121 | | | HM120 | 6/45/28 | 263518 | 813328 | 28 | 260 | |
| HY122 | HE570 | | | 10/45/28 | 263430 | 813030 | 32 | 200 | E |
| HY123 | | | | 20/44/30 | 263840 | 812045 | 27 | 1000 | |
| HY124 | | RTA3 | HM83 | 20/45/28 | 263245 | 813230 | 27 | 240 | |
| HY125 | HE1013 | | | 12/45/30 | 263513 | 811707 | 30 | 500 | E, G, N, C |
| HY126 | HE620 | | | 24/43/28 | 264355 | 812808 | 15 | 340 | |
| HY127 | HE615 | | | 33/43/29 | 264200 | 812606 | 27 | 300 | |
| HY128 | HE1079 | | | 20/44/30 | 263813 | 812038 | 27 | 502 | E, G, N, C |
| HY201 | HE900 | | | 10/45/33 | 263515 | 810120 | 23 | 285 | |
| HY202 | HE907 | | | 16/45/34 | 264433 | 805615 | 19 | 202 | |
| HY203 | HE885 | | | 6/45/32 | 263620 | 810944 | 28 | 300 | |
| HY204 | HE594 | | | 28/43/31 | 264318 | 811436 | 21 | 300 | |
| HY205 | HE560 | | | 6/44/33 | 264133 | 810408 | 23 | 90 | |
| HY206 | | | | 19/45/32 | 263341 | 811006 | 30 | 350 | E, G, N, C |
| HY207 | HE1015 | | | 30/45/33 | 263213 | 810409 | 27 | 350 | E, G, N, C |
| HY208 | HE1074 | | | 9/44/33 | 264045 | 810230 | 20 | 503 | E, G, N, C |
| HY209 | HE1075 | | | 27/45/34 | 263207 | 805533 | 18 | 502 | E, G, N, C |
| HY210 | | | | 5/44/31 | 264130 | 811525 | 25 | 502 | E, G, N, C |
| HY301 | | | HM265 | 8/47/34 | 262440 | 805650 | 20 | 132 | |
| HY302 | | | HM245 | 5/47/34 | 262520 | 805730 | 20 | 145 | |
| HY303 | | | HM263 | 7/47/34 | 262455 | 805800 | 20 | 140 | |
| HY304 | | | HM259 | 6/47/34 | 262540 | 805800 | 20 | 140 | |
| HY305 | | | HM255 | 6/47/34 | 262540 | 805730 | 20 | 165 | |
| HY306 | HE902 | | | 36/46/33 | 262612 | 805819 | 22 | 280 | |
| HY307 | HE901 | | | 35/46/31 | 262545 | 811136 | 26 | 300 | |
| HY308 | HE1056 | | | 14/47/32 | 262319 | 810555 | 24 | 400 | E, G, N, C |
| HY309 | HE908 | | | 33/46/32 | 262543 | 810740 | 24 | 165 | |
| HY310 | | | | 3/48/33 | 262042 | 810118 | 20 | 482 | E, G, N, C |

INFORMATION ON GEOLOGIC CONTROL WELLS

| SFWMD WELL NUMBER | USGS WELL NUMBER | SFWMD | | S/T/R | LAT | LONG | ELEVATION | TOTAL GEO- DEPTH | PHYSICS |
|-------------------------|------------------------|-----------------------|-------------------------------|----------|--------|--------|-----------|---------------------|---------|
| | | RTA WELL NUMBER | MISSISSIPPI WELL NUMBER | | | | | | |
| HY311 | HE1022 | | | 23/48/32 | 261746 | 810618 | 20 | 460 | E,G,N,C |
| HY312 | HE591 | | | 21/46/34 | 262810 | 805620 | 15 | 100 | |
| HY313 | HE868 | | | 27/47/33 | 262140 | 810055 | 25 | 97 | |
| HY314 | HE1016 | | | 26/47/31 | 262215 | 811130 | 23 | 400 | E,G,N,C |
| HY315 | | | HN291 | 12/46/32 | 263000 | 810500 | 26 | 120 | |
| GL401 | GL319 | RTA7 | | 18/42/29 | 264906 | 812757 | 40 | 460 | E,G,N,C |
| GL402 | | RTA16 | | 16/42/28 | 264908 | 813110 | 40 | 120 | |
| C2040 | C983 | | | 24/47/28 | 262210 | 812840 | 20 | 520 | |
| C2041 | C989 | | | 23/48/28 | 261733 | 812920 | 25 | 280 | E,G,N,C |
| C2042 | | | | 29/47/30 | 262138 | 812055 | 22 | 460 | G,E,C |
| C2046 | C988 | | | 36/48/28 | 261518 | 812902 | 15 | 200 | |
| C2054 | C632 | | | 31/46/29 | 262602 | 812701 | 25 | 340 | |
| C2055 | C681 | | | 1/47/29 | 262509 | 812237 | 30 | 540 | |
| C2056 | | | CM753 | 10/46/29 | 262925 | 812455 | 30 | 183 | |
| C2058 | C578 | | | 28/46/28 | 262640 | 813101 | 21 | 260 | |
| C2059 | C531 | | | 7/46/29 | 262859 | 812730 | 42 | 410 | |
| C2061 | C684 | | | 23/48/29 | 261740 | 812354 | 18 | 498 | |
| C2062 | C683 | | | 17/48/28 | 261736 | 813245 | 16 | 460 | |
| C2064 | C1076 | | | 18/46/30 | 262855 | 812135 | 30 | 245 | |
| C2066 | C1074 | | | 1/47/30 | 262510 | 811705 | 27 | 130 | |
| L001 | L2063 | | | 33/45/27 | 263053 | 813637 | 30 | 1340 | |
| L002 | L0628 | | | 28/43/27 | 264212 | 813750 | 19 | 435 | |
| L009 | L0625 | | | 9/44/27 | 263927 | 813650 | 23 | 540 | |
| L022 | L5708 | | | 10/43/27 | 264433 | 813606 | 19 | 1200 | E,G,N,T |
| L025 | | | | 29/44/27 | 263718 | 813820 | 25 | 1100 | |
| L027 | | | | 8/46/27 | 262900 | 813757 | 28 | 382 | E,G |

E = ELECTRIC
G = GAMMA
N = NEUTRON
C = CALIPER
T = TEMPERATURE

APPENDIX A-3

TABLE OF GEOLOGIC INFORMATION

GEOLOGIC DATA TABLE

| WELL NUMBER | (DATUM NGVD) | | TAMIAMI FORMATION | | | HAWTHORN GROUP | | | MCC = MIOCENE COARSE CLASTICS |
|----------------|--------------|--------|-------------------|------|-----------|----------------|---------------|--------------|-------------------------------------|
| | S/T/R | LAT | LONG | TOP | THICKNESS | TOP | MCC THICK. | UC THICK. | |
| HY101 | 11/45/30 | 263453 | 811800 | 31 | 29 | 2 | | | |
| HY102 | 25/43/28 | 264337 | 812838 | | 0 | -27 | | | |
| HY103 | 30/43/29 | 264258 | 812757 | | 0 | -25 | 0 | 130 | -155 |
| HY104 | 25/43/29 | 264258 | 812326 | | 0 | -36 | 0 | 230 | -266 |
| HY105 | 19/43/29 | 264533 | 812727 | | 0 | -42 | 0 | 120 | -162 |
| HY106 | 32/42/29 | 264648 | 812617 | | 0 | -44 | | | |
| HY107 | 10/43/29 | 264542 | 812448 | | 0 | -91 | 0 | 157 | -248 |
| HY108 | 10/43/28 | 264451 | 813030 | | 0 | -75 | | | |
| HY109 | 28/43/28 | 264235 | 813106 | | 0 | -7 | | | |
| HY110 | 22/45/29 | 263310 | 812509 | 3 | 9 | -6 | 21 | | |
| HY111 | 21/44/29 | 263843 | 812607 | 13 | 30 | -17 | 0 | 90 | -107 |
| HY112 | 29/45/28 | 263157 | 813206 | 30 | 100 | -70 | 50 | 200 | -320 |
| HY113 | 10/44/28 | 263955 | 813030 | | 0 | -27 | 20 | 60 | -107 |
| HY114 | 24/44/29 | 263845 | 812240 | 20 | 20 | 0 | | | |
| HY115 | 16/43/29 | 264430 | 812545 | | 0 | -104 | | | |
| HY116 | 9/46/29 | 264448 | 812616 | | 0 | -118 | | | |
| HY117 | 16/43/29 | 264357 | 812616 | | 0 | -63 | 0 | 220 | -283 |
| HY118 | 20/45/29 | 263332 | 812610 | 24 | 15 | 9 | 65 | 220 | -276 |
| HY119 | 16/44/29 | 263845 | 812612 | 8 | 20 | -12 | 0 | 300 | -312 |
| HY120 | 16/44/28 | 263912 | 813158 | | 0 | 5 | | | |
| HY121 | 6/45/28 | 263518 | 813328 | 23 | 15 | 3 | | | |
| HY122 | 10/45/28 | 263430 | 813030 | 19 | 7 | 12 | 0 | 145 | -133 |
| HY123 | 20/44/30 | 263840 | 812045 | -3 | 30 | -33 | | | |
| HY124 | 20/45/28 | 263245 | 813230 | 7 | 65 | -58 | 15 | | |
| HY125 | 12/45/30 | 263513 | 811707 | 10 | 5 | 5 | 210 | 207 | -412 |
| HY126 | 24/43/28 | 264355 | 812808 | | 0 | -35 | 0 | 130 | -165 |
| HY127 | 33/43/29 | 264200 | 812606 | | 0 | -13 | 0 | 130 | -143 |
| HY128 | 20/44/30 | 263813 | 812038 | 19 | 14 | 5 | | | |
| HY201 | 10/45/33 | 263515 | 810120 | -52 | 75 | -127 | | | |
| HY202 | 16/45/34 | 264433 | 805615 | | 0 | 14 | 185 | | |
| HY203 | 6/45/32 | 263620 | 810944 | 22 | 44 | -22 | | | |
| HY204 | 28/43/31 | 264318 | 811436 | 16 | 90 | -74 | 85 | | |
| HY205 | 6/44/33 | 264133 | 810408 | | 0 | | | | |
| HY206 | 19/45/32 | 263341 | 811006 | 5 | 82 | -77 | | | |
| HY207 | 30/45/33 | 263213 | 810409 | -26 | 87 | -93 | 0 | 162 | -255 |
| HY208 | 9/44/33 | 264045 | 810230 | 18 | 13 | 5 | 165 | 310 | -470 |
| HY209 | 27/45/34 | 263207 | 805533 | 12 | 176 | -179 | 0 | 285 | -449 |
| HY210 | 5/44/31 | 264130 | 811525 | 12 | 18 | -6 | | | |
| HY301 | 8/47/34 | 262440 | 805650 | -55 | | | | | |
| HY302 | 5/47/34 | 262520 | 805730 | -35 | | | | | |
| HY303 | 7/47/34 | 262455 | 805800 | -60 | | | | | |
| HY304 | 6/47/34 | 262540 | 805800 | -66 | | | | | |
| HY305 | 6/47/34 | 262540 | 805730 | -125 | | | | | |
| HY306 | 36/46/33 | 262612 | 805819 | -68 | 100 | -168 | | | |
| HY307 | 35/46/31 | 262545 | 811136 | 21 | 75 | -54 | | | |
| HY308 | 14/47/32 | 262319 | 810555 | 24 | 140 | -116 | 0 | 252 | -376 |
| HY309 | 33/46/32 | 262543 | 810740 | -16 | 81 | -94 | | | |
| HY310 | 3/48/33 | 262042 | 810118 | -20 | 100 | -120 | | | |

MCC = MIOCENE
COARSE
CLASTICS

UC = UPPER
CLASIC
ZONE

LC = LOWER
CARBONATE
ZONE

GEOLOGIC DATA TABLE

| WELL NUMBER | S/T/R | (DATUM NGVD) | | TAMIAMI FORMATION | | HAWTHORN GROUP | | | MCC = MIOCENE COARSE CLASTICS |
|----------------|----------|--------------|--------|-------------------|-----------|----------------|---------------|--------------|-------------------------------------|
| | | LAT | LONG | TOP | THICKNESS | TOP | MCC THICK. | UC THICK. | |
| HY311 | 23/48/32 | 261746 | 810618 | 19 | 123 | -104 | 0 | 234 | |
| HY312 | 21/46/34 | 262810 | 805620 | -25 | | | | | UC = UPPER CLASIC ZONE |
| HY313 | 27/47/33 | 262140 | 810055 | -25 | | | | | |
| HY314 | 26/47/31 | 262215 | 811130 | -12 | 40 | -52 | 0 | 285 | |
| HY315 | 12/46/32 | 263000 | 810500 | -14 | | | | | |
| GL401 | 18/42/29 | 264906 | 812757 | 20 | 70 | -50 | 0 | 140 | LC = LOWER CARBONATE ZONE |
| GL402 | 16/42/28 | 264908 | 813110 | 30 | 50 | -20 | | | |
| C2040 | 24/47/28 | 262210 | 812840 | 17 | 139 | -156 | 94 | 170 | |
| C2041 | 23/48/28 | 261733 | 812920 | 17 | 162 | -145 | 0 | 175 | |
| C2042 | 29/47/30 | 262138 | 812055 | 19 | 117 | -98 | 117 | 193 | |
| C2046 | 36/48/28 | 261518 | 812902 | 3 | 167 | -155 | | | |
| C2054 | 31/46/29 | 262602 | 812701 | | 0 | 5 | 130 | | |
| C2055 | 1/47/29 | 262509 | 812237 | 30 | 30 | 0 | 120 | 340 | |
| C2056 | 10/46/29 | 262925 | 812455 | 0 | 45 | -15 | | | |
| C2058 | 28/46/28 | 262640 | 813101 | 11 | 90 | -79 | | | |
| C2059 | 7/46/29 | 262859 | 812730 | 22 | 15 | 7 | 105 | 250 | |
| C2061 | 23/48/29 | 261740 | 812354 | 8 | 50 | -42 | 160 | 180 | |
| C2062 | 17/48/28 | 261736 | 813245 | -1 | 53 | -54 | 65 | 185 | |
| C2064 | 18/46/30 | 262855 | 812135 | -30 | 40 | -70 | | | |
| C2066 | 1/47/30 | 262510 | 811705 | 7 | 90 | | | | |
| L001 | 33/45/27 | 263053 | 813637 | -15 | 80 | -95 | | | |
| L002 | 28/43/27 | 264212 | 813750 | 19 | 30 | -11 | | | |
| L009 | 9/44/27 | 263927 | 813650 | 13 | 20 | -7 | | | |
| L022 | 10/43/27 | 264433 | 813606 | 15 | 16 | -1 | 0 | 281 | -301 |
| L025 | 29/44/27 | 263718 | 813820 | 25 | 30 | -5 | 0 | 295 | -325 |
| L027 | 8/46/27 | 262900 | 813757 | -7 | 64 | -71 | 10 | 231 | -312 |

APPENDIX A-4

TABLE OF HYDROSTRATIGRAPHIC INFORMATION

HYDROSTRATIGRAPHIC DATA TABLE

(DATUM NGVD)

| WELL NUMBER | SAS THICK. | WTA THICK. | TMCZ THICK. | LTA TOP | LTA THICK. | UHCZ TOP | SSCLAS TOP | SSCLAS THICK | SSCARB TOP | SSCARB THICK | | |
|-------------|------------|------------|-------------|---------|------------|----------|------------|--------------|------------|--------------|--------|--------------------------------------|
| HY101 | 180 | 15 | 30 | -13 | 135 | -148 | | | | | SAS | = SURFICIAL AQUIFER SYSTEM |
| HY102 | 4 | 4 | | | | 19 | -72 | 65 | -157 | 50 | WTA | = WATER TABLE AQUIFER |
| HY103 | 15 | 15 | | | | 10 | -85 | 60 | -155 | 60 | | |
| HY104 | 40 | 40 | | | | -16 | | | | | | |
| HY105 | 40 | 40 | | | | -22 | -112 | 50 | -162 | 35 | | |
| HY106 | 20 | 20 | | | | 0 | | | | | TMCZ | = TAMiami CONFINING ZONE |
| HY107 | 40 | 3 | 7 | 4 | 30 | -26 | | | | | | |
| HY108 | 100 | 35 | 25 | -45 | 40 | -85 | | | | | | |
| HY109 | 25 | 25 | | | | -7 | | | -107 | 40 | | |
| HY110 | 40 | 5 | 25 | 3 | 10 | -7 | -52 | 35 | -103 | 30 | LTA | = LOWER TAMiami AQUIFER |
| HY111 | 45 | 10 | 5 | 13 | 30 | -17 | | | -107 | 28 | | |
| HY112 | 100 | 20 | 10 | 0 | 70 | -70 | | | -120 | 60 | | |
| HY113 | 25 | 25 | | | | 3 | -52 | 55 | -132 | 20 | | |
| HY114 | 10 | 10 | | | | 20 | | | | | UHCZ | = UPPER HAWTHORN CONFINING ZONE |
| HY115 | 99 | 99 | | | | -79 | | | | | | |
| HY116 | 83 | 83 | | | | -68 | | | -153 | 10 | | |
| HY117 | 51 | 51 | | | | -31 | -108 | 15 | -123 | 16 | | |
| HY118 | 50 | 25 | 15 | -6 | 10 | -26 | -56 | 40 | -116 | 40 | | |
| HY119 | 40 | 40 | | | | -12 | | | -112 | 40 | SSCLAS | = CLASTIC ZONE - SANDSTONE AQUIFER |
| HY120 | 20 | 20 | | | | 5 | -25 | 30 | -125 | 40 | | |
| HY121 | 20 | 20 | | | | 8 | -97 | 34 | -131 | 30 | | |
| HY122 | 20 | 20 | | | | 12 | | | -143 | | | |
| HY123 | 60 | 60 | | | | -33 | | | | | | |
| HY124 | 100 | 40 | 20 | -33 | 40 | -73 | | | -123 | 30 | SSCARB | = CARBONATE ZONE - SANDSTONE AQUIFER |
| HY125 | 185 | 7 | 13 | 10 | 165 | -155 | -172 | 20 | | | | |
| HY126 | 45 | 45 | | | | -30 | -105 | 30 | -155 | 60 | | |
| HY127 | 20 | 20 | | | | 7 | -103 | 40 | -143 | 30 | | |
| HY128 | 22 | 22 | | | | 5 | -265 | 60 | | 0 | | |
| HY201 | 150 | 30 | 45 | -52 | 75 | -127 | | | | | | |
| HY202 | 125 | 35 | 10 | -26 | 80 | -106 | | | | | | |
| HY203 | 55 | 6 | 39 | -17 | 10 | -27 | | | | | | |
| HY204 | 95 | 35 | 10 | -24 | 50 | -74 | | | | | | |
| HY205 | | | | | | | | | | | | |
| HY206 | 100 | 11 | 66 | -47 | 23 | -70 | | | | | | |
| HY207 | 120 | 35 | 40 | -48 | 45 | -93 | | | | | | |
| HY208 | 140 | 15 | 20 | -15 | 105 | -120 | | | | | | |
| HY209 | 156 | 3 | 19 | -4 | 134 | -138 | | | | | | |
| HY210 | 98 | 13 | 64 | -52 | 22 | -77 | | | | | | |
| HY301 | | 25 | 50 | -55 | | | | | | | | |
| HY302 | | 20 | 45 | -45 | | | | | | | | |
| HY303 | | 45 | 40 | -65 | | | | | | | | |
| HY304 | | 65 | 21 | -66 | | | | | | | | |
| HY305 | | 70 | 75 | -125 | | | | | | | | |
| HY306 | 195 | 30 | 55 | -63 | 105 | -168 | | | | | | |
| HY307 | 80 | 10 | 20 | -4 | 50 | -54 | | | | | | |
| HY308 | 100 | 30 | 40 | -46 | 30 | -76 | | | | | | |
| HY309 | 130 | 6 | 31 | -16 | 90 | -106 | | | | | | |
| HY310 | 140 | 5 | 35 | -20 | 100 | -120 | | | | | | |

HYDROSTRATIGRAPHIC DATA TABLE
(DATUM NGVD)

| WELL NUMBER | SAS THICK. | WT AQ THICK. | TM CZ THICK. | LT AQ TOP | LT AQ THICK. | UNCZ TOP | SSCLAS TOP | SSCLAS THICK | SSCARB TOP | SSCARB THICK | | |
|-------------|------------|--------------|--------------|-----------|--------------|----------|------------|--------------|------------|--------------|--|--|
| HY311 | 124 | 12 | 66 | -58 | 49 | -107 | | | | | | SAS = SURFICIAL AQUIFER SYSTEM |
| HY312 | | 20 | 40 | -45 | | | | | | | | WTA = WATER TABLE AQUIFER |
| HY313 | | 30 | 40 | -45 | | | | | | | | |
| HY314 | 75 | 10 | 30 | -17 | 35 | -52 | | | | | | |
| HY315 | | 9 | 36 | -19 | | | | | | | | |
| GL401 | 20 | 20 | | | | | | | 20 | | | TMCZ = TAMAMI CONFINING ZONE |
| GL402 | 60 | 15 | 5 | 20 | 40 | -20 | | | | | | |
| C2040 | 208 | 90 | 60 | -130 | 58 | -188 | -270 | 45 | -315 | 40 | | |
| C2041 | 170 | 50 | 25 | -50 | 95 | -145 | | | -207 | 38 | | |
| C2042 | 130 | 55 | 30 | -63 | 45 | -108 | -288 | 80 | | | | LTA = LOWER TAMAMI AQUIFER |
| C2046 | 170 | 60 | 30 | -75 | 80 | -155 | | | | | | |
| C2054 | 150 | 150 | | | | -125 | -135 | 20 | -195 | 80 | | |
| C2055 | 50 | 50 | | | | -20 | -100 | 30 | -130 | 70 | | |
| C2056 | 95 | 95 | | | | -65 | -90 | 20 | -135 | | | UNCZ = UPPER HAWTHORN CONFINING ZONE |
| C2058 | 100 | 55 | 35 | -69 | 10 | -79 | -89 | 70 | | | | |
| C2059 | 96 | 15 | 20 | 7 | 61 | -54 | | | -148 | 60 | | |
| C2061 | 170 | 30 | 20 | -32 | 110 | -142 | -172 | 30 | -202 | 100 | | |
| C2062 | 150 | 55 | 10 | -49 | 85 | -134 | | | | | | |
| C2064 | 100 | 40 | 20 | -30 | 40 | -70 | -130 | 50 | | | | SSCLAS = CLASTIC ZONE - SANDSTONE AQUIFER |
| C2066 | | 80 | 10 | -63 | | | | | | | | |
| L001 | 125 | 125 | | | | -95 | | | -140 | 160 | | |
| L002 | 30 | 30 | | | | -11 | | | -46 | 110 | | |
| L009 | 30 | 30 | | | | -7 | | | -22 | 90 | | |
| L022 | 20 | 20 | | | | -1 | -71 | 60 | -131 | 38 | | SSCARB = CARBONATE ZONE - SANDSTONE AQUIFER |
| L025 | 30 | 30 | | | | -5 | | | -35 | 150 | | |
| L027 | 99 | 15 | 5 | 8 | 79 | -71 | | | -110 | 94 | | |

APPENDIX A-5

**INDIVIDUAL WELL DESCRIPTIONS,
HYDROSTRATIGRAPHIC COLUMNS, AND
GEOPHYSICS FROM SELECTED WELLS**

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 101
TOTAL DEPTH: 00190 FT.
43 SAMPLES FROM 0 TO 190 FT.

COUNTY - MENDRY
LOCATION: T.45S R.30E S.11
LAT = N 26D 34M 53
LON = W 81D 18M 00

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 032 FT

OWNER/DRILLER: USGS WELL HE-909

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 180 SURFICIAL AQUIFER SYSTEM
0 15 WATER TABLE AQUIFER
15 45 TAMiami CONFINING ZONE
45 180 LOWER TAMiami AQUIFER
180 190 UPPER HAWTHORN CONFINING ZONE

0. - 1. 090UDSC UNDIFFERENTIATED SAND AND CLAY
1. - 30. 122TMI TAMiami FM.
30. - 190. 122HTRN HAWTHORN GROUP

- 0 - 1 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS-05%, IRON STAIN-7%;
- 1 - 5 SAND; GRAYISH ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
- 5 - 8 SAND; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
- 8 - 15 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%;
- 15 - 20 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, PHOSPHATIC SAND-02%;
- 20 - 25 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-02%;
- 25 - 30 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, PHOSPHATIC SAND-02%;

- 30 - 45 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
SOME SHELL FRAGMENTS & WELL ROUNDED FROSTED COARSE GRAINS
- 45 - 55 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%;
- 55 - 85 SAND; LIGHT GRAY; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-02%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
- 85 - 95 SAND; MODERATE GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-10%, PHOSPHATIC SAND-01%;
- 95 - 105 AS ABOVE
AS ABOVE WITH 5% CALCITE
- 105 - 120 SAND; VERY LIGHT GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-03%, PHOSPHATIC SAND-01%;
- 120 - 150 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, IRON STAIN- %;
- 150 - 170 SAND; VERY LIGHT GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-02%, PHOSPHATIC SAND-01%, CALCILUTITE-01%;
- 170 - 175 NO SAMPLES
- 175 - 177 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%, CALCILUTITE-01%;
- 177 - 180 SAND; DARK YELLOWISH BROWN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, CALCILUTITE-01%;

- 180 - 185 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CLAY-05%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
- 185 - 190 SAND; DARK YELLOWISH BROWN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, CALCILUTITE-01%;
- 190 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|-----------------------|--------------------------------|-------------------------------------|----------------------|
| 25 | | SILT | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| 0 | | SILT SILT SILT | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION |
| -25 | | | | LOWER TAMIAMI AQUIFER | HAWTHORN GROUP |
| -50 | | CALCITE CALCITE | | | |
| -75 | | | | | |
| -100 | | | | | |
| -125 | | | | | |
| -150 | | SILT | INTERMED. AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | |
| -175 | | | | | |

HY101

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 102
TOTAL DEPTH: 00346 FT.
55 SAMPLES FROM 0 TO 346 FT.

COUNTY - HENDRY
LOCATION: T.43S R.28E S.25
LAT = N 26D 43M 37
LON = W 81D 28M 38

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 023 FT

OWNER/DRILLER: USGS WELL HE-619

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 4 SURFICIAL AQUIFER SYSTEM
0 4 WATER TABLE AQUIFER
4 100 UPPER HAWTHORN CONFINING ZONE
100 165 CLASTIC ZONE - SANDSTONE AQUIFER
165 180 CONFINING ZONE
180 230 CARBONATE ZONE - SANDSTONE AQUIFER
230 346 MID HAWTHORN CONFINING ZONE

0. - 50. 090UDSC UNDIFFERENTIATED SAND AND CLAY
50. - 346. 122HTRM HAWTHORN GROUP

- 0 - 1 SAND; DARK YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%, PEAT-03%, IRON STAIN- 1, PLANT REMAINS- 1;
- 1 - 4 SAND; MODERATE YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, PEAT-01%, IRON STAIN- 1, PLANT REMAINS- 1;
- 4 - 6 CALCILUTITE; YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, IRON STAIN- 1;
- 6 - 10 AS ABOVE
- 10 - 15 AS ABOVE
- 15 - 20 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 25 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-03%;

- 25 - 30 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 30 - 35 AS ABOVE
- 35 - 40 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 AS ABOVE
- 45 - 50 AS ABOVE
- 50 - 60 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 60 - 65 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 65 - 70 AS ABOVE
- 70 - 75 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 75 - 80 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS;
- 80 - 85 AS ABOVE
- 85 - 90 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS;
- 90 - 95 AS ABOVE
- 95 - 100 SILT; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 105 GRAVEL; LIGHT OLIVE GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-30%, PHOSPHATIC GRAVEL-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;

- 105 - 110 AS ABOVE
- 110 - 115 GRAVEL; LIGHT OLIVE GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-30%, PHOSPHATIC GRAVEL-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 115 - 120 AS ABOVE
- 120 - 130 GRAVEL; LIGHT OLIVE GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-30%, PHOSPHATIC GRAVEL-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 130 - 140 AS ABOVE
- 140 - 145 GRAVEL; LIGHT OLIVE GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-30%, PHOSPHATIC GRAVEL-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
WITH 15% SANDY LIMESTONE
- 145 - 150 GRAVEL; LIGHT OLIVE GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-30%, PHOSPHATIC GRAVEL-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
WITH 50% SANDY LIMESTONE
- 150 - 155 AS ABOVE
SAMPLE CONSISTS OF WELL ROUNDED FROSTED GRANULES TO PEBBLES WITH 20% LIMESTONE AND MICRITE
- 155 - 160 AS ABOVE
- 160 - 165 GRAVEL; LIGHT OLIVE GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-30%, PHOSPHATIC GRAVEL-05%, LIMESTONE-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;

- 165 - 170 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO GRAVEL; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC GRAVEL-03%, QUARTZ-15%;
OTHER FEATURES: FROSTED;
- 170 - 175 AS ABOVE
WITH 10% FROSTED ROUNDED QUARTZ GRANULES
- 175 - 180 AS ABOVE
- 180 - 185 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO GRANULE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC GRAVEL-02%, QUARTZ-05%;
OTHER FEATURES: FROSTED;
- 185 - 190 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, MOLDIC, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-40%, PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL MOLDS;
- 190 - 195 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL MOLDS;
- 195 - 200 AS ABOVE
- 200 - 205 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL MOLDS;
- 205 - 210 AS ABOVE
- 210 - 215 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL MOLDS;
- 215 - 220 AS ABOVE

- 220 - 225 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL MOLDS;
- 225 - 230 AS ABOVE
MICRITE INCREASES WITH DEPTH FROM 195 TO 230
- 230 - 240 CALCILUTITE; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO GRAVEL; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 240 - 250 AS ABOVE
WITH 3% CALCITE SHELL FRAGMENTS
- 250 - 260 SAND; MODERATE GRAYISH GREEN TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, CALCITE-10%, SILT-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: WORN TRACES, FOSSIL FRAGMENTS, SPICULES;
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
- 280 - 292 SAND; MODERATE GRAYISH GREEN TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, CALCITE-10%, SILT-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: WORN TRACES, FOSSIL FRAGMENTS, SPICULES;
WITH 2% DOLOMITE
- 292 - 303 AS ABOVE
- 303 - 314 SAND; MODERATE GRAYISH GREEN TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, CALCITE-10%, SILT-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: WORN TRACES, SPICULES, FOSSIL FRAGMENTS;
- 314 - 325 AS ABOVE

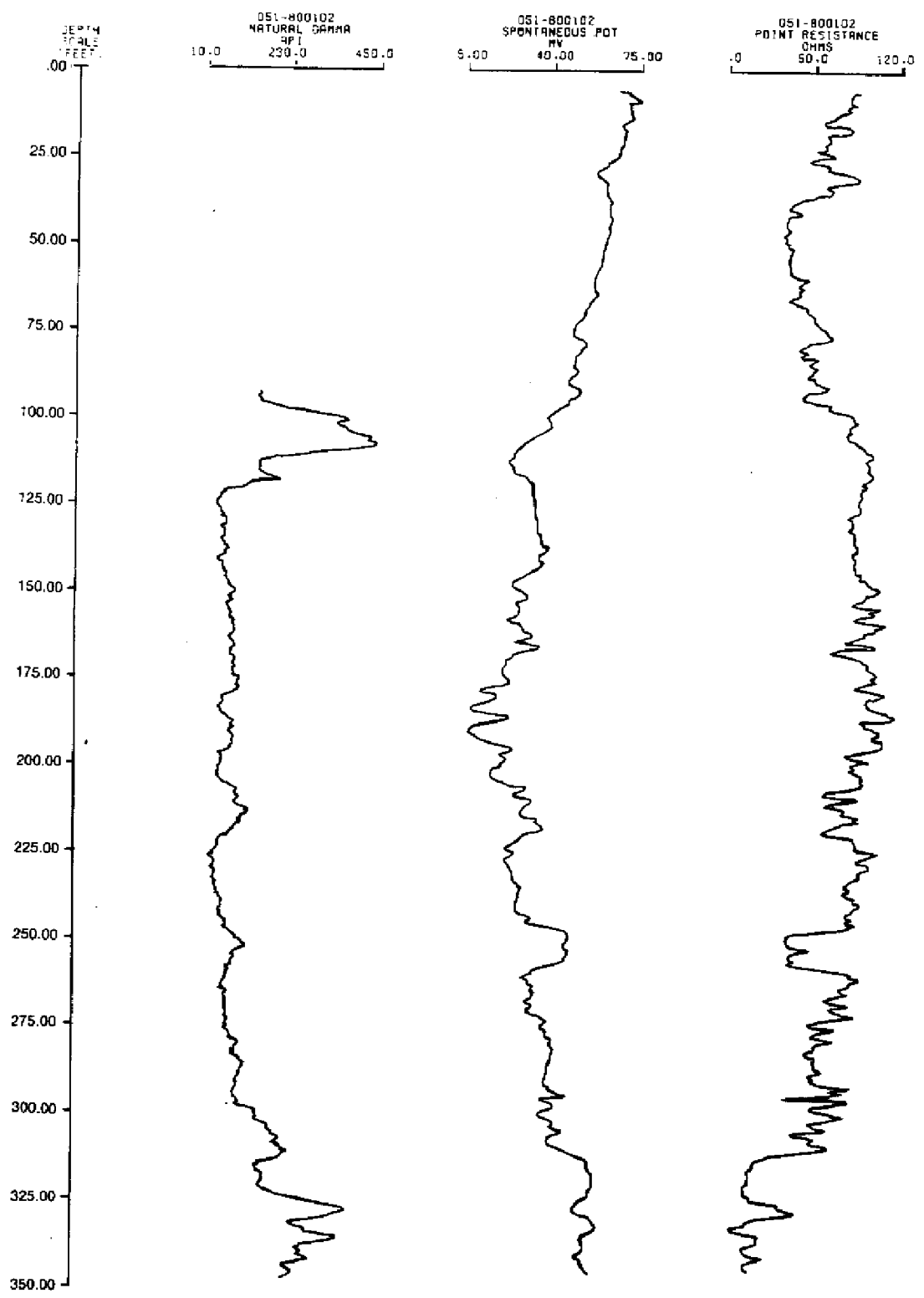
325 - 336 AS ABOVE

336 - 346 SAND; MODERATE GRAYISH GREEN TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, CALCITE-10%, SILT-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: WORM TRACES, SPICULES, FOSSIL FRAGMENTS;
WITH 15% CLAY & 2% PHOSPHATIC SAND

346 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|------------------------------|---|--|-------------------|
| 0 | | SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | SILT PHOSPHATE CALCITE | | | |
| -50 | | SILT SILT | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -75 | | SAND | | | |
| -100 | | CLAY PHOSPHATE | | | |
| -125 | | QUARTZ | SANDSTONE AQUIFER (CARBONATE ZONE) | MID- HAWTHORN CONFINING ZONE | |
| -150 | | QUARTZ | | | |
| -175 | | | | | |
| -200 | | | | | |
| -225 | | SILT SILT | | | |
| -250 | | | | | |
| -275 | | | | | |
| -300 | | | | | |
| -325 | | | | | |
| -350 | | | | | |

HY102



GEOPHYSICS, WELL HY-102 (HE-619)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 103
TOTAL DEPTH: 00350 FT.
51 SAMPLES FROM 0 TO 350 FT.

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

COUNTY - HENDRY
LOCATION: T.43S R.29E S.30
LAT = N 260 42M 58
LON = W 810 27M 57
ELEVATION - 025 FT

OWNER/DRILLER: USGS WELL HE-621

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 15 SURFICIAL AQUIFER SYSTEM
0 15 WATER TABLE AQUIFER
15 110 UPPER HAWTHORN CONFINING ZONE
110 170 CLASTIC ZONE - SANDSTONE AQUIFER
170 180 CONFINING ZONE
180 240 CARBONATE ZONE - SANDSTONE AQUIFER
240 350 MID HAWTHORN CONFINING ZONE

0. - 50. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
50. - 350. 122HTRN HAWTHORN GROUP

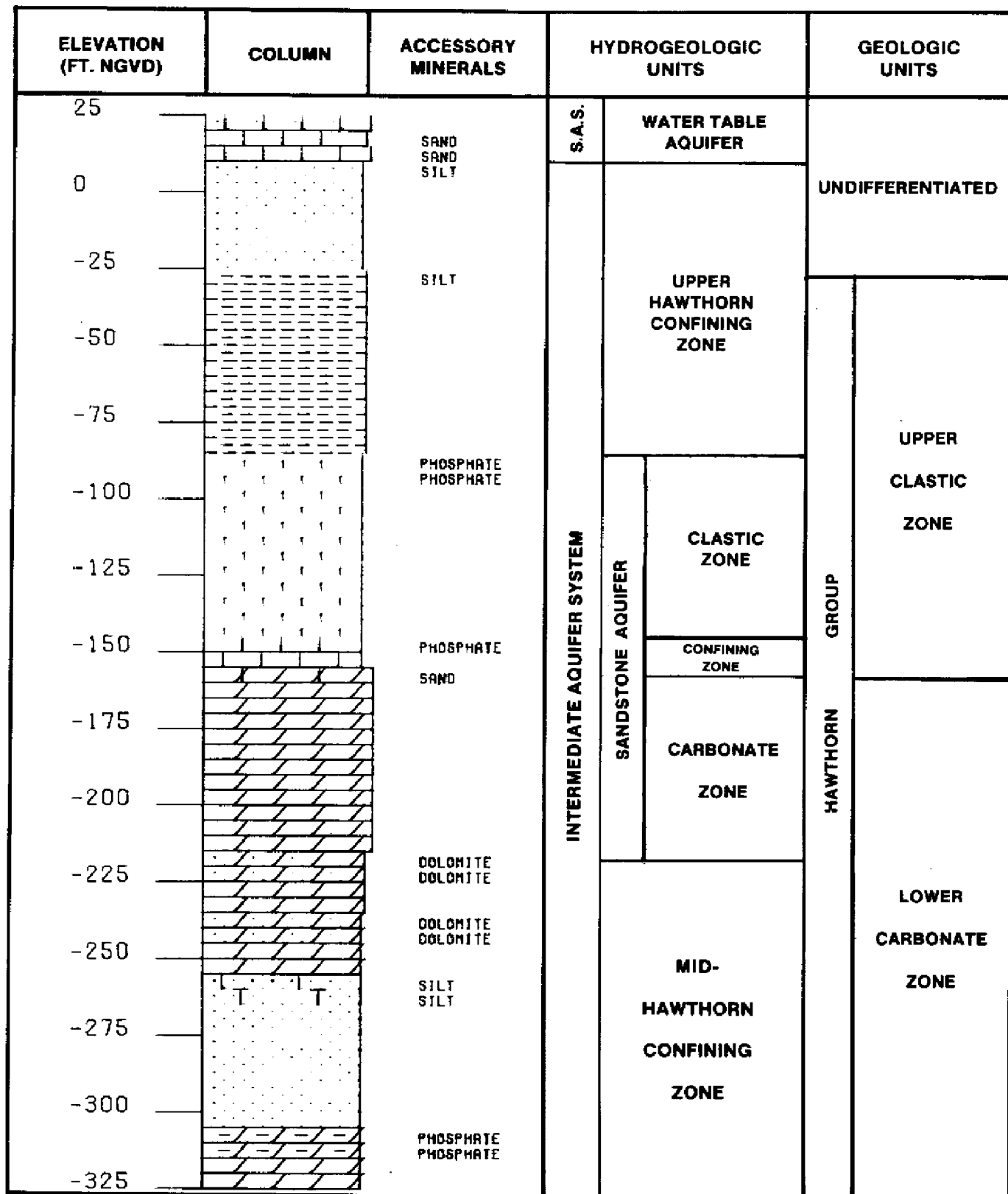
- 0 - 4 LIMESTONE; DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMONITE-05%, IRON STAIN- %;
- 4 - 10 CALCILUTITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%;
- 10 - 15 CALCILUTITE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
MANY WHOLE GASTROPOD SHELLS IN SAMPLE
- 15 - 20 SAND; LIGHT OLIVE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 25 SAND; LIGHT OLIVE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;

- 25 - 30 AS ABOVE
- 30 - 35 SAND; LIGHT OLIVE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 35 - 40 SAND; LIGHT OLIVE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 AS ABOVE
WITH MORE SILT & TRACES OF CLAY
- 45 - 50 AS ABOVE
- 50 - 55 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 55 - 60 AS ABOVE
- 60 - 65 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 65 - 70 AS ABOVE
- 70 - 75 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 75 - 80 AS ABOVE
- 80 - 85 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 85 - 90 AS ABOVE
- 90 - 100 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 100 - 105 AS ABOVE
- 105 - 110 AS ABOVE

- 110 - 120 GRAVEL; ; INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: MEDIUM TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
- 120 - 130 AS ABOVE
- 130 - 140 GRAVEL; ; INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: MEDIUM TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
- 140 - 150 AS ABOVE
- 150 - 160 AS ABOVE
DECREASING GRAIN SIZE, 10% SANDY LIMESTONE
- 160 - 170 GRAVEL; ; INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: MEDIUM TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-50%, PHOSPHATIC GRAVEL-05%;
- 170 - 175 CALCILUTITE; YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 175 - 180 AS ABOVE
- 180 - 185 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS, MOLDIC, POSSIBLY HIGH PERMEABILITY;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 185 - 190 AS ABOVE
- 190 - 195 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS, MOLDIC, POSSIBLY HIGH PERMEABILITY;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 195 - 200 AS ABOVE
- 200 - 205 AS ABOVE

- 205 - 210 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS, MOLDIC, POSSIBLY HIGH PERMEABILITY;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 210 - 215 AS ABOVE
- 215 - 220 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS, MOLDIC, POSSIBLY HIGH PERMEABILITY;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, CLAY-05%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 220 - 225 AS ABOVE
- 225 - 230 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, PIN POINT VUGS, MOLDIC, POSSIBLY HIGH PERMEABILITY;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, CLAY-05%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 230 - 240 AS ABOVE
- 240 - 250 DOLO-SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, DOLOMITE-10%, PHOSPHATIC GRAVEL-01%;
- 250 - 260 AS ABOVE
WITH A TRACE OF DOLOMITE FRAGMENTS
- 260 - 270 DOLO-SILT; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, MOLDIC; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-25%, DOLOMITE-03%, PHOSPHATIC GRAVEL-01%,
PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 270 - 280 AS ABOVE
- 280 - 290 SAND; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-35%, SILT-10%, DOLOMITE-05%, PHOSPHATIC SAND-02%;
- 290 - 300 AS ABOVE
- 300 - 310 SAND; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-38%, SILT-10%, DOLOMITE-05%, PHOSPHATIC SAND-02%;

- 310 - 320 SAND; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-38%, SILT-10%, DOLOMITE-05%, PHOSPHATIC SAND-04%;
- 320 - 330 AS ABOVE
- 330 - 340 DOLO-SILT; OLIVE GRAY; 10% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-15%, CLAY-05%, PHOSPHATIC GRAVEL-05%;
FOSSILS: FOSSIL FRAGMENTS;
SAMPLE CONSISTS OF 20% DOLOMITIZED SHELL FRAGMENTS
- 340 - 350 AS ABOVE
- 350 TOTAL DEPTH



HY103

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 104

COUNTY - HENDRY

TOTAL DEPTH: 320 FT.

LOCATION: T.43S R.29E S.25 A

39 SAMPLES FROM 0 TO 320 FT.

LAT = N 26D 42M 58

LON = W 81D 23M 26

COMPLETION DATE - / / 73

ELEVATION - 24 FT

OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, GAMMA

OWNER/DRILLER: HE-616 DRILLED BY USGS, MUD ROTARY; 3 MILES SOUTH OF LABELLE & 3 MI. EAST

WORKED BY: DESCRIBED BY MIKE KNAPP (6-26-84), SAMPLE QUALITY (FAIR)

HYDROGEOLOGIC UNITS

0 40 WATER TABLE AQUIFER

40 290 UPPER HAWTHORN CONFINING BEDS

290 320 MID-HAWTHORN AQUIFER

0.0- 60.0 090UDSC UNDIFFERENTIATED SAND AND CLAY

60.0- 320.0 122HTRN HAWTHORN GROUP

- 0 - 3 SAND; LIGHT GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
FOSSILS: PLANT REMAINS;
- 3 - 6 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): ORGANIC MATRIX;
FOSSILS: PLANT REMAINS;
- 6 - 8 AS ABOVE
- 8 - 10 SHELL BED; WHITE; 30% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;
CHLONE CANCELLATTA
- 10 - 15 AS ABOVE
- 15 - 20 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: MOLLUSKS;
- 20 - 25 AS ABOVE MUCH SHELL (CAVINGS?)
- 25 - 30 AS ABOVE
- 30 - 40 SHELL BED; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-15%;
FOSSILS: MOLLUSKS, CORAL;

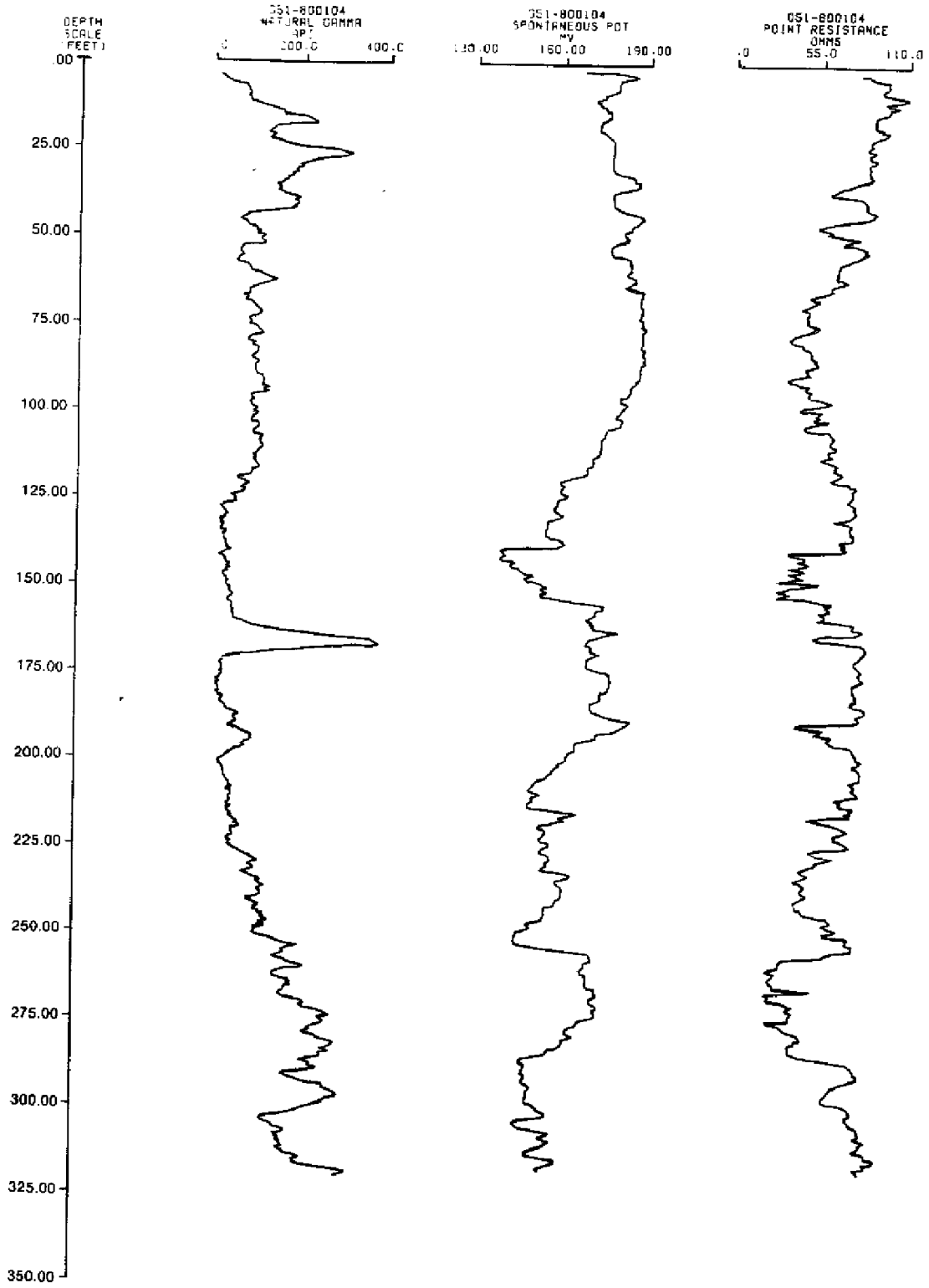
- 40 - 45 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: MOLLUSKS;
MOLLUSK SHELL FRAGMENTS INTERMIXED WITH SILT
- 45 - 60 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, SILT-15%, QUARTZ SAND-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: MOLLUSKS;
- 60 - 65 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, DOLOMITE-30%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 65 - 70 AS ABOVE
- 70 - 75 AS ABOVE
- 75 - 80 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-02%, SILT-25%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 80 - 100 AS ABOVE
- 100 - 110 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CLAY-02%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS;
- 110 - 120 AS ABOVE
- 120 - 130 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 130 - 140 AS ABOVE
- 140 - 150 AS ABOVE
- 150 - 160 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-35%, SILT-10%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;

- 160 - 170 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, CLAY-05%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE
- 180 - 190 CLAY; YELLOWISH GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%, SILT-05%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 190 - 200 AS ABOVE
- 200 - 210 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-02%, QUARTZ SAND-10%, HEMATITE-04%;
FOSSILS: MOLLUSKS;
- 210 - 220 AS ABOVE
- 220 - 230 CLAY; YELLOWISH GRAY TO DARK GRAYISH YELLOW; 0% POROSITY, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-15%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 230 - 240 AS ABOVE
- 240 - 250 CLAY; YELLOWISH GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-30%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 250 - 260 AS ABOVE MUCH SHELL IN SAMPLE
- 260 - 270 AS ABOVE
- 270 - 280 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, CLAY-05%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 280 - 290 AS ABOVE

- 290 - 300 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%, QUARTZ SAND-08%;
FOSSILS: MOLLUSKS;
- 300 - 310 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-10%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, CORAL;
- 310 - 320 AS ABOVE
- 320 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|--|-----------------------------------|--|-------------------|--------------------------|
| 0 | | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 | | SAND SAND SAND SILT SILT SILT DOLCHITE | | | | |
| -50 | | SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -75 | | DOLomite DOLomite | | | | |
| -100 | | SAND SAND | | | | |
| -125 | | SILT SILT PHOSPHATE PHOSPHATE | | | | |
| -150 | | SILT SILT | | | | |
| -175 | | SAND SAND | | | | |
| -200 | | PHOSPHATE PHOSPHATE | | | | |
| -225 | | PHOSPHATE PHOSPHATE | | | | |
| -250 | | PHOSPHATE PHOSPHATE | | | | |
| -275 | | SAND SAND PHOSPHATE PHOSPHATE | | | | |
| -300 | | SAND SAND PHOSPHATE PHOSPHATE | | | | |

HY104



GEOPHYSICS, WELL HY-104 (HE-616)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 105
TOTAL DEPTH: 00340 FT.
51 SAMPLES FROM 5 TO 340 FT.
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

COUNTY - HENDRY
LOCATION: T.43S R.29E S.19
LAT = N 26D 45M 33
LON = W 81D 27M 27
ELEVATION - 018 FT

OWNER/DRILLER: USGS WELL HE-622

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR
HYDROGEOLOGIC UNITS

0 40 SURFICIAL AQUIFER SYSTEM
0 40 WATER TABLE AQUIFER
40 130 UPPER HAWTHORN CONFINING ZONE
130 180 CLASTIC ZONE - SANDSTONE AQUIFER
180 215 CARBONATE ZONE - SANDSTONE AQUIFER
215 340 MID HAWTHORN CONFINING ZONE

0. - 5. 000QSM NO SAMPLES
5. - 60. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
60. - 340. 122HTRM HAWTHORN GROUP

0 - 5 NO SAMPLES

5 - 10 SAND; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
GASTROPODS

10 - 15 SHELL BED; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
GASTROPODS, CHIONE CANCELLATA

15 - 20 AS ABOVE

20 - 25 AS ABOVE

25 - 30 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-40%, QUARTZ SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
SAMPLE IS 40% SHELL FRAGMENTS

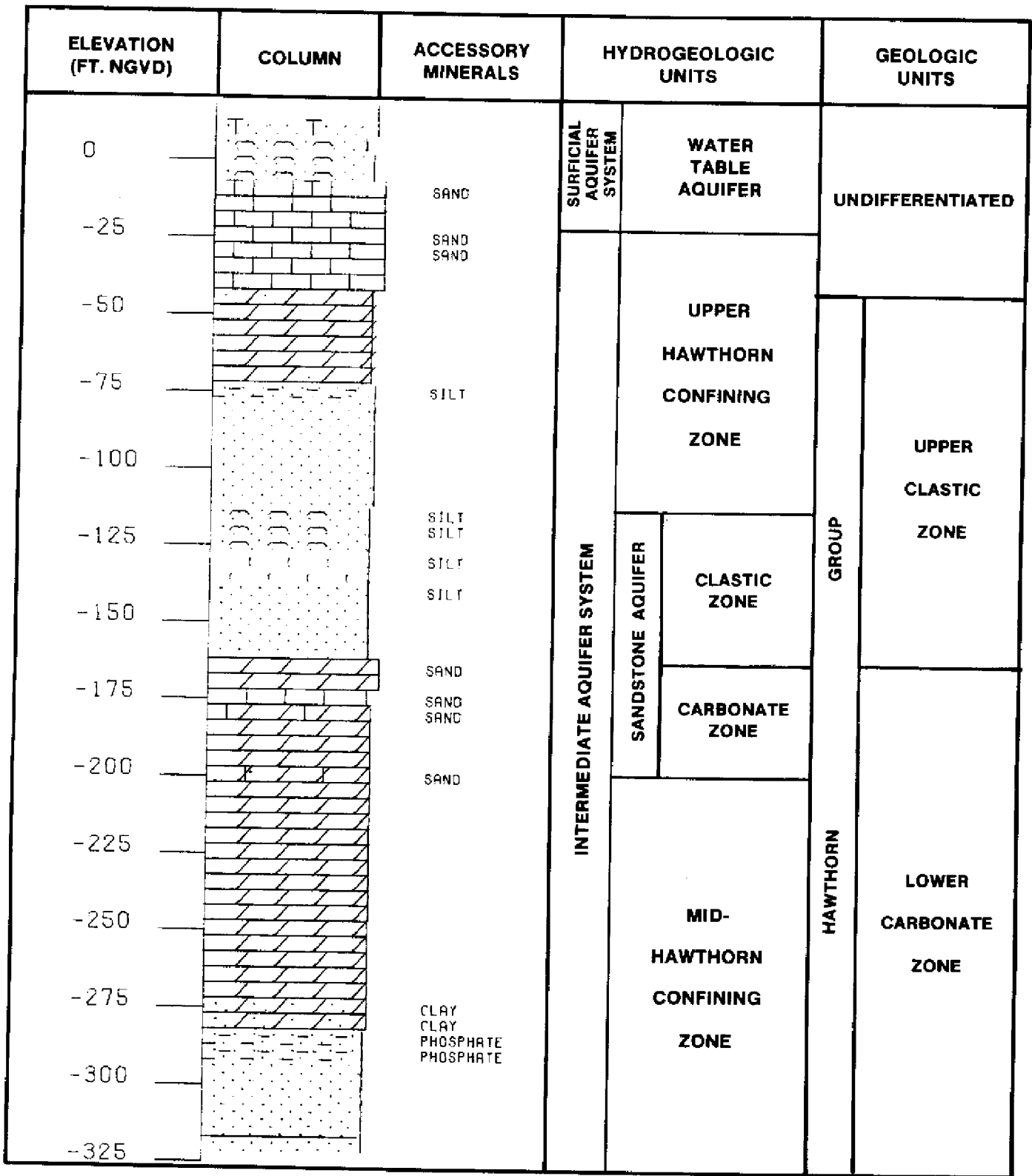
30 - 40 AS ABOVE

- 40 - 50 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS;
- 50 - 55 AS ABOVE
- 55 - 60 AS ABOVE
- 60 - 65 DDLO-SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS;
HIGH UNALTERED SHELL FRAGMENT CONTENT
- 65 - 70 AS ABOVE
- 70 - 75 AS ABOVE
- 75 - 80 DDLO-SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS;
WITH MUCH LOWER SHELL CONTENT
- 80 - 85 AS ABOVE
- 85 - 90 AS ABOVE
- 90 - 95 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 95 - 100 AS ABOVE
WITH 10% DOLOMITIZED SHELL FRAGMENTS
- 100 - 105 AS ABOVE
- 105 - 110 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 110 - 120 AS ABOVE
- 120 - 130 AS ABOVE

- 130 - 140 SHELL BED; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-05%;
OTHER FEATURES: FROSTED;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
WELL ROUNDED FROSTED QUARTZ GRANULES
- 140 - 145 AS ABOVE
- 145 - 150 GRAVEL; LIGHT GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRANULE; RANGE: FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT-05%, PHOSPHATIC GRAVEL-03%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 150 - 155 AS ABOVE
WITH MORE FOSSILS
- 155 - 160 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED, CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, SPICULES;
SAMPLE IS 30% SHELL FRAGMENTS & 30% FROSTED QUARTZ GRANULES
- 160 - 165 AS ABOVE
- 165 - 170 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED, CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, SPICULES;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE
- 180 - 185 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, MOLDIC, INTERGRANULAR;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%;
FOSSILS: WORM TRACES, BRYOZOA, FOSSIL FRAGMENTS;
FROSTED QUARTZ GRANULES
- 185 - 190 AS ABOVE
- 190 - 195 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC GRAVEL-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, SPICULES;

- 195 - 200 DOLOMITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 200 - 205 AS ABOVE
- 205 - 210 DOLOMITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 210 - 215 AS ABOVE
- 215 - 220 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%, LIMESTONE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 220 - 230 AS ABOVE
WITH 20% FROSTED QUARTZ SAND AND GRANULES
- 230 - 240 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%, LIMESTONE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 240 - 250 AS ABOVE
- 250 - 260 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%, LIMESTONE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
WITH HIGH SHELL FRAGMENT CONTENT
- 280 - 290 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%, LIMESTONE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 290 - 300 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CLAY-05%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS;

- 300 - 310 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, PHOSPHATIC GRAVEL-04%, CLAY-03%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, WORM TRACES;
15% SHELL FRAGMENTS
- 310 - 320 AS ABOVE
WITH 30% SHELL FRAGMENTS
- 320 - 330 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, PHOSPHATIC GRAVEL-04%, CLAY-03%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, WORM TRACES;
- 330 - 340 AS ABOVE
- 340 TOTAL DEPTH



HY105

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 106

COUNTY - HENDRY

TOTAL DEPTH: 00300 FT.

LOCATION: T.42S R.29E S.32

58 SAMPLES FROM 0 TO 300 FT.

LAT = N 26D 46M 48

LOM = W 81D 26M 17

COMPLETION DATE - N/A

ELEVATION - 020 FT

OTHER TYPES OF LOGS AVAILABLE - ELECTRIC

OWNER/DRILLER: USGS WELL HE-618

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

- 0 20 SURFICIAL AQUIFER SYSTEM
- 0 20 WATER TABLE AQUIFER
- 20 250 UPPER HAWTHORN CONFINING ZONE
- 250 300 MID-HAWTHORN AQUIFER (LOW YIELD)

- 0. - 64. 090UDSC UNDIFFERENTIATED SAND AND CLAY
- 64. - 300. 122HTRN HAWTHORN GROUP

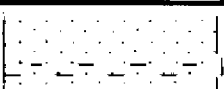

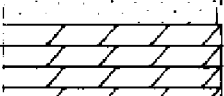
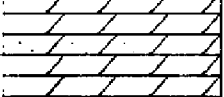
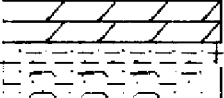
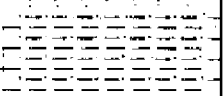

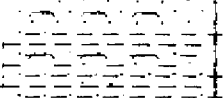

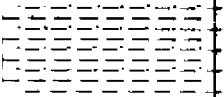
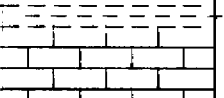

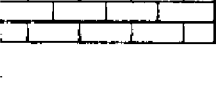
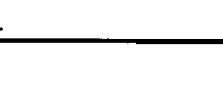
- 0 - 5 SAND; GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS- Z, IRON STAIN-Z;
- 5 - 8 SAND; GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- Z;
- 8 - 10 SAND; DARK YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-01%, IRON STAIN- Z;
- 10 - 15 SAND; DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-25%, CALCILUTITE-04%, IRON STAIN- Z;
- 15 - 20 SAND; LIGHT OLIVE BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-04%, IRON STAIN- Z;
- 20 - 25 SANDSTONE; DARK GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-45%;
OTHER FEATURES: FROSTED;

- 25 - 30 AS ABOVE
- 30 - 35 SANDSTONE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%, CLAY-02%;
OTHER FEATURES: FROSTED;
- 35 - 38 SAND; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-25%, SILT-20%;
OTHER FEATURES: FROSTED;
- 38 - 40 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%, SILT-05%;
OTHER FEATURES: FROSTED;
- 40 - 45 AS ABOVE
- 45 - 50 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-25%;
- 50 - 55 AS ABOVE
- 55 - 60 AS ABOVE
- 60 - 64 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 64 - 66 DOLOMITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
90-100% ALTERED; SUBHEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-04%, CALCILUTITE-03%;
- 66 - 68 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-04%, PHOSPHATIC GRAVEL-01%;
- 68 - 70 AS ABOVE

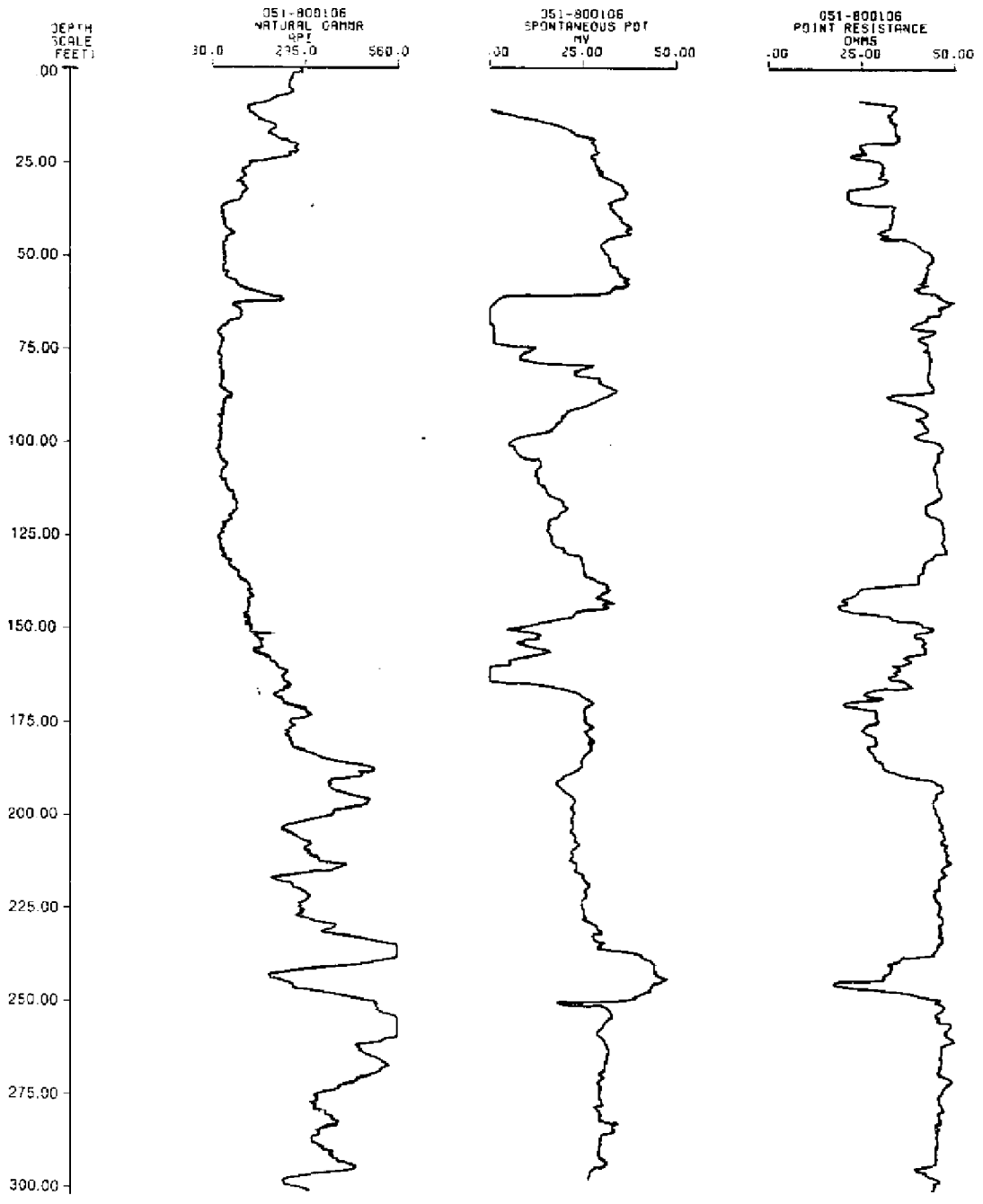
- 70 - 75 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-04%, CLAY-02%, PHOSPHATIC GRAVEL-01%;
- 75 - 80 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC GRAVEL-01%;
- 80 - 85 AS ABOVE
- 85 - 90 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY-10%, PHOSPHATIC GRAVEL-01%;
- 90 - 95 DOLO-SILT; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-10%, PHOSPHATIC SAND-01%;
- 95 - 100 AS ABOVE
- 100 - 105 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, DOLOMITE-01%;
- 105 - 110 AS ABOVE
WITH BRYOZOA & SHELL FRAGMENTS
- 110 - 115 AS ABOVE
WITH SPICULES
- 115 - 120 SILT; LIGHT OLIVE GRAY; 07% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%, DOLOMITE-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 120 - 125 SHELL BED; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, QUARTZ SAND-10%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 125 - 130 SHELL BED; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT-05%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 130 - 140 SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;

- 140 - 150 SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-05%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 150 - 155 AS ABOVE
- 155 - 160 SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-05%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 160 - 165 AS ABOVE
- 165 - 170 SHELL BED; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, QUARTZ SAND-05%, CLAY-03%, PHOSPHATIC GRAVEL-02%;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE
- 180 - 185 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 185 - 190 SHELL BED; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, QUARTZ SAND-05%, CLAY-03%, PHOSPHATIC GRAVEL-02%;
- 190 - 195 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 195 - 200 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 200 - 205 SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 205 - 210 AS ABOVE
- 210 - 215 SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 215 - 220 AS ABOVE
- 220 - 225 AS ABOVE

- 225 - 230 SILT; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 230 - 235 AS ABOVE
- 235 - 240 AS ABOVE
- 240 - 245 CLAY; YELLOWISH GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
SAMPLE CONSISTS OF 15% ALTERED SHELL FRAGMENTS
- 245 - 250 AS ABOVE
- 250 - 255 CALCILUTITE; LIGHT GREENISH GRAY TO DARK GREENISH GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 255 - 260 AS ABOVE
- 260 - 270 CALCILUTITE; LIGHT GREENISH GRAY TO DARK GREENISH GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 19% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 270 - 280 AS ABOVE
- 280 - 290 AS ABOVE
- 290 - 300 CALCILUTITE; LIGHT GREENISH GRAY TO DARK GREENISH GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 19% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 300 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|------------------------|-----------------------------------|--|-----------------------|
| 0 |  | SILT | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 |  | CLAY SILT | | UPPER HAWTHORN CONFINING ZONE | |
| -50 |  | CLAY | | | |
| -75 |  | SAND | | | |
| -100 |  | CLAY | | | |
| -125 |  | SAND | | | |
| -150 |  | DOLOMITE SAND | INTERMEDIATE AQUIFER SYSTEM | MID- HAWTHORN AQUIFER | HAWTHORN GROUP |
| -175 |  | SAND | | | |
| -200 |  | SAND | | | |
| -225 |  | SILT | | | |
| -250 |  | PHOSPHATE SILT | | | |
| -275 |  | PHOSPHATE PHOSPHATE | | | |
| -300 |  | SAND | | | |
| -300 |  | PHOSPHATE | | | |

HY106



GEOPHYSICS, WELL HY-106 (HE-618)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 107
TOTAL DEPTH: 00302 FT.
58 SAMPLES FROM 0 TO 302 FT.

COUNTY - HENDRY
LOCATION: T.43S R.29E S.10
LAT = N 26D 45M 42
LON = W 81D 24M 48
ELEVATION - 014 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC

OWNER/DRILLER: USGS WELL HE-617

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR
HYDROGEOLOGIC UNITS

- 0 40 SURFICIAL AQUIFER SYSTEM
- 0 3 WATER TABLE AQUIFER
- 3 10 TAMiami CONFINING ZONE
- 10 40 LOWER TAMiami AQUIFER
- 40 302 UPPER HAWTHORN CONFINING ZONE

- 0. - 105. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
- 105. - 302. 122HTRN HAWTHORN GROUP

- 0 - 3 SAND; PINKISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS- %, IRON STAIN- %;
OTHER FEATURES: MUDDY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 3 - 4 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-05%, IRON STAIN- %;
- 4 - 6 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-05%, IRON STAIN- %;
- 6 - 8 SAND; GRAYISH ORANGE TO DARK YELLOWISH ORANGE; 20% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, SILT-05%;
GASTROPODS
- 8 - 10 CALCILUTITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%;
FOSSILS: FOSSIL FRAGMENTS;
GASTROPODS

- 10 - 15 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, MOLLUSKS;
CHIONE CANCELLATA, TURRITELLA
- 15 - 20 AS ABOVE
- 20 - 25 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, MOLLUSKS;
- 25 - 30 AS ABOVE
- 30 - 35 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-02%, CALCILUTITE-02%, SILT-02%;
FOSSILS: BRYOZOA;
- 35 - 40 AS ABOVE
- 40 - 45 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 45 - 50 AS ABOVE
- 50 - 55 AS ABOVE
- 55 - 60 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 60 - 65 AS ABOVE
- 65 - 70 AS ABOVE
- 70 - 75 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;

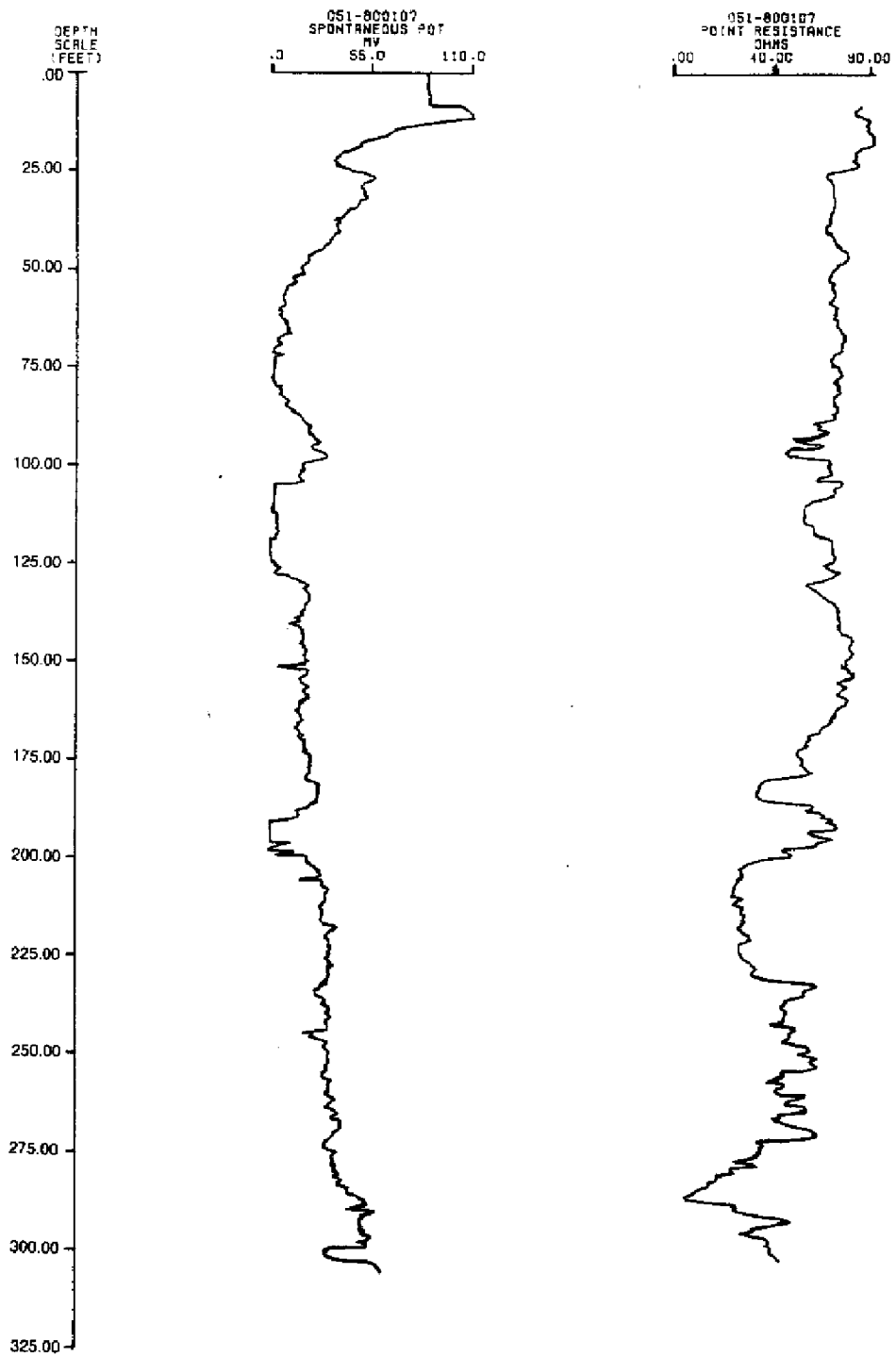
- 75 - 80 AS ABOVE
- 80 - 85 AS ABOVE
- 85 - 90 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 90 - 95 AS ABOVE
- 95 - 100 AS ABOVE
- 100 - 105 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
WITH GRAVEL SIZE ROUNDED FROSTED QUARTZ & PHOSPHORITE
- 105 - 110 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC GRAVEL-01%;
- 110 - 115 AS ABOVE
- 115 - 120 AS ABOVE
- 120 - 125 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC GRAVEL-01%;
- 125 - 130 AS ABOVE
- 130 - 135 AS ABOVE
- 135 - 140 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC GRAVEL-01%;
- 140 - 145 AS ABOVE
- 145 - 150 AS ABOVE
- 150 - 155 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC GRAVEL-01%;
- 155 - 160 AS ABOVE
- 160 - 165 AS ABOVE
- 165 - 170 SHELL BED; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-15%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;

- 170 - 175 AS ABOVE
- 175 - 180 SHELL BED; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-15%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 180 - 190 AS ABOVE
- 190 - 200 SHELL BED; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-15%, PHOSPHATIC GRAVEL-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 200 - 205 AS ABOVE
- 205 - 210 AS ABOVE
- 210 - 215 SHELL BED; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, CLAY-10%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 215 - 220 AS ABOVE
- 220 - 225 AS ABOVE
- 225 - 230 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 230 - 235 AS ABOVE
- 235 - 240 AS ABOVE
- 240 - 245 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 245 - 252 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 252 - 257 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 257 - 262 AS ABOVE
- 262 - 267 SHELL BED; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, LIMESTONE-10%, SILT-05%, PHOSPHATIC SAND-01%;

- 267 - 272 AS ABOVE
- 272 - 282 SHELL BED; YELLOWISH GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: CLAY-30%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-01%;
FOSSILS: WORM TRACES;
- 282 - 287 AS ABOVE
- 287 - 292 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-10%, LIMESTONE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 292 - 302 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-05%, LIMESTONE-05%, PHOSPHATIC SAND-03%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 302 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|--|--|-----------------------------|---|
| 0 | | SILT SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | SILT | | INTERMEDIATE AQUIFER SYSTEM | |
| -50 | | | | | HAWTHORN GROUP UPPER CLASTIC ZONE |
| -75 | | | | | |
| -100 | | SAND | UPPER HAWTHORN CONFINING ZONE | | |
| -125 | | | | | |
| -150 | | SILT | | | LOWER CARBONATE ZONE |
| -175 | | | | | |
| -200 | | SAND | | | |
| -225 | | CALCITE | | | |
| -250 | | SAND CALCITE SAND CLAY SAND | | | |
| -275 | | CLAY SAND CLAY SAND SAND SAND PHOSPHATE SAND | | | |
| -300 | | | | | |

HY107



GEOPHYSICS, WELL HY-107 (HE-617)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 108
TOTAL DEPTH: 00125 FT.
25 SAMPLES FROM 0 TO 125 FT.

COUNTY - HENDRY
LOCATION: T.43S R.28E S.10
LAT = N 26D 44M 51
LON = W 81D 30M 30
ELEVATION - 015 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-83

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 100 SURFICIAL AQUIFER SYSTEM
0 35 WATER TABLE AQUIFER
35 60 TAMiami CONFINING ZONE
60 100 LOWER TAMiami AQUIFER
100 125 UPPER HAWTHORN CONFINING ZONE

0. - 90. 090UDSC UNDIFFERENTIATED SAND AND CLAY
90. - 125. 122HTRN HAWTHORN GROUP

- 0 - 5 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-01%, PHOSPHATIC SAND-01%;
FOSSILS: WORN TRACES;
- 5 - 10 AS ABOVE
- 10 - 15 SAND; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-01%;
- 15 - 20 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-30%, CALCITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 25 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-40%, CALCITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 25 - 30 AS ABOVE
- 30 - 35 AS ABOVE

- 35 - 40 CALCILUTITE; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY-05%;
- 40 - 45 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-02%;
- 45 - 50 AS ABOVE
- 50 - 55 CLAY; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-01%;
- 55 - 60 AS ABOVE
- 60 - 65 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 65 - 70 AS ABOVE
- 70 - 75 AS ABOVE
- 75 - 80 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
WITH MORE SHELLS AND WELL ROUNDED QUARTZ & PHOSPHORITE GRANULES
- 80 - 85 AS ABOVE
- 85 - 90 AS ABOVE
- 90 - 95 GRAVEL; VERY LIGHT ORANGE TO LIGHT GRAY; 35% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 95 - 100 AS ABOVE
WITH 50% UNALTERED SHELL FRAGMENTS
- 100 - 105 SAND; OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%;

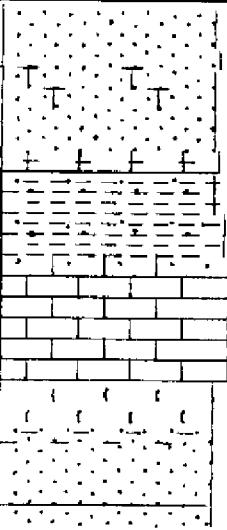
105 - 110 AS ABOVE

110 - 115 AS ABOVE

115 - 120 SAND; OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%;

120 - 125 AS ABOVE

125 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|---|-----------------------------|--------------------------------|--|-------------------|-------------------------------|
| 0 |  | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 | | | | TAMIAMI CONFINING ZONE | | |
| -50 | | LOWER TAMIAMI AQUIFER | | | | |
| -75 | | SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | MIOCENE COARSE CLASTICS |
| -100 | CALCITE | | | | | |
| -125 | | | | | | |

HY108

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 109
TOTAL DEPTH: 00341 FT.
69 SAMPLES FROM 0 TO 341 FT.

COUNTY - HENDRY
LOCATION: T.43S R.28E S.28
LAT = N 26D 42M 35
LON = W 81D 31M 06
ELEVATION - 018 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE557

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 25 SURFICIAL AQUIFER SYSTEM
0 25 WATER TABLE AQUIFER
25 125 UPPER HAWTHORN CONFINING ZONE
125 165 CARBONATE ZONE - SANDSTONE AQUIFER
165 341 MID HAWTHORN CONFINING ZONE

0. - 25. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
25. - 341. 122HTRN HAWTHORN GROUP

- 0 - 5 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS- %, IRON STAIN- %, LIMONITE- %;
- 5 - 10 SHELL BED; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
GASTROPODS
- 10 - 15 AS ABOVE
- 15 - 20 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-20%, SILT-10%;
OTHER FEATURES: CALCAREOUS;
- 20 - 25 AS ABOVE
- 25 - 30 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-10%;
OTHER FEATURES: CALCAREOUS;
- 30 - 35 AS ABOVE
- 35 - 40 AS ABOVE

- 40 - 45 CLAY; YELLOWISH GRAY TO OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-10%;
OTHER FEATURES: CALCAREOUS;
- 45 - 50 AS ABOVE
- 50 - 55 AS ABOVE
- 55 - 60 CLAY; YELLOWISH GRAY TO OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-10%;
OTHER FEATURES: CALCAREOUS;
- 60 - 65 AS ABOVE
- 65 - 70 AS ABOVE
- 70 - 75 CLAY; GRAYISH OLIVE GREEN; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%;
- 75 - 80 AS ABOVE
WITH FROSTED ROUNDED QUARTZ GRANULES
- 80 - 85 SAND; OLIVE GRAY TO YELLOWISH GRAY; LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, SPICULES;
- 85 - 90 LIMESTONE; GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 90 - 95 AS ABOVE
- 95 - 100 CLAY; GRAYISH YELLOW TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%, PHOSPHATIC SAND-01%,
PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CALCAREOUS, FROSTED;
- 100 - 105 AS ABOVE
- 105 - 110 AS ABOVE
- 110 - 115 CLAY; GRAYISH YELLOW TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%, PHOSPHATIC SAND-01%,
PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CALCAREOUS, FROSTED;
- 115 - 120 AS ABOVE

- 120 - 125 AS ABOVE
- 125 - 130 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
- 130 - 135 AS ABOVE
- 135 - 140 AS ABOVE
- 140 - 145 LIMESTONE; GRAYISH ORANGE; 30% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CRYSTALS, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
SEDIMENTARY STRUCTURES: BANDED,
ACCESSORY MINERALS: QUARTZ SAND-05%;
- 145 - 150 AS ABOVE
- 150 - 155 CALCILUTITE; LIGHT OLIVE; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: WORM TRACES;
- 155 - 165 AS ABOVE
- 165 - 170 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-01%;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE
- 180 - 185 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-01%;
- 185 - 190 AS ABOVE
- 190 - 195 AS ABOVE
- 195 - 200 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-01%, PHOSPHATIC SAND-01%;
- 200 - 205 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%;
FOSSILS: BRYOZOA;
- 205 - 210 AS ABOVE

- 210 - 215 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-10%, PHOSPHATIC SAND-05%;
- 215 - 220 AS ABOVE
- 220 - 225 AS ABOVE
- 225 - 230 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-10%, PHOSPHATIC SAND-05%;
- 230 - 235 CLAY; LIGHT OLIVE GRAY TO OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 235 - 240 AS ABOVE
- 240 - 245 AS ABOVE
- 245 - 250 CLAY; LIGHT OLIVE GRAY TO OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 250 - 255 AS ABOVE
- 255 - 260 AS ABOVE
- 260 - 265 CLAY; LIGHT OLIVE GRAY TO OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 265 - 270 AS ABOVE
- 270 - 275 AS ABOVE
- 275 - 280 CLAY; LIGHT OLIVE GRAY TO OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 280 - 285 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;
- 285 - 290 AS ABOVE
- 290 - 295 AS ABOVE
- 295 - 300 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;

300 - 305 AS ABOVE

305 - 310 AS ABOVE

310 - 315 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;

315 - 320 AS ABOVE

320 - 325 AS ABOVE

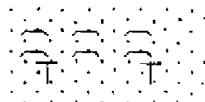
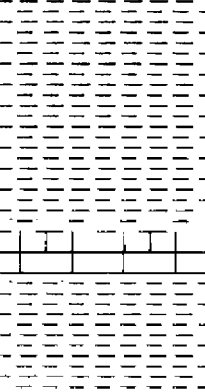

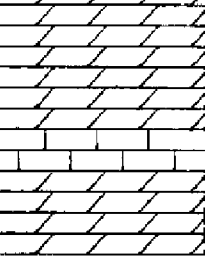
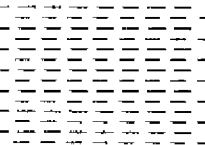
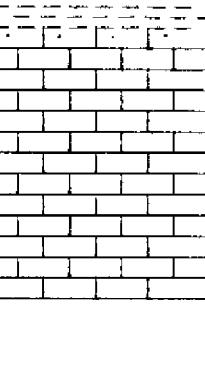
325 - 330 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;

330 - 335 AS ABOVE

335 - 340 AS ABOVE

340 - 341 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;

341 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|--------------------------------------|---|---|---|-----------------------------------|--|---|
| 0 |  | SAND SILT CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 -50 -75 |  | CALCITE SAND CALCITE SAND CALCITE | | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP UPPER CLASTIC ZONE |
| -100 -125 |  | SAND SAND | SANDSTONE AQUIFER (CARBONATE ZONE) | | | |
| -150 -175 |  | SAND | MID- HAWTHORN CONFINING ZONE | | | |
| -200 -225 |  | PHOSPHATE PHOSPHATE | | | | |
| -250 -275 -300 -325 -350 |  | PHOSPHATE | | | | |

HY109

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 110

COUNTY - HENDRY

TOTAL DEPTH: 00413 FT.

LOCATION: T.45S R.29E S.22

62 SAMPLES FROM 0 TO 410 FT.

LAT = N 26D 33M 10

LOM = W 81D 25M 09

COMPLETION DATE - N/A

ELEVATION - 033 FT

OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC

OWNER/DRILLER: USGS WELL WES29

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

0 40 SURFICIAL AQUIFER SYSTEM
0 5 WATER TABLE AQUIFER
5 30 TAMIAMI CONFINING ZONE
30 40 LOWER TAMIAMI AQUIFER
40 85 UPPER HAWTHORN CONFINING ZONE
85 120 CLASTIC ZONE - SANDSTONE AQUIFER
120 135 CONFINING ZONE
135 165 CARBONATE ZONE - SANDSTONE AQUIFER
165 320 MID HAWTHORN CONFINING ZONE
320 380 MID HAWTHORN AQUIFER(LOW YIELD)
380 410 LOWER HAWTHORN CONFINING ZONE

0. - 30. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
30. - 39. 122TMIN TAMIAMI FM.
39. - 410. 122HTRN HAWTHORN GROUP

0 - 5 SAND; DARK GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;

5 - 10 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PLANT REMAINS- %;

10 - 15 SAND; GRAYISH BROWN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-05%, MICA-01%;

15 - 20 SHELL BED; VERY LIGHT ORANGE TO LIGHT OLIVE; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-05%;

20 - 25 AS ABOVE
WITH 30% SAND

25 - 30 SAND; YELLOWISH GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, SILT-05%, PHOSPHATIC SAND-01%;

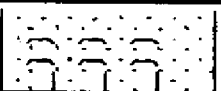
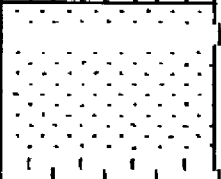

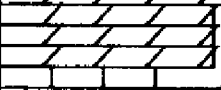

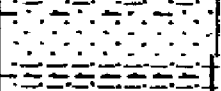


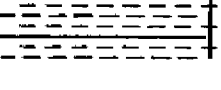
- 30 - 35 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, MICA-01%;
- 35 - 39 AS ABOVE
WITH 1% COARSE ROUNDED FROSTED GRANULES
- 39 - 40 GRAVEL; YELLOWISH GRAY TO VERY LIGHT GRAY; 25% POROSITY,
GRAIN SIZE: GRANULE; RANGE: FINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 40 - 45 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ-20%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 45 - 50 AS ABOVE
WITH 5% QUARTZ GRAVEL
- 50 - 55 NO SAMPLES
- 55 - 60 AS ABOVE
WITH NO QUARTZ GRAVEL
- 60 - 65 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: MICA-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 65 - 70 AS ABOVE
WITH MORE (15%) SHELL FRAGMENTS
- 70 - 75 AS ABOVE
WITH NO SHELL FRAGMENTS
- 75 - 80 AS ABOVE
- 80 - 85 AS ABOVE
WITH 5% MEDIUM SIZE QUARTZ GRAINS
- 85 - 90 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CALCILUTITE-02%;
40% OF GRAINS FROSTED
- 90 - 95 AS ABOVE

- 95 - 100 SAND; LIGHT OLIVE GRAY TO GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ-10%, SILT-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 105 SAND; OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 105 - 110 AS ABOVE
WITH FROSTED ROUNDED QUARTZ AND PHOSPHORITE GRANULES
- 110 - 115 GRAVEL; YELLOWISH GRAY TO DARK GREENISH GRAY; 20% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 115 - 120 GRAVEL; YELLOWISH GRAY TO DARK GREENISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 120 - 125 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, QUARTZ-03%;
- 125 - 130 AS ABOVE
WITH NO FROSTED ROUNDED QUARTZ GRAINS
- 130 - 135 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
- 135 - 140 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CRYSTALS, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%;
- 140 - 145 AS ABOVE
- 145 - 150 AS ABOVE

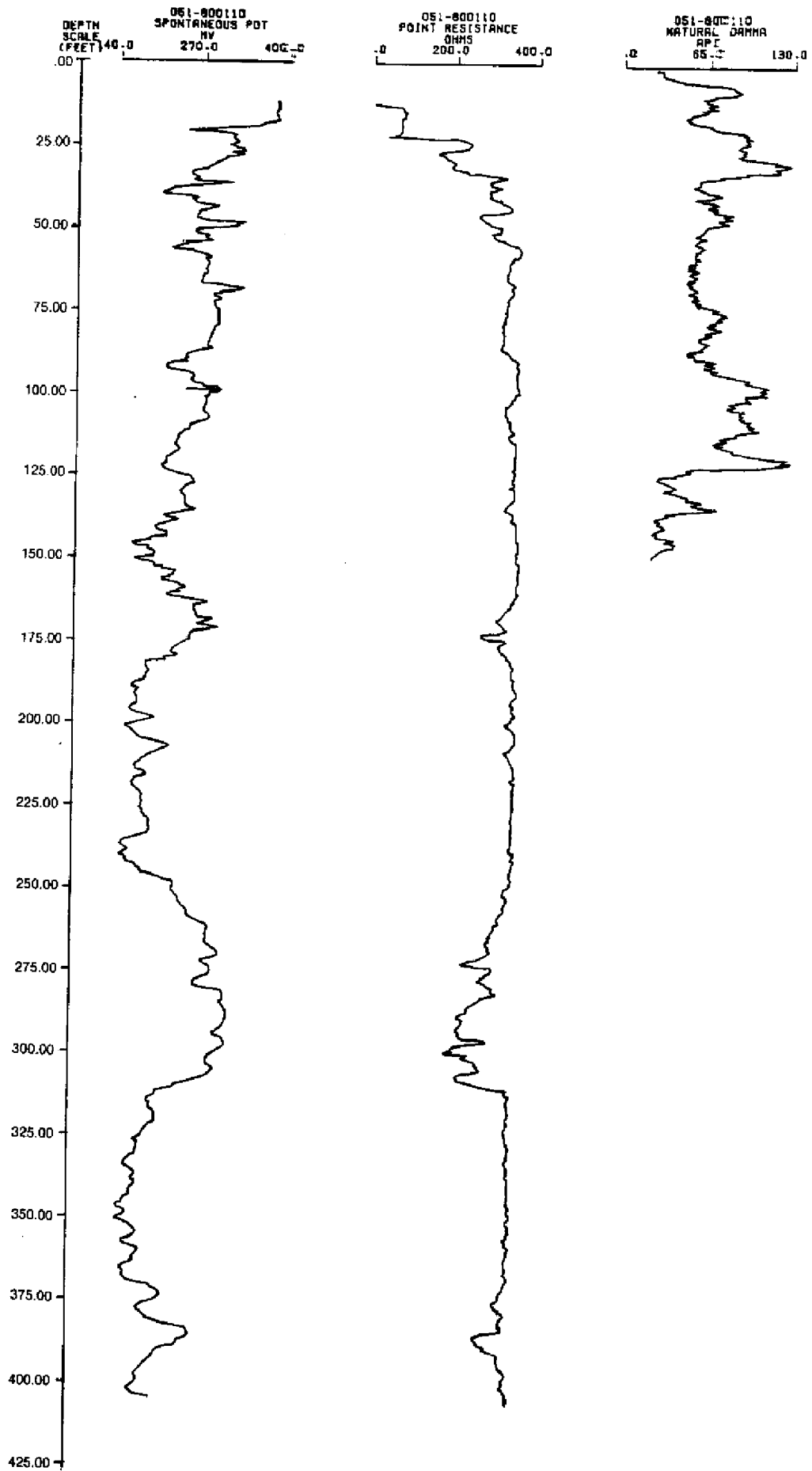
- 150 - 155 AS ABOVE
- 155 - 160 AS ABOVE
- 160 - 165 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-05%;
- 165 - 170 DOLO-SILT; GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: WORM TRACES;
- 170 - 175 AS ABOVE
WITH 15% FINE SAND
- 175 - 185 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%;
OTHER FEATURES: CHALKY;
- 185 - 195 AS ABOVE
WITH 40% SAND
- 195 - 200 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
- 200 - 205 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 205 - 210 AS ABOVE
- 210 - 215 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-02%;
- 215 - 220 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, SPAR-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 220 - 230 AS ABOVE
WITH SPICULES

- 230 - 240 AS ABOVE
- 240 - 250 AS ABOVE
WITH MORE CALCITE & 10% FROSTED QUARTZ GRANULES
- 250 - 260 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-25%, CLAY-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
WITH 2% PHOSPHATIC SAND & BRYOZOA
- 280 - 290 SILT; LIGHT OLIVE GRAY; LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, CLAY-15%, PHOSPHATIC SAND-05%, CALCILUTITE-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 290 - 300 SILT; LIGHT OLIVE GRAY; LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-25%, QUARTZ SAND-20%, PHOSPHATIC SAND-05%, CALCILUTITE-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 300 - 310 AS ABOVE
- 310 - 320 SILT; LIGHT OLIVE GRAY; LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, CLAY-15%, PHOSPHATIC SAND-07%, CALCILUTITE-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 320 - 330 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 330 - 340 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 340 - 350 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;

- 350 - 360 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: SPAR-10%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 360 - 370 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 370 - 380 BOLD-SILT; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 380 - 390 CLAY; OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, SPAR-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 390 - 400 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 400 - 410 AS ABOVE
- 410 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|---|-----------------------|--------------------------------|--|-------------------|-------------------|
| | | | SURFICIAL AQUIFER SYSTEM | SANDSTONE AQUIFER | UNDIFFERENTIATED | TAMIAMI FORMATION |
| 0 |  | SAND CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | TAMIAMI FORMATION |
| | | QUARTZ | | TAMIAMI CONFINING ZONE | | |
| | | | | LOWER TAMIAMI AQUIFER | | |
| -50 |  | | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC |
| -100 |  | | | CLASTIC ZONE | | |
| -150 |  | SAND SAND | | CARBONATE ZONE | | |
| -200 |  | CALCITE | INTERMEDIATE AQUIFER SYSTEM | MID- HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC |
| -250 |  | CLAY | | | | |
| -300 |  | SAND | | | | |
| -350 |  | PHOSPHATE | | | | |
| -400 |  | SAND SAND SAND | | | | |

HY110



GEOPHYSICS, WELL HY-110 (HE-529)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 111
TOTAL DEPTH: 00440 FT.
70 SAMPLES FROM 0 TO 400 FT.

COUNTY - HENDRY
LOCATION: T.44S R.29E S.21
LAT = N 26D 38M 43
LONG = W 81D 26M 07
ELEVATION - 028 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-555

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR
HYDROGEOLOGIC UNITS

0 45 SURFICIAL AQUIFER SYSTEM
0 10 WATER TABLE AQUIFER
10 15 TAMIAMI CONFINING ZONE
15 45 LOWER TAMIAMI AQUIFER
45 135 UPPER HANTHORN CONFINING ZONE
135 163 CARBONATE ZONE - SANDSTONE AQUIFER
163 230 MID HANTHORN CONFINING ZONE
230 295 MID HANTHORN AQUIFER (LOW YIELD)
295 440 LOWER HANTHORN CONFINING ZONE

0. - 15. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
15. - 45. 122TMIH TAMIAMI FN.
45. - 440. 122HTRM HANTHORN GROUP

- 0 - 4 SAND; DARK YELLOWISH ORANGE; 23% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2, LIMONITE- 2;
- 4 - 6 SAND; DARK GRAYISH YELLOW TO LIGHT OLIVE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
- 6 - 10 SHELL BED; YELLOWISH GRAY TO LIGHT OLIVE; 30% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: MOLLUSKS;
- 10 - 15 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%;
20% SHELL (CHIONE CANCELLATA)
- 15 - 22 LIMESTONE; WHITE TO MODERATE DARK GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;

- 30 - 35 LIMESTONE; WHITE TO MODERATE DARK GRAY; 10% POROSITY, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-15%, SPAR-10%;
- 35 - 40 CALCILUTITE; WHITE TO MODERATE DARK GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-50%, SPAR-25%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: MOLLUSKS;
- 40 - 45 LIMESTONE; GRAYISH DRANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: WORM TRACES;
- 45 - 50 CLAY; LIGHT GRAYISH GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, LIMESTONE-15%, CALCILUTITE-10%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 50 - 55 AS ABOVE
- 55 - 60 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%;
- 60 - 65 AS ABOVE
- 65 - 70 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%;
WITH 30% FINE SAND
- 70 - 75 AS ABOVE
- 75 - 80 AS ABOVE
- 80 - 85 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%;
- 85 - 90 AS ABOVE
- 90 - 95 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-50%;
WITH 50% SAND
- 95 - 100 AS ABOVE
- 100 - 105 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-50%;
WITH 2% GRANULE SIZED QUARTZ AND PHOSPHORITE

- 105 - 110 AS ABOVE
- 110 - 115 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-50%;
WITH 10% GRAVEL SIZED QUARTZ AND PHOSPHORITE, CALCITE SHELL
- 115 - 120 AS ABOVE
- 120 - 125 GRAVEL; DARK GRAY TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: COARSE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%, CALCITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 125 - 130 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, SILT-10%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CALCAREOUS;
10% GRANULE SIZED QUARTZ, VERY FINE SAND
- 130 - 135 AS ABOVE
WITH CALCITE REPLACED SHELL FRAG., FINE SAND
- 135 - 145 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CRYSTALS, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: FOSSIL FRAGMENTS;
5% GRANULE SIZED QUARTZ
- 145 - 150 AS ABOVE
NO QUARTZ GRANULES
- 150 - 155 LIMESTONE; YELLOWISH GRAY; 25% POROSITY, MOLDIC, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CRYSTALS, INTRACLASTS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%;
- 155 - 160 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: FOSSIL FRAGMENTS;
- 160 - 163 LIMESTONE; YELLOWISH GRAY; 35% POROSITY, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;

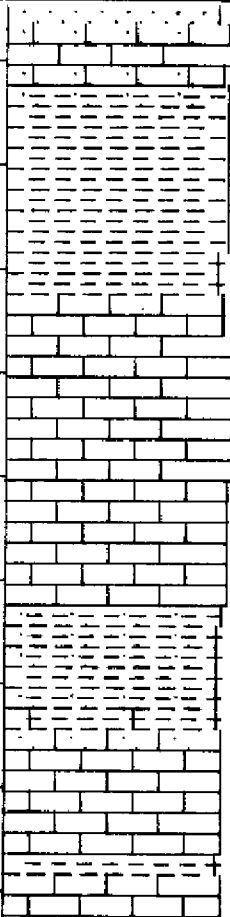
- 163 - 165 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 165 - 170 AS ABOVE
- 170 - 175 AS ABOVE
- 175 - 180 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 180 - 185 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: FOSSIL FRAGMENTS;
- 185 - 190 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS;
- 190 - 195 AS ABOVE
- 195 - 200 AS ABOVE
- 200 - 205 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS;
- 205 - 210 AS ABOVE
- 210 - 215 AS ABOVE
- 215 - 220 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS;
- 220 - 225 AS ABOVE

- 225 - 230 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 230 - 235 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, QUARTZ-10%;
OTHER FEATURES: FROSTED;
- 235 - 255 AS ABOVE
- 255 - 275 AS ABOVE
- 275 - 295 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, QUARTZ-10%, PHOSPHATIC SAND-04%, CLAY- 2;
OTHER FEATURES: FROSTED;
- 295 - 315 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, LIMESTONE-10%, PHOSPHATIC SAND-05%;
- 315 - 320 NO SAMPLES
- 320 - 330 CLAY; ;
OTHER FEATURES: POOR SAMPLE;
- 330 - 340 CLAY; MODERATE OLIVE BROWN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-07%, LIMESTONE-07%;
FOSSILS: MOLLUSKS;
- 340 - 350 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: LIMESTONE-40%, QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 350 - 360 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 360 - 365 AS ABOVE
- 365 - 370 AS ABOVE

- 370 - 375 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, SILT-10%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 375 - 380 AS ABOVE
- 380 - 385 AS ABOVE
- 385 - 390 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, SILT-10%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 390 - 395 AS ABOVE
- 395 - 400 AS ABOVE
- 400 - 405 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, SILT-10%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 405 - 410 AS ABOVE
- 410 - 415 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, LIMESTONE-20%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 415 - 425 CALCILUTITE; LIGHT OLIVE GRAY TO VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%, CLAY-05%;
- 425 - 430 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-08%;
FOSSILS: FOSSIL FRAGMENTS;
- 430 - 435 AS ABOVE

435 - 440 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;

440 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--|-----------------------|--------------------------------|--|-------------------|----------------------------|
| | | | SURFICIAL AQUIFER SYSTEM | | UNDIFFERENTIATED | |
| 0 |  | SAND CALCITE | | WATER TABLE AQUIFER | | UNDIFFERENTIATED |
| | | CALCITE CALCITE | | TAMIAMI CONFINING ZONE | | TAMIAMI FORMATION |
| -50 | | | | LOWER TAMIAMI AQUIFER | | |
| -100 | | | | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -150 | | SAND SAND | | SANDSTONE AQUIFER | | LOWER CARBONATE ZONE |
| -200 | | | | MID-HAWTHORN CONFINING ZONE | | |
| -250 | | SAND | | MID-HAWTHORN AQUIFER | | |
| -300 | | CALCITE | | LOWER HAWTHORN CONFINING ZONE | | |
| -350 | | SAND SILT | | | | |
| -400 | | SAND SAND | | | | |
| -450 | | | | | | |

HY111

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 112
TOTAL DEPTH: 00650 FT.
66 SAMPLES FROM 0 TO 650 FT.

COUNTY - HENDRY
LOCATION: T.45S R.28E S.29
LAT = N 26D 31M 57
LON = W 81D 32M 06
ELEVATION - 030 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-519

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR
HYDROGEOLOGIC UNITS

0 100 SURFICIAL AQUIFER SYSTEM
0 20 WATER TABLE AQUIFER
20 30 TAMIAMI CONFINING ZONE
30 100 LOWER TAMIAMI AQUIFER
100 150 UPPER HAWTHORN CONFINING ZONE
150 210 CARBONATE ZONE - SANDSTONE AQUIFER
210 220 NO SAMPLES
220 260 MID HAWTHORN CONFINING ZONE
260 300 MID HAWTHORN AQUIFER(LOW YIELD)
300 550 LOWER HAWTHORN CONFINING ZONE
550 650 LOWER HAWTHORN/TAMPA PRODUCING ZONE

0. - 100. 122TMIH TAMIAMI FM.
100. - 650. 122HTRN HAWTHORN GROUP

0 - 10 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;

10 - 20 AS ABOVE

20 - 30 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-03%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;

30 - 40 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;

- 40 - 50 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 50 - 60 AS ABOVE
- 60 - 70 AS ABOVE
- 70 - 80 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 80 - 90 AS ABOVE
- 90 - 100 AS ABOVE
- 100 - 110 GRAVEL; YELLOWISH GRAY TO BLACK; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: COARSE TO GRAVEL;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%, LIMESTONE-01%;
OTHER FEATURES: FROSTED;
- 110 - 120 AS ABOVE
- 120 - 130 AS ABOVE
- 130 - 140 GRAVEL; YELLOWISH GRAY TO BLACK; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: COARSE TO GRAVEL;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%, LIMESTONE-01%;
OTHER FEATURES: FROSTED;
- 140 - 150 AS ABOVE
- 150 - 160 LIMESTONE; VERY LIGHT ORANGE; 30% POROSITY, MOLDIC, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
FOSSILS: WORM TRACES, FOSSIL MOLDS;
- 160 - 170 AS ABOVE
- 170 - 180 AS ABOVE

- 180 - 190 LIMESTONE; VERY LIGHT ORANGE; 30% POROSITY, MOLDIC, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
FOSSILS: WORM TRACES, FOSSIL MOLDS;
- 190 - 200 AS ABOVE
- 200 - 210 AS ABOVE
- 210 - 220 NO SAMPLES
- 220 - 230 LIMESTONE; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: CHALKY;
- 230 - 240 AS ABOVE
- 240 - 250 AS ABOVE
- 250 - 260 LIMESTONE; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: CHALKY;
- 260 - 270 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, LIMESTONE-04%;
FOSSILS: FOSSIL FRAGMENTS;
- 270 - 280 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, LIMESTONE-04%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 280 - 290 AS ABOVE
- 290 - 300 LIMESTONE; VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;

- 300 - 310 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-05%, SILT-05%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 310 - 320 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-05%, SPAR-01%;
- 320 - 330 LIMESTONE; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
OTHER FEATURES: CHALKY;
- 330 - 340 SILT; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, QUARTZ SAND-05%, PHOSPHATIC SAND-05%;
- 340 - 350 AS ABOVE
- 350 - 360 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 360 - 370 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 370 - 380 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
WITH 15% HARD CLAY PIECES
- 380 - 390 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-04%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 390 - 400 AS ABOVE

- 400 - 410 AS ABOVE
- 410 - 420 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-04%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 420 - 430 AS ABOVE
- 430 - 440 AS ABOVE
- 440 - 450 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-04%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 450 - 460 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 460 - 470 NO SAMPLES
- 470 - 480 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 480 - 490 AS ABOVE
- 490 - 500 AS ABOVE
- 500 - 510 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
SLIGHTLY ALTERED TO DOLOMITE AND DOLOSILT
- 510 - 520 AS ABOVE
- 520 - 530 AS ABOVE

- 530 - 540 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 540 - 550 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-10%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
HIGHER DEGREE OF ALTERATION
- 550 - 560 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-05%, CLAY-02%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 560 - 570 AS ABOVE
- 570 - 580 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-05%, CLAY-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
WITH 10% PHOSPHATIC GRAVEL
- 580 - 590 AS ABOVE
- 590 - 600 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-05%, CLAY-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 600 - 610 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-05%, CLAY-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
WITH 10% PHOSPHATIC GRAVEL
- 610 - 620 AS ABOVE
- 620 - 630 AS ABOVE

630 - 640 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-05%, CLAY-05%, PHOSPHATIC GRAVEL-10%;
OTHER FEATURES: BROWN ANHYDRITE CRYSTALS;
FOSSILS: FOSSIL FRAGMENTS;

640 - 650 AS ABOVE

650 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | | | |
|----------------------|--------|--------------------|-----------------------------|--|-------------------------------|--|----------------|--------------------|--|
| 0 | | | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION | | | | |
| -50 | | | | TAMIAMI CONFINING ZONE | | | | | |
| | | | | LOWER TAMIAMI AQUIFER | | | | | |
| -100 | | CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | MIOCENE COARSE CLASTICS | | | | |
| -150 | | | | SANDSTONE AQUIFER (CARBONATE ZONE) | UPPER CLASTIC | | | | |
| -200 | | | | MID- HAWTHORN CONFINING ZONE | | | | | |
| -250 | | | | MID-HAWTHORN AQUIFER | | | | | |
| -300 | | | | LOWER HAWTHORN CONFINING ZONE | | | | | |
| -350 | | | | DOLomite | | | HAWTHORN GROUP | LOWER CARBONATE | |
| -400 | | | | | | | | | LOWER HAWTHORN/ TAMPA PRODUCING ZONE |
| -450 | | | | | | | | | |
| -500 | | | | | | | | | |
| -550 | | | | | | | | | |
| -600 | | | | | | | | | |
| -650 | | | | | | | | | |

HY112

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 113
TOTAL DEPTH: 00340 FT.
68 SAMPLES FROM 0 TO 340 FT.

COUNTY - HENDRY
LOCATION: T.44S R.28E S.10
LAT = N 26D 39M 55
LON = W 81D 30M 30
ELEVATION - 028 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-559

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 25 SURFICIAL AQUIFER SYSTEM
0 25 WATER TABLE AQUIFER
25 80 UPPER HAWTHORN CONFINING ZONE
80 135 CLASTIC ZONE - SANDSTONE AQUIFER
135 160 CONFINING ZONE
160 180 CARBONATE ZONE - SANDSTONE AQUIFER
180 340 MID HAWTHORN CONFINING ZONE

0. - 55. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
55. - 340. 122HTRN HAWTHORN GROUP

- 0 - 5 SAND; DARK YELLOWISH ORANGE; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, IRON STAIN- 2;
- 5 - 10 AS ABOVE
WITH SHELL FRAGMENTS
- 10 - 15 LIMESTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, LIMONITE-05%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 15 - 20 AS ABOVE
- 20 - 25 LIMESTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK; 0% POROSITY,
GRAIN TYPE: INTRACLASTS, CALCILUTITE, PELLET; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, SPAR-01%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 25 - 30 SILT; GRAYISH ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 30 - 35 AS ABOVE

- 35 - 40 CALCILUTITE; DARK GRAYISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-25%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 AS ABOVE
- 45 - 50 CALCILUTITE; DARK GRAYISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-25%;
FOSSILS: FOSSIL FRAGMENTS;
- 50 - 55 AS ABOVE
- 55 - 60 CLAY; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-05%, QUARTZ SAND-05%, SILT-05%;
SOME FROSTED ROUNDED GRANULE SIZE QUARTZ
- 60 - 65 GRAVEL; WHITE TO VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: MEDIUM TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 65 - 70 AS ABOVE
- 70 - 75 AS ABOVE
- 75 - 80 CALCILUTITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%;
SOME FROSTED ROUNDED QUARTZ GRAVEL
- 80 - 85 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-05%, CLAY-01%, CALCILUTITE-01%;
SOME FROSTED ROUNDED GRANULE SIZE QUARTZ
- 85 - 90 AS ABOVE
- 90 - 95 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-05%, CLAY-01%, CALCILUTITE-01%;
SOME FROSTED ROUNDED GRANULE SIZE QUARTZ
- 95 - 100 AS ABOVE

- 100 - 105 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-05%, CLAY-01%, CALCILUTITE-01%;
WITH 25% FROSTED ROUNDED GRANULE SIZE QUARTZ
- 105 - 110 SAND; OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: LIMESTONE-03%, QUARTZ SAND-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 110 - 115 AS ABOVE
- 115 - 120 AS ABOVE
- 120 - 125 SAND; OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: LIMESTONE-03%, QUARTZ SAND-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 125 - 130 AS ABOVE
- 130 - 135 AS ABOVE
- 135 - 140 CALCILUTITE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 140 - 145 AS ABOVE
- 145 - 150 AS ABOVE
- 150 - 155 CALCILUTITE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 155 - 160 AS ABOVE
- 160 - 165 LIMESTONE; GRAYISH ORANGE; 20% POROSITY, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, PELLET; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 165 - 170 AS ABOVE

- 170 - 175 LIMESTONE; GRAYISH ORANGE; 20% POROSITY, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, PELLET; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 175 - 180 AS ABOVE
- 180 - 185 DOLO-SILT; LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: LIMESTONE-10%, QUARTZ SAND-10%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 185 - 190 AS ABOVE
- 190 - 195 AS ABOVE
- 195 - 200 DOLO-SILT; LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, LIMESTONE-10%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 200 - 205 AS ABOVE
- 205 - 210 DOLO-SILT; LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, LIMESTONE-10%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
WITH FROSTED GRAVEL SIZE QUARTZ
- 210 - 215 DOLO-SILT; LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, LIMESTONE-10%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 215 - 220 AS ABOVE
- 220 - 225 AS ABOVE
- 225 - 230 DOLO-SILT; LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, LIMESTONE-10%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 230 - 235 AS ABOVE
- 235 - 240 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%;

240 - 245 AS ABOVE

245 - 250 AS ABOVE

250 - 255 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-15%, PHOSPHATIC SAND-02%;

255 - 260 AS ABOVE

260 - 265 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-10%, PHOSPHATIC SAND-05%, CLAY-05%;

265 - 270 AS ABOVE

270 - 275 AS ABOVE

275 - 280 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-10%, PHOSPHATIC SAND-05%, CLAY-05%;

280 - 285 AS ABOVE

285 - 290 AS ABOVE

290 - 295 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-10%, PHOSPHATIC SAND-05%, CLAY-05%;

295 - 300 AS ABOVE

300 - 305 DOLO-SILT; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%, CALCILUTITE-10%;

305 - 310 AS ABOVE

310 - 315 AS ABOVE

315 - 320 DOLO-SILT; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%, CALCILUTITE-10%;

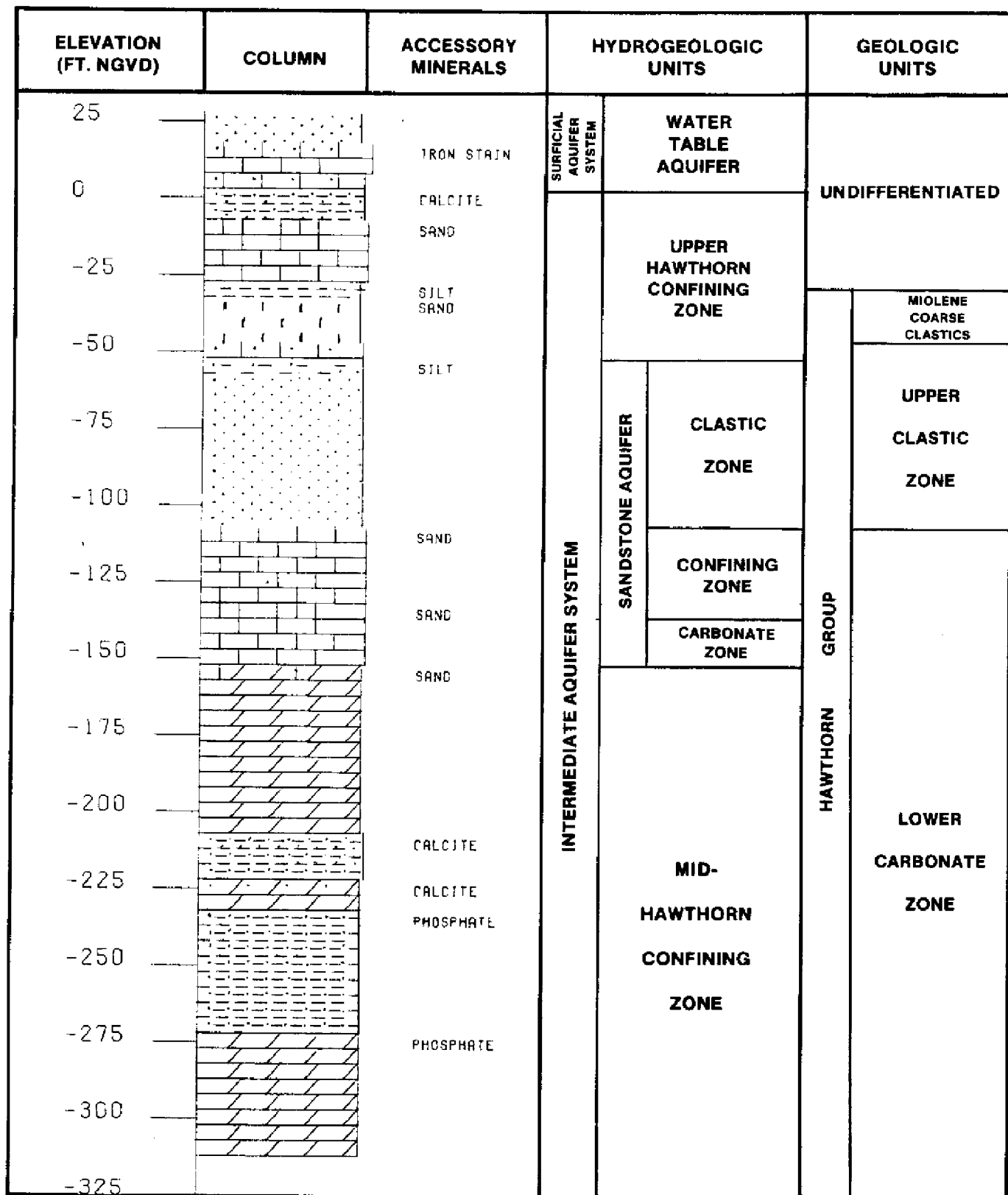
320 - 325 AS ABOVE

325 - 330 AS ABOVE

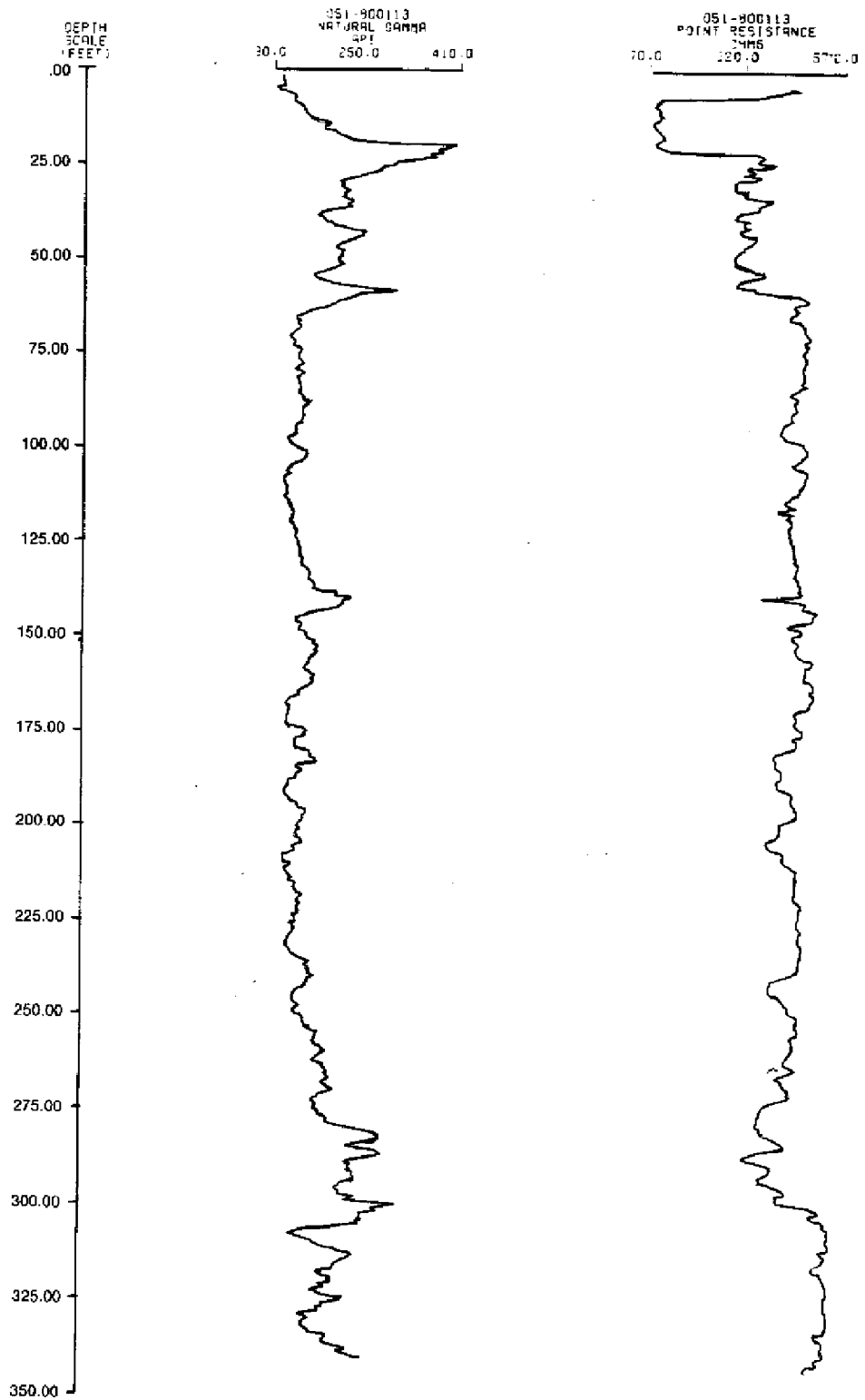
330 - 335 DOLO-SILT; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%, CALCILUTITE-10%;

335 - 340 AS ABOVE

340 TOTAL DEPTH



HY113



GEOPHYSICS, WELL HY-113 (HE-559)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 114 COUNTY - HENDRY
TOTAL DEPTH: 00180 FT. LOCATION: T.44S R.29E S.24 B
17 SAMPLES FROM 0 TO 180 FT. LAT = N 260 38M 45
LOM = W 81D 22H 40
COMPLETION DATE - / /76 ELEVATION - 030 FT
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-773, DRILLED BY ED MILLER

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC DATA

0 10 WATER TABLE AQUIFER
10 180 UPPER HAWTHORN CONFINING ZONE

0. - 10. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
10. - 30. 122TMIN TAMiami FM.
30. - 180. 122HTRN HAWTHORN GROUP

- 0 - 10 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%;
- 10 - 20 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-45%;
- 20 - 30 AS ABOVE
DECREASE SAND (5%), SHELL FRAGMENTS
- 30 - 40 SILT; DARK GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: LIMESTONE-05%;
- 40 - 50 SAND; LIGHT OLIVE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-01%;
- 50 - 60 AS ABOVE
- 60 - 70 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%;
- 70 - 80 AS ABOVE

- 80 - 90 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%;
- 90 - 110 AS ABOVE
- 110 - 120 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%;
- 120 - 140 AS ABOVE
- 140 - 150 SILT; MODERATE GRAYISH GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-05%, QUARTZ SAND-02%;
- 150 - 160 AS ABOVE
- 160 - 170 AS ABOVE
WITH 30% COARSE CLASTICS, 2% PHOSPHATIC GRAVEL
- 170 - 180 GRAVEL; VERY LIGHT GRAY TO BLACK; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRAVEL; RANGE: VERY COARSE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
OTHER FEATURES: FROSTED;
- 180 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|------------------------|-----------------------------|--|----------------------|--------------------------|
| 25 | | CALCITE CALCITE | S.A.S. | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| 0 | | CALCITE CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | TAMIAMI FORMATION | |
| -25 | | | | | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -50 | | | | | | |
| -75 | | | | | | |
| -100 | | | | | | |
| -125 | | CALCITE CALCITE | | | | |
| -150 | | PHOSPHATE PHOSPHATE | | | | |
| -175 | | | | | | |

HY114

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 115

COUNTY - HENDRY

TOTAL DEPTH: 00465 FT.

LOCATION: T.43S R.29E S.16

70 SAMPLES FROM 0 TO 465 FT.

LAT = N 26D 44M 30

LOM = W 81D 25M 45

COMPLETION DATE - N/A

ELEVATION - 020 FT

OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-600

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY POOR (WASHED CUTTINGS)

HYDROGEOLOGIC UNITS

0 99 SURFICIAL AQUIFER SYSTEM
0 99 WATER TABLE AQUIFER
99 315 UPPER HAWTHORN CONFINING ZONE
315 465 MID HAWTHORN AQUIFER (LOW YIELD)

0. - 124. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
124. - 465. 122HTRN HAWTHORN GROUP

- 0 - 2 SAND; GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-01%, IRON STAIN- %;
- 2 - 5 SAND; DARK YELLOWISH ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-01%, IRON STAIN- %;
- 5 - 10 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, SHELL-10%;
- 10 - 13 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-25%, CALCILUTITE-05%;
- 13 - 18 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-25%, CALCILUTITE-05%, SILT-05%;
- 18 - 30 SHELL BED; YELLOWISH GRAY TO WHITE; 35% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%, SILT-02%;
- 30 - 38 AS ABOVE
- 38 - 48 SHELL BED; YELLOWISH GRAY TO WHITE; 35% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%, SILT-02%, LIMESTONE-02%;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS;

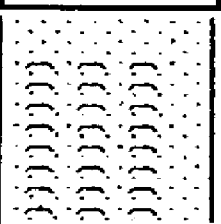
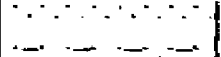
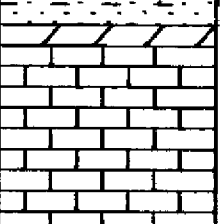
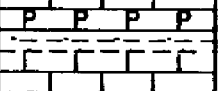




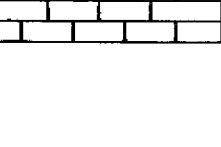
- 48 - 50 AS ABOVE
- 50 - 59 SHELL BED; YELLOWISH GRAY TO WHITE; 35% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%, LIMESTONE-05%, SILT-02%;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS, BARNACLES;
- 59 - 65 AS ABOVE
- 65 - 69 AS ABOVE
- 69 - 78 SHELL BED; YELLOWISH GRAY TO WHITE; 35% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%, LIMESTONE-05%, SILT-02%;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS, BARNACLES;
- 78 - 89 SHELL BED; YELLOWISH GRAY TO WHITE; 35% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%, LIMESTONE-05%, SILT-05%;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS, BARNACLES;
- 89 - 99 AS ABOVE
- 99 - 109 SANDSTONE; YELLOWISH GRAY TO MODERATE DARK GRAY; 20% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, LIMESTONE-05%, SHELL-40%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 109 - 110 AS ABOVE
- 110 - 119 NO SAMPLES
- 119 - 124 SANDSTONE; YELLOWISH GRAY TO MODERATE DARK GRAY; 20% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, LIMESTONE-05%, CLAY-03%, QUARTZ SAND-30%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 124 - 130 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-02%, LIMESTONE-02%;
- 130 - 139 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-05%, LIMESTONE-02%;
- 139 - 145 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, LIMESTONE-02%;
FOSSILS: FOSSIL FRAGMENTS;

- 145 - 150 AS ABOVE
- 150 - 155 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
- 155 - 160 AS ABOVE
- 160 - 165 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%;
- 165 - 170 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-01%;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE
- 180 - 185 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-01%;
- 185 - 190 AS ABOVE
- 190 - 194 AS ABOVE
- 194 - 202 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-01%;
- 202 - 209 AS ABOVE
- 209 - 215 AS ABOVE
- 215 - 219 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-01%;
- 219 - 225 AS ABOVE
- 225 - 229 AS ABOVE

- 229 - 235 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-01%;
- 235 - 239 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%;
- 239 - 245 PHOSPHATE; YELLOWISH GRAY TO BLACK; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, CLAY-02%, LIMESTONE-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 245 - 249 AS ABOVE
- 249 - 255 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC GRAVEL-15%;
OTHER FEATURES: CALCAREOUS;
- 255 - 259 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%, PHOSPHATIC GRAVEL-01%;
- 259 - 265 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, CLAY-05%;
- 265 - 269 AS ABOVE
- 269 - 279 AS ABOVE
- 279 - 289 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, CLAY-05%;
- 289 - 299 AS ABOVE
- 299 - 310 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, LIMESTONE-10%, CLAY-05%;
- 310 - 315 AS ABOVE

- 315 - 325 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-05%;
- 325 - 330 AS ABOVE
- 330 - 335 AS ABOVE
- 335 - 340 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-05%;
- 340 - 350 AS ABOVE
- 350 - 360 AS ABOVE
- 360 - 370 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-05%;
- 370 - 380 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCITE-10%, PHOSPHATIC SAND-02%, PHOSPHATIC GRAVEL-02%;
- 380 - 390 LIMESTONE; GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
- 390 - 405 LIMESTONE; GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-02%;
- 405 - 415 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-02%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, WORM TRACES, FOSSIL FRAGMENTS;
- 415 - 420 AS ABOVE
- 420 - 430 AS ABOVE

- 430 - 440 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%, QUARTZ SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 440 - 450 AS ABOVE
- 450 - 455 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%, QUARTZ SAND-02%, CLAY-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 455 - 463 AS ABOVE
- 463 - 465 DOLOMITE; LIGHT BROWN; 05% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUMEDRAL;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: LIMESTONE-10%, QUARTZ SAND-08%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS, CORAL;
- 465 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|---------------------------|-----------------------------|--|-------------------|
| 0 -50 |  | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -100 |  | CALCITE CALCITE | | | |
| -150 -200 |  | | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | |
| -250 |  | SAND PHOSPHATE SAND | | | |
| -300 |  | | | | |
| -350 |  | CALCITE | | | |
| -400 |  | | | MID- HAWTHORN AQUIFER | |
| -450 |  | CALCITE | | | |
| -500 |  | | | | HAWTHORN GROUP |

HY115

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 116
TOTAL DEPTH: 00303 FT.
54 SAMPLES FROM 0 TO 303 FT.
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

COUNTY - HENDRY
LOCATION: T.43S R.29E S.09
LAT = N 26D 44M 48
LON = W 81D 26M 16
ELEVATION - 015 FT

OWNER/DRILLER: USGS WELL HE-429

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 83 SURFICIAL AQUIFER SYSTEM
0 83 WATER TABLE AQUIFER
83 168 UPPER HAWTHORN CONFINING ZONE
168 178 CARBONATE ZONE - SANDSTONE AQUIFER
178 303 MID HAWTHORN CONFINING ZONE

0. - 133. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
133. - 303. 122HTRN HAWTHORN GROUP

- 0 - 3 SAND; MODERATE YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, LIMESTONE-03%, IRON STAIN- %;
25% SANDSTONE, SHELLS (CHIONE CANCELLATA)
- 3 - 6 CALCILUTITE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS;
MICRITE REPLACED SHELL PIECES, CHIONE CANCELLATA
- 6 - 8 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 25% POROSITY, MOLDIC, VUGULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CRYSTALS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 8 - 12 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
GASTROPODS, CHIONE CANCELLATA
- 12 - 15 AS ABOVE
SAMPLE CONSISTS OF 50% WHOLE GASTROPOD SHELLS

- 15 - 19 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
WITH 7% GASTROPODS
- 19 - 23 AS ABOVE
- 23 - 25 AS ABOVE
- 25 - 30 LIMESTONE; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 30 - 35 SHELL BED; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%;
FOSSILS: BRYOZOA;
TURRITELLA, GASTROPODS
- 35 - 40 AS ABOVE
- 40 - 47 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, MOLDIC, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%;
- 47 - 55 LIMESTONE; MODERATE DARK GRAY; 05% POROSITY, MOLDIC, INTERGRANULAR;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: FOSSIL FRAGMENTS;
- 55 - 63 AS ABOVE
- 63 - 68 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: BRYOZOA;
- 68 - 79 AS ABOVE

- 79 - 83 LIMESTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: BRYOZOA;
- 83 - 103 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, SILT-05%, LIMESTONE-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 103 - 113 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, SILT-05%, LIMESTONE-05%, SHELL-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 113 - 123 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-20%, SILT-05%, LIMESTONE-05%, SHELL-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 123 - 128 AS ABOVE
POOR SAMPLE
- 128 - 133 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, MOLDIC, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-20%, QUARTZ SAND-15%;
FOSSILS: BRYOZOA;
- 133 - 138 DOLO-SILT; LIGHT GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 138 - 143 AS ABOVE
- 143 - 148 AS ABOVE
- 148 - 153 DOLO-SILT; LIGHT GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 153 - 158 AS ABOVE
- 158 - 163 AS ABOVE

- 163 - 168 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCITE-10%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 168 - 173 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-10%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 173 - 178 AS ABOVE
- 178 - 183 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
- 183 - 188 AS ABOVE
- 188 - 193 AS ABOVE
- 193 - 198 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
- 198 - 203 CLAY; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 203 - 208 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, LIMESTONE-02%;
FOSSILS: BRYOZOA;
- 208 - 211 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-02%;
- 211 - 215 AS ABOVE
- 215 - 223 LIMESTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-02%, CLAY-01%;
- 223 - 231 AS ABOVE

- 231 - 233 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-50%, PHOSPHATIC SAND-05%, CLAY-05%, PHOSPHATIC GRAVEL-02%;
- 233 - 238 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%, PHOSPHATIC GRAVEL-05%,
PHOSPHATIC SAND-02%;
- 238 - 243 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 243 - 248 AS ABOVE
- 248 - 255 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-10%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 255 - 263 AS ABOVE
WITH PHOSPHATIC SAND CONTENT DECREASING TO 1%
- 263 - 267 CALCILUTITE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCITE-05%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 267 - 274 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 274 - 280 DOLO-SILT; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 280 - 283 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCITE-25%, PHOSPHATIC SAND-01%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 283 - 288 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, SPICULES;

- 288 - 293 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-05%, LIMESTONE-05%;
- 293 - 303 AS ABOVE
WITH 5% CLAY
- 303 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|---|-----------------------------|--|-------------------|
| 0 | | SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | CALCITE | | | |
| -50 | | SAND SAND | | | |
| -75 | | CLAY SILT SILT SILT CLAY | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | |
| -100 | | SAND SAND SAND | | | |
| -125 | | SAND SAND SAND SAND | | SANDSTONE AQUIFER (CARBONATE ZONE) | |
| -150 | | SAND SAND SAND SAND | | | |
| -175 | | SAND SILT | | | |
| -200 | | SAND CALCITE CALCITE | | MID- HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -225 | | PHOSPHATE CALCITE SAND SAND PHOSPHATE | | | |
| -250 | | SAND | | | |
| -275 | | PHOSPHATE CALCITE SAND SAND | | | |
| -300 | | | | | |

HY116

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 117
TOTAL DEPTH: 00323 FT.
54 SAMPLES FROM 0 TO 323 FT.
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

COUNTY - HENDRY
LOCATION: T.43S R.29E S.16
LAT = N 26D 43M 57
LON = W 81D 26M 16
ELEVATION - 020 FT

OWNER/DRILLER: USGS WELL HE-431

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 51 SURFICIAL AQUIFER SYSTEM
0 51 WATER TABLE AQUIFER
51 128 UPPER HAWTHORN CONFINING ZONE
128 143 CLASTIC ZONE - SANDSTONE AQUIFER
143 159 CARBONATE ZONE - SANDSTONE AQUIFER
159 323 MID HAWTHORN CONFINING ZONE

0. - 83. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
83. - 323. 122HTRN HAWTHORN GROUP

- 0 - 8 SAND; DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%, IRON STAIN- %;
FOSSILS: FOSSIL FRAGMENTS;
- 8 - 10 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
ABUNDANT SHELL FRAGMENTS (CHIONE CANCELLATA)
- 10 - 16 AS ABOVE
WITH MORE SHELLS (60%)
- 16 - 23 SHELL BED; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-05%;
FOSSILS: BRYOZOA;
- 23 - 26 AS ABOVE
- 26 - 29 AS ABOVE
- 29 - 33 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;

- 33 - 38 AS ABOVE
- 38 - 43 AS ABOVE
- 43 - 51 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS;
- 51 - 63 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-02%, LIMESTONE-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 63 - 73 AS ABOVE
- 73 - 83 AS ABOVE
- 83 - 88 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMESTONE-30%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 88 - 93 AS ABOVE
- 93 - 98 AS ABOVE
- 98 - 103 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
WITH COARSE CLASTICS (5%)
- 103 - 115 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 115 - 123 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, BRYOZOA;
- 123 - 128 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-25%, LIMESTONE-05%;
FOSSILS: FOSSIL FRAGMENTS;

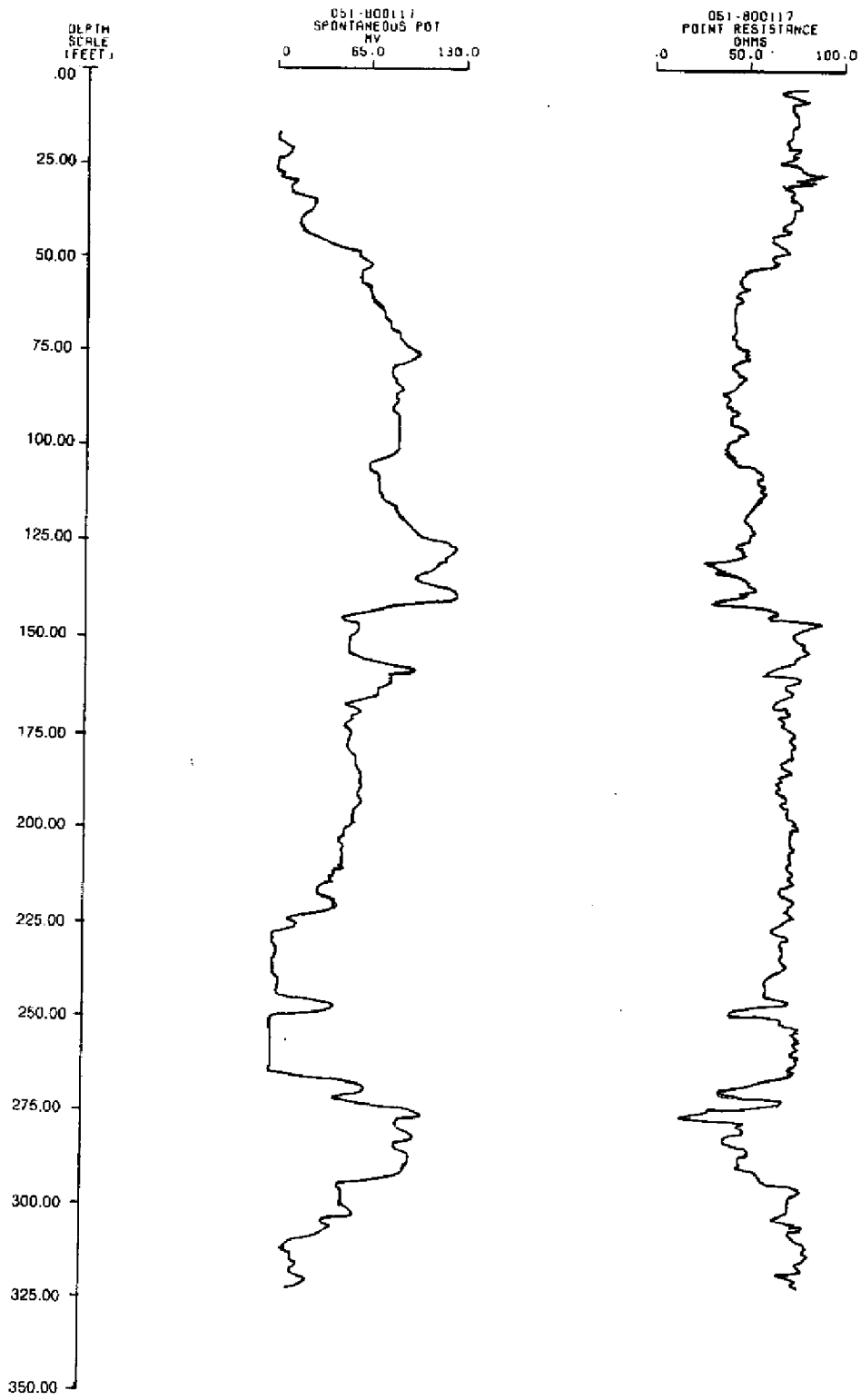
- 128 - 143 GRAVEL; LIGHT GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRAVEL; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC GRAVEL-10%, LIMESTONE-05%;
OTHER FEATURES: FROSTED;
- 143 - 150 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, CLAY-05%, QUARTZ-05%, PHOSPHATIC GRAVEL-01%;
- 150 - 159 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 159 - 163 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 163 - 168 AS ABOVE
- 168 - 173 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 173 - 178 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 178 - 183 AS ABOVE
- 183 - 188 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 188 - 193 AS ABOVE
- 193 - 198 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-30%;
FOSSILS: FOSSIL FRAGMENTS;
- 198 - 203 AS ABOVE

- 203 - 208 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-30%;
FOSSILS: FOSSIL FRAGMENTS;
- 208 - 213 AS ABOVE
- 213 - 220 AS ABOVE
- 220 - 223 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-30%;
FOSSILS: FOSSIL FRAGMENTS;
- 223 - 228 AS ABOVE
- 228 - 233 AS ABOVE
- 233 - 238 CLAY; LIGHT OLIVE GRAY TO MODERATE GRAYISH GREEN; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%;
- 238 - 243 AS ABOVE
- 243 - 247 AS ABOVE
- 247 - 253 CLAY; LIGHT OLIVE GRAY TO MODERATE GRAYISH GREEN; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%;
- 253 - 258 AS ABOVE
- 258 - 263 AS ABOVE
- 263 - 273 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 273 - 278 AS ABOVE
- 278 - 283 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 283 - 288 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 288 - 293 AS ABOVE
- 293 - 303 AS ABOVE

- 303 - 308 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 308 - 313 AS ABOVE
- 313 - 315 AS ABOVE
- 315 - 323 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 323 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|--|---------------------------------------|--|--------------------------|--|
| 0 | | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 | | SAND SAND SAND | | | | |
| -50 | | CLAY CALCITE CLAY | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | |
| -75 | | SAND SAND CLAY CLAY | | | | |
| -125 | | SAND PHOSPHATE PHOSPHATE QUARTZ | SANDSTONE AQUIFER | CLASTIC ZONE | UPPER CLASTIC ZONE | |
| -150 | | SAND SAND | | CARBONATE ZONE | | |
| -175 | | CALCITE SAND | MID- HAWTHORN CONFINING ZONE | | | |
| -225 | | SAND | | | | |
| -250 | | SAND SAND | | | | |
| -275 | | SAND | | | | |
| -300 | | SAND | LOWER CARBONATE ZONE | | | |
| -325 | | | | | | |

HY117



GEOPHYSICS, WELL HY-117 (HE-431)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 118 COUNTY - HENDRY
TOTAL DEPTH: 380 FT. LOCATION: T.45S R.29E S.20 B
37 SAMPLES FROM 0 TO 380 FT. LAT = N 26D 33M 32
 ELEVATION - 34 FT
 Elevation = W 81D 26M 10
COMPLETION DATE - 84/18/01
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC, GAMMA, LATERLOG, NEUTRON

OWNER/DRILLER: RTA-5 DRILLED BY ALVIN WOOSTER (SFWMD) MUD ROTARY; SR29 & CHURCH RD

WORKED BY: DESCRIBED BY SCOTT BURNS (6-15-84), SAMPLE QUALITY (600D)

HYDROGEOLOGIC UNITS

0 25 SURFICIAL AQUIFER SYSTEM
0 25 WATER TABLE AQUIFER
25 40 TAMIAMI CONFINING ZONE
40 50 LOWER TAMIAMI AQUIFER
50 60 NO SAMPLES
60 90 UPPER HAWTHORN CONFINING ZONE
90 130 CLASTIC ZONE - SANDSTONE AQUIFER
130 150 CONFINING ZONE
150 190 CARBONATE ZONE - SANDSTONE AQUIFER
190 335 MID HAWTHORN CONFINING ZONE
335 380 MID HAWTHORN AQUIFER

0. - 10. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
10. - 25. 122TMM TAMIAMI FM.
25. - 380. 122HTRN HAWTHORN GROUP

0 - 10 SANDSTONE; GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, SPAR-10%, PHOSPHATIC SAND-03%;
FOSSILS: NO FOSSILS;

10 - 20 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;
ACCESSORY MINERALS: QUARTZ SAND-40%, SPAR-10%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;

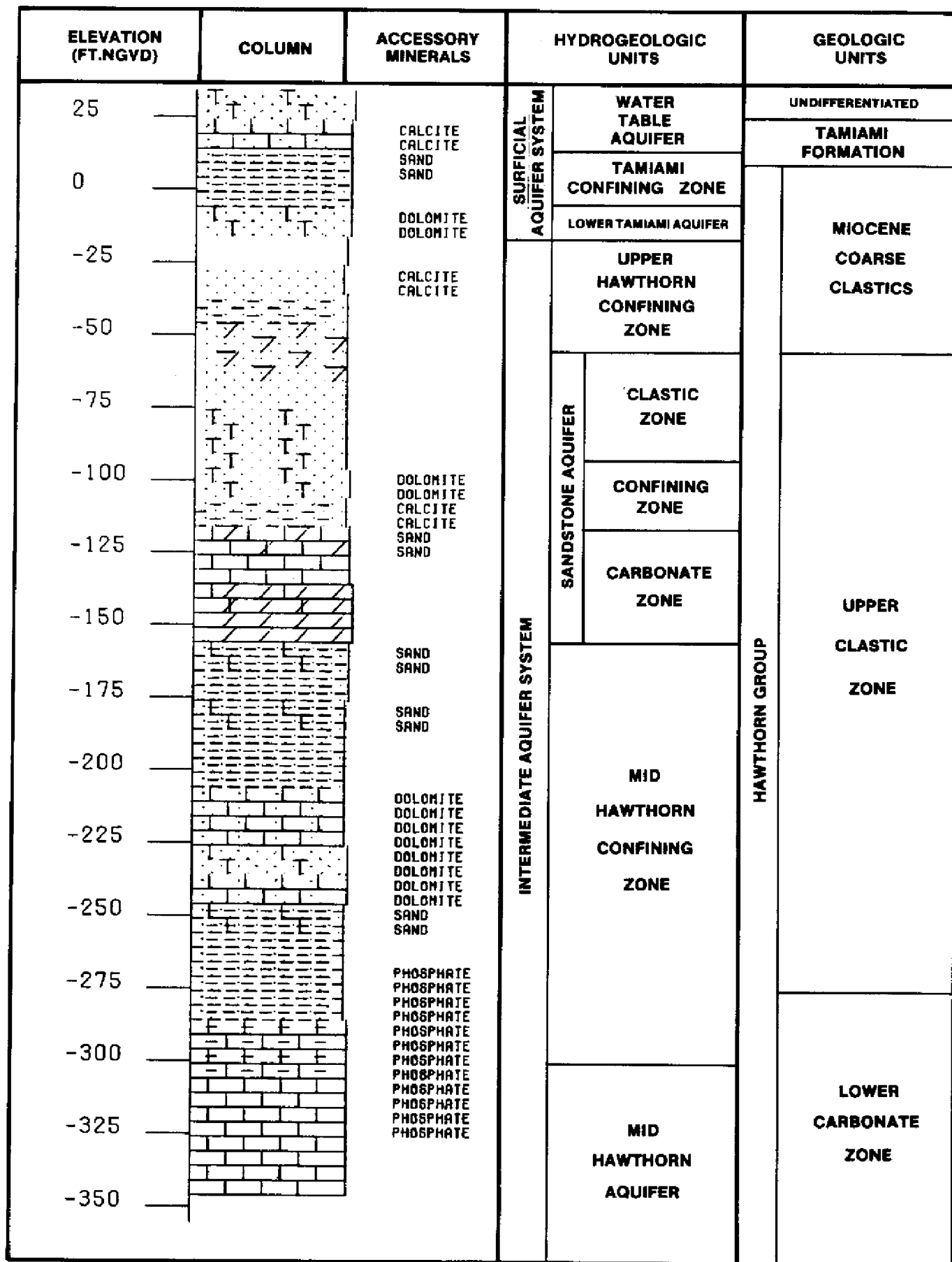
20 - 30 SILT; VERY LIGHT GRAY; NOT OBSERVED;
SEDIMENTARY STRUCTURES: STREAKED,
ACCESSORY MINERALS: QUARTZ SAND-05%, CLAY-15%, DOLOMITE-30%, IRON STAIN- 2%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
ELECTRIC LOGS INDICATE CONTACT OF SILT AND LIMESTONE AT 25FT

30 - 40 AS ABOVE

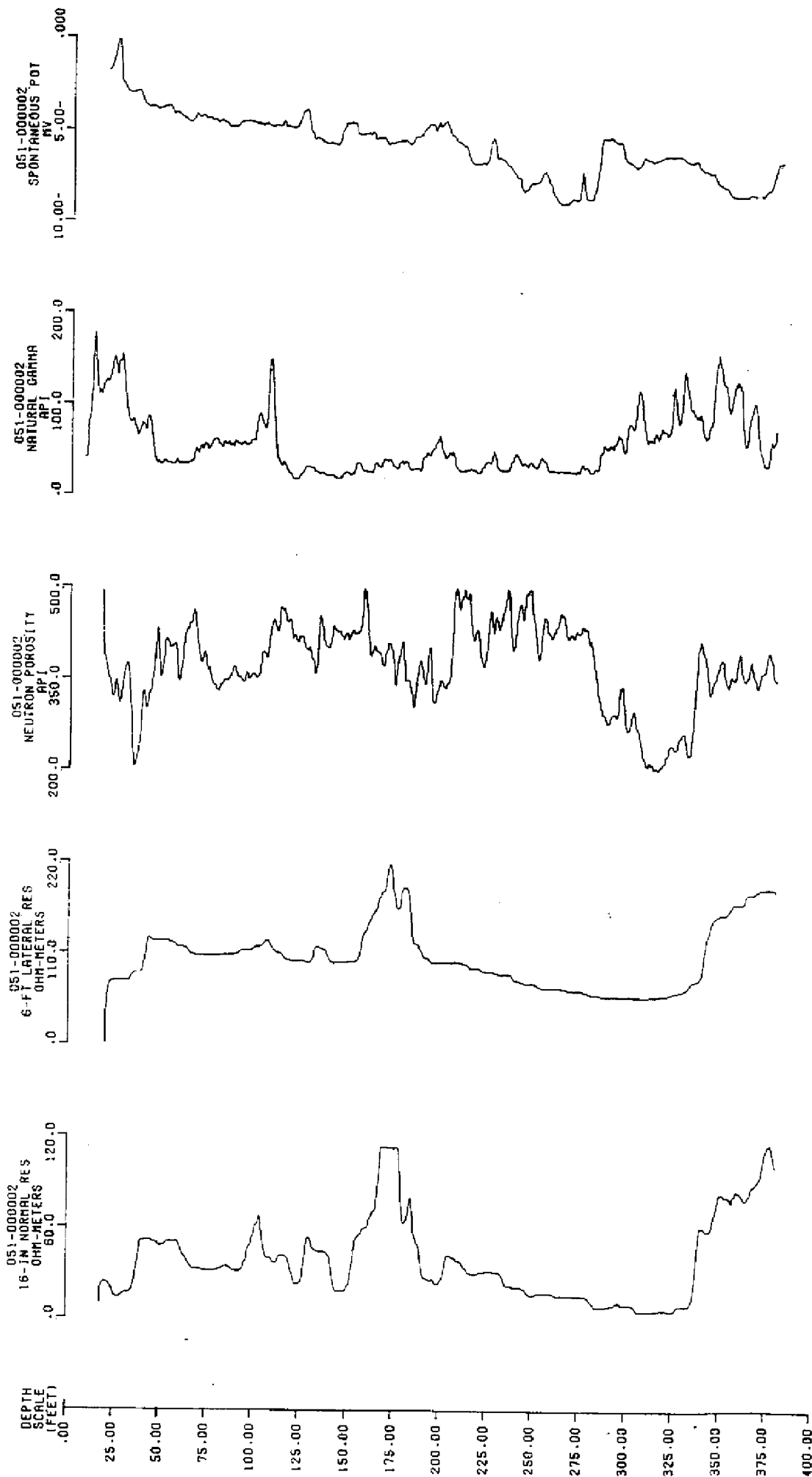
- 40 - 50 SAND; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-15%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, PLANT REMAINS;
- 50 - 60 NO SAMPLES
- 60 - 70 SAND; YELLOWISH GRAY TO LIGHT GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 70 - 80 SAND; GRAYISH OLIVE; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRANULE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%;
FOSSILS: NO FOSSILS;
- 80 - 90 AS ABOVE W/ LARGE MOLLUSK FRAG. 15% MICRITE CEMENT, 10% QUARTZ GRANULES
- 90 - 100 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: MEDIUM TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-35%, PHOSPHATIC GRAVEL-03%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
35% MOLLUSK FRAG REPLACED W/ DOLOMITE
- 100 - 110 AS ABOVE
- 110 - 120 AS ABOVE WITH 30% MICRITE CEMENT
- 120 - 130 SAND; VERY LIGHT GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 130 - 140 SANDSTONE; WHITE TO VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-15%;

- 140 - 150 SANDSTONE; LIGHT GREENISH YELLOW; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-10%;
- 150 - 160 LIMESTONE; WHITE; 12% POROSITY, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, DOLOMITE-20%;
ELECTRIC LOGS INDICATE LMS/SS CONTACT OCCURS AT 155FT
- 160 - 170 AS ABOVE
- 170 - 180 DOLOMITE; MODERATE ORANGE PINK; 12% POROSITY, PIN POINT VUGS,
INTERGRANULAR; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
GOOD INDURATION;
ACCESSORY MINERALS: CALCILUTITE-15%, SPAR-10%;
- 180 - 190 AS ABOVE
- 190 - 200 SILT; WHITE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-40%, DOLOMITE-30%, LIMESTONE-15%, QUARTZ SAND-05%;
OTHER FEATURES: CALCAREOUS, CHALKY;
FOSSILS: NO FOSSILS;
- 200 - 210 AS ABOVE
- 210 - 220 SILT; VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-35%, DOLOMITE-25%;
OTHER FEATURES: CALCAREOUS, CHALKY;
FOSSILS: NO FOSSILS;
- 220 - 230 AS ABOVE
- 230 - 240 AS ABOVE
- 240 - 250 AS ABOVE WITH 5% SHELL FRAG.
- 250 - 260 LIMESTONE; YELLOWISH GRAY; 13% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, DOLOMITE-20%, PHOSPHATIC SAND-02%;
- 260 - 270 SANDSTONE; YELLOWISH GRAY;
GRAIN SIZE: VERY COARSE; RANGE: MEDIUM TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-15%, CALCILUTITE-30%, PHOSPHATIC SAND-02%;
- 270 - 280 LIMESTONE; YELLOWISH GRAY; 13% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-45%, DOLOMITE-20%, PHOSPHATIC SAND-02%;

- 280 - 290 SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-25%, PHOSPHATIC SAND-02%;
- 290 - 300 CLAY; LIGHT OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC;
- 300 - 310 AS ABOVE WITH PHOSPHATIC GRAVEL
- 310 - 320 CLAY; LIGHT OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, LIMESTONE-15%, PHOSPHATIC SAND-08%;
OTHER FEATURES: PLASTIC;
- 320 - 330 AS ABOVE WITH 8% PHOSPHATIC GRANULES
- 330 - 340 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;
ACCESSORY MINERALS: CLAY-25%, QUARTZ SAND-20%, PHOSPHATIC SAND-08%;
FOSSILS: FOSSIL FRAGMENTS;
ELECTRIC LOGS INDICATE DOLOSILT/LMS CONTACT OCCURS AT 335 FT.
- 340 - 360 LIMESTONE; WHITE; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY COARSE; RANGE: MICROCRYSTALLINE TO GRANULE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-08%;
FOSSILS: FOSSIL FRAGMENTS;
- 360 - 370 AS ABOVE
- 370 - 380 AS ABOVE
- 380 TOTAL DEPTH



HY 118



GEOPHYSICS, WELL HY-118

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 119 COUNTY - HENDRY
TOTAL DEPTH: 380 FT. LOCATION: T.44S R.29E S.16 B
36 SAMPLES FROM 0 TO 380 FT. LAT = N 26D 38M 45
LON = W 81D 26M 12
COMPLETION DATE - 25/01/84 ELEVATION - 28 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, CALIPER, ELECTRIC, GAMMA, LATERLO

OWNER/DRILLER: RTA6(HE-008)DRILLED BY WOOSTER(SFWM), SEARS ROAD & SR 29

WORKED BY: DESCRIBED BY SCOTT BURNS (6-15-84), SAMPLE QUALITY (GOOD)
HYDROGEOLOGIC UNITS

0.0 40.0 SURFICIAL AQUIFER SYSTEM
0.0 40.0 WATER TABLE AQUIFER
40.0 140.0 UPPER HAWTHORN CONFINING ZONE
140.0 180.0 CARBONATE ZONE - SANDSTONE AQUIFER
180.0 370.0 MID HAWTHORN CONFINING ZONE
370.0 380.0 MID HAWTHORN AQUIFER

0. - 20 . 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
20. - 40 . 122TMIH TAMiami FM.
40. - 380 . 122HTAN HAWTHORN GROUP

- 0 - 10 SANDSTONE; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-15%, IRON STAIN- 2%;
FOSSILS: NO FOSSILS;
- 10 - 10 SANDSTONE; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-15%, IRON STAIN- 2%;
FOSSILS: NO FOSSILS;
- 10 - 20 SANDSTONE; VERY LIGHT GRAY TO YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; LOW SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-40%, SPAR-10%;
FOSSILS: NO FOSSILS;
- 20 - 30 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 25% ALLOCHEMICAL CONSTITUENTS;
RANGE: CRYPTOCRYSTALLINE TO CRYPTOCRYSTALLINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-04%;
FOSSILS: NO FOSSILS;

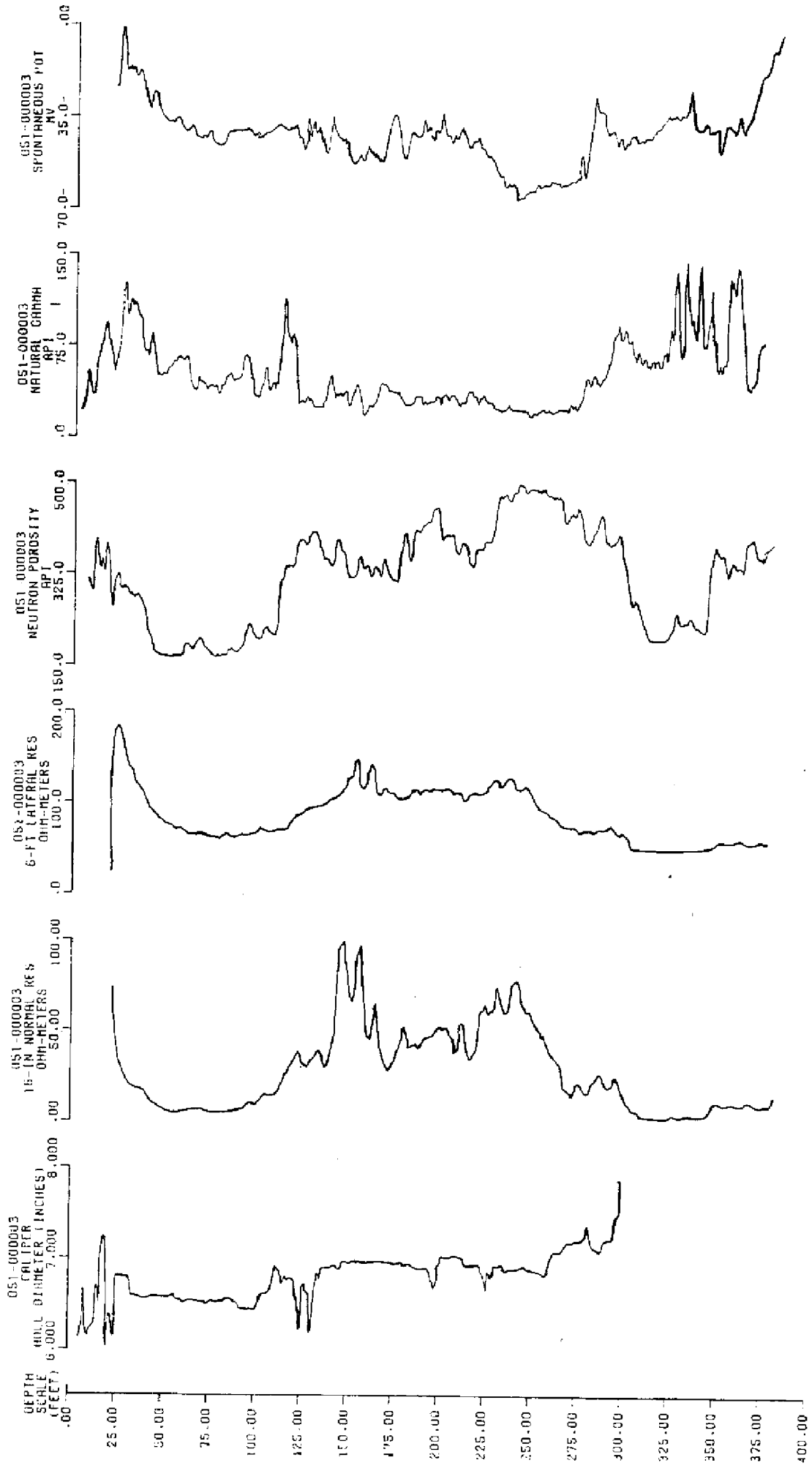
- 30 - 40 SANDSTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-10%, PHOSPHATIC SAND-03%, IRON STAIN- 2%;
FOSSILS: MOLLUSKS;
OSTREA FRAGMENTS
- 40 - 50 CLAY; YELLOWISH GRAY; 10% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-02%, IRON STAIN- 2%;
OTHER FEATURES: PLASTIC;
FOSSILS: NO FOSSILS;
- 50 - 60 AS ABOVE
- 60 - 70 SILT; LIGHT OLIVE GRAY; 10% POROSITY, LOW PERMEABILITY;
FOSSILS: BENTHIC FORAMINIFERA;
- 70 - 80 CLAY; OLIVE GRAY; 10% POROSITY, LOW PERMEABILITY; POOR INDURATION;
OTHER FEATURES: PLASTIC;
FOSSILS: BENTHIC FORAMINIFERA, DIATOMS;
- 80 - 90 AS ABOVE
- 90 - 100 CLAY; LIGHT OLIVE; 10% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 110 AS ABOVE
- 110 - 120 SAND; MODERATE GRAYISH GREEN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-40%, PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 120 - 130 SILT; GRAYISH OLIVE TO WHITE; 12% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, DOLOMITE-20%;
05% QUARTZ GRAVEL
- 130 - 140 AS ABOVE
- 140 - 150 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY; 15% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CLAY-20%, DOLOMITE-10%;
- 150 - 160 AS ABOVE WITH LESS SILT
- 160 - 170 LIMESTONE; WHITE; 17% POROSITY, VUGULAR, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, DOLOMITE-10%;

- 170 - 180 LIMESTONE; WHITE; 12% POROSITY, VUGULAR, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, DOLOMITE-20%;
OTHER FEATURES: CHALKY;
- 180 - 190 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;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-30%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
MED. GRAINED SUBANGULAR SAND
- 190 - 200 AS ABOVE
- 200 - 220 NO SAMPLES
- 220 - 230 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-02%, DOLOMITE-15%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
2% QTZ GRANULES
- 230 - 240 AS ABOVE
- 240 - 250 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, DOLOMITE-15%;
FOSSILS: NO FOSSILS;
5% QTZ GRAVEL
- 250 - 270 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, DOLOMITE-20%;
- 270 - 290 SILT; YELLOWISH GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-35%, CLAY-35%, PHOSPHATIC SAND-01%;
OTHER FEATURES: PLASTIC;
FOSSILS: NO FOSSILS;
- 290 - 300 SILT; YELLOWISH GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-04%, CLAY-35%, CALCILUTITE-45%;
- 300 - 310 SANDSTONE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, PHOSPHATIC SAND-10%;

- 310 - 330 CLAY; LIGHT OLIVE GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%;
OTHER FEATURES: POOR SAMPLE, PLASTIC;
- 330 - 340 CLAY; GREENISH GRAY; LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC;
- 340 - 360 CLAY; GREENISH GRAY; LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: LIMESTONE-25%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC;
FOSSILS: FOSSIL FRAGMENTS;
- 360 - 370 CLAY; GREENISH GRAY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-04%;
- 370 - 380 CALCILUTITE; WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 380 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|----------------------|--------|--|-----------------------------|---|----------------------------|
| 25 | | CALCITE CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| 0 | | CALCITE CALCITE SAND SAND | | | TAMIAMI FORMATION |
| -25 | | SAND SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -50 | | SAND SAND | | | |
| -75 | | DOLOMITE DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | SANDSTONE AQUIFER (CARBONATE ZONE) | UPPER CLASTIC ZONE |
| -100 | | SAND SAND SAND SAND SAND SAND SAND DOLOMITE DOLOMITE | | | |
| -125 | | SAND SAND | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -150 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | | | |
| -175 | | SAND SAND | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -200 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | | | |
| -225 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -250 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | | | |
| -275 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -300 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | | | |
| -325 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -350 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE SAND SAND SAND SAND SAND SAND PHOSPHATE PHOSPHATE | | | |
| -375 | | PHOSPHATE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN AQUIFER | LOWER CARBONATE ZONE |

HY 119



GEOPHYSICS, WELL HY-119

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 120 COUNTY - HENDRY
TOTAL DEPTH: 380 FT. LOCATION: T.44S R.28E S.16 E
38 SAMPLES FROM 0 TO 380 FT. LAT = N 26D 39M 12
LON = W 81D 31M 58
COMPLETION DATE - 84/13/03 ELEVATION - 25 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, GAMMA, LATERLOG, NEUTRO
OWNER/DRILLER: RTA-9 DRILLED BY ALVIN WOODSTER (SFWMD) MUD ROTARY;A.DUDA & SONS
WORKED BY: DESCRIBED BY SCOTT BURNS (6-16-83),SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0 20 SURFICIAL AQUIFER SYSTEM
0 20 WATER TABLE AQUIFER
20 50 UPPER HANTHORN CONFINING ZONE
50 80 CLASTIC ZONE - SANDSTONE AQUIFER
80 150 CONFINING ZONE
150 190 CARBONATE ZONE - SANDSTONE AQUIFER

0. - 20. 090UDSC UNDIFFERENTIATED SAND AND CLAY
20. - 380. 122HTRN HANTHORN GROUP

- 0 - 3 SAND; VERY LIGHT GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
FOSSILS: PLANT REMAINS;
- 3 - 10 LIMESTONE; VERY LIGHT GRAY; 08% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, SPAR-10%, HEMATITE-02%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
VERY FEW FOSSIL FRAGMENTS, MODERATELY SOLUTIONED
- 10 - 20 LIMESTONE; VERY LIGHT ORANGE; 10% POROSITY, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, SPAR-15%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 30 SILT; YELLOWISH GRAY; LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-25%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC;
- 30 - 40 AS ABOVE

- 40 - 50 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-40%, DOLOMITE-15%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;
- 50 - 60 SAND; VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
FOSSILS: NO FOSSILS;
- 60 - 70 SAND; VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-01%;
FOSSILS: NO FOSSILS;
LARGE AMOUNT OF FINES WASHED OUT BY DRILL MUD
- 70 - 80 SAND; LIGHT OLIVE GRAY; 13% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;
- 80 - 90 SAND; LIGHT GRAYISH GREEN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: SILT-25%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;
3% ROUNDED QTZ GRAVEL
- 90 - 100 SANDSTONE; LIGHT GRAYISH GREEN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-10%, PHOSPHATIC SAND-02%, QUARTZ SAND- 2%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 110 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-10%, PHOSPHATIC SAND-02%;
OTHER FEATURES: MUDDY;
- 110 - 120 SAND; LIGHT GRAYISH GREEN; 18% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%, CALCILUTITE-10%;

- 120 - 140 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%;
- 140 - 150 SAND; LIGHT GRAYISH GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-10%;
FOSSILS: NO FOSSILS;
10% QZ PEBBLES
- 150 - 160 DOLOMITE; VERY LIGHT GRAY; 18% POROSITY, INTERGRANULAR, PIN POINT VUGS;
SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 160 - 170 DOLOMITE; VERY LIGHT GRAY TO GRAYISH ORANGE; 15% POROSITY, PIN POINT VUGS, MOLDIC,
INTERGRANULAR;
GOOD INDURATION;
ACCESSORY MINERALS: CALCILUTITE-50%, DOLOMITE-50%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 170 - 180 DOLOMITE; GRAYISH ORANGE; 18% POROSITY, PIN POINT VUGS, INTERGRANULAR;
SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
GOOD INDURATION;
ACCESSORY MINERALS: CALCILUTITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 180 - 190 LIMESTONE; VERY LIGHT GRAY TO GRAYISH ORANGE; 15% POROSITY, MOLDIC, PIN POINT VUGS,
INTERGRANULAR;
GRAIN TYPE: SKELETAL, CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
ACCESSORY MINERALS: DOLOMITE-35%, QUARTZ SAND-10%;
- 190 - 200 CLAY; LIGHT GRAYISH GREEN; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-02%;
- 200 - 210 AS ABOVE
- 210 - 220 CALCILUTITE; WHITE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-25%;
OTHER FEATURES: PLASTIC;
- 220 - 230 AS ABOVE WITH INCREASED DOLOSILT

- 230 - 240 CLAY; LIGHT GREENISH GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-20%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;
- 240 - 250 AS ABOVE
- 250 - 260 CLAY; LIGHT OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-20%, PHOSPHATIC SAND-04%;
- 260 - 270 AS ABOVE
- 270 - 280 CLAY; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-45%, CALCILUTITE-15%, PHOSPHATIC SAND-08%;
OTHER FEATURES: PLASTIC;
FOSSILS: NO FOSSILS;
- 280 - 290 AS ABOVE WITH 20% SUBANGULAR QTZ SAND
- 290 - 300 CLAY; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-04%;
OTHER FEATURES: PLASTIC;
- 300 - 310 AS ABOVE
- 310 - 320 CLAY; LIGHT OLIVE; 08% POROSITY, LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;
- 320 - 330 AS ABOVE WITH INCREASE IN VERY FINE PHOSPHATE (15%)
- 330 - 340 LIMESTONE; LIGHT GREENISH YELLOW; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-20%, PHOSPHATIC SAND-08%;
FOSSILS: NO FOSSILS;
- 340 - 360 AS ABOVE
- 360 - 370 CLAY; LIGHT OLIVE TO WHITE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%, PHOSPHATIC SAND-05%, QUARTZ SAND-15%;
- 370 - 380 CLAY; LIGHT OLIVE; LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-15%, PHOSPHATIC SAND-08%;
- 380 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|----------------------|--------|--|--------------------------------|---------------------------------------|-------------------------------------|
| 25 0 | | SAND CALCITE CALCITE CALCITE SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | DOLOMITE DOLOMITE | | SANDSTONE AQUIFER | UPPER HAWTHORN CONFINING ZONE |
| -50 | | CALCITE CALCITE | CLASTIC ZONE | | |
| -75 | | CLAY CLAY CALCITE CALCITE CALCITE CALCITE | CONFINING ZONE | | |
| -100 | | CALCITE CALCITE SAND SAND DOLOMITE DOLOMITE | CARBONATE ZONE | | |
| -125 | | SAND SAND SAND SAND | | | |
| -150 | | CALCITE CALCITE CALCITE CALCITE | INTERMEDIATE AQUIFER SYSTEM | MID- HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -175 | | CALCITE CALCITE | | | |
| -200 | | PHOSPHATE PHOSPHATE | | | |
| -225 | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | | | |
| -250 | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | | | |
| -275 | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | | | |
| -300 | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | | | |
| -325 -350 -375 | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | | | |

HY120

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 121 COUNTY - HENDRY
 TOTAL DEPTH: 260 FT. LOCATION: T.45S R.28E S.06 D
 24 SAMPLES FROM 0 TO 260 FT. LAT = N 26D 35M 18
 LON = W 81D 33M 28
 COMPLETION DATE - N/A ELEVATION - 28 FT
 OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST

OWNER/DRILLER: H-M-120, MUD ROTARY; TURNER CORP NORTH SITE

WORKED BY: DESCRIBED BY SCOTT BURNS (6-18-84), SAMPLE QUALITY (POOR)

HYDROGEOLOGIC UNITS

- 0 20 SURFICIAL AQUIFER SYSTEM
 - 0 20 WATER TABLE AQUIFER
 - 20 125 UPPER HAWTHORN CONFINING ZONE
 - 125 159 CLASTIC ZONE - SANDSTONE AQUIFER
 - 159 189 CARBONATE ZONE - SANDSTONE AQUIFER
 - 189 260 MID HAWTHORN CONFINING ZONE
-
- 0. - 5. 090UDSC UNDIFFERENTIATED SAND AND CLAY
 - 5. - 20. 122TMIN TAMiami FM.
 - 20. - 25. 000NOSH NO SAMPLES
 - 25. - 260. 122HTRN HAWTHORN GROUP
-
- 0 - 5 SAND; LIGHT BROWN; 20% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
 ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
 CEMENT TYPE(S): IRON CEMENT;
 ACCESSORY MINERALS: HEAVY MINERALS-10%;
 - 5 - 15 LIMESTONE; LIGHT BROWN TO VERY LIGHT ORANGE; 20% POROSITY, VUGULAR, INTERGRANULAR;
 GRAIN TYPE: CALCILUTITE, SKELTAL CAST; 20% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
 ACCESSORY MINERALS: QUARTZ SAND-20%, DOLOMITE-40%, IRON STAIN- 2;
 - 15 - 20 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
 GRAIN TYPE: CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
 ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-10%;
 OTHER FEATURES: CHALKY;
 - 20 - 25 NO SAMPLES
 - 25 - 30 SILT; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
 ACCESSORY MINERALS: DOLOMITE-40%, CLAY-20%, CALCILUTITE-30%, QUARTZ SAND-10%;
 OTHER FEATURES: CALCAREOUS, PLASTIC, POOR SAMPLE;
 FOSSILS: BENTHIC FORAMINIFERA, DIATOMS;
 - 30 - 40 SILT; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
 ACCESSORY MINERALS: DOLOMITE-30%, CALCILUTITE-30%, CLAY-20%, QUARTZ SAND-15%;
 OTHER FEATURES: CALCAREOUS, PLASTIC, POOR SAMPLE;
 FOSSILS: BENTHIC FORAMINIFERA, DIATOMS;

- 40 - 66 CLAY; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-02%;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;
- 66 - 72 CLAY; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-03%;
15% RECRYSTALIZED SHELL FRAGMENT
- 72 - 85 CLAY; GRAYISH OLIVE; 08% POROSITY, LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-20%, DOLOMITE-20%;
FOSSILS: BENTHIC FORAMINIFERA;
DOLOMITE, GREY, WELL LITHIFIED, HIGHLY RECRYSTALIZED; SAND VERY FINE TO FINE, SUBANGULAR
- 85 - 90 AS ABOVE WITH 10% FROSTED QTZ GRANULES
- 90 - 100 SILT; MODERATE GRAYISH GREEN TO MODERATE LIGHT GRAY; 12% POROSITY, INTERGRANULAR;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-45%, DOLOMITE-30%, CALCILUTITE-25%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS;
- 100 - 110 SAND; MODERATE GRAYISH GREEN; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%;
OTHER FEATURES: FROSTED;
MATRIX (DOLOMITE 30%) IS DOLOSILT
- 110 - 125 SILT; GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-35%;
OTHER FEATURES: CALCAREOUS;
- 125 - 135 SAND; GRAYISH OLIVE; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-35%;
FOSSILS: FOSSIL FRAGMENTS;
5% WHITE MOLLUSK FRAGMENTS
- 135 - 145 AS ABOVE WITH INCREASE PERCENTAGE OF ROUNDED QTZ GRANULES (30%)
- 145 - 159 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: SILT-30%, DOLOMITE-10%;
OTHER FEATURES: FROSTED;

- 159 - 170 DOLOMITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 14% POROSITY, MOLDIC, VUGULAR, POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL; GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION; ACCESSORY MINERALS: LIMESTONE-35%, QUARTZ SAND-10%; OTHER FEATURES: PLATY; FOSSILS: FOSSIL FRAGMENTS;
- 170 - 183 AS ABOVE
- 183 - 189 DOLOMITE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN; 15% POROSITY, MOLDIC, VUGULAR, POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL; GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE; GOOD INDURATION; ACCESSORY MINERALS: QUARTZ SAND-10%, LIMESTONE-30%; FOSSILS: FOSSIL FRAGMENTS;
- 189 - 197 CLAY; LIGHT OLIVE GRAY; NOT OBSERVED; POOR INDURATION; ACCESSORY MINERALS: LIMESTONE-20%, QUARTZ SAND-10%, PHOSPHATIC SAND-02%; OTHER FEATURES: CALCAREOUS, PLASTIC, POOR SAMPLE; LIMESTONE FRAGMENTS IN SAMPLE MAY BE CAVINGS FROM ABOVE
- 197 - 205 NO SAMPLES
- 205 - 217 CLAY; LIGHT OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION; ACCESSORY MINERALS: LIMESTONE-30%, QUARTZ SAND-20%; OTHER FEATURES: CALCAREOUS, PLASTIC, POOR SAMPLE; FOSSILS: FOSSIL FRAGMENTS, PLANT REMAINS;
- 217 - 228 CLAY; GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION; ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-20%, PHOSPHATIC SAND-01%; OTHER FEATURES: CHALKY, PLASTIC; FOSSILS: NO FOSSILS;
- 228 - 242 AS ABOVE WITH 30% WELL INDURATED DOLOMITE, POSSIBLY A STRINGER OR CAVINGS. 35% SUBANGULAR SAND
- 242 - 252 CLAY; GREENISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION; ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-30%, PHOSPHATIC SAND-03%; OTHER FEATURES: CALCAREOUS, PLASTIC; FOSSILS: NO FOSSILS;
- 252 - 260 AS ABOVE
- 260 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|----------------------|--------|--|-----------------------------------|--|----------------------|-------------------|
| 25 | | HEAVY MINS. SAND SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| 0 | | SAND SAND SAND | | | TAMIAMI FORMATION | |
| -25 | | | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | |
| -50 | | DOLOMITE SAND SAND CALCITE CALCITE CALCITE | | | | |
| -75 | | DOLOMITE DOLOMITE DOLOMITE | | | | |
| -100 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE CALCITE SAND SAND | | SANDSTONE AQUIFER | | CLASTIC ZONE |
| -125 | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE CALCITE SAND SAND | | | | CARBONATE ZONE |
| -150 | | CALCITE SAND SAND CALCITE | | MID HAWTHORN CONFINING ZONE | | |
| -175 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | |
| -200 | | | | | | |
| -225 | | | | | | |
| -250 | | | | | | |

HY 121

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 122 COUNTY - HENDRY
TOTAL DEPTH: 200 FT. LOCATION: T.45S R.28E S.10 D
20 SAMPLES FROM 0 TO 200 FT. LAT = N 26D 34M 30
LON = W 81D 30M 30
COMPLETION DATE - / / 73 ELEVATION - 32 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC

OWNER/DRILLER: HE-570 DRILLED BY USGS, 4.5 MI WEST SR29, 1 MI NORTH CHURCH RD

WORKED BY: DESCRIBED BY SCOTT BURNS (6-26-84) SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

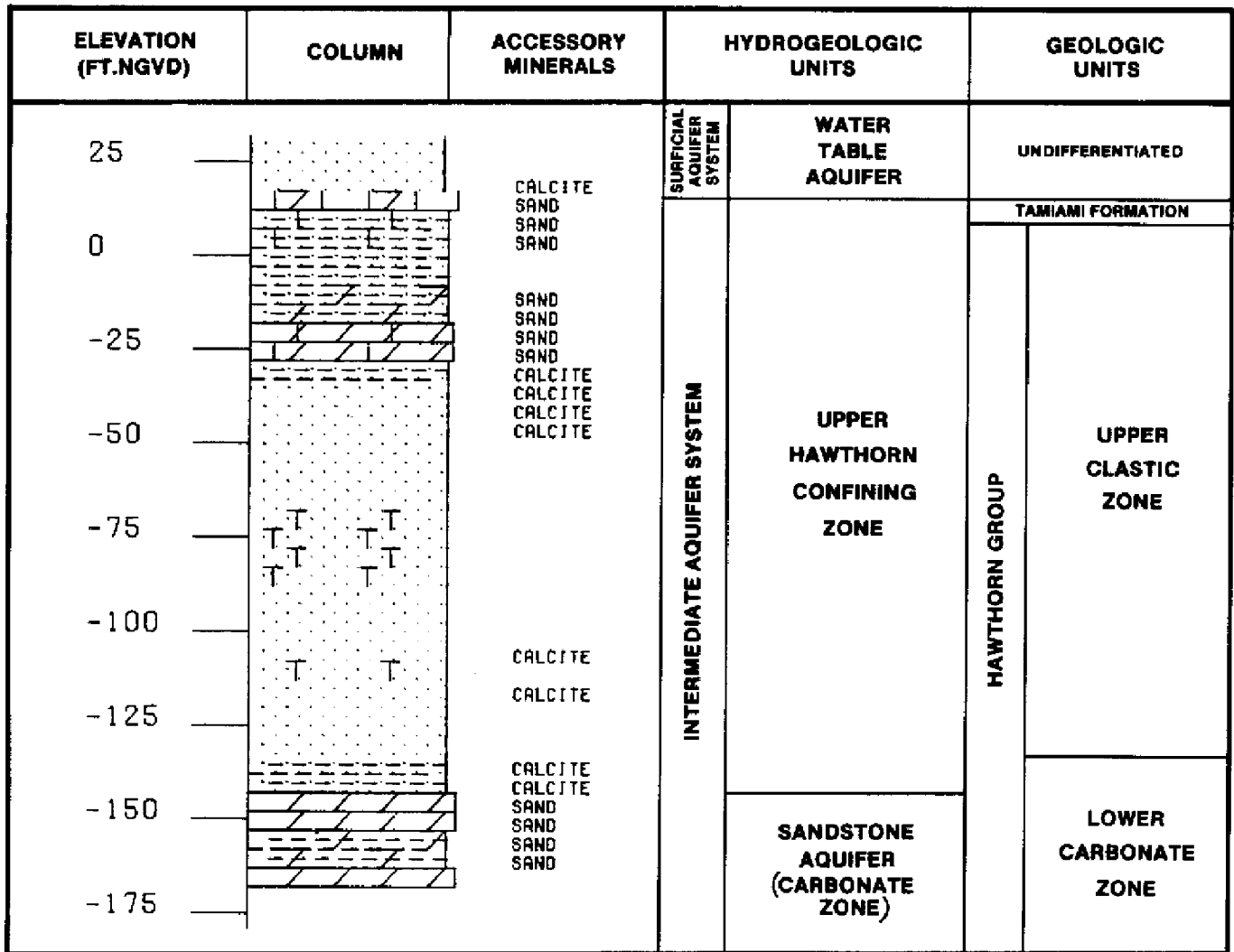
0 20 SURFICIAL AQUIFER SYSTEM
0 20 WATER TABLE AQUIFER
20 175 UPPER HAWTHORN CONFINING ZONE
175 200 CARBONATE ZONE - SANDSTONE AQUIFER

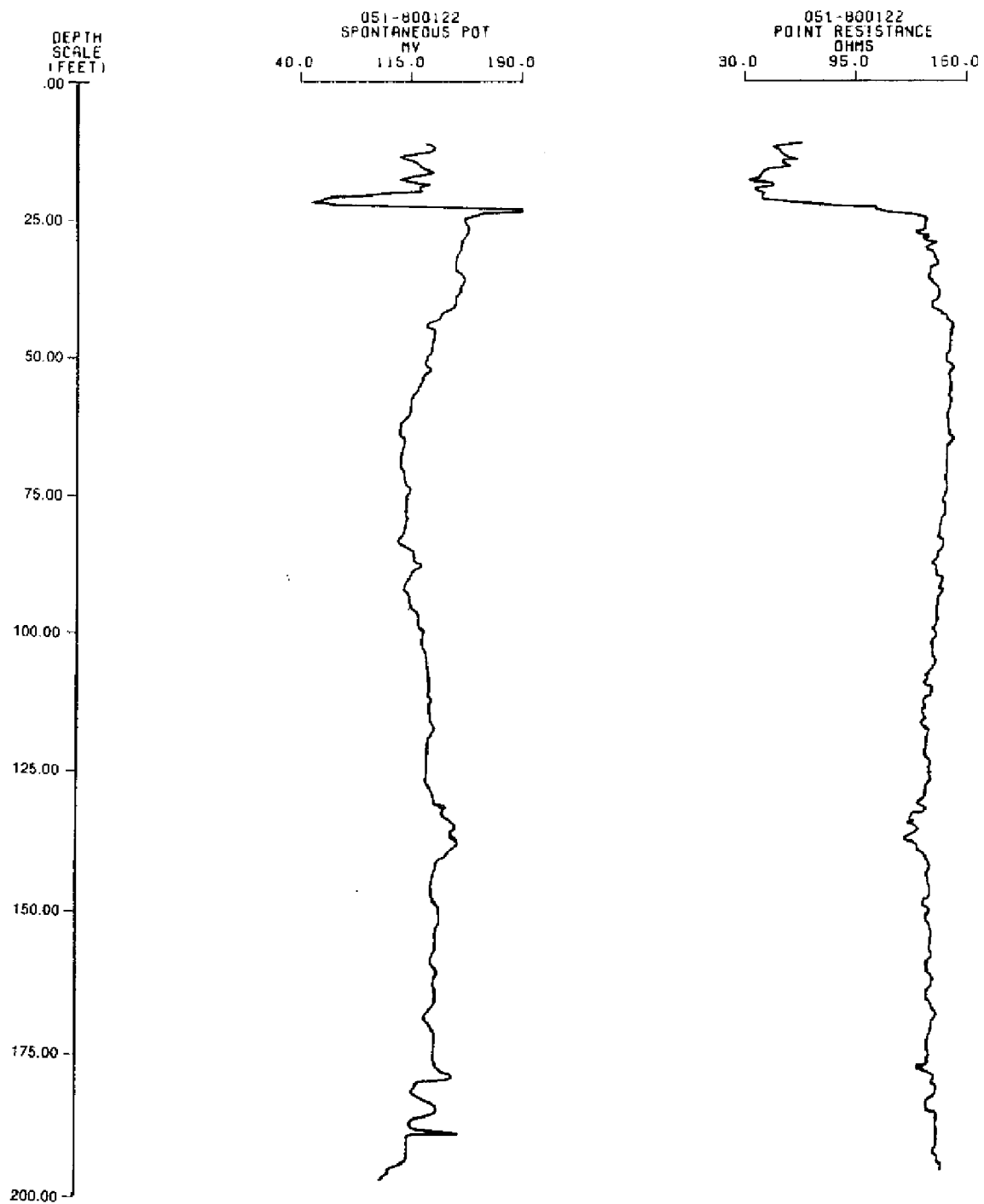
0. - 13. 090UDSC UNDIFFERENTIATED SAND AND CLAY
13. - 20. 122TMM TAMiami FM.
20. - 200. 122HTRN HAWTHORN GROUP

- 0 - 4 SAND; LIGHT GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMONITE-02%;
FOSSILS: PLANT REMAINS;
- 4 - 13 SAND; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
FOSSILS: NO FOSSILS;
- 13 - 15 SANDSTONE; MODERATE YELLOWISH BROWN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-15%, SPAR-02%, LIMESTONE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 15 - 20 LIMESTONE; WHITE; 13% POROSITY, PIN POINT VUGS, MOLDIC, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
GOOD INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, SPAR-02%, QUARTZ SAND-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 20 - 30 SILT; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, DOLOMITE-25%, PHOSPHATIC SAND-03%, CALCILUTITE-30%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: FOSSIL FRAGMENTS;
3% APPATITE CRYSTALS
- 30 - 40 AS ABOVE

- 40 - 50 SILT; VERY LIGHT GRAY; 00% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, DOLOMITE-30%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: FOSSIL FRAGMENTS;
- 50 - 60 DOLOMITE; WHITE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 60 - 65 SILT; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-20%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: FOSSIL FRAGMENTS;
- 65 - 80 SAND; VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%;
OTHER FEATURES: FROSTED;
FOSSILS: NO FOSSILS;
- 80 - 100 AS ABOVE
- 100 - 100 AS ABOVE
POORLY SORTED, VERY FINE TO VERY COARSE
- 100 - 120 SANDSTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%;
OTHER FEATURES: FROSTED;
FOSSILS: PLANT REMAINS;
- 120 - 137 AS ABOVE
10% ROUNDED QTZ GRANULES
- 137 - 137 AS ABOVE
- 137 - 148 SANDSTONE; YELLOWISH GRAY TO WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
FOSSILS: PLANT REMAINS;
- 148 - 157 AS ABOVE
- 157 - 165 AS ABOVE

- 165 - 175 SILT; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, PIN POINT VUGS; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-30%, DOLOMITE-30%;
FOSSILS: NO FOSSILS;
- 175 - 185 DOLOMITE; VERY LIGHT GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
90-100% ALTERED; EUHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 185 - 195 CLAY; WHITE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-40%, QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 195 - 200 DOLOMITE; VERY LIGHT ORANGE; 12% POROSITY, PIN POINT VUGS, MOLDIC,
INTERGRANULAR; EUHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 200 TOTAL DEPTH





GEOPHYSICS, WELL HY-122 (HE-570)

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 123
TOTAL DEPTH: 1000 FT.
34 SAMPLES FROM 0 TO 1000 FT.

COUNTY - HENDRY
LOCATION: T.44S R.30E S.20 A
LAT = N 26D 38M 40
LON = W 81D 20M 45

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST

ELEVATION - 27 FT

OWNER/DRILLER: DRILLED BY EXON MUD ROTARY

WORKED BY: DESCRIBED BY SCOTT BURNS (7-3-84), SAMPLE QUALITY FAIR
HYDROGEOLOGIC UNITS

0 60 SURFICIAL AQUIFER SYSTEM
0 60 WATER TABLE AQUIFER
60 810 HAWTHORN CONFINING ZONE
810 900 LOWER HAWTHORN/TAMPA PRODUCING ZONE
930 1000 SUWANNEE AQUIFER

0. - 30. 090UDSC UNDIFFERENTIATED SAND AND CLAY
30. - 60. 122TMIN TAMiami FM.
60. - 930. 122HTRN HAWTHORN GROUP
930. - 1000. 123SWNN SUWANNEE LIMESTONE

0 - 30 SAND; GRAYISH ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, SPAR-07%, LIMESTONE-10%;
OTHER FEATURES: FROSTED;
LIMESTONE FRAGMENTS WELL LITHOFIED MICRITE W/ 15% SAND

30 - 60 LIMESTONE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-20%, DOLOMITE-20%;
FOSSILS: FOSSIL FRAGMENTS, VERTEBRATE, SPICULES, MOLLUSKS;
MOLLUSK FRAGMENTS REPLACED WITH DOLOMITE AND CALCITE

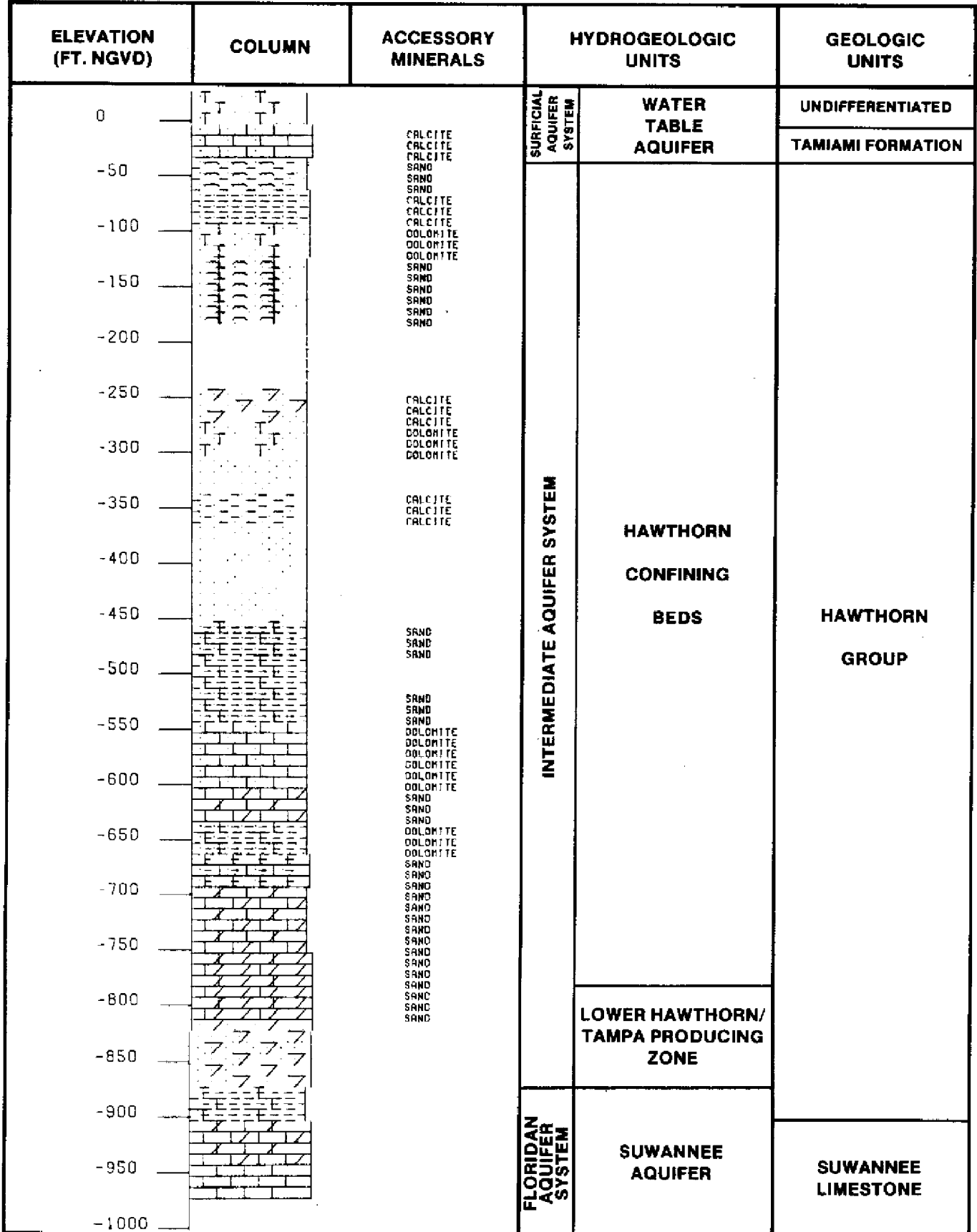
60 - 90 SHELL BED; LIGHT OLIVE; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-10%, CLAY-10%, PHOSPHATIC SAND-02%;
FOSSILS: CRUSTACEA, MOLLUSKS;
FOSSIL ASSEMBLAGE PRIMARILY CONSISTS OF BARNACLE FRAGMENTS W/ A FEW PELECYPODS AND OYSTER
FRAGMENTS IN DOLOSILT MATRIX

90 - 120 SILT; LIGHT OLIVE TO WHITE; 09% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, DOLOMITE-20%, CALCILUTITE-20%, CLAY- %;
OTHER FEATURES: CALCAREOUS;
FOSSILS: CRUSTACEA, MOLLUSKS;
20% BARNACLE AND OSTERIA FRAG. RECRYSTALIZED WITH CALCITE

- 120 - 150 SANDSTONE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE-15%;
FOSSILS: BRYOZOA, MOLLUSKS;
- 150 - 180 AS ABOVE WITH 30% SHELL FRAGMENTS RECRYSTALIZED W/ CALCITE AND DOLOMITE;
POOR INDURATION
- 180 - 210 SHELL BED; LIGHT OLIVE GRAY; 10% POROSITY, PIN POINT VUGS; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE-15%, QUARTZ SAND-15%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: CRUSTACEA, MOLLUSKS, PLANT REMAINS;
- 210 - 240 AS ABOVE HIGHLY RECRYSTALIZED BARNACLE FRAGMENTS IN A CALCAREOUS DOLOSILT
MATRIX; 15% SAND
- 240 - 270 NO SAMPLES
- 270 - 300 SAND; GRAYISH OLIVE GREEN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-20%, DOLOMITE-15%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CALCAREOUS, FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
MATRIX IS OLIVE GREY CALCAREOUS DOLOSILT
- 300 - 330 SAND; MODERATE GRAYISH GREEN TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-05%, LIMESTONE-10%, DOLOMITE-05%, CALCILUTITE-15%;
- 330 - 360 AS ABOVE
- 360 - 390 SAND; GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-10%, DOLOMITE-10%, CALCILUTITE-15%, PHOSPHATIC SAND-03%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 390 - 420 SAND; VERY LIGHT GRAY TO LIGHT GRAY; 20% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;

- 420 - 450 AS ABOVE
- 450 - 480 AS ABOVE
- 480 - 510 SILT; LIGHT OLIVE GRAY TO YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: LIMESTONE-30%, DOLOMITE-15%, QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
WHITE WELL LITHIFIED LIMESTONE IN GRAY DOLOSILT MATRIX, POSSIBLY INTERBEDDED
- 510 - 540 CLAY; LIGHT OLIVE GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: CRUSTACEA, BRYOZOA;
- 540 - 570 SILT; LIGHT OLIVE GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-55%, DOLOMITE-20%, QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS, WORM TRACES;
- 570 - 600 AS ABOVE WITH 10% FINE GRAINED PHOSPHORITE
- 600 - 630 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: CRYPTOCRYSTALLINE TO VERY COARSE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, DOLOMITE-10%, PHOSPHATIC SAND-08%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS;
- 630 - 660 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: GRANULE; RANGE: CRYPTOCRYSTALLINE TO GRANULE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, DOLOMITE-10%, PHOSPHATIC SAND-08%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, BRYOZOA;
AS ABOVE W LARGER SHELL FRAGMENTS COATED WITH CALCAREOUS SILT
- 660 - 690 SILT; YELLOWISH GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-70%, DOLOMITE-10%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CALCAREOUS, CHALKY, POOR SAMPLE;
FOSSILS: CRUSTACEA, BRYOZOA;
- 690 - 720 CALCILUTITE; VERY LIGHT GRAY; 10% POROSITY, PIN POINT VUGS, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, SKELETAL; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY COARSE;
MODERATE INDURATION;
ACCESSORY MINERALS: SILT-35%, QUARTZ SAND-15%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CHALKY, POOR SAMPLE;
FOSSILS: CRUSTACEA;
- 720 - 750 AS ABOVE MEDIUM SIZE LIMESTONE PELLETS IN CALCAREOUS SILT MATRIX

- 750 - 780 CALCILUTITE; VERY LIGHT GRAY; 08% POROSITY, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, PELLET; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO VERY COARSE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, DOLOMITE-15%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;
POOR SAMPLE, MAJOR CONSTITUENTS (LMS) ARE SUSPECTED TO BE SAVINGS
- 780 - 810 SAME AS 720 TO 750 SAMPLE
- 810 - 840 DOLOMITE; VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
90-100% ALTERED; EUBEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
LOST CIRCULATION MATERIAL IN SAMPLE
- 840 - 870 AS ABOVE WITH 20% MICRITE AND 1% PHOSPHORITE
- 870 - 900 SANDSTONE; VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, PHOSPHATIC SAND-02%;
FOSSILS: NO FOSSILS;
- 900 - 930 CLAY; DARK GREENISH GRAY; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: LIMESTONE-40%, QUARTZ SAND-05%, MICA-05%, PHOSPHATIC SAND-03%;
FOSSILS: NO FOSSILS, PLANT REMAINS;
DOLOMITE AND LIMESTONE CONTACT OCCURS BETWEEN 900 AND 930 FT MICA AND ORGANIC MATERIAL ARE
LOST CIRCULATION MATERIAL
- 930 - 970 LIMESTONE; VERY LIGHT ORANGE; 13% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN TYPE: CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-03%;
FOSSILS: WORM TRACES, CONES;
DICTYOCONUS COOKEI
- 970 - 1000 AS ABOVE
- 1000 TOTAL DEPTH



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LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 124 COUNTY - HENDRY
TOTAL DEPTH: 240 FT. LOCATION: T.45S R.28E S.20
29 SAMPLES FROM 0 TO 240 FT. LAT = N 26D 32M 45
LON = W 81D 32M 30
COMPLETION DATE - N/A ELEVATION - 27 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST

OWNER/DRILLER: RTA3, DRILLED BY MISSIMER & ASSOC; MUD ROTARY; TURNER CORP. SOUTH

WORKED BY: DESCRIBED BY SCOTT BURNS (7-3-84) SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

- 0 100 SURFICIAL AQUIFER SYSTEM
0 40 WATER TABLE AQUIFER
40 60 TAMiami CONFING ZONE
60 100 LOWER TAMiami AQUIFER
100 150 UPPER HAWTHORN CONFINING ZONE
150 180 CARBONATE ZONE - SANDSTONE AQUIFER
180 240 MID HAWTHORN CONFINING ZONE
0. - 20. 090UDSC UNDIFFERENTIATED SAND AND CLAY
20. - 85. 122TMM TAMiami FM.
85. - 240. 122HTRN HAWTHORN GROUP
- 0 - 10 SAND; MODERATE BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%, LIMONITE-02%;
FOSSILS: PLANT REMAINS;
- 10 - 15 SANDSTONE; GRAYISH BROWN; 20% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%;
FOSSILS: NO FOSSILS;
- 15 - 20 SANDSTONE; GRAYISH BROWN TO WHITE; 18% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, LIMESTONE-25%;
- 20 - 30 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
POORLY SORTED SUBANGULAR SAND FINE TO COARSE GRAINED
- 30 - 35 AS ABOVE

- 35 - 40 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;
ACCESSORY MINERALS: QUARTZ SAND-35%, SILT-20%;
FOSSILS: FOSSIL FRAGMENTS;
OSTREA FRAGMENTS
- 40 - 50 SILT; LIGHT OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE-30%, CLAY-10%, QUARTZ SAND-05%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: DOLITES, DIATOMS;
- 50 - 60 AS ABOVE WITH 3% SILT SIZE PHOSPHORITE
- 60 - 70 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;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-20%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL MOLDS;
- 70 - 75 AS ABOVE WITH LARGE PELECYPOD FRAGMENTS AND MOLDS HIGHLY RECRYSTALLIZED
- 75 - 85 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
90-100% ALTERED; EUHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-20%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: REEFAL;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, VERTEBRATE;
HIGHLY RECRYSTALLIZED OSTREA FRAGMENTS; 5% QTZ. PEBBLES
- 85 - 95 SAND; VERY LIGHT GRAY TO MODERATE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED, REEFAL;
FOSSILS: FOSSIL FRAGMENTS, SHARKS TEETH, CRUSTACEA;
SHELL FRAGMENTS ARAGONITIC; BARNACLES, OSTREA, & PELECYPODS
- 95 - 100 SAND; LIGHT GRAY TO WHITE; 17% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: REEFAL, FROSTED;
FOSSILS: FOSSIL FRAGMENTS, CRUSTACEA;
25% ARAGONITIC SHELL FRAGMENTS AND BARNACLES
- 100 - 110 SAND; MODERATE GRAYISH GREEN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, DOLOMITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
15% SHELL FRAGMENTS; CLAY AND DOLOSILT MATRIX

- 110 - 120 SAND; OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-10%, DOLOMITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 120 - 130 AS ABOVE
- 130 - 140 SAND; GRAYISH OLIVE GREEN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-10%, DOLOMITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
2% QTZ GRANULES
- 140 - 150 AS ABOVE
- 150 - 160 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;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-02%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL MOLDS;
- 160 - 165 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;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-30%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS;
- 165 - 175 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;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES;
- 175 - 180 AS ABOVE
- 180 - 190 SILT; GREENISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-40%, DOLOMITE-30%, QUARTZ SAND-10%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: FOSSIL FRAGMENTS;
- 190 - 205 AS ABOVE
- 205 - 211 CALCILUTITE; VERY LIGHT GRAY; 06% POROSITY, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-45%, PHOSPHATIC SAND-02%, QUARTZ SAND-05%;
OTHER FEATURES: PLASTIC;

- 211 - 215 SILT; GREENISH GRAY; 06% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-45%, PHOSPHATIC SAND-02%, QUARTZ SAND-10%;
OTHER FEATURES: CALCAREOUS, PLASTIC;
FOSSILS: FOSSIL FRAGMENTS;
MOLLUSK FRAGMENTS HIGHLY REPLACED WITH DOLOMITE
- 215 - 225 LIMESTONE; WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-30%, QUARTZ SAND-20%;
OTHER FEATURES: CALCAREOUS, FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 225 - 235 CALCILUTITE; WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 235 - 240 SILT; GREENISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-10%, CALCILUTITE-40%, QUARTZ SAND-15%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: NO FOSSILS;
- 240 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|----------------------|--------|--|---|-------------------------------|-------------------------|-------------------|-----------------------------|
| 25 | | CALCITE CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | | |
| 0 | | SILT SAND SAND SAND SAND SAND SAND SAND SAND SAND CALCITE CALCITE CALCITE | | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION | |
| -25 | | | | | LOWER TAMIAMI AQUIFER | | |
| -50 | | | DOLOMITE DOLOMITE DOLOMITE DOLOMITE | UPPER HAWTHORN CONFINING ZONE | MIOCENE COARSE CLASTICS | | |
| -75 | | SANDSTONE AQUIFER (CARBONATE ZONE) | | | | HAWTHORN GROUP | |
| -100 | | | SAND SAND SAND SAND | MID HAWTHORN CONFINING ZONE | UPPER CLASTIC ZONE | | |
| -125 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | | INTERMEDIATE AQUIFER SYSTEM |
| -150 | | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | |
| -175 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | | |
| -200 | | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | |
| -225 | | | | | | | |

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- 20 - 25 LIMESTONE; LIGHT OLIVE GRAY; 12% POROSITY, MOLDIC, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%;
OTHER FEATURES: SUCROSIC;
FOSSILS: BARNACLES;
- 25 - 33 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%, CALCILUTITE-01%;
OTHER FEATURES: FROSTED;
FOSSILS: BARNACLES;
- 33 - 37 AS ABOVE
- 37 - 42 SANDSTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, VUGULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
FOSSILS: BARNACLES;
- 42 - 55 SANDSTONE; LIGHT OLIVE GRAY TO GRAYISH DRANGE PINK; 01% POROSITY,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: COARSE TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: SUCROSIC;
- 55 - 60 SANDSTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-01%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
- 60 - 65 AS ABOVE
- 65 - 70 SANDSTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, CALCILUTITE-01%;
- 70 - 75 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-01%, SPAR-01%;

- 75 - 80 AS ABOVE
- 80 - 82 SANDSTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: COARSE TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-05%;
OTHER FEATURES: SUCROSIC;
- 82 - 90 SANDSTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-05%;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
- 90 - 95 AS ABOVE
- 95 - 100 AS ABOVE
- 100 - 102 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; HIGH SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
FOSSILS: FOSSIL FRAGMENTS;
CONSTANT CHATTER WHEN DRILLING
- 102 - 105 SANDSTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: SPAR-07%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
- 105 - 110 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-10%;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
- 110 - 115 SANDSTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-05%;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;

- 115 - 122 SANDSTONE; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
CONSTANT CHATTER WHEN DRILLING
- 122 - 132 SAND; LIGHT GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: VERY COARSE; RANGE: COARSE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
SOME CALCITE CEMENTED SANDSTONE (10%)
- 132 - 142 AS ABOVE
- 142 - 150 SAND; LIGHT GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SPAR-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: SUCROSIC;
FOSSILS: FOSSIL FRAGMENTS;
WITH 10% CALCITE CEMENTED SANDSTONE
- 150 - 162 AS ABOVE
- 162 - 170 SAND; LIGHT GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SPAR-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
BIT JETTED DOWN WITHOUT DRILLING FROM 162' TO 185'
- 170 - 182 AS ABOVE
- 182 - 185 AS ABOVE
- 185 - 187 GRAVEL; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC GRAVEL-02%;
- 187 - 197 SAND; GRAYISH OLIVE TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%;

- 197 - 202 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 202 - 205 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: SILT-05%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 205 - 215 AS ABOVE
- 215 - 222 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: COARSE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 222 - 235 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: SILT-15%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
- 235 - 240 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-50%;
- 240 - 250 AS ABOVE
- 250 - 260 DOLO-SILT; OLIVE GRAY; 07% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-02%;
- 260 - 270 AS ABOVE
- 270 - 280 DOLO-SILT; OLIVE GRAY; 07% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-02%;
- 280 - 290 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 290 - 294 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, QUARTZ SAND-50%, SILT-10%;


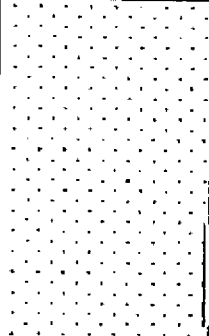

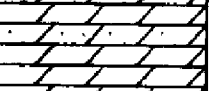
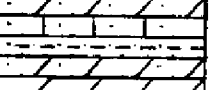
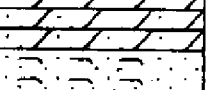
- 294 - 300 AS ABOVE
- 300 - 310 SILT; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-04%;
- 310 - 315 DOLO-SILT; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-10%, PHOSPHATIC SAND-04%;
- 315 - 320 DOLO-SILT; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-10%, CLAY-10%, PHOSPHATIC SAND-04%;
- 320 - 330 AS ABOVE
- 330 - 340 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-10%, QUARTZ SAND-50%, PHOSPHATIC SAND-04%, CALCILUTITE-10%;
OTHER FEATURES: FROSTED;
- 340 - 345 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-10%, QUARTZ SAND-50%, PHOSPHATIC SAND-04%, CALCILUTITE-20%;
OTHER FEATURES: FROSTED;
- 345 - 350 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-05%;
OTHER FEATURES: FROSTED;
- 350 - 355 SHELL BED; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-05%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 355 - 360 AS ABOVE
- 360 - 370 SHELL BED; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-08%, CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 370 - 380 AS ABOVE
- 380 - 390 AS ABOVE

- 390 - 397 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 397 - 405 AS ABOVE
- 405 - 410 AS ABOVE
- 410 - 419 DOLO-SILT; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-10%, QUARTZ SAND-30%, PHOSPHATIC SAND-03%;
- 419 - 422 DOLO-SILT; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-10%, QUARTZ SAND-30%, PHOSPHATIC SAND-03%;
WITH FOSSIL SHELL FRAGMENTS
- 422 - 425 AS ABOVE
- 425 - 432 CLAY; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, CALCILUTITE-10%;
- 432 - 442 CLAY; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, CALCILUTITE-20%;
- 442 - 450 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-15%;
- 450 - 460 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-20%;
- 460 - 475 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-20%;
WITH LIMESTONE PIECES
- 475 - 480 AS ABOVE

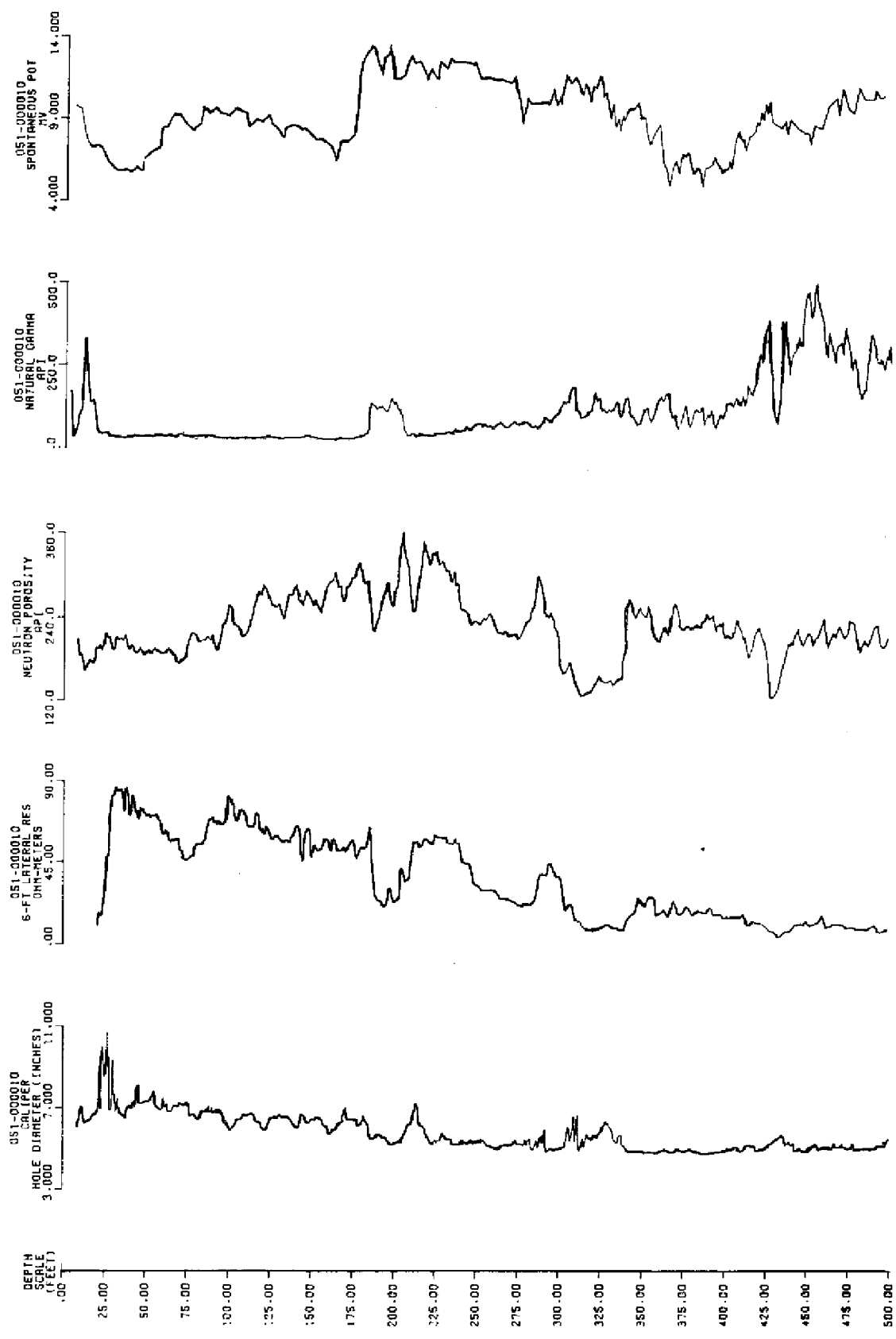
480 - 490 CALCILUTITE; YELLOWISH GRAY TO DARK YELLOWISH ORANGE; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%, LIMESTONE- 2;

490 - 500 AS ABOVE

500 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | GEOLOGIC UNITS |
|-------------------------|--|-----------------------|--|-------------------------------|
| 0 |  | CLAY | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| | | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION |
| -50 |  | CLAY | LOWER TAMIAMI AQUIFER | MIOCENE COARSE CLASTICS |
| -100 | | | | |
| -150 | | | | |
| -200 |  | SILT | UPPER HAWTHORN CONFINING ZONE | UPPER CLASTIC ZONE |
| -250 | | SILT | | |
| -300 |  | CALCITE | UPPER HAWTHORN CONFINING ZONE | UPPER CLASTIC ZONE |
| -350 | | CALCITE | | |
| -400 |  | SAND | UPPER HAWTHORN CONFINING ZONE | UPPER CLASTIC ZONE |
| -450 | | CALCITE SAND | | |
| -500 |  | PHOSPHATE | UPPER HAWTHORN CONFINING ZONE | LOWER CARBONATE ZONE |

HY125



GEOPHYSICS, WELL HY-125

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 126 COUNTY - HENDRY
TOTAL DEPTH: 340 FT. LOCATION: T.43S R.28E S.24 8
36 SAMPLES FROM 0 TO 340 FT. LAT = N 26D 43M 55
LON = W 81D 28M 08
COMPLETION DATE - / /73 ELEVATION - 15 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, GAMMA

OWNER/DRILLER: HE-620 DRILLED BY USGS; MUD ROTARY; SR80 APROX 2MI EAST OF FT. DENAUD

WORKED BY: DESCRIBED BY SCOTT BURNS (6-25-84); SAMPLE QUALITY (FAIR)

HYDROGEOLOGIC UNITS

0 45 SURFICIAL AQUIFER SYSTEM
45 120 UPPER HAWTHORN CONFINING ZONE
120 150 CLASTIC ZONE - SANDSTONE AQUIFER
150 170 CONFINING ZONE
170 230 CARBONATE ZONE - SANDSTONE AQUIFER
230 340 MID HAWTHORN CONFINING ZONE


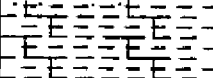
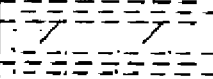


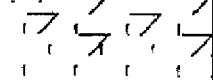


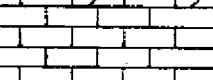
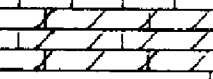
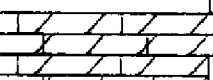
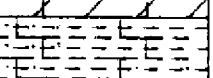

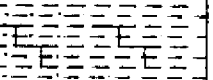
0.0- 50.0 090UDSC UNDIFFERENTIATED SAND AND CLAY
50.0- 340.0 122HTRN HAWTHORN GROUP

- 0 - 12 SAND; GRAYISH ORANGE PINK; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMONITE-02%, CALCILUTITE-05%;
FOSSILS: PLANT REMAINS;
- 12 - 18 CALCILUTITE; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS;
GASTROPODS
- 18 - 22 SANDSTONE; VERY LIGHT GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
CHLONE CANCELLATE
- 22 - 30 SHELL BED; WHITE; 25% POROSITY, MOLDIC, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
ARCA (SP), BITTIUM PRISCUM (DALL), ANOMALOCARDIA CALOOSNA, TURITELLA (SP).
- 30 - 40 AS ABOVE
IRITHIUM (SP.) ECHINOCAMA CORNUTA, ANOMALOCARDIA CALOOSNA

- 40 - 45 CALCILUTITE; WHITE; 08% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, BRYOZOA;
- 45 - 50 SILT; VERY LIGHT GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-40%, DOLOMITE-40%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY, PLASTIC;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 50 - 65 CLAY; LIGHT OLIVE GRAY; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-05%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: NO FOSSILS;
- 65 - 70 AS ABOVE
- 70 - 75 SAND; LIGHT OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-15%, CALCILUTITE-15%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: NO FOSSILS;
- 75 - 85 CLAY; MODERATE GRAYISH GREEN; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC;
FOSSILS: NO FOSSILS;
- 85 - 90 AS ABOVE
NUMEROUS SHELL FRAGMENTS REPLACED WITH DOLOMITE
- 90 - 100 CLAY; MODERATE GRAYISH GREEN; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%;
OTHER FEATURES: PLASTIC;
FOSSILS: NO FOSSILS;
- 100 - 110 AS ABOVE
- 110 - 120 AS ABOVE
- 120 - 125 SAND; MODERATE GRAYISH GREEN; 08% POROSITY, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-30%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, SPICULES;

- 125 - 135 GRAVEL; LIGHT GRAY TO MODERATE GRAYISH GREEN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, PHOSPHATIC GRAVEL-03%;
SILT SIZE DOLOMITE CEMENT
- 135 - 150 AS ABOVE
- 150 - 160 CLAY; MODERATE GRAYISH GREEN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-04%, PHOSPHATIC GRAVEL-02%;
FOSSILS: BENTHIC FORAMINIFERA;
- 160 - 170 AS ABOVE
- 170 - 180 LIMESTONE; WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, DOLOMITE-20%;
OTHER FEATURES: CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 180 - 190 AS ABOVE
- 190 - 200 AS ABOVE
- 200 - 207 DOLOMITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 207 - 215 DOLOMITE; WHITE; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 215 - 220 NO SAMPLES
- 220 - 230 DOLOMITE; WHITE; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%;
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS;

- 230 - 240 DOLOMITE; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
50-90% ALTERED; ANHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-35%;
OTHER FEATURES: CHALKY, CALCAREOUS;
- 240 - 250 SILT; LIGHT GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%, DOLOMITE-35%, QUARTZ SAND-30%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: NO FOSSILS;
- 250 - 260 SILT; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, DOLOMITE-35%, CALCILUTITE-45%;
OTHER FEATURES: CHALKY, CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 260 - 270 AS ABOVE
MODERATE INDURATION ; 2% PHOSPHATE
- 270 - 280 AS ABOVE
- 280 - 290 SILT; LIGHT GREENISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-40%, DOLOMITE-40%, QUARTZ SAND-10%;
OTHER FEATURES: CALCAREOUS, CHALKY;
FOSSILS: FOSSIL FRAGMENTS;
- 290 - 300 CLAY; LIGHT GREENISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: PHOSPHATIC SAND-08%, QUARTZ SAND-20%;
OTHER FEATURES: SPECKLED;
FOSSILS: FOSSIL FRAGMENTS;
ABUNDANT BIVALVE FRAGMENTS (35%) HIGHLY RECRYSTALLIZED W/ DOLOMITE
- 300 - 330 AS ABOVE
INCREASE AMOUNT OF SHELL FRAGMENTS; POOR SAMPLE (CAVINGS)
- 330 - 340 SILT; MODERATE GRAYISH GREEN TO BLACK; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-10%, QUARTZ SAND-30%, PHOSPHATIC SAND-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 340 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|--|--------------------------------------|--|--------------------------|
| 0 |  | CALCITE CALCITE SAND SAND SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 |  | SAND SAND SAND SAND SAND | | UPPER HAWTHORN CONFINING ZONE | |
| -50 |  | CALCITE | CLASTIC ZONE | | UPPER CLASTIC ZONE |
| -75 |  | | | | |
| -100 |  | | CARBONATE ZONE | LOWER CARBONATE ZONE | |
| -125 |  | PHOSPHATE PHOSPHATE | | | |
| -150 |  | SAND SAND | MID HAWTHORN CONFINING ZONE | | |
| -175 |  | SAND SAND SAND | | | |
| -200 |  | SAND SAND SAND SAND SAND SAND | | | |
| -225 |  | SAND SAND SAND SAND SAND SAND | | | |
| -250 |  | SAND SAND PHOSPHATE PHOSPHATE | | | |
| -275 |  | SAND SAND PHOSPHATE PHOSPHATE | | | |
| -300 |  | PHOSPHATE PHOSPHATE | | | |
| -325 |  | PHOSPHATE PHOSPHATE | | | |

HY126

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 127 COUNTY - HENDRY
 TOTAL DEPTH: 300 FT. LOCATION: T.43S R.29E S.33 C
 34 SAMPLES FROM 0 TO 300 FT. LAT = N 26D 42M 00
 ELEVATION - 27 FT
 COMPLETION DATE - 1 / 173
 OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST

OWNER/DRILLER: HE-615 DRILLED BY USGS, MUD ROTARY

WORKED BY: DESCRIBED BY SCOTT BURNS (6-27-84). SAMPLE QUALITY (FAIR)

HYDROGEOLOGIC UNITS

0 20 SURFICIAL AQUIFER SYSTEM
 0 20 WATER TABLE AQUIFER
 20 130 UPPER HAWTHORN CONFINING ZONE
 130 170 CLASTIC ZONE - SANDSTONE AQUIFER
 170 200 CARBONATE ZONE - SANDSTONE AQUIFER
 200 300 MID-HAWTHORN CONFINING ZONE

0.0- 40.0 090UDSC UNDIFFERENTIATED SAND AND CLAY
 40.0- 300.0 122HTRN HAWTHORN GROUP

- 0 - 2 SAND; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
 ACCESSORY MINERALS: LIMONITE-02%;
- 2 - 6 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 6 - 10 SANDSTONE; DARK YELLOWISH BROWN TO GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR,
 PIN POINT VUGS;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
 ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
 CEMENT TYPE(S): SPARRY CALCITE CEMENT;
 ACCESSORY MINERALS: SPAR-15%, LIMESTONE-20%;
 FOSSILS: NO FOSSILS;
- 10 - 20 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
 GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION;
 ACCESSORY MINERALS: SPAR-15%, QUARTZ SAND-30%, PHOSPHATIC SAND-01%;
 FOSSILS: NO FOSSILS;
- 20 - 30 SILT; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
 ACCESSORY MINERALS: QUARTZ SAND-35%, DOLOMITE-20%, CALCILUTITE-10%;
 OTHER FEATURES: CALCAREOUS;
 FOSSILS: NO FOSSILS;
- 30 - 35 NO SAMPLES

- 35 - 40 SANDSTONE; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-15%, CALCILUTITE-10%, CLAY-10%, PHOSPHATIC SAND-02%;
35% DOLOSILT CEMENT
- 40 - 50 CLAY; DARK GRAYISH GREEN; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CALCAREOUS, PLASTIC, POOR SAMPLE;
FOSSILS: BENTHIC FORAMINIFERA;
- 50 - 60 AS ABOVE WITH INCREASE IN FINE GRAIN SAND TO 35%
- 60 - 70 CLAY; DARK GRAYISH GREEN; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-30%, CLAY-10%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA;
- 70 - 80 AS ABOVE
- 80 - 90 SAND; MODERATE GRAYISH GREEN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, CALCILUTITE-15%, CLAY-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, ECHINOID;
DOLOMITE IS MICROCRYSTALLINE, SUBANGULAR SILT
- 90 - 100 AS ABOVE WITH ABUNDANT BENTHIC FORAMINIFERA ;MINDR TRACES OF MICA
- 100 - 110 AS ABOVE
- 110 - 120 SAND; MODERATE GRAYISH GREEN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-15%, CALCILUTITE-15%, CLAY-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, ECHINOID;
20% DOLOSILT; FEW FORAMINIFERA
- 120 - 130 AS ABOVE
- 130 - 150 SAND; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CLAY-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;

- 150 - 160 SAND; MODERATE LIGHT GRAY TO MODERATE GRAYISH GREEN; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-10%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;
- 160 - 170 SAND; MODERATE GRAYISH GREEN TO WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, MICA-01%, DOLOMITE-20%, CLAY-10%;
OTHER FEATURES: FROSTED;
DOLOMITE WHITE AND WELL INDURATED
- 170 - 180 DOLOMITE; VERY LIGHT GRAY; 16% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
GOOD INDURATION;
ACCESSORY MINERALS: LIMESTONE-40%, QUARTZ SAND-05%;
FOSSILS: NO FOSSILS;
- 180 - 185 AS ABOVE
- 185 - 195 DOLOMITE; VERY LIGHT GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-40%, PHOSPHATIC SAND-05%, QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
WELL INDURATED DOLOMITE IN 30% DOLOSILT MATRIX
- 195 - 200 DOLOMITE; VERY LIGHT GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS;
50-90% ALTERED; SUBHEDRAL;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
- 200 - 210 CLAY; VERY LIGHT GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%;
OTHER FEATURES: CHALKY, CALCAREOUS;
FOSSILS: NO FOSSILS;
- 210 - 220 CLAY; VERY LIGHT GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, DOLOMITE-40%;
OTHER FEATURES: CHALKY, CALCAREOUS;
5% AS ABOVE ROUNDED QTZ GRANULES; 40% WELL INDURATED DOLOMITE GRANULES
- 220 - 230 AS ABOVE
20% DOLOMITE GRANULES; 25% FINE GRAINED SAND

- 230 - 240 CLAY; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY, CALCAREOUS;
FOSSILS: NO FOSSILS;
- 240 - 240 AS ABOVE
- 240 - 250 AS ABOVE
- 250 - 260 CLAY; VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CHALKY, CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 260 - 270 WELL INDURATED DOLOMITE (25%) IN DOLOSILT MATRIX
- 270 - 280 CLAY; LIGHT OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-03%, PHOSPHATIC GRAVEL-01%, MICA-01%;
FOSSILS: FOSSIL FRAGMENTS;
PELECYPOD FRAG HIGHLY RECRYSTALIZED WITH DOLOMITE
- 280 - 290 AS ABOVE
- 290 - 300 CLAY; LIGHT OLIVE; 08% POROSITY, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY-10%, PHOSPHATIC SAND-03%, PHOSPHATIC GRAVEL-01%;
- 300 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|----------------------|--------|---|-----------------------------|-------------------------------|------------------|----------------------|
| 25 | | | SURFICIAL AQUIFER SYSTEM | | UNDIFFERENTIATED | |
| 0 | | CALCITE CALCITE CALCITE CALCITE | WATER TABLE AQUIFER | | | |
| -25 | | CALCITE SAND SAND DOLOMITE DOLOMITE DOLOMITE DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | | UPPER CLASTIC ZONE |
| -50 | | CALCITE CALCITE | | SANDSTONE AQUIFER | | |
| -75 | | CALCITE CALCITE | | | | |
| -100 | | PHOSPHATE PHOSPHATE PHOSPHATE CALCITE CALCITE DOLOMITE DOLOMITE SAND SAND | | CLASTIC ZONE | | |
| -125 | | PHOSPHATE PHOSPHATE SAND SAND SAND SAND SAND | CARBONATE ZONE | HAWTHORN GROUP | | LOWER CARBONATE ZONE |
| -150 | | SAND SAND SAND SAND SAND SAND | MID HAWTHORN CONFINING ZONE | | | |
| -175 | | SAND SAND | | | | |
| -200 | | | | | | |
| -225 | | | | | | |
| -250 | | | | | | |
| -275 | | | | | | |

HY127

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 128 COUNTY - HENDRY
TOTAL DEPTH: 00502 FT. LOCATION: T.44S R.30E S.20 B
50 SAMPLES FROM 0 TO 502 FT. LAT = N 26D 38M 13
LON = W 81D 20M 38
COMPLETION DATE - 28/10/87 ELEVATION - 027 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: SFMMD-ALICD SITE D; DRILLER: TONY LUBRAND

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 22 SURFICIAL AQUIFER SYSTEM
0 22 WATER TABLE AQUIFER
22 292 UPPER HAWTHORN CONFINING ZONE
292 352 CLASTIC ZONE - SANDSTONE AQUIFER
352 502 MID-HAWTHORN CONFINING ZONE

0. - 4. 090UDSC UNDIFFERENTIATED SAND AND CLAY
4. - 8. 000NOSM NO SAMPLES
8. - 22. 122TMIM TAMiami FM.
22. - 502. 122HTRM HAWTHORN GROUP

- 0 - 4 SAND; GRAYISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, IRON STAIN- %;
- 4 - 8 NO SAMPLES
- 8 - 10 LIMESTONE; YELLOWISH GRAY TO DARK YELLOWISH ORANGE; 10% POROSITY, INTERGRANULAR,
PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, CRYSTALS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCITE-20%, QUARTZ SAND-10%;
FOSSILS: BRYOZOA;
- 10 - 14 CALCILUTITE; VERY LIGHT ORANGE TO GRAYISH BROWN; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 14 - 18 SANDSTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-05%, IRON STAIN- %;
FOSSILS: FOSSIL FRAGMENTS;

- 18 - 22 AS ABOVE
- 22 - 28 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 28 - 42 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 42 - 47 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
FOSSILS: SPICULES;
- 47 - 52 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCITE-30%, SILT-30%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
30% CALCITE REPLACED SHELL FRAGMENTS
- 52 - 57 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCITE-05%, SILT-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 57 - 62 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-01%, MICA-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 62 - 82 AS ABOVE
- 82 - 92 SAND; GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, MICA-01%;
FOSSILS: FOSSIL FRAGMENTS;

- 92 - 102 SAND; GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, SILT-05%, MICA-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 102 - 111 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-40%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 111 - 122 SAND; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: SILT-30%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 122 - 132 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-15%, LIMESTONE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 132 - 142 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-30%, CALCILUTITE-15%, LIMESTONE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 142 - 147 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-30%, CALCILUTITE-05%, CLAY-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 147 - 162 AS ABOVE
- 162 - 182 AS ABOVE
- 182 - 202 SILT; LIGHT OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
- 202 - 222 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-20%, CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;

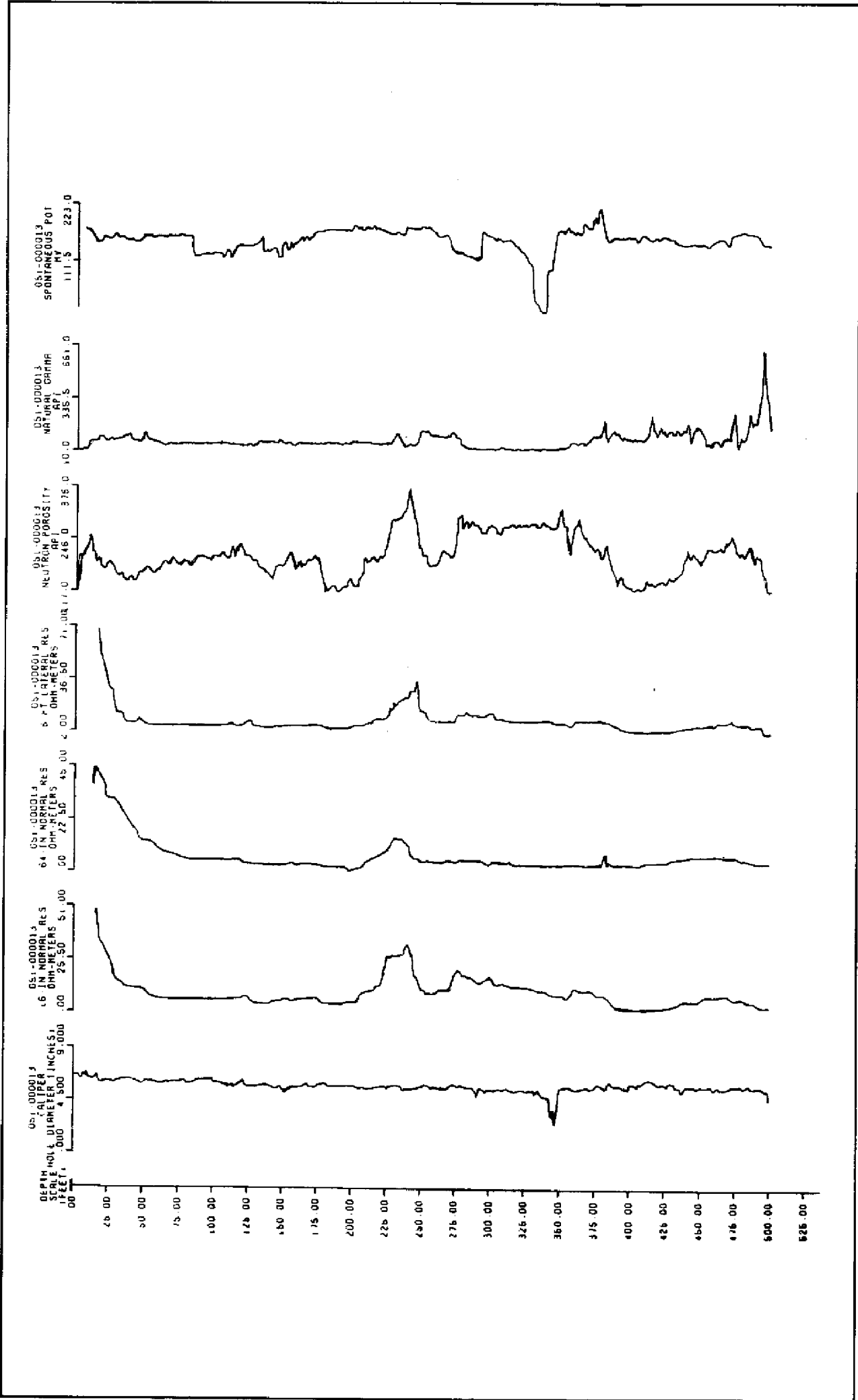
- 222 - 225 SAND; YELLOWISH GRAY TO GRAYISH OLIVE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-01%;
WELL ROUNDED FROSTED QUARTZ GRANULES
- 225 - 232 SILT; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-03%, PHOSPHATIC SAND-01%;
40% WELL ROUNDED FROSTED QUARTZ GRANULES
- 232 - 242 AS ABOVE
15% FOSSIL FRAGMENTS
- 242 - 250 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, SILT-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
15% QUARTZ GRANULES, 5% FOSSIL FRAGMENTS
- 250 - 262 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-30%, CALCILUTITE-02%, LIMESTONE-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 262 - 269 AS ABOVE
- 269 - 277 SAND; LIGHT OLIVE TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
5% WELL ROUNDED FROSTED QUARTZ GRANULES AND GRAVEL
- 277 - 282 GRAVEL; YELLOWISH GRAY TO DARK GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: GRANULE; RANGE: MICROCRYSTALLINE TO GRAVEL;
ROUNDNESS: ROUNDED; LOW SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-25%, CALCILUTITE-15%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 282 - 292 AS ABOVE
- 292 - 302 GRAVEL; YELLOWISH GRAY TO DARK GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRANULE; RANGE: MEDIUM TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
10% MODERATELY INDURATED SANDSTONE PIECES

- 302 - 322 AS ABOVE
SANDSTONE INCREASED TO 25%
- 322 - 342 SANDSTONE; LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
WELL ROUNDED FROSTED QUARTZ GRANULES
- 342 - 352 AS ABOVE
10% FOSSIL FRAGMENTS
- 352 - 362 SAND; LIGHT OLIVE GRAY TO WHITE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-10%, QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
10% WELL ROUNDED FROSTED QUARTZ GRANULES
- 362 - 377 SAND; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-05%;
- 377 - 382 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%, CLAY-05%, SILT-05%;
- 382 - 394 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CLAY-10%, CALCILUTITE-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 394 - 402 CLAY; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 402 - 410 AS ABOVE
- 410 - 412 PHOSPHATE; BLACK; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, QUARTZ SAND-05%, CALCITE-02%;
FOSSILS: FOSSIL FRAGMENTS;
PHOSPHATE IS GRANULAR SIZED

- 412 - 422 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, SILT-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 422 - 438 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CLAY-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 438 - 442 CALCILUTITE; LIGHT OLIVE GRAY TO YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 442 - 462 CALCILUTITE; LIGHT OLIVE GRAY TO YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCITE-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS, SPICULES, BRYOZOA;
- 462 - 482 AS ABOVE
- 482 - 502 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SILT-10%, CALCITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 502 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|-------------------------|--------|-----------------------|-----------------------------|---|---------------------------------------|--|--|
| | | | SURF. AQ. SYS. | WATER TABLE AQUIFER | UNDIFFERENTIATED TAMIAMI FORMATION | | |
| 0 | | CALCITE | INTERMEDIATE AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED TAMIAMI FORMATION | | |
| -50 | | CLAY | | | | | UPPER HAWTHORN CONFINING ZONE |
| -100 | | CLAY | | | | | |
| -150 | | CLAY | | | | | |
| -200 | | CLAY | | | | | |
| -250 | | CLAY | | | | | |
| -300 | | CLAY | | | | | |
| -350 | | CLAY | | SANDSTONE AQUIFER (CLASTIC ZONE) | | | |
| -400 | | CLAY | | | MID HAWTHORN CONFINING ZONE | | |
| -450 | | CLAY | | | | | |
| -500 | | CLAY | | | | | |
| -500 | | CLAY | | | | | |
| -500 | | CLAY | | SILT SILT PHOSPHATE | | | |

HY 128



GEOPHYSICS, WELL HY-128

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 201
TOTAL DEPTH: 00285 FT.
56 SAMPLES FROM 0 TO 285 FT.

COUNTY - HENDRY
LOCATION: T.45S R.33E S.10
LAT = N 26D 35M 15
LON = W 81D 01M 20

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 023 FT

OWNER/DRILLER: USGS WELL ME-900

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 150 SURFICIAL AQUIFER SYSTEM
0 30 WATER TABLE AQUIFER
30 75 TAMiami CONFINING ZONE
75 150 LOWER TAMiami AQUIFER
150 285 UPPER HAWTHORN CONFINING ZONE

0. - 75. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
75. - 150. 122TMIM TAMiami FM.
150. - 285. 122HTRN HAWTHORN GROUP

- 0 - 5 SAND; DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, IRON STAIN- %, PLANT REMAINS- %;
- 5 - 10 SANDSTONE; LIGHT YELLOWISH ORANGE TO DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: IRON STAIN- %;
TRACES OF SHELL FRAGMENTS
- 10 - 30 SANDSTONE; MODERATE YELLOWISH BROWN TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-10%;
FOSSILS: CORAL, MOLLUSKS;
2% WELL ROUNDED GRANULES; WHOLE & BROKEN SHELLS
- 30 - 35 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-01%;
- 35 - 50 SAND; OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, SILT-05%;
4% WELL ROUNDED FROSTED GRAINS, SOME SANDSTONE

- 50 - 70 SAND; GRAYISH BROWN TO DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%;
- 70 - 75 SAND; GRAYISH BROWN TO DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%;
- 75 - 150 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 150 - 185 SAND; LIGHT OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-30%, SILT-10%, PHOSPHATIC SAND-03%;
- 185 - 285 CLAY; OLIVE GRAY; LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-05%;
SOME SHELL FRAGMENTS
- 285 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | | |
|-------------------------|--------|--|-----------------------------|------------------------------|----------------------|--|----------------|--------------------------|
| 0 | | CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | | | |
| -25 | | SILT SILT SILT SILT SILT SILT SILT SILT | | TAMIAMI CONFINING ZONE | | | | |
| -50 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION | | | |
| -75 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | | | |
| -100 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | | | |
| -125 | | SAND SAND SAND SAND SAND SAND SAND SAND SAND SAND | | | | | | |
| -150 | | SILT SILT SILT SILT SILT SILT SILT SILT SILT SILT | INTERMEDIATE AQUIFER SYSTEM | | | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -175 | | PHOSPHATE | | | | | | |
| -200 | | | | | | | | |
| -225 | | | | | | | | |
| -250 | | | | | | | | |
| -275 | | | | | | | | |

HY 201

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 202

COUNTY - HENDRY

TOTAL DEPTH: 00250 FT.

LOCATION: T.43S R.34E S.16

44 SAMPLES FROM 0 TO 250 FT.

LAT = N 26D 44M 33

LOX = W 80D 56M 15

COMPLETION DATE - N/A

ELEVATION - 019 FT

OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-907

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY POOR

HYDROGEOLOGIC UNITS

0 125 SURFICIAL AQUIFER SYSTEM

0 35 WATER TABLE AQUIFER

35 45 CONFINING ZONE

45 125 LOWER TAMiami AQUIFER

125 250 UPPER HAWTHORN CONFINING ZONE

0. - 5. 090UDSC UNDIFFERENTIATED SAND AND CLAY

5. - 250. 122HTRM HAWTHORN GROUP

0 - 5 SAND; DARK YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- %, PEAT- %;

5 - 10 SAND; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%, IRON STAIN- %;

10 - 15 SAND; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- %, PEAT- %;

15 - 20 AS ABOVE

20 - 25 AS ABOVE

25 - 30 SAND; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-03%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;

30 - 35 SAND; VERY LIGHT ORANGE TO VERY LIGHT GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;

- 35 - 40 SAND; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-03%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 SAND; VERY LIGHT ORANGE TO LIGHT OLIVE; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 45 - 50 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, PHOSPHATIC SAND-02%, CALCITE-01%;
- 50 - 55 AS ABOVE
- 55 - 60 AS ABOVE
- 60 - 65 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, PHOSPHATIC SAND-02%, CALCITE-01%;
- 65 - 70 AS ABOVE
WITH LOWER FOSSIL FRAGMENT CONTENT
- 70 - 75 AS ABOVE
- 75 - 80 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO COARSE;
ROUNDNESS: ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, CALCILUTITE-02%, CALCITE-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 80 - 85 AS ABOVE
- 85 - 90 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-02%, CALCILUTITE-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 90 - 95 SAND; LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-10%, PHOSPHATIC SAND-02%;
- 95 - 100 AS ABOVE
- 100 - 105 AS ABOVE

- 105 - 110 SAND; LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-10%, PHOSPHATIC SAND-02%;
- 110 - 115 AS ABOVE
- 115 - 120 AS ABOVE
- 120 - 125 SAND; LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-10%, PHOSPHATIC SAND-02%;
- 125 - 130 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CALCILUTITE-05%, CALCITE-02%, PHOSPHATIC SAND-01%;
- 130 - 135 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-45%, CLAY-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 135 - 140 AS ABOVE
- 140 - 145 AS ABOVE
- 145 - 150 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-01%, PHOSPHATIC SAND-01%, IRON STAIN- 2%;
FOSSILS: FOSSIL FRAGMENTS;
- 150 - 155 AS ABOVE
- 155 - 160 AS ABOVE
- 160 - 165 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-01%, PHOSPHATIC SAND-01%, IRON STAIN- 2%;
FOSSILS: FOSSIL FRAGMENTS;
- 165 - 170 AS ABOVE
- 170 - 175 SAND; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-15%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 175 - 180 AS ABOVE

- 180 - 185 AS ABOVE
- 185 - 190 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-05%, CALCILUTITE-01%, CLAY-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 190 - 195 AS ABOVE
- 195 - 200 AS ABOVE
- 200 - 210 CLAY; DARK GREENISH GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: SILT-10%, QUARTZ SAND-05%, CALCILUTITE-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 210 - 220 AS ABOVE
- 220 - 230 AS ABOVE
- 230 - 240 CLAY; DARK GREENISH GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: SILT-10%, QUARTZ SAND-05%, CALCILUTITE-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 240 - 250 AS ABOVE
- 250 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|-------------------------|--------|-----------------------|-----------------------------|--|-------------------|-------------------------------|--------------|
| 0 | | CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | | |
| -25 | | | | TAMIAMI CONFINING ZONE | HAWTHORN GROUP | MIOCENE COARSE CLASTICS | |
| -50 | | | | LOWER TAMIAMI AQUIFER | | | |
| -75 | | CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC | |
| -100 | | | | | | | SILT CLAY |
| -125 | | SILT CLAY | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC | |
| -150 | | | | | | | SILT |
| -175 | | | | | | | SILT SILT |
| -200 | | | | | | | SILT SILT |
| -225 | | | | | | | SILT SILT |
| -250 | | | | | | | |

HY202

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 203
TOTAL DEPTH: 00300 FT.
59 SAMPLES FROM 0 TO 300 FT.

COUNTY - HENDRY
LOCATION: T.45S R.32E S.06
LAT = N 26D 36M 20
LON = W 81D 09M 44
ELEVATION - 028 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-885

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY POOR

HYDROGEOLOGIC UNITS

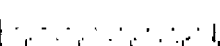
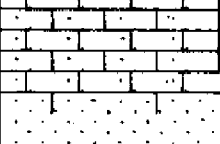
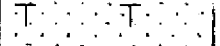





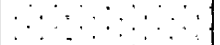
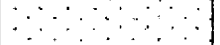

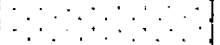
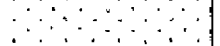
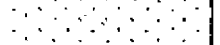
0 55 SURFICIAL AQUIFER SYSTEM
0 6 WATER TABLE AQUIFER
6 45 CONFINING ZONE
45 55 LOWER TAMIAMI AQUIFER
55 300 UPPER HAWTHORN CONFINING ZONE

0. - 6. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
6. - 50. 122TMIM TAMIAMI FM.
50. - 300. 122HTRN HAWTHORN GROUP

- 0 - 6 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, IRON STAIN- %, PLANT REMAINS- %;
- 6 - 10 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%, PLANT REMAINS- %;
FOSSILS: FOSSIL FRAGMENTS;
- 10 - 12 AS ABOVE
- 12 - 25 LIMESTONE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
- 25 - 30 LIMESTONE; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-10%;
FOSSILS: FOSSIL FRAGMENTS;

- 110 - 115 AS ABOVE
WITH DECREASING SHELL CONTENT
- 115 - 120 AS ABOVE
- 120 - 125 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
- 125 - 130 AS ABOVE
- 130 - 135 AS ABOVE
- 135 - 140 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
WITH INCREASED SHELL AND PHOSPHATIC SAND
- 140 - 300 AS ABOVE
SAMPLES FROM 60 TO 300 APPEAR TO BE MIXED
- 300 TOTAL DEPTH

- 30 - 35 SANDSTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-30%, CALCITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 35 - 40 AS ABOVE
- 40 - 45 AS ABOVE
- 45 - 50 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%, LIMESTONE-05%;
- 50 - 55 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, CALCITE-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 55 - 60 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
- 60 - 65 AS ABOVE
WITH SPARSE SHELL FRAGMENTS SAMPLES FROM 60 TO TOTAL DEPTH APPEAR TO BE MIXED
- 65 - 70 AS ABOVE
- 70 - 75 AS ABOVE
- 75 - 80 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, SILT-01%;
WITH MORE SHELL FRAGMENTS
- 80 - 85 AS ABOVE
- 85 - 90 AS ABOVE
- 90 - 95 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
- 95 - 100 AS ABOVE
- 100 - 105 AS ABOVE
- 105 - 110 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|-----------------------|-----------------------------|--|--|
| 25 |  | | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| 0 |  | CALCITE | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION |
| -25 |  | | | LOWER TAMIAMI AQUIFER | |
| -25 |  | CALCITE SILT | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP UPPER CLASTIC ZONE |
| -50 |  | | | | |
| -75 |  | | | | |
| -100 |  | | | | |
| -125 |  | | | | |
| -150 |  | | | | |
| -175 |  | | | | |
| -200 |  | | | | |
| -225 |  | | | | |
| -250 |  | | | | |
| -275 |  | | | | |

HY203

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 204
TOTAL DEPTH: 00300 FT.
40 SAMPLES FROM 0 TO 300 FT.

COUNTY - HENDRY
LOCATION: T.43S R.31E S.28
LAT = N 26D 43M 18
LON = W 81D 14M 36
ELEVATION - 021 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-594

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY POOR
HYDROGEOLOGIC UNITS

0 95 SURFICIAL AQUIFER SYSTEM
0 35 WATER TABLE AQUIFER
35 45 TAMiami CONFINING ZONE
45 95 LOWER TAMiami AQUIFER
95 300 UPPER HANTHORN CONFINING ZONE

0. - 5. 090UDSC UNDIFFERENTIATED SAND AND CLAY
5. - 95. 122TMIN TAMiami FM.
95. - 300. 122HTRN HANTHORN GROUP

- 0 - 5 SAND; GRAYISH BROWN TO MODERATE BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS- 2, IRON STAIN- 2, LIMONITE- 2;
- 5 - 10 LIMESTONE; GRAYISH ORANGE TO GRAYISH BROWN; 15% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 10 - 20 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 20 - 25 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, WORM TRACES, MOLLUSKS;
GASTROPODS
- 25 - 30 AS ABOVE
- 30 - 35 AS ABOVE

- 35 - 40 LIMESTONE; MODERATE ORANGE PINK TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, SILT-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 AS ABOVE
- 45 - 50 LIMESTONE; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS;
- 50 - 55 AS ABOVE
- 55 - 60 LIMESTONE; YELLOWISH GRAY TO MODERATE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 60 - 65 AS ABOVE
- 65 - 70 AS ABOVE
- 70 - 75 LIMESTONE; YELLOWISH GRAY TO MODERATE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 75 - 80 AS ABOVE
- 80 - 85 AS ABOVE
- 85 - 90 LIMESTONE; YELLOWISH GRAY TO MODERATE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 90 - 95 AS ABOVE

- 95 - 100 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 105 AS ABOVE
- 105 - 110 AS ABOVE
- 110 - 120 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 120 - 130 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%;
FOSSILS: FOSSIL FRAGMENTS;
FROSTED QUARTZ GRANULES
- 130 - 140 AS ABOVE
- 140 - 150 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%;
FROSTED QUARTZ GRANULES
- 150 - 160 AS ABOVE
- 160 - 170 AS ABOVE
- 170 - 180 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%;
FROSTED QUARTZ GRANULES
- 180 - 190 SAND; OLIVE GRAY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-01%;
- 190 - 200 AS ABOVE
- 200 - 210 AS ABOVE
- 210 - 220 SAND; OLIVE GRAY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-01%;

220 - 230 AS ABOVE

230 - 240 AS ABOVE

240 - 250 SAND; OLIVE GRAY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-01%;

250 - 260 AS ABOVE

260 - 270 AS ABOVE

270 - 280 SAND; OLIVE GRAY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-01%;

280 - 290 AS ABOVE

290 - 300 AS ABOVE

300 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|-----------------------|-----------------------------|--|--|
| 0 | | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED TAMIAMI FORMATION |
| -25 | | SILT | | TAMIAMI CONFINING ZONE | |
| -50 | | CALCITE | | LOWER TAMIAMI AQUIFER | |
| -75 | | CALCITE | | | |
| -100 | | CALCITE CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | MIOCENE COARSE CLASTICS |
| -125 | | CALCITE CALCITE | | | |
| -150 | | | | | |
| -175 | | | | | |
| -200 | | | | | |
| -225 | | | | | |
| -250 | | | | | |
| -275 | | | | | |
| -300 | | | | | UPPER CLASTIC |

HY204

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 205
TOTAL DEPTH: 00090 FT.
19 SAMPLES FROM 0 TO 90 FT.

COUNTY - HENDRY
LOCATION: T.44S R.33E S.06
LAT = N 26D 41M 33
LON = W 81D 04M 08
ELEVATION - 023 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-630

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY POOR

HYDROGEOLOGIC UNITS

- 0 90 SURFICIAL AQUIFER SYSTEM
- 0 2 WATER TABLE AQUIFER
- 2 90 CONFINING ZONE

- 0. - 90. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS

- 0 - 2 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, IRON STAIN- %;

- 2 - 7 CALCILUTITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMESTONE-05%;

- 7 - 9 CALCILUTITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, LIMESTONE-05%;

- 9 - 10 AS ABOVE

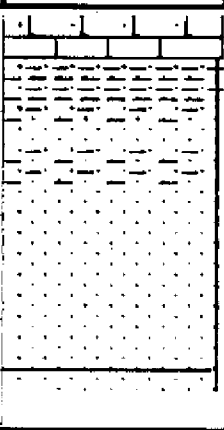
- 10 - 15 SILT; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-02%;
OTHER FEATURES: CALCAREOUS;

- 15 - 20 AS ABOVE

- 20 - 25 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-50%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
SAMPLE CONTAINS 10% FROSTED ROUNDED GRANULE SIZE QUARTZ

- 25 - 30 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-40%, SHELL-40%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 30 - 40 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 45 - 50 AS ABOVE
- 50 - 55 AS ABOVE
- 55 - 60 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 60 - 65 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CLAY-15%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 65 - 70 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 70 - 75 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;

- 75 - 80 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 80 - 85 AS ABOVE
- 85 - 90 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%, CLAY-15%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 90 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|------------------------------------|---|---|--------------------------|---------------------|-------------------|
| 0 -25 -50 -75 |  | SAND PHOSPHATE SILT SILT | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| TAMIAMI CONFINING ZONE | | | | | |

HY205

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 206 COUNTY - HENDRY
TOTAL DEPTH: 00350 FT. LOCATION: T.45S R.32E S.19 B
44 SAMPLES FROM 0 TO 350 FT. LAT = N 26D 33M 41
LON = W 81D 10M 06
COMPLETION DATE - 19/05/87 ELEVATION - 030 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: SFNMD-ALICO PROPERTY (SITE B); DRILLER: TONY LUBRAND

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

0 100 SURFICIAL AQUIFER SYSTEM
0 11 WATER TABLE AQUIFER
11 77 TAMiami CONFINING ZONE
77 100 LOWER TAMiami AQUIFER
100 350 UPPER HAWTHORN CONFINING ZONE

0. - 25. 090UDSC UNDIFFERENTIATED SAND AND CLAY
25. - 107. 122TMIN TAMiami FM.
107. - 350. 122HTRN HAWTHORN GROUP

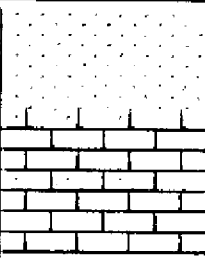

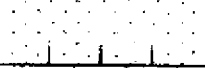
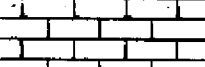

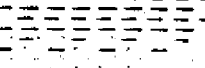
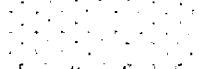
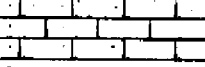




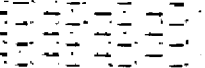

- 0 - 5 SAND; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 5 - 6 SAND; MODERATE BROWN TO GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS-02%, IRON STAIN- %;
- 6 - 9 SAND; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- %;
- 9 - 11 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-05%;
- 11 - 17 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-10%, PHOSPHATIC SAND-01%, IRON STAIN- %;
- 17 - 20 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC GRAVEL-01%, IRON STAIN- %;

- 20 - 25 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC GRAVEL-01%, IRON STAIN- %, SHELL- %;
FOSSILS: FOSSIL FRAGMENTS;
- 25 - 30 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%;
FOSSILS: FOSSIL FRAGMENTS;
- 30 - 40 AS ABOVE
- 40 - 45 CALCILUTITE; YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MEDIUM TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, SHELL-40%;
FOSSILS: SPICULES;
- 45 - 50 AS ABOVE
- 50 - 60 AS ABOVE
- 60 - 67 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 67 - 75 SANDSTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, SHELL-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 75 - 77 CALCILUTITE; YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, SHELL-10%, PHOSPHATIC SAND-01%;
- 77 - 82 SANDSTONE; YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SHELL-05%, PHOSPHATIC SAND-01%;
FOSSILS: WORN TRACES;
- 82 - 90 AS ABOVE

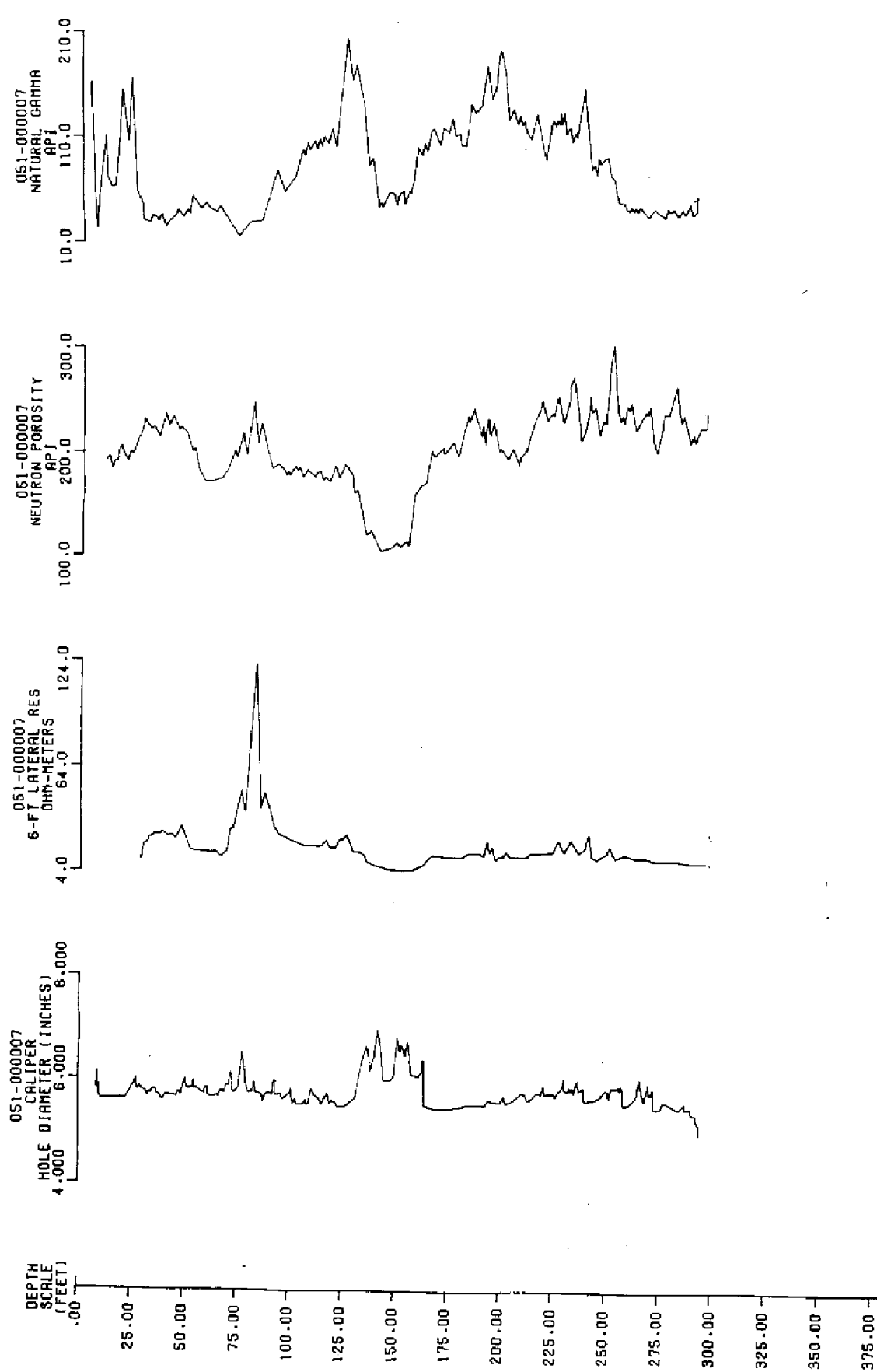
- 90 - 100 SANDSTONE; YELLOWISH GRAY; 05% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SHELL-05%, PHOSPHATIC SAND-03%;
FOSSILS: WORM TRACES;
- 100 - 107 SAND; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SHELL-07%, SPAR-05%, PHOSPHATIC SAND-02%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 107 - 112 SAND; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SHELL-07%, SPAR-05%, PHOSPHATIC SAND-04%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 112 - 120 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-04%, SHELL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 120 - 130 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-05%, SILT-05%, SHELL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 130 - 136 AS ABOVE
- 136 - 140 CLAY; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 140 - 155 AS ABOVE
- 155 - 160 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%;
- 160 - 170 AS ABOVE
- 170 - 180 AS ABOVE

- 180 - 195 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, CLAY-05%, PHOSPHATIC SAND-01%;
- 195 - 200 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
- 200 - 210 AS ABOVE
- 210 - 220 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-10%, PHOSPHATIC SAND-01%, SHELL- %;
FOSSILS: FOSSIL FRAGMENTS;
- 220 - 233 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-30%, PHOSPHATIC SAND-01%, SHELL- %;
- 233 - 240 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-30%, PHOSPHATIC SAND-01%, SHELL- %;
FOSSILS: FOSSIL FRAGMENTS;
WITH 10% SANDY LIMESTONE PIECES
- 240 - 247 SAND; OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, SILT-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 247 - 252 SAND; OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, SILT-05%;
FOSSILS: FOSSIL FRAGMENTS;
WITH 3% COARSE CLASTICS

- 252 - 260 SAND; OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, SILT-05%;
FOSSILS: FOSSIL FRAGMENTS;
WITH SANDY LIMESTONE AND CALCAREOUS SHELL FRAGMENTS
- 260 - 280 SAND; YELLOWISH GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, LIMESTONE-05%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 280 - 300 AS ABOVE
- 300 - 315 AS ABOVE
- 315 - 320 SAND; YELLOWISH GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, LIMESTONE-05%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 320 - 330 SAND; LIGHT OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%, LIMESTONE-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 330 - 340 SAND; LIGHT OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%, LIMESTONE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
WITH 10% PHOSPHATIC SAND
- 340 - 350 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-01%;
- 350 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|----------------------|---|--|---|---|------------------------------|---|
| 25 |  | SILT CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| 0 | | | |  | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION |
| -25 | | | | | | |
| -50 |  | CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | |
| -75 | | | | | |  |
| -100 |  | SAND | UPPER CLASTIC ZONE | | | |
| -125 | | | |  | SILT | |
| -150 |  | CLAY CLAY CLAY CALCITE | | | | |
| -175 | | |  | SILT CLAY | | |
| -200 |  | CALCITE CALCITE CALCITE CALCITE | | | | |
| -225 | | |  | CALCITE CALCITE | | |
| -250 |  | CALCITE CALCITE | | | | |
| -275 | | |  | CALCITE CALCITE | | |
| -300 |  | CALCITE CALCITE | | | | |
| -325 | | |  | CALCITE CALCITE | | |

HY206



GEOPHYSICS, WELL HY-206

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 207 COUNTY - HENDRY
TOTAL DEPTH: 00350 FT. LOCATION: T.45S R.33E S.30 C
60 SAMPLES FROM 0 TO 350 FT. LAT = N 26D 32M 13
LON = W 81D 04M 09
COMPLETION DATE - 15/07/87 ELEVATION - 027 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: SFMND-ALICO PROPERTY (SITE C); DRILLER: TONY LUBRANO

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 120 SURFICIAL AQUIFER SYSTEM
0 35 WATER TABLE AQUIFER
35 75 TAMiami CONFINING ZONE
75 120 LOWER TAMiami AQUIFER
120 350 UPPER HAWTHORN CONFINING ZONE

0. - 53. 090UDSC UNDIFFERENTIATED SAND AND CLAY
53. - 120. 122THIM TAMiami FM.
120. - 350. 122HTRM HAWTHORN GROUP

- 0 - 2 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS- %, IRON STAIN- %;
- 2 - 4 AS ABOVE
- 4 - 10 SAND; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 10 - 18 SAND; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-05%;
OTHER FEATURES: FROSTED;
- 18 - 22 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-07%;
- 22 - 30 NO SAMPLES
- 30 - 35 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-02%;

- 35 - 40 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%, SILT-05%, HEAVY MINERALS-05%;
- 40 - 50 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, PHOSPHATIC SAND-01%;
- 50 - 53 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, LIMESTONE-03%, PHOSPHATIC SAND-01%;
- 53 - 55 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, SPICULES;
SAMPLE CONTAINS 60% MICRITE REPLACED SHELLS
- 55 - 60 AS ABOVE
- 60 - 62 AS ABOVE
SAND CONTENT DECREASES & REPLACED SHELL CONTENT INCREASES WITH DEPTH FROM 55' - 62'
- 62 - 67 CALCILUTITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: FINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-07%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, BRYOZOA, SPICULES;
- 67 - 70 AS ABOVE
- 70 - 75 SANDSTONE; LIGHT GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, SPAR-05%, CALCILUTITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 75 - 80 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS;
- 80 - 82 AS ABOVE

- 82 - 93 AS ABOVE
- 93 - 95 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 95 - 100 AS ABOVE
- 100 - 102 AS ABOVE
- 102 - 110 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-60%, CALCILUTITE-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 110 - 115 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-60%, CALCILUTITE-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 115 - 120 AS ABOVE
- 120 - 130 SANDSTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-02%, SHELL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 130 - 140 AS ABOVE
WITH FEWER SHELLS AND POORLY INDURATED
- 140 - 155 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-20%, SILT-05%, SHELL-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 155 - 160 SAND; LIGHT OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, SILT-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;

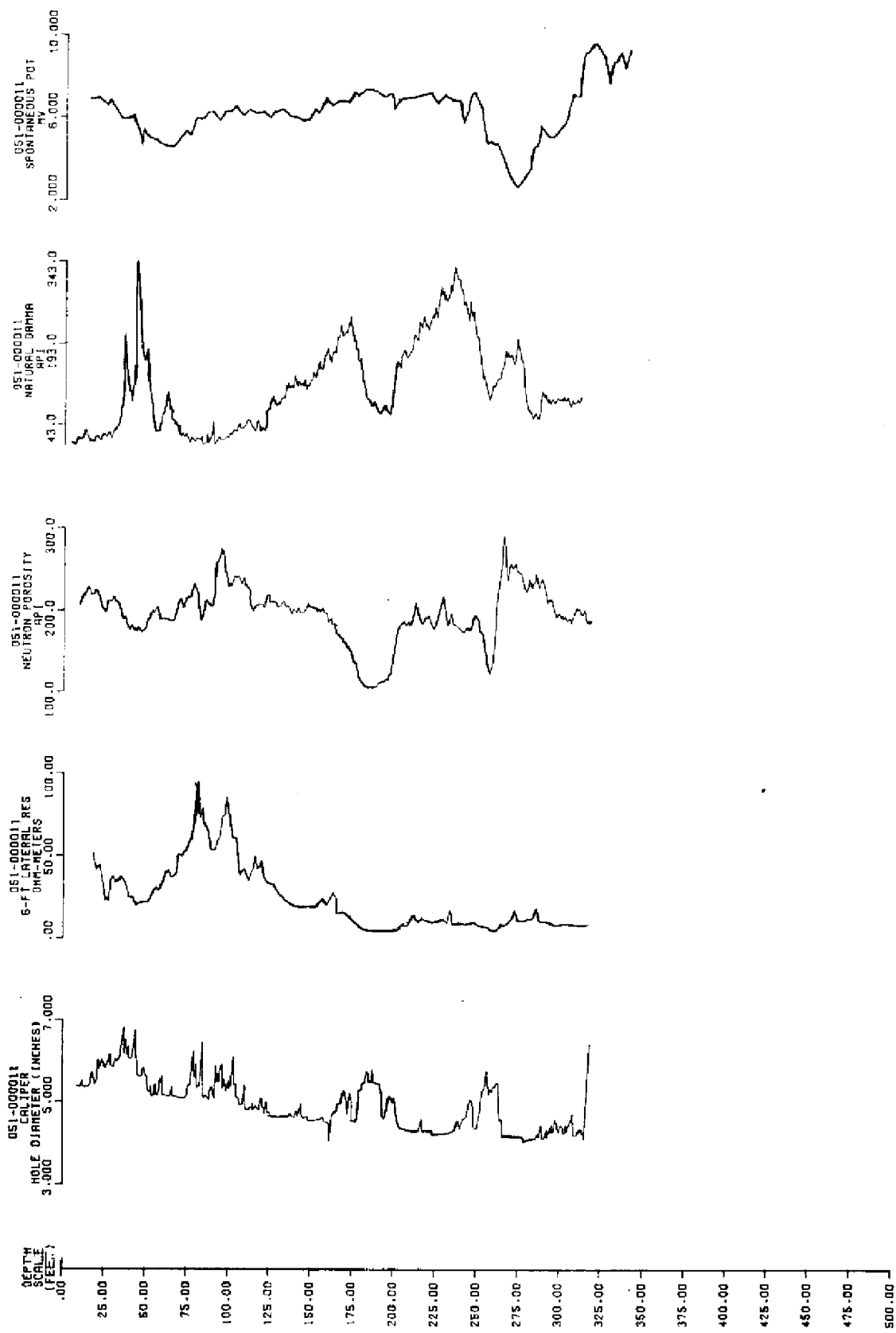
- 160 - 162 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, CALCILUTITE-25%, SILT-05%, SPAR-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 162 - 165 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, LIMESTONE-07%, SILT-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 165 - 170 AS ABOVE
- 170 - 175 AS ABOVE
- 175 - 180 SAND; OLIVE GRAY TO VERY DARK RED; 01% POROSITY, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: LIMESTONE-10%, CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 180 - 185 CLAY; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 185 - 190 AS ABOVE
- 190 - 195 AS ABOVE
EXTREMELY SLOW DRILLING FROM 175 TO 195
- 195 - 200 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, SILT-05%;
- 200 - 205 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-15%, SILT-05%;
- 205 - 210 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-10%, PHOSPHATIC SAND-01%, LIMESTONE-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 210 - 215 AS ABOVE

- 215 - 220 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 220 - 225 AS ABOVE
- 225 - 235 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 235 - 240 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-05%, PHOSPHATIC SAND-02%;
- 240 - 250 AS ABOVE
- 250 - 255 SAND; OLIVE GRAY TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
- 255 - 260 SAND; OLIVE GRAY TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
- 260 - 263 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-05%, SILT-05%;
- 263 - 270 AS ABOVE
- 270 - 280 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-05%, SILT-05%, LIMESTONE-02%;
- 280 - 282 AS ABOVE
MIXED SAMPLE

- 282 - 290 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-25%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 290 - 294 AS ABOVE
- 294 - 300 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, LIMESTONE-03%, CLAY-02%;
- 300 - 310 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, LIMESTONE-03%, CLAY-02%, PHOSPHATIC SAND-01%;
- 310 - 320 AS ABOVE
- 320 - 330 AS ABOVE
- 330 - 340 DOLD-SILT; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-20%, CLAY-15%, PHOSPHATIC SAND-05%;
- 340 - 350 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-10%, PHOSPHATIC SAND-03%;
- 350 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|----------------------|--|--------------------------------------|------------------------------------|--------------------------------------|--------------------------|---------------------------|
| 25 | | SILT SILT | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| 0 | | HEAVY MINS. | | TAMIAMI CONFINING ZONE | | |
| -25 | | SAND | | | TAMIAMI FORMATION | |
| -50 | | SAND | LOWER TAMIAMI AQUIFER | | | |
| -75 | | | | | | |
| -100 | | | | | | |
| -125 | | PHOSPHATE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -150 | | SILT SILT SILT SILT SILT | | | | |
| -175 | | CALCITE SAND | | | | |
| -200 | | SILT CALCITE CALCITE | | | | |
| -225 | CALCITE | | | | | |
| -250 | CALCITE CLAY | | | | | |
| -275 | CALCITE CALCITE SAND CLAY | LOWER CARBONATE ZONE | | | | |
| -300 | PHOSPHATE PHOSPHATE CALCITE CALCITE | | | | | |
| -325 | | | | | | |

HY207



GEOPHYSICS, WELL HY-207

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 208 COUNTY - HENDRY
TOTAL DEPTH: 00503 FT. LOCATION: T.44S R.33E S.09 B
45 SAMPLES FROM 0 TO 503 FT. LAT = N 26D 40M 4S
Elev = N 81D 02M 30
COMPLETION DATE - 09/09/87 ELEVATION - 020 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, GAMMA, NEUTRON, CALIPER

OWNER/DRILLER: SFMMD-MILLS RANCH; DRILLER: TONY LUBRANDO

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 140 SURFICIAL AQUIFER SYSTEM
0 15 WATER TABLE AQUIFER
15 35 TAMiami CONFINING ZONE
35 140 LOWER TAMiami AQUIFER
140 490 UPPER HAWTHORN CONFINING ZONE
490 503 MID-HAWTHORN AQUIFER

0. - 2. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
2. - 15. 122TMIM TAMiami FM.
15. - 503. 122HTRN HAWTHORN GROUP

- 0 - 2 SAND; GRAYISH ORANGE TO DARK YELLOWISH ORANGE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, IRON STAIN- %, PLANT REMAINS- %;
- 2 - 8 LIMESTONE; LIGHT YELLOWISH ORANGE TO DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-10%, IRON STAIN- %;
FOSSILS: FOSSIL FRAGMENTS;
- 8 - 15 LIMESTONE; VERY LIGHT ORANGE TO LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 15 - 20 SAND; YELLOWISH GRAY TO LIGHT GREENISH YELLOW; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SHELL-50%, SILT-15%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;

- 20 - 35 SAND; VERY LIGHT ORANGE TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-30%, SILT-05%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 35 - 40 SHELL BED; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC GRAVEL-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 60 AS ABOVE
SAND IS MEDIUM TO GRANULE SIZE
- 60 - 80 SHELL BED; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS;
5% WELL ROUNDED FROSTED QUARTZ GRANULES
- 80 - 100 SAND; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-40%, SILT-10%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
5% WELL ROUNDED FROSTED QUARTZ GRANULES
- 100 - 120 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-40%;
FOSSILS: FOSSIL FRAGMENTS;
5% WELL ROUNDED FROSTED QUARTZ GRANULES
- 120 - 140 AS ABOVE
- 140 - 155 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-40%;
10% WELL ROUNDED FROSTED QUARTZ GRANULES
- 155 - 160 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-25%, CLAY-03%;
10% WELL ROUNDED FROSTED QUARTZ GRANULES
- 160 - 175 AS ABOVE

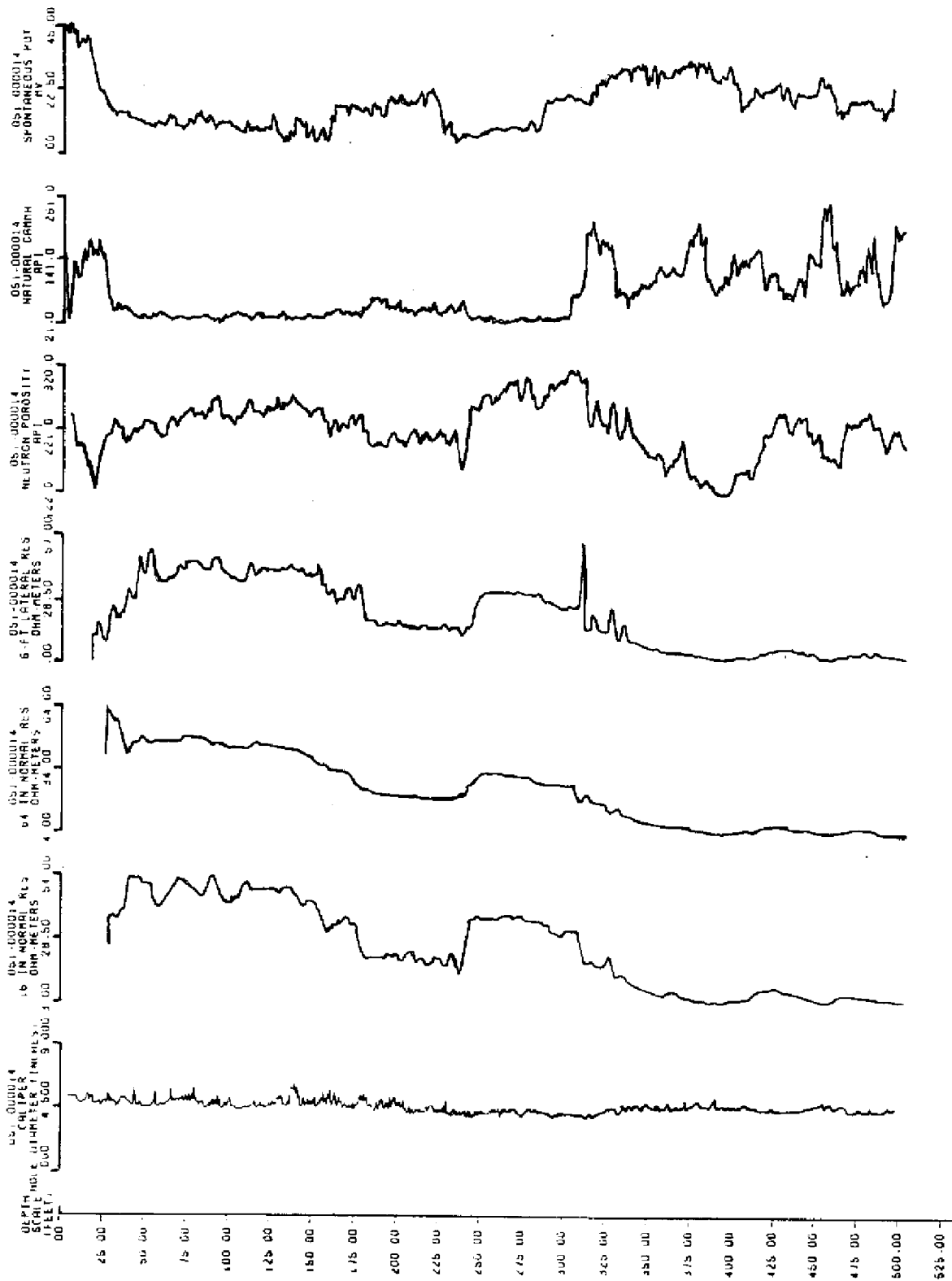
- 175 - 180 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, SHELL-05%, CLAY-03%, CALCILUTITE-03%;
FOSSILS: FOSSIL FRAGMENTS;
10% WELL ROUNDED FROSTED QUARTZ GRANULES
- 180 - 200 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY,
FRACTURE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MEDIUM TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CLAY-01%, CALCILUTITE-01%;
- 200 - 220 AS ABOVE
- 220 - 240 SILT; LIGHT OLIVE GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CLAY-05%, CALCILUTITE-05%, SHELL-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 240 - 250 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 250 - 260 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-30%, CALCILUTITE-10%, CALCITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 260 - 280 SAND; MODERATE GRAYISH GREEN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; LOW SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, SILT-10%, SHELL-10%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 280 - 290 SAND; VERY LIGHT GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRANULE; RANGE: FINE TO GRAVEL;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-10%, CLAY-05%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, BRYDZOA, BARNACLES;
- 290 - 300 AS ABOVE

- 300 - 307 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 307 - 320 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-10%, LIMESTONE-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 320 - 325 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-10%, SHELL-03%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 325 - 340 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-25%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 340 - 360 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-01%;
- 360 - 380 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CLAY-10%, CALCILUTITE-05%, PHOSPHATIC SAND-03%;
- 380 - 390 AS ABOVE
- 390 - 400 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SILT-05%;
- 400 - 412 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT-05%;
- 412 - 420 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-05%, PHOSPHATIC SAND-02%;

- 420 - 436 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-10%, PHOSPHATIC SAND-02%;
- 436 - 440 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCITE-07%, CLAY-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 440 - 460 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CALCITE-05%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS;
- 460 - 480 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CALCITE-20%, PHOSPHATIC SAND-04%;
FOSSILS: SPICULES, BRYOZOA, FOSSIL FRAGMENTS;
- 480 - 490 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCITE-50%, CALCILUTITE-30%, PHOSPHATIC SAND-04%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 490 - 503 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-15%, SILT-05%, PHOSPHATIC SAND-01%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS, BRYOZOA;
- 503 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|--|-----------------------------|--|---------------------------------------|
| 0 | | SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED TAMIAMI FORMATION |
| | | PHOSPHATE | | TAMIAMI CONFINING ZONE | MIOCENE COARSE CLASTICS |
| -50 | | SAND SAND SILT | SURFICIAL AQUIFER SYSTEM | LOWER TAMIAMI AQUIFER | |
| -100 | | | | | |
| -150 | | CLAY CLAY SILT SILT | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -200 | | | | | |
| -250 | | CALCITE CALCITE CALCITE SILT SILT PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -300 | | | | | |
| -350 | | SILT SILT CALCITE SILT SILT SILT | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -400 | | | | | |
| -450 | | SAND CLAY CLAY CLAY | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN AQUIFER | HAWTHORN GROUP |
| -500 | | | | | |
| | | CALCITE SILT CALCITE | | | LOWER CARBONATE ZONE |

HY 208



GEOPHYSICS, WELL HY-208

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 209
 TOTAL DEPTH: 00502 FT.
 51 SAMPLES FROM 0 TO 502 FT.

COUNTY - HENDRY
 LOCATION: T.45S R.34E S.27 D
 LAT = N 26D 32M 07
 LON = W 80D 55M 33

COMPLETION DATE - 06/10/87
 OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, GAMMA, NEUTRON, CALIPER

OWNER/DRILLER: SFWMD-U.S. SUGAR MOTT 1 PLANTATION; DRILLER: TONY LUBRAND

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

- 0 156 SURFICIAL AQUIFER SYSTEM
- 0 3 WATER TABLE AQUIFER
- 3 22 TAMiami CONFINING ZONE
- 22 156 LOWER TAMiami AQUIFER
- 156 462 UPPER HAWTHORN CONFINING ZONE
- 462 482 MID-HAWTHORN AQUIFER (LOW YIELD)
- 482 502 LOWER HAWTHORN CONFINING ZONE

- 0. - 6. 090UDSC UNDIFFERENTIATED SAND AND CLAY
- 6. - 182. 122TMIM TAMiami FM.
- 182. - 502. 122HTRN HAWTHORN GROUP

- 0 - 3 SAND; VERY LIGHT GRAY TO BLACK; 25% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
 CEMENT TYPE(S): ORGANIC MATRIX;
 ACCESSORY MINERALS: ORGANICS-25%, PLANT REMAINS- %;

- 3 - 6 PEAT; DARK YELLOWISH BROWN TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
 POOR INDURATION;
 CEMENT TYPE(S): ORGANIC MATRIX;
 ACCESSORY MINERALS: QUARTZ SAND-05%, PLANT REMAINS- %;

- 6 - 8 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN; 05% POROSITY, INTERGRANULAR,
 LOW PERMEABILITY;
 GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX;
 ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-10%, CALCITE-05%;
 FOSSILS: FOSSIL FRAGMENTS;

- 8 - 12 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
 GRAIN TYPE: INTRACLASTS, CRYSTALS, CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX;
 ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%;
 FOSSILS: FOSSIL FRAGMENTS;

- 12 - 16 SHELL BED; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-45%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
SHELLS ARE REPLACED WITH CALCITE, SAND IS FROSTED
- 16 - 22 CALCILUTITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCITE-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 22 - 30 SANDSTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, MOLLUSKS;
- 30 - 38 AS ABOVE
- 38 - 42 SANDSTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: LIMESTONE-10%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 42 - 62 AS ABOVE
- 62 - 70 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-10%, CALCITE-10%;
FOSSILS: FOSSIL FRAGMENTS, CORAL, MOLLUSKS;
- 70 - 82 LIMESTONE; MODERATE LIGHT GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CRYSTALS; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCITE-20%, PHOSPHATIC SAND-01%;
FOSSILS: BARNACLES, WORM TRACES, FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA;
- 82 - 85 AS ABOVE

- 85 - 90 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 29% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, CALCITE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS;
- 90 - 102 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CRYSTALS; 55% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, CORAL, WORM TRACES;
- 102 - 122 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE; 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO VERY COARSE;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCITE-20%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, WORM TRACES, MOLLUSKS, FOSSIL FRAGMENTS;
- 122 - 142 AS ABOVE
- 142 - 156 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR-05%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, BRYOZOA;
- 156 - 162 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCITE-20%, CALCILUTITE-10%, SILT-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 162 - 182 SANDSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, SILT-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, MOLLUSKS;
- 182 - 197 NO SAMPLES
FINE SAND-NO RETURNS
- 197 - 202 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CALCITE-15%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;

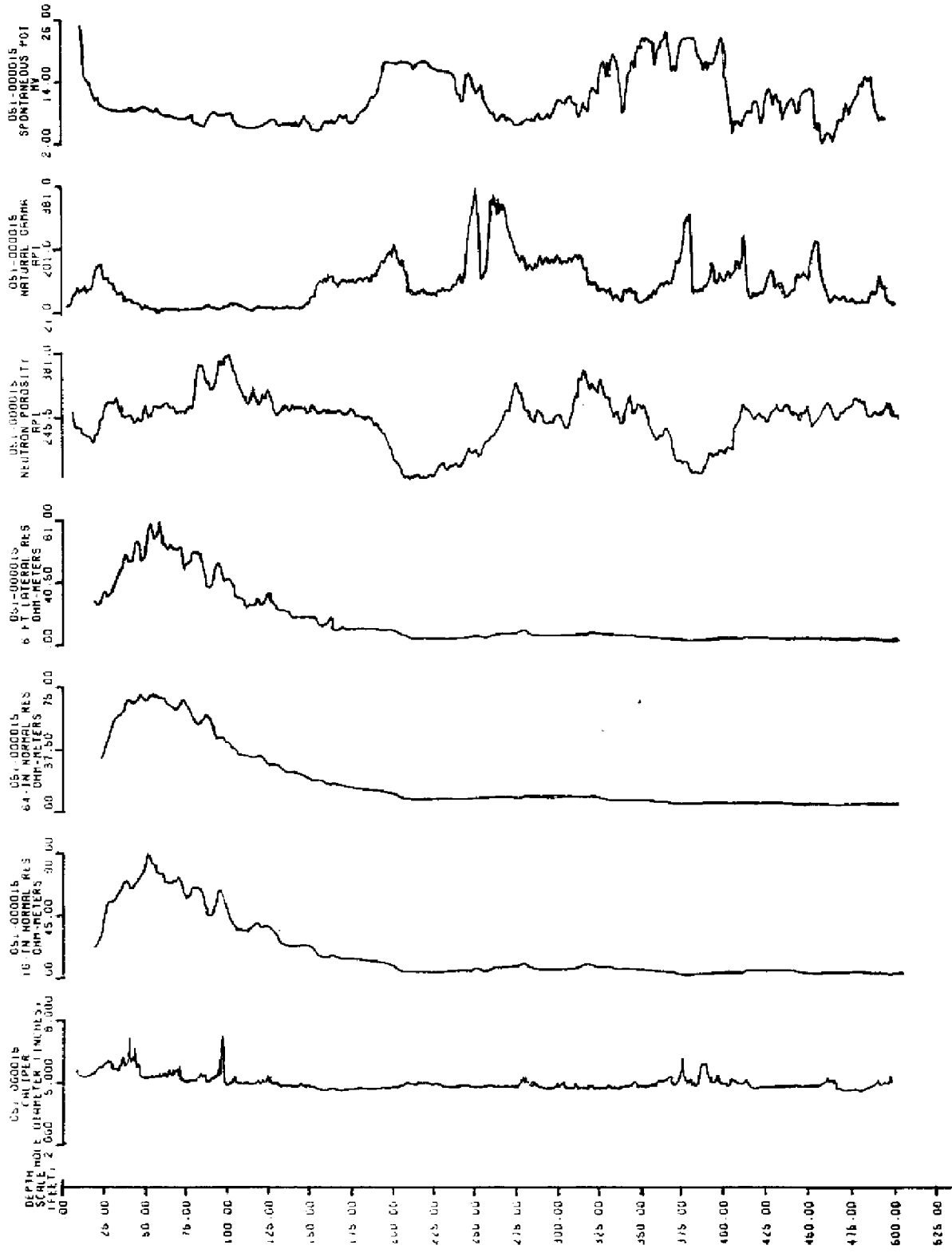
- 202 - 222 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, SILT-10%;
- 222 - 242 SILT; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-05%;
- 242 - 247 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CLAY-05%, PHOSPHATIC SAND-02%, MICA-02%;
- 247 - 262 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CLAY-05%, PHOSPHATIC SAND-05%, MICA-02%;
- 262 - 277 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, SILT-05%, PHOSPHATIC SAND-01%, MICA-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 277 - 282 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, SILT-05%, PHOSPHATIC SAND-01%;
- 282 - 290 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, SILT-05%, PHOSPHATIC SAND-01%, MICA-01%;
- 290 - 299 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, SILT-10%, CALCITE-07%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 299 - 302 AS ABOVE
- 302 - 315 SAND; OLIVE GRAY TO GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;

- 315 - 322 3% WELL ROUNDED FROSTED QUARTZ GRANULES
- 322 - 342 CALCILUTITE; LIGHT OLIVE TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-05%, PHOSPHATIC SAND-01%;
- 342 - 352 CALCILUTITE; LIGHT OLIVE TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCITE-10%, SHELL-10%, CLAY-05%;
- 352 - 362 CALCILUTITE; LIGHT OLIVE TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-05%, PHOSPHATIC SAND-01%;
- 362 - 375 SAND; GRAYISH OLIVE; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-10%, PHOSPHATIC SAND-05%;
- 375 - 382 SILT; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-15%, CLAY-10%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 382 - 402 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CLAY-10%, PHOSPHATIC SAND-01%;
- 402 - 412 AS ABOVE
- 412 - 422 CALCILUTITE; YELLOWISH GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 422 - 427 AS ABOVE
- 427 - 432 CALCILUTITE; YELLOWISH GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCITE-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;

- 432 - 442 CALCILUTITE; LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCITE-10%, SILT-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, CORAL;
- 442 - 447 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, SILT-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 447 - 462 AS ABOVE
- 462 - 467 SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-30%, PHOSPHATIC SAND-02%;
- 467 - 482 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCITE-15%, SILT-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 482 - 502 SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-30%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 502 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|-------------------------|--------|--|-----------------------------|--|----------------------|--------------------------|-------------------------|
| 0 | | SAND CALCITE | SURFICIAL AQUIFER SYSTEM | TAMIAMI CONFINING ZONE | UNDIFFERENTIATED | | |
| -50 | | CALCITE CALCITE | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION | | |
| -100 | | CALCITE CALCITE SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE | |
| -150 | | CALCITE CALCITE CALCITE | | | | | |
| -200 | | SILT SILT CLAY CLAY SILT SILT | | | | | |
| -250 | | | | | | | |
| -300 | | CALCITE CLAY CLAY CLAY CLAY CALCITE CLAY | | | | | |
| -350 | | SAND PHOSPHATE CLAY CLAY | | | | | |
| -400 | | | | | | | |
| -450 | | CALCITE SILT SAND SAND SAND | | | | | MID HAWTHORN AQUIFER |
| -500 | | LOWER HAWTHORN CONFINING ZONE | | | | | |

HY 209



GEOPHYSICS, WELL HY-209

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 210 COUNTY - HENDRY
 TOTAL DEPTH: 00502 FT. LOCATION: T.44S R.31E S.05 A
 53 SAMPLES FROM 0 TO 502 FT. LAT = N 26D 41M 30
 ELEVATION - 025 FT
 COMPLETION DATE - 16/12/87
 OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, CALIPER, GAMMA, NEUTRON

OWNER/DRILLER: SFWMD-HILLIARD PROPERTY; DRILLER: TONY LUBRAND

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 98 SURFICIAL AQUIFER SYSTEM
 0 13 WATER TABLE AQUIFER
 13 77 TAMIAMI CONFINING ZONE
 77 98 LOWER TAMIAMI AQUIFER(LOW YIELD)
 98 102 NO SAMPLES
 102 502 UPPER HAWTHORN CONFINING ZONE

0. - 13. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
 13. - 31. 122TMIM TAMIAMI FM.
 31. - 502. 122HTRN HAWTHORN GROUP

- 0 - 1 PEAT; BLACK; 15% POROSITY, INTERGRANULAR; POOR INDURATION;
 CEMENT TYPE(S): ORGANIC MATRIX;
 ACCESSORY MINERALS: QUARTZ SAND-15%, PLANT REMAINS-2;
- 1 - 4 SAND; BROWNISH GRAY; 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
 CEMENT TYPE(S): ORGANIC MATRIX;
 ACCESSORY MINERALS: ORGANICS-15%, PLANT REMAINS-2;
- 4 - 8 SAND; DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
 ROUNDNESS: SUB-ROUNDED TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
 ACCESSORY MINERALS: PLANT REMAINS- 2, IRON STAIN-2;
- 8 - 13 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX;
 ACCESSORY MINERALS: SHELL-40%, CALCILUTITE-10%;
 FOSSILS: FOSSIL FRAGMENTS;
- 13 - 22 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
 GRAIN TYPE: CALCILUTITE, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE; POOR INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX;
 ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%, SHELL-01%;
 FOSSILS: FOSSIL FRAGMENTS;

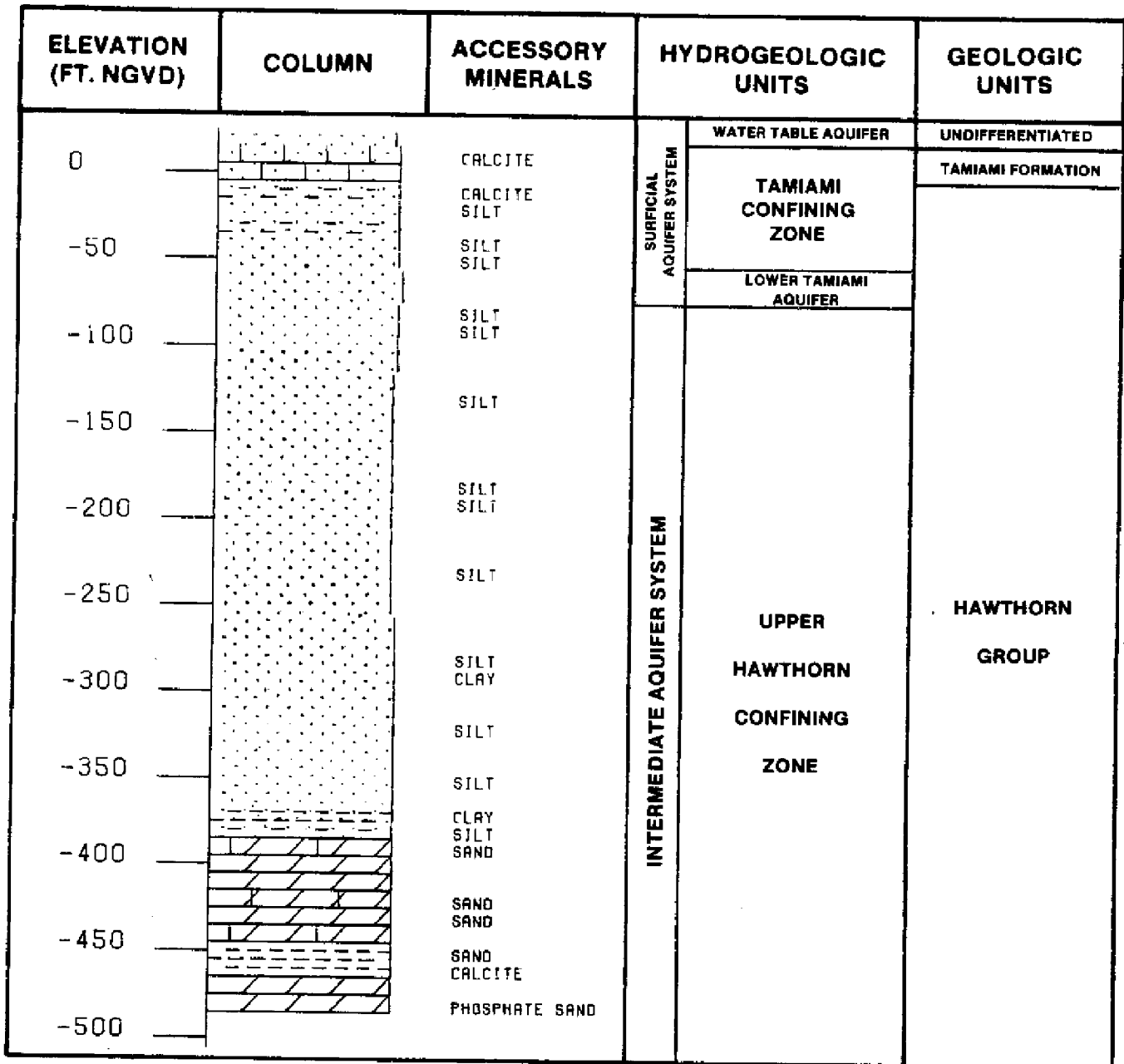
- 22 - 31 CALCILUTITE; YELLOWISH GRAY TO YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, SHELL-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 31 - 37 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-25%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
- 37 - 39 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-15%, LIMESTONE-01%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 39 - 42 SAND; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-10%, CALCILUTITE-10%, LIMESTONE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 42 - 52 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 52 - 57 SAND; GREENISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-25%, PHOSPHATIC SAND-01%, SHELL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 57 - 62 SAND; GREENISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-15%, SHELL-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 62 - 67 AS ABOVE

- 67 - 77 SAND; GREENISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-15%, IRON STAIN-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
LARGER GRAINS FROSTED
- 77 - 82 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: SILT-15%, CALCILUTITE-15%, SHELL-10%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 82 - 92 AS ABOVE
- 92 - 98 SAND; LIGHT OLIVE GRAY TO LIGHT GRAY; 15% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, SILT-05%, IRON STAIN-05%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 98 - 102 NO SAMPLES
FINE SAND-NO RETURNS
- 102 - 112 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: SILT-10%, SHELL-03%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 112 - 122 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERNEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-05%, CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 122 - 132 AS ABOVE
- 132 - 142 AS ABOVE
- 142 - 162 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-01%;

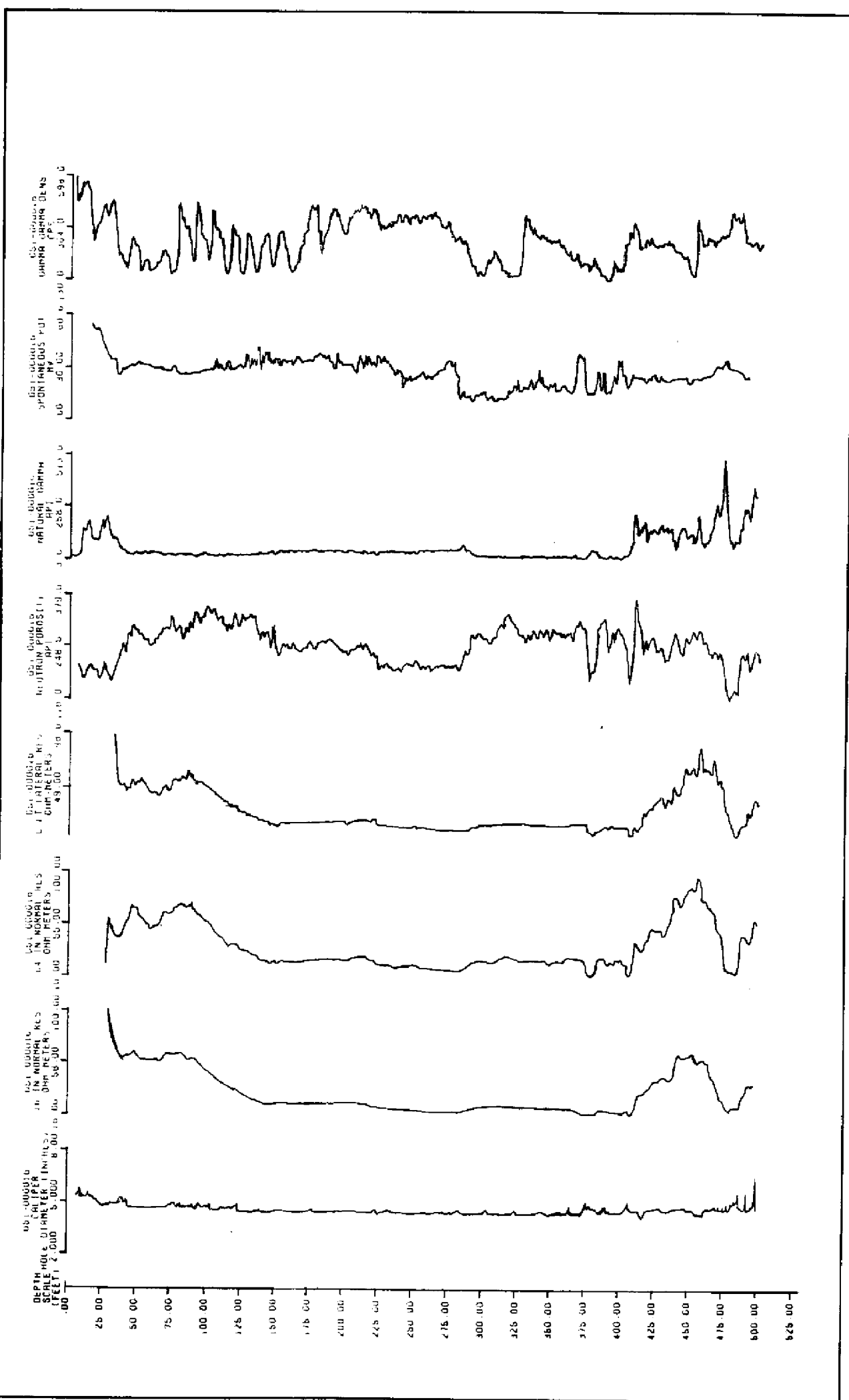
- 162 - 182 AS ABOVE
- 182 - 197 AS ABOVE
- 197 - 202 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-01%;
- 202 - 222 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
- 222 - 242 AS ABOVE
- 242 - 262 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-01%;
- 262 - 277 AS ABOVE
- 277 - 282 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-02%, CALCILUTITE-01%, PHOSPHATIC SAND-01%;
- 282 - 292 AS ABOVE
- 292 - 302 AS ABOVE
- 302 - 315 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, CLAY-02%, CALCILUTITE-01%, PHOSPHATIC SAND-01%;
- 315 - 322 AS ABOVE
- 322 - 342 AS ABOVE
- 342 - 352 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, PHOSPHATIC SAND-01%;
- 352 - 362 AS ABOVE
- 362 - 372 AS ABOVE

- 372 - 382 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-15%, PHOSPHATIC SAND-01%;
- 382 - 392 AS ABOVE
- 392 - 402 SILT; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CLAY-05%;
OTHER FEATURES: FROSTED;
- 402 - 410 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, CLAY-05%;
OTHER FEATURES: FROSTED;
- 410 - 412 GRAVEL; VERY LIGHT GRAY TO BLACK; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRAVEL;
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, QUARTZ SAND-10%, CALCILUTITE-05%, PHOSPHATIC GRAVEL- %;
OTHER FEATURES: FROSTED;
- 412 - 422 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-20%, PHOSPHATIC SAND-04%;
- 422 - 432 AS ABOVE
- 432 - 442 AS ABOVE
- 442 - 457 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-20%, PHOSPHATIC SAND-04%;
- 457 - 462 AS ABOVE
- 462 - 472 DOLO-SILT; LIGHT OLIVE TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
- 472 - 482 CLAY; GREENISH GRAY TO DARK GREENISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;

- 482 - 492 CLAY; MODERATE GRAYISH GREEN TO GREENISH GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
- 492 - 502 DOLO-SILT; LIGHT OLIVE TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCITE-02%, QUARTZ SAND-05%, PHOSPHATIC SAND-06%;
- 502 TOTAL DEPTH



HY210



GEOPHYSICS, WELL HY-210

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 301 COUNTY - HENDRY
TOTAL DEPTH: 00132 FT. LOCATION: T.47S R.34E S.08 A
26 SAMPLES FROM 0 TO 132 FT. LAT = N 26D 24M 40
LON = W 80D 56M 50
COMPLETION DATE - N/A ELEVATION - 020 FT
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC, GAMMA

OWNER/DRILLER: US SUGAR WELL HM-265 (MISSIMER), DRILLED BY B. KOHLMEIER

WORKED BY: BURNS, SAMPLE QUALITY FAIR



HYDROGEOLOGIC UNITS

0 132 SURFICIAL AQUIFER SYSTEM
0 25 WATER TABLE AQUIFER
25 75 TAMiami CONFINING ZONE
75 132 LOWER TAMiami AQUIFER

0. - 75. 090UDSC UNDIFFERENTIATED SAND AND CLAY
75. - 132. 122TMIM TAMiami FM.

- 0 - 5 SAND; MODERATE DARK GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMONITE-01%, IRON STAIN- Z, PLANT REMAINS- Z;
OTHER FEATURES: FROSTED;
- 5 - 10 SAND; MODERATE DARK GRAY TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: FINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMONITE-01%, PLANT REMAINS- Z;
- 10 - 15 AS ABOVE
GRAIN SIZE GRANULE WITH LOW SPHERICITY
- 15 - 20 SAND; MODERATE DARK GRAY TO YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: FINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMONITE-01%, PLANT REMAINS- Z;
- 20 - 25 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-03%, LIMONITE-01%;
OTHER FEATURES: FROSTED;
- 25 - 50 SAND; BROWNISH GRAY TO DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-30%;
- 50 - 55 AS ABOVE

- 55 - 60 CLAY; LIGHT OLIVE GRAY; NOT OBSERVED; POOR INDURATION;
OTHER FEATURES: POOR SAMPLE;
SAMPLE CONSISTS MAINLY OF CAVINGS
- 60 - 70 SAND; DARK YELLOWISH BROWN; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-01%;
- 70 - 75 SAND; DARK YELLOWISH BROWN; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%;
- 75 - 85 LIMESTONE; OLIVE GRAY; 18% POROSITY, PIN POINT VUGS, MOLDIC, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO GRANULE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-50%, QUARTZ SAND-25%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 85 - 95 AS ABOVE
- 95 - 100 LIMESTONE; LIGHT OLIVE GRAY; 18% POROSITY, PIN POINT VUGS, VUGULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO GRANULE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-40%, QUARTZ SAND-10%, CALCILUTITE-25%;
FOSSILS: MOLLUSKS, WORM TRACES;
- 100 - 110 LIMESTONE; LIGHT OLIVE GRAY; 16% POROSITY, PIN POINT VUGS, VUGULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, PELLET; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-40%, QUARTZ SAND-20%, CALCILUTITE-25%;
FOSSILS: MOLLUSKS, WORM TRACES, FOSSIL FRAGMENTS;
- 110 - 120 AS ABOVE
BETTER INDURATED
- 120 - 132 LIMESTONE; LIGHT OLIVE GRAY; 16% POROSITY, PIN POINT VUGS, VUGULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, PELLET; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-40%, QUARTZ SAND-20%, CALCILUTITE-25%;
FOSSILS: MOLLUSKS, WORM TRACES, FOSSIL FRAGMENTS;
- 132 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|-----------------------|--------------------------|---|-------------------|
| 0 |  | | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | | | TAMIAMI CONFINING ZONE | |
| -50 | | | |  | SAND SAND |
| -75 | SAND SAND SAND | | | | |
| -100 | SAND SAND SAND | | | | |
| -125 | | | | | |

HY301

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 302 COUNTY - HENDRY
TOTAL DEPTH: 00145 FT. LOCATION: T.47S R.34E S.05 C
23 SAMPLES FROM 0 TO 145 FT. LAT = N 26D 25M 20
ELEVATION - 020 FT
LON = W 80D 57M 30
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, ELECTRIC, GAMMA

OWNER/DRILLER: US SUGAR H-M-249(MISSIMER)/B. KOHLMEIER

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

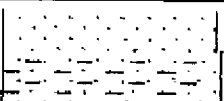
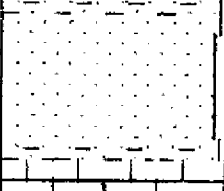
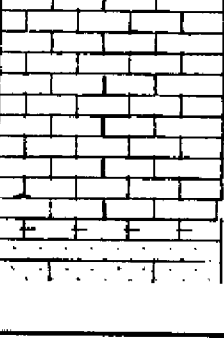



0 145 SURFICIAL AQUIFER SYSTEM
0 20 WATER TABLE AQUIFER
20 65 TAMIAMI CONFINING ZONE
65 145 LOWER TAMIAMI AQUIFER

0. - 55. 090UDSC UNDIFFERENTIATED SAND AND CLAY
55. - 145. 122TMIH TAMIAMI FM.

- 0 - 5 SAND; DARK BROWN; 00% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS-10%, HEAVY MINERALS-05%, PEAT-02%, IRON STAIN- %;
- 5 - 10 SAND; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-05%, SILT-02%, PLANT REMAINS-01%;
OTHER FEATURES: FROSTED;
- 10 - 20 SAND; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-05%, SILT-02%, PLANT REMAINS-01%;
OTHER FEATURES: FROSTED;
- 20 - 25 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: CLAY-20%, IRON STAIN- %;
- 25 - 33 SAND; DARK GRAY; 13% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%, SILT-05%, PYRITE-01%;
- 33 - 37 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%;

- 37 - 45 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-04%;
- 45 - 52 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-04%, PHOSPHATIC SAND-02%;
FOSSILS: SHARKS TEETH;
- 52 - 55 SAND; OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-15%, PHOSPHATIC SAND-04%;
- 55 - 60 SANDSTONE; LIGHT OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%, CALCILUTITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: WORM TRACES, SPICULES, FOSSIL FRAGMENTS;
- 60 - 65 AS ABOVE
- 65 - 75 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR-30%, CALCILUTITE-20%, PHOSPHATIC SAND-01%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, SPICULES, BRYOZOA;
- 75 - 117 LIMESTONE; MODERATE LIGHT GRAY; 20% POROSITY, MOLDIC, PIN POINT VUGS;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, BIOGENIC; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, SPAR-30%, PHOSPHATIC SAND-01%;
FOSSILS: CORAL, WORM TRACES, MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS;
SAND CONTENT DECREASES, FOSSILS INCREASE WITH DEPTH
- 117 - 119 SANDSTONE; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, BRYOZOA;
- 119 - 127 LIMESTONE; LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-20%, QUARTZ SAND-15%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: CORAL, BRYOZOA, MOLLUSKS, WORM TRACES, FOSSIL FRAGMENTS;

- 127 - 132 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-01%;
FOSSILS: SPICULES, BRYOZOA, MOLLUSKS, WORM TRACES;
- 132 - 145 SANDSTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-01%;
FOSSILS: SPICULES, BRYOZOA, MOLLUSKS, WORM TRACES;
SAND CONTENT HIGHER
- 145 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|---------------------------------|--------------------------|------------------------------|----------------------|
| 0 |  | HEVY MINS. HEVY MINS. | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 |  | SILT | | TAMIAMI CONFINING ZONE | |
| -50 |  | PHOSPHATE CALCITE CALCITE | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |
| -75 |  | SAND | | | |
| -100 |  | SAND | | | |
| -125 |  | SAND | | | |

HY302

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 303 COUNTY - HENDRY
TOTAL DEPTH: 00140 FT. LOCATION: T.47S R.34E S.07 A
26 SAMPLES FROM 0 TO 140 FT. LAT = N 26D 24M 55
ELEVATION - 020 FT
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC, GAMMA

OWNER/DRILLER: US SUGAR WELL HM-263 (MISSMER), DRILLED BY B. KOHLMEIER

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

0 140 SURFICIAL AQUIFER SYSTEM
0 45 WATER TABLE AQUIFER
45 85 TAMIAHI CONFINING ZONE
85 140 LOWER TAMIAHI AQUIFER

0. - 80. 090UDSC UNDIFFERENTIATED SAND AND CLAY
80. - 140. 122TMIH TAMIAHI FM.

- 0 - 10 SAND; LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-03%, PLANT REMAINS- %;
- 10 - 20 SAND; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-03%, DOLOMITE-01%;
- 20 - 25 SAND; OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-03%, DOLOMITE-01%, PLANT REMAINS- %;
OTHER FEATURES: FROSTED;
- 25 - 30 SAND; YELLOWISH GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-02%;
LARGER GRAINS FROSTED
- 30 - 35 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;
- 35 - 45 SAND; YELLOWISH GRAY; 28% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; LOW SPHERICITY; UNCONSOLIDATED;

- 45 - 55 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%;
OTHER FEATURES: FROSTED;
- 55 - 65 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-05%;
OTHER FEATURES: FROSTED;
- 65 - 70 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-20%;
- 70 - 80 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-01%;
- 80 - 85 SANDSTONE; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND- 2%;
- 85 - 100 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, MOLDIC, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-03%;
FOSSILS: WORM TRACES, FOSSIL MOLDS, SPICULES;
- 100 - 110 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%, PHOSPHATIC SAND-04%;
FOSSILS: SPICULES;
- 110 - 115 SANDSTONE; YELLOWISH GRAY; 18% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-04%;
FOSSILS: WORM TRACES, SPICULES;

- 115 - 120 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%, PHOSPHATIC SAND-04%;
FOSSILS: SPICULES, BRYOZOA;
- 120 - 135 SANDSTONE; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR, MOLDIC, PIN POINT VUGS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: BRYOZOA, WORM TRACES, FOSSIL MOLDS, SPICULES;
- 135 - 140 LIMESTONE; YELLOWISH GRAY; 12% POROSITY, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-25%, PHOSPHATIC SAND-02%;
FOSSILS: WORM TRACES, BRYOZOA, FOSSIL MOLDS;
- 140 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|--|--------------------------|-----------------------------|----------------------|
| 0 | | CALCITE CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | | | | |
| -50 | | CALCITE | | TAMIAMI CONFINING ZONE | |
| -75 | | CALCITE CALCITE CALCITE CALCITE PHOSPHATE PHOSPHATE PHOSPHATE CALCITE | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |
| -100 | | | | | |
| -125 | | | | | |

HY303

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 304

COUNTY - HENDRY

TOTAL DEPTH: 00140 FT.

LOCATION: T.47S R.34E S.06 B

14 SAMPLES FROM 0 TO 140 FT.

LAT = N 26D 25M 40

LOX = W 80D 58M 00

COMPLETION DATE - N/A

ELEVATION - 020 FT

OTHER TYPES OF LOGS AVAILABLE - ELECTRIC, GAMMA

OWNER/DRILLER: US SUGAR WELL HM-259 (MISSIMER), DRILLED BY B. KOHLMEIER

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 140 SURFICIAL AQUIFER SYSTEM

0 65 WATER TABLE AQUIFER

65 86 TAMIAKI CONFINING ZONE



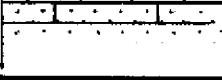
86 140 LOWER TAMIAKI AQUIFER

0. - 86. 090UDSC UNDIFFERENTIATED SAND AND CLAY

86. - 140. 122TMIM TAMIAKI FM.

- 0 - 10 SAND; MODERATE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-02%, PLANT REMAINS- %;
SOME WELL ROUNDED FROSTED GRAVEL
- 10 - 20 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-03%, IRON STAIN- %, PLANT REMAINS- %;
LARGER GRAINS FROSTED, SOME GRAVEL AS ABOVE
- 20 - 40 SAND; YELLOWISH GRAY; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-01%;
OTHER FEATURES: FROSTED;
- 40 - 45 NO SAMPLES
- 45 - 55 SAND; DARK YELLOWISH BROWN; 20% POROSITY,
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;
- 55 - 60 NO SAMPLES
- 60 - 65 SAND; DARK YELLOWISH BROWN; 20% POROSITY,
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;

- 65 - 86 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%;
- 86 - 100 LIMESTONE; LIGHT OLIVE GRAY; 05% POROSITY, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-04%;
- 100 - 120 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, VUGULAR;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%;
FOSSILS: SPICULES, BRYOZOA;
- 120 - 130 LIMESTONE; VERY LIGHT ORANGE; 30% POROSITY, VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, PELLET; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, SPAR-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL MOLDS, SPICULES;
- 130 - 138 SANDSTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, MOLLUSKS;
BARNACLES
- 138 - 140 LIMESTONE; VERY LIGHT ORANGE; 30% POROSITY, VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, PELLET; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, SPAR-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL MOLDS, SPICULES;
- 140 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|-----------------------|--------------------------|---|-------------------|
| 0 |  | | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | | | TAMIAMI CONFINING ZONE | |
| -50 | | | |  | SAND |
| -75 | SAND | | | | |
| -100 | SAND SAND | | | | |
| -125 |  | SAND | | | |

HY304

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 305 COUNTY - HENDRY
TOTAL DEPTH: 00165 FT. LOCATION: T.47S R.34E S.06 A
23 SAMPLES FROM 0 TO 165 FT. LAT = N 26D 25M 40
LON = W 80D 57M 30
COMPLETION DATE - N/A ELEVATION - 020 FT
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC

OWNER/DRILLER: US SUGAR WELL HM-255 (MISSIMER), DRILLED BY B. KOHLMEIER

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR


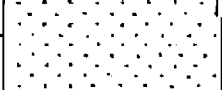
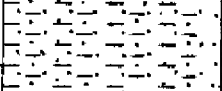
HYDROGEOLOGIC UNITS

0 165 SURFICIAL AQUIFER SYSTEM
0 70 WATER TABLE AQUIFER
70 145 CONFINING ZONE
145 165 LOWER TAMiami AQUIFER

0. - 145. 090UDSC UNDIFFERENTIATED SAND AND CLAY
145. - 165. 122TMIH TAMiami FM.

- 0 - 25 SAND; DARK YELLOWISH BROWN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PYRITE-05%, HEAVY MINERALS-02%, IRON STAIN- %;
OTHER FEATURES: FROSTED;
- 25 - 35 SAND; GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-01%;
OTHER FEATURES: FROSTED;
- 35 - 40 AS ABOVE
WITH 5% DARK STAINED GRAINS
- 40 - 45 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-02%;
OTHER FEATURES: FROSTED;
- 45 - 55 SAND; MODERATE YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;
- 55 - 65 SAND; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;

- 65 - 70 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: HEAVY MINERALS-01%;
LARGER GRAINS FROSTED
- 70 - 100 SAND; DARK YELLOWISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
ACCESSORY MINERALS: HEAVY MINERALS-01%, CLAY-02%;
OTHER FEATURES: FROSTED;
- 100 - 110 SAND; LIGHT OLIVE GRAY TO DARK GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%;
- 110 - 125 SAND; DARK GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%;
OTHER FEATURES: PLASTIC;
- 125 - 145 SAND; DARK GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%;
OTHER FEATURES: PLASTIC;
- 145 - 156 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, MOLDIC, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 156 - 165 AS ABOVE
- 165 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|---|--------------------------|------------------------------|----------------------|
| 0 |  | PYRITE PYRITE PYRITE PYRITE PYRITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | | | TAMIAMI CONFINING ZONE | |
| -50 | | | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |
| -75 | |  | | SURFICIAL AQUIFER SYSTEM | |
| -100 | | | | | |
| -125 |  | | SURFICIAL AQUIFER SYSTEM | | |
| -150 | | SAND | | | |

HY305

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 306
TOTAL DEPTH: 00280 FT.
53 SAMPLES FROM 0 TO 289 FT.

COUNTY - HENDRY
LOCATION: T.46S R.33E S.36 D
LAT = N 26D 26M 12
LON = W 80D 58M 19

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 022 FT

OWNER/DRILLER: USGS WELL HE-902

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

0 190 SURFICIAL AQUIFER SYSTEM
0 30 WATER TABLE AQUIFER
30 85 TAMiami CONFINING ZONE
85 190 LOWER TAMiami AQUIFER
190 280 UPPER HAWTHORN CONFINING ZONE

0. - 90. 090UDSC UNDIFFERENTIATED SAND AND CLAY
90. - 190. 122TMIN TAMiami FM.
190. - 280. 122HTRN HAWTHORN GROUP

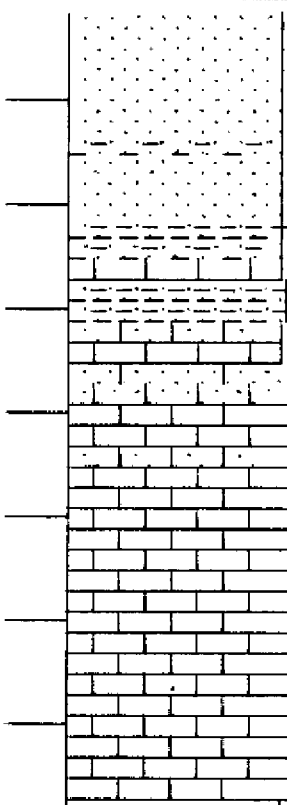
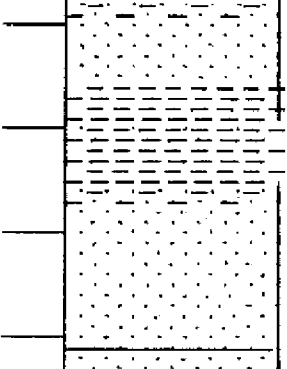
- 0 - 5 SAND; BLACK TO VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-07%, PLANT REMAINS- %;
- 5 - 10 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY COARSE; RANGE: MEDIUM TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PLANT REMAINS- %;
OTHER FEATURES: FROSTED;
- 10 - 20 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;
- 20 - 30 AS ABOVE
- 30 - 35 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-15%;
- 35 - 40 AS ABOVE
- 40 - 45 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, PHOSPHATIC SAND-03%, PHOSPHATIC GRAVEL-02%;
LARGER GRAINS FROSTED
- 45 - 50 AS ABOVE

- 50 - 55 CLAY; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%, CALCILUTITE-02%;
SAND GRAINS FROSTED
- 55 - 60 SAND; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, SILT-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 60 - 62 AS ABOVE
WITH MORE SHELL FRAGMENTS & LESS CLAY
- 62 - 65 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, PIN POINT VUGS,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, SILT-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA;
- 65 - 70 SILT; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-02%, CALCILUTITE-02%, PHOSPHATIC SAND-03%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 70 - 75 AS ABOVE
- 75 - 80 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, SPICULES;
- 80 - 85 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, SPICULES;
- 85 - 90 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-20%, PHOSPHATIC SAND-02%, PYRITE-01%;
FOSSILS: FOSSIL MOLDS;
- 90 - 95 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-03%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;

- 95 - 100 AS ABOVE
- 100 - 105 AS ABOVE
- 105 - 110 LIMESTONE; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 110 - 115 AS ABOVE
- 115 - 120 AS ABOVE
- 120 - 125 SHELL BED; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 125 - 130 AS ABOVE
- 130 - 135 AS ABOVE
- 135 - 140 SHELL BED; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 140 - 145 AS ABOVE
- 145 - 150 AS ABOVE
- 150 - 155 SHELL BED; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 155 - 160 AS ABOVE
- 160 - 165 AS ABOVE
- 165 - 170 SHELL BED; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE

- 180 - 185 SHELL BED; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 185 - 190 AS ABOVE
- 190 - 195 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-04%;
- 195 - 200 AS ABOVE
- 200 - 205 AS ABOVE
- 205 - 210 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS;
- 210 - 215 CLAY; OLIVE GRAY TO GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 215 - 220 AS ABOVE
- 220 - 225 CLAY; OLIVE GRAY TO GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
MODERATE INDURATION;
ACCESSORY MINERALS: SILT-40%, CALCILUTITE-02%;
OTHER FEATURES: POOR SAMPLE;
- 225 - 230 AS ABOVE
- 230 - 235 AS ABOVE
- 235 - 240 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CLAY-10%, PHOSPHATIC SAND-02%;
OTHER FEATURES: POOR SAMPLE;
- 240 - 245 AS ABOVE
- 245 - 250 AS ABOVE

- 250 - 255 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CLAY-10%, PHOSPHATIC SAND-02%, SHELL- 2%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 255 - 260 AS ABOVE
- 260 - 265 AS ABOVE
- 265 - 270 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-10%, CLAY-10%, PHOSPHATIC SAND-02%, SHELL- 2%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 270 - 280 AS ABOVE
- 280 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|---|-----------------------|--------------------------------|--|----------------------|--------------------------|
| 0 |  | CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 | | SILT | | TAMIAMI | | |
| -50 | | SILT SILT CLAY | | CONFINING ZONE | | |
| -75 | | CLAY | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION | |
| -100 |  | SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -125 | | | | | | |
| -150 | | | | | | |
| -175 | | | | | | |
| -200 | | | | | | |
| -225 | | | | | | |
| -250 | | | | | | |
| -275 | | | | | | |

HY306

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 307
TOTAL DEPTH: 00300 FT.
56 SAMPLES FROM 0 TO 300 FT.
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

COUNTY - HENDRY
LOCATION: T.46S R.31E S.35
LAT = N 26D 25M 45
LON = W 81D 11M 36
ELEVATION - 026 FT

OWNER/DRILLER: USGS WELL HE-901

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 80 SURFICIAL AQUIFER SYSTEM
0 10 WATER TABLE AQUIFER
10 30 TAMiami CONFINING ZONE
30 80 LOWER TAMiami AQUIFER
80 300 UPPER HAWTHORN CONFINING ZONE

0. - 5. 090UDSC UNDIFFERENTIATED SAND AND CLAY
5. - 80. 122TMIN TAMiami FM.
80. - 300. 122HTRM HAWTHORN GROUP

- 0 - 5 SAND; LIGHT BROWN TO MODERATE BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMONITE-10%, PLANT REMAINS- %;
FOSSILS: SPICULES;
SOME LIMESTONE AND SANDSTONE FRAGMENTS
- 5 - 10 LIMESTONE; MODERATE YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: FOSSIL MOLDS;
- 10 - 15 CALCILUTITE; VERY LIGHT ORANGE TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR,
PIN POINT VUGS, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCITE-05%;
OTHER FEATURES: CHALKY;
FOSSILS: SPICULES, WORM TRACES;
- 15 - 20 CALCILUTITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
ACCESSORY MINERALS: CALCITE-15%, QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, SPICULES;
- 20 - 25 AS ABOVE

- 25 - 30 AS ABOVE
- 30 - 35 LIMESTONE; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-10%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;
- 35 - 40 AS ABOVE
- 40 - 45 LIMESTONE; LIGHT OLIVE; 30% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, WORM TRACES;
- 45 - 50 AS ABOVE
- 50 - 55 LIMESTONE; LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES;
- 55 - 60 AS ABOVE
- 60 - 65 AS ABOVE
- 65 - 70 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-10%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 70 - 75 AS ABOVE
- 75 - 80 AS ABOVE
- 80 - 85 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS;
- 85 - 90 AS ABOVE
- 90 - 95 AS ABOVE

- 95 - 100 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 105 CLAY; LIGHT YELLOWISH ORANGE TO GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 105 - 110 AS ABOVE
- 110 - 115 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-15%, CALCILUTITE-05%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, MOLLUSKS;
- 115 - 120 AS ABOVE
- 120 - 125 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 125 - 130 AS ABOVE
- 130 - 135 AS ABOVE
- 135 - 140 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 140 - 145 AS ABOVE
- 145 - 150 AS ABOVE
- 150 - 155 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 155 - 160 AS ABOVE
- 160 - 165 AS ABOVE

- 165 - 170 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-03%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 170 - 175 AS ABOVE
- 175 - 180 AS ABOVE
- 180 - 185 SAND; GRAYISH OLIVE GREEN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-02%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
SOME FROSTED PEBBLES IN SAMPLE
- 185 - 190 AS ABOVE
- 190 - 195 AS ABOVE
- 195 - 200 SAND; GRAYISH OLIVE GREEN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 200 - 205 AS ABOVE
- 205 - 210 AS ABOVE
- 210 - 215 SAND; GRAYISH OLIVE GREEN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 215 - 220 AS ABOVE
- 220 - 230 AS ABOVE
- 230 - 240 SAND; GRAYISH OLIVE GREEN; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, CALCILUTITE-02%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
FOSSILS: FOSSIL FRAGMENTS;
- 240 - 250 AS ABOVE

- 250 - 260 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-40%, PHOSPHATIC GRAVEL-01%;
- 260 - 265 AS ABOVE
- 265 - 270 AS ABOVE
- 270 - 275 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-40%, PHOSPHATIC GRAVEL-01%;
- 275 - 280 AS ABOVE
- 280 - 285 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, PHOSPHATIC SAND-10%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, SHARKS TEETH;
- 285 - 290 AS ABOVE
- 290 - 295 AS ABOVE
- 295 - 300 SAND; GRAYISH OLIVE GREEN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-15%, PHOSPHATIC SAND-10%, PHOSPHATIC GRAVEL-03%;
FOSSILS: FOSSIL FRAGMENTS, SHARKS TEETH;
- 300 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | | |
|-------------------------|--------|-------------------------------|-----------------------------|-----------------------------|----------------------|--|----------------|--------------------------|
| 25 | | IRON STAIN | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | | | |
| 0 | | SAND SAND | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION | | | |
| -25 | | CLAY CALCITE SAND | | LOWER TAMIAMI AQUIFER | | | | |
| -50 | | CALCITE | INTERMEDIATE AQUIFER SYSTEM | | | | | |
| -75 | | CALCITE | | | | | | |
| -100 | | CALCITE CALCITE CALCITE | | | | | | |
| -125 | | | | | | | | |
| -150 | | | | | | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -175 | | | | | | | | |
| -200 | | | | | | | | |
| -225 | | | | | | | | |
| -250 | | | | | | | | |
| -275 | | SILT | | | | | | |

HY307

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 308 COUNTY - HENDRY
TOTAL DEPTH: 00400 FT. LOCATION: T.47S R.32E S.14 D
54 SAMPLES FROM 0 TO 400 FT. LAT = N 26D 23M 19
LON = W 81D 05M 55
COMPLETION DATE - 17/06/86 ELEVATION - 024 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: SFMND-GALLAGHER PROPERTY; DRILLER: TONY LUBRAND

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

0 100 SURFICIAL AQUIFER SYSTEM
0 30 WATER TABLE AQUIFER
30 70 TAMiami CONFINING ZONE
70 100 LOWER TAMiami AQUIFER
100 392 UPPER HAWTHORN CONFINING ZONE
392 400 MID HAWTHORN AQUIFER (LOW YIELD)

0. - 140. 122TMIN TAMiami FM.
140. - 400. 122HTRN HAWTHORN GROUP

- 0 - 5 CALCILUTITE; LIGHT BROWN TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMESTONE-15%, PLANT REMAINS- %;
- 5 - 10 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAYISH GREEN; 10% POROSITY, INTERGRANULAR,
PIN POINT VUGS, MOLDIC;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-30%;
FOSSILS: FOSSIL FRAGMENTS;
- 10 - 15 AS ABOVE
- 15 - 20 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CRYSTALS, CALCILUTITE; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-25%, SHELL-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 25 LIMESTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-25%, SHELL-05%;
FOSSILS: FOSSIL FRAGMENTS;

- 25 - 30 SHELL BED; LIGHT GREYISH RED TO MODERATE LIGHT GRAY; 40% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, LIMESTONE-10%;
- 30 - 35 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CRYSTALS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-25%, SHELL-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 35 - 40 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CRYSTALS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, QUARTZ SAND-25%, SHELL-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 CALCILUTITE; YELLOWISH GRAY TO MODERATE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%, LIMESTONE-15%, SHELL-05%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS, BRYOZOA, WORM TRACES;
- 45 - 50 AS ABOVE
- 50 - 55 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMESTONE-20%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS, WORM TRACES;
- 55 - 60 LIMESTONE; MODERATE GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-25%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 60 - 70 LIMESTONE; MODERATE GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-25%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;

- 70 - 80 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, MOLDIC, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-05%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS;
- 80 - 90 LIMESTONE; LIGHT GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, SHELL-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;
- 90 - 100 AS ABOVE
- 100 - 110 LIMESTONE; LIGHT GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-45%, SHELL-05%, SILT-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;
- 110 - 120 AS ABOVE
- 120 - 130 LIMESTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC,
LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, SHELL-10%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 130 - 140 LIMESTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, SHELL-15%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 140 - 145 SAND; YELLOWISH GRAY TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, SILT-10%, LIMESTONE-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 145 - 148 AS ABOVE

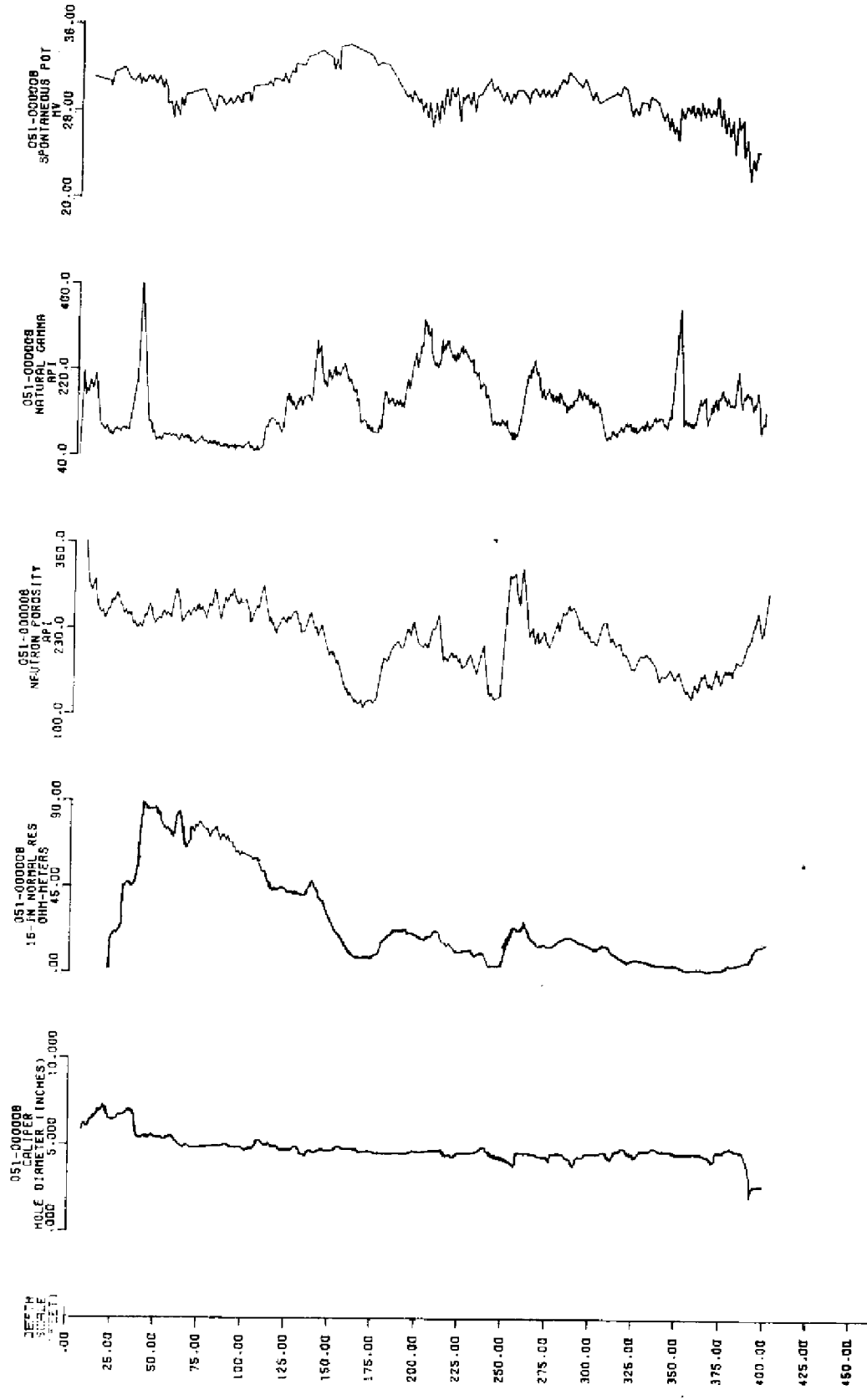
- 148 - 150 SAND; YELLOWISH GRAY TO LIGHT OLIVE; 19% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, SILT-10%, LIMESTONE-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 150 - 153 AS ABOVE
- 153 - 160 CLAY; OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-45%, PHOSPHATIC SAND-02%, LIMESTONE-10%;
FOSSILS: FOSSIL FRAGMENTS;
- 160 - 165 CLAY; OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMESTONE-10%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 165 - 170 AS ABOVE
- 170 - 180 SAND; OLIVE GRAY TO GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, SILT-10%, LIMESTONE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 180 - 190 AS ABOVE
- 190 - 195 SAND; GRAYISH OLIVE TO MODERATE GRAYISH GREEN; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%, LIMESTONE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 195 - 200 AS ABOVE
WITH 50% LIMESTONE PIECES AND SHELL FRAGMENTS
- 200 - 210 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 55% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-05%, LIMESTONE-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA;
- 210 - 220 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, SILT-10%, PHOSPHATIC SAND-01%, LIMESTONE-01%;

- 220 - 230 AS ABOVE
- 230 - 235 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%, SILT-10%, LIMESTONE-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA;
- 235 - 240 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-05%, LIMESTONE-01%;
- 240 - 250 AS ABOVE
- 250 - 253 AS ABOVE
- 253 - 260 CLAY; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, LIMESTONE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 260 - 270 CLAY; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-05%, LIMESTONE-05%;
- 270 - 280 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-02%, LIMESTONE-01%;
- 280 - 295 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-05%, LIMESTONE-20%;
- 295 - 300 CALCILUTITE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIGGENIC, INTRACLASTS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: LIMESTONE-50%, QUARTZ SAND-10%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS, SPICULES;
- 300 - 310 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, LIMESTONE-02%, PHOSPHATIC SAND-01%;
- 310 - 315 AS ABOVE
- 315 - 320 AS ABOVE

- 320 - 325 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, LIMESTONE-02%, CLAY-10%, PHOSPHATIC SAND-01%;
- 325 - 330 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-15%;
- 330 - 340 AS ABOVE
- 340 - 350 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, PHOSPHATIC SAND-25%, CLAY-10%, PHOSPHATIC GRAVEL-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 350 - 360 CLAY; LIGHT OLIVE GRAY TO OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-15%, LIMESTONE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 360 - 370 AS ABOVE
- 370 - 380 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, LIMESTONE-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 380 - 392 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CLAY-10%, PHOSPHATIC SAND-02%;
- 392 - 400 LIMESTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, CLAY-05%, PHOSPHATIC SAND-02%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 400 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|--|-----------------------------|--|----------------------|
| 0 | | CALCITE CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | SAND CALCITE SAND SAND | | TAMIAMI CONFINING ZONE | |
| -50 | | CALCITE CALCITE CALCITE | | LOWER TAMIAMI AQUIFER | |
| -75 | | SAND SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | TAMIAMI FORMATION |
| -100 | | CALCITE CALCITE CALCITE CALCITE SILT | | | |
| -125 | | SAND CALCITE | | | |
| -150 | | SILT SILT | | | |
| -175 | | CALCITE | | | |
| -200 | | CALCITE CALCITE SILT SILT | | | |
| -225 | | CALCITE | | | |
| -250 | SAND CALCITE CALCITE CALCITE CLAY | | | | |
| -275 | SAND | | | | |
| -300 | CLAY | HAWTHORN GROUP | | | |
| -325 | PHOSPHATE PHOSPHATE SAND SAND | | | | |
| -350 | CLAY CLAY CALCITE SAND | | | | |
| -375 | | | MID HAWTHORN AQUIFER | LOWER CARBONATE ZONE | |
| -400 | | | | | |

HY308



GEOPHYSICS, WELL HY-308

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 309
TOTAL DEPTH: 00165 FT.
39 SAMPLES FROM 0 TO 165 FT.

COUNTY - HENDRY
LOCATION: T.46S R.32E S.33
LAT = N 26D 25M 43
LOM = W 81D 07M 41
ELEVATION - 024 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-908

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY POOR
HYDROGEOLOGIC UNITS

0 130 SURFICIAL AQUIFER SYSTEM
0 6 WATER TABLE AQUIFER
6 37 TAMiami CONFINING ZONE
37 40 NO SAMPLES
40 130 LOWER TAMiami AQUIFER
130 165 UPPER HANTHORN CONFINING ZONE

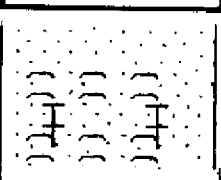
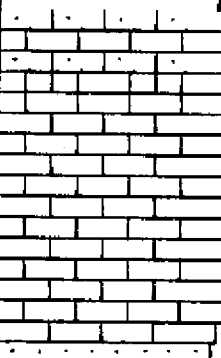

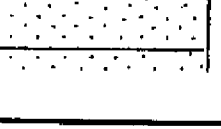
0. - 37. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
37. - 40. 000NDSM NO SAMPLES
40. - 118. 122TRIM TAMiami FN.
118. - 165. 122HTRM HANTHORN GROUP

- 0 - 5 SAND; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 1%;
- 5 - 6 SAND; DARK YELLOWISH BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 1%;
- 6 - 10 SAND; VERY LIGHT ORANGE TO WHITE; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, CLAY-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 10 - 15 SHELL BED; YELLOWISH GRAY TO GRAYISH YELLOW; 35% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-05%, LIMESTONE-05%;
SHELL FRAGMENTS ALTERED TO CALCITE
- 15 - 20 AS ABOVE
- 20 - 25 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-45%, PHOSPHATIC SAND-02%;

- 25 - 30 SHELL BED; GRAYISH BROWN TO MODERATE DARK GRAY; 35% POROSITY, INTERGRANULAR;
UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-50%, LIMESTONE-01%;
FOSSILS: SPICULES;
- 30 - 35 AS ABOVE
- 35 - 37 AS ABOVE
WITH GRAINS PARTIALLY COATED W/ MICRITE
- 37 - 40 NO SAMPLES
- 40 - 45 LIMESTONE; LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-03%, CALCITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 45 - 50 AS ABOVE
WITH WORM TUBES
- 50 - 55 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCITE-10%;
FOSSILS: SPICULES, WORM TRACES, BRYOZOA;
- 55 - 60 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-20%;
FOSSILS: WORM TRACES;
- 60 - 65 AS ABOVE
- 65 - 68 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 68 - 70 AS ABOVE
- 70 - 75 AS ABOVE

- 75 - 80 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 80 - 85 AS ABOVE
- 85 - 90 AS ABOVE
- 90 - 95 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 95 - 100 AS ABOVE
- 100 - 105 AS ABOVE
- 105 - 110 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 110 - 115 AS ABOVE
- 115 - 118 AS ABOVE
- 118 - 120 SAND; GRAYISH BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-03%, LIMESTONE-02%, IRON STAIN- 1;
FOSSILS: FOSSIL FRAGMENTS;
- 120 - 125 AS ABOVE
- 125 - 130 AS ABOVE
- 130 - 135 SAND; VERY LIGHT ORANGE TO LIGHT GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-10%, LIMESTONE-10%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 135 - 140 AS ABOVE
- 140 - 143 AS ABOVE

- 143 - 145 SHELL BED; VERY LIGHT ORANGE TO MODERATE LIGHT GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-10%, CLAY-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, MOLLUSKS;
- 145 - 147 AS ABOVE
- 147 - 149 SAND; VERY LIGHT ORANGE TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 149 - 150 SAND; VERY LIGHT ORANGE TO GRAYISH OLIVE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS;
LOWER SHELL CONTENT THAN 147 TO 149
- 150 - 155 SAND; VERY LIGHT ORANGE TO OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 155 - 160 AS ABOVE
- 160 - 165 AS ABOVE
- 165 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|---------------------------|--|---|-----------------------------------|----------------------------------|----------------------|------------------|
| 0 |  | CLAY SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 -50 -75 -100 |  | CALCITE CALCITE SAND SAND | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION | |
| -125 |  | CALCITE SAND PHOSPHATE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC |
| -150 |  | | | | | |

HY309

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 310 COUNTY - HENDRY
TOTAL DEPTH: 00482 FT. LOCATION: T.48S R.33E S.03 D
70 SAMPLES FROM 0 TO 482 FT. LAT = N 26D 20M 42
LON = W 81D 01M 18
COMPLETION DATE - 05/08/86 ELEVATION - 020 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: BIG CYPRESS SEMINOLE INDIAN RESERVATION (SITE 2 - PASTURE),
OWNER/DRILLER: DRILLED BY SFWMD (TONY LUBRAND)

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR

HYDROGEOLOGIC UNITS

0 140 SURFICIAL AQUIFER SYSTEM
0 5 WATER TABLE AQUIFER
5 40 TAMiami CONFINING ZONE
40 140 LOWER TAMiami AQUIFER
140 450 UPPER HAWTHORN CONFINING ZONE
450 482 MID HAWTHORN AQUIFER (LOW YIELD)

0. - 40. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
40. - 140. 122TMM TAMiami FM.
140. - 482. 122HTRM HAWTHORN GROUP

0 - 3 SAND; MODERATE YELLOWISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2;

3 - 5 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%;

5 - 7 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-40%, CALCILUTITE-05%;

7 - 10 AS ABOVE

10 - 15 AS ABOVE

15 - 20 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-40%, CALCILUTITE-05%;

20 - 25 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-50%, CALCITE-05%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;

- 25 - 30 AS ABOVE
- 30 - 32 AS ABOVE
- 32 - 35 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-50%, CALCITE-05%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;
- 35 - 40 AS ABOVE
- 40 - 45 LIMESTONE; LIGHT OLIVE GRAY TO DARK GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, BRYOZOA;
- 45 - 50 AS ABOVE
- 50 - 55 AS ABOVE
- 55 - 60 LIMESTONE; LIGHT OLIVE GRAY TO DARK GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, BRYOZOA;
- 60 - 62 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 62 - 65 AS ABOVE
- 65 - 70 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES;

- 70 - 75 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES, CORAL;
- 75 - 77 AS ABOVE
- 77 - 82 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES, CORAL;
WITH AN INCREASE IN CALCITE CONTENT
- 82 - 85 AS ABOVE
- 85 - 90 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES, CORAL;
INCREASED PERMEABILITY
- 90 - 95 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-10%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES, CORAL;
- 95 - 100 AS ABOVE
- 100 - 105 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, SILT-15%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, WORM TRACES, CORAL;
- 105 - 110 AS ABOVE

- 110 - 115 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCITE-05%;
FOSSILS: BRYOZOA, MOLLUSKS, WORM TRACES, FOSSIL FRAGMENTS;
- 115 - 120 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-05%;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS, WORM TRACES;
- 120 - 125 LIMESTONE; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, MOLLUSKS, FOSSIL FRAGMENTS, WORM TRACES;
- 125 - 130 AS ABOVE
- 130 - 135 SANDSTONE; LIGHT OLIVE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, CALCILUTITE-02%;
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS;
- 135 - 140 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, VUGULAR;
GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 140 - 142 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, SILT-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 142 - 145 AS ABOVE
- 145 - 150 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, SILT-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;

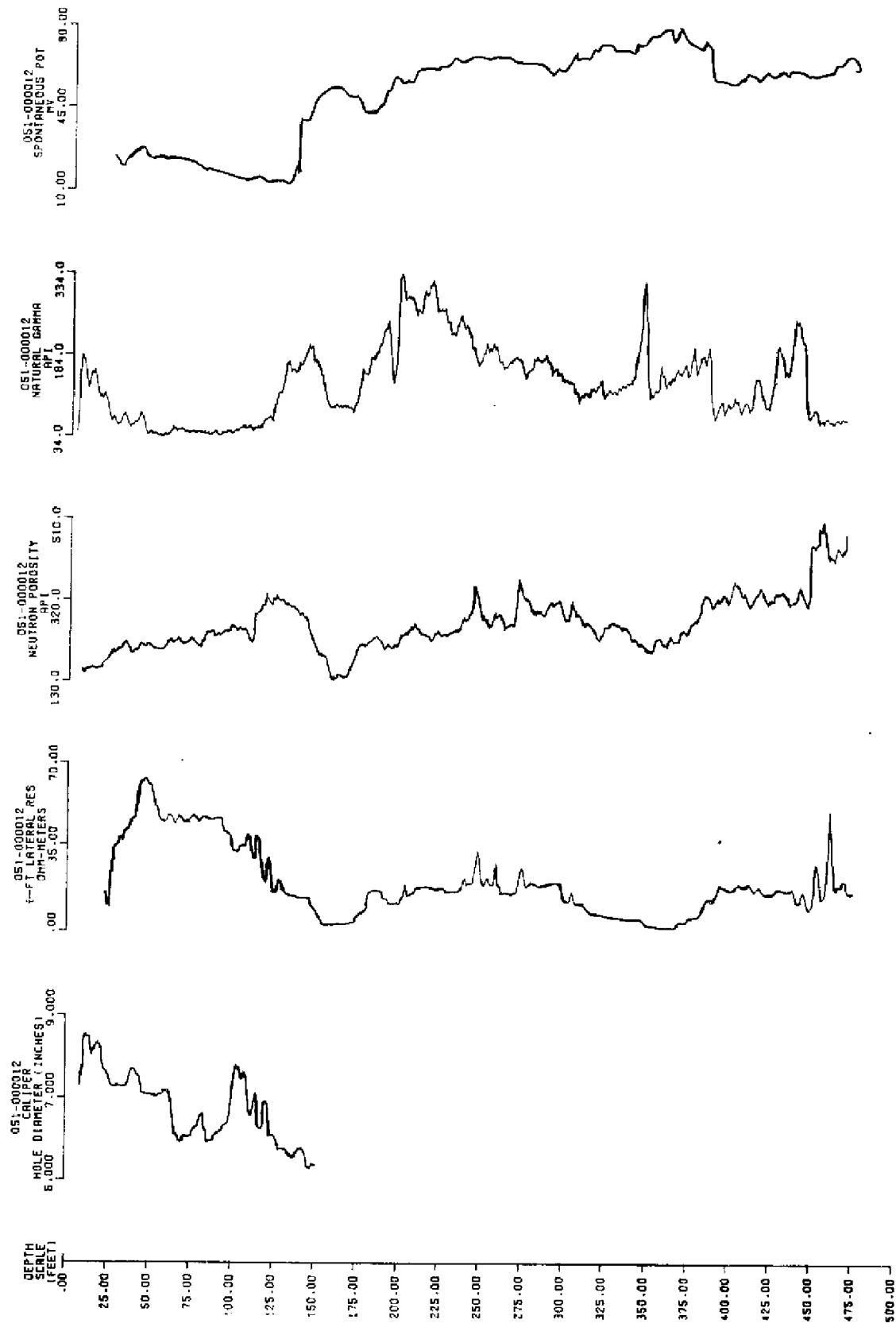
- 150 - 155 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, SILT-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
SAMPLE IS 30% BROKEN SHELL
- 155 - 160 CLAY; ;
ACCESSORY MINERALS: CALCILUTITE-15%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 160 - 162 AS ABOVE
- 162 - 165 AS ABOVE
- 165 - 170 CLAY; ;
ACCESSORY MINERALS: CALCILUTITE-15%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS;
- 170 - 175 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, QUARTZ SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 175 - 180 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, QUARTZ SAND-15%;
FOSSILS: FOSSIL FRAGMENTS;
- 180 - 185 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-30%;
- 185 - 190 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 190 - 200 AS ABOVE
- 200 - 210 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-01%;
- 210 - 220 AS ABOVE
- 220 - 230 AS ABOVE
- 230 - 235 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-01%;

- 235 - 240 AS ABOVE
- 240 - 242 AS ABOVE
- 242 - 252 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 252 - 262 AS ABOVE
- 262 - 272 AS ABOVE
- 272 - 282 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-35%, SHELL-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 282 - 300 AS ABOVE
- 300 - 320 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-15%, SILT-05%, PHOSPHATIC SAND-02%;
- 320 - 340 AS ABOVE
- 340 - 350 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-15%, SILT-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 350 - 360 AS ABOVE
- 360 - 370 AS ABOVE
- 370 - 380 CLAY; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-10%, CALCILUTITE-10%;
- 380 - 388 CLAY; LIGHT OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CALCILUTITE-10%, PHOSPHATIC SAND-05%;
- 388 - 400 CLAY; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 400 - 410 AS ABOVE

- 410 - 420 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-50%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%, CLAY-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 420 - 440 AS ABOVE
- 440 - 450 AS ABOVE
- 450 - 455 CALCILUTITE; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-15%, CALCITE-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 455 - 460 AS ABOVE
- 460 - 470 AS ABOVE
- 470 - 480 CALCILUTITE; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-05%, CALCITE-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 480 - 482 AS ABOVE
- 482 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|---------------------------|-----------------------------|--|-----------------------------|--------------------------|
| 0 | | SRND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -50 | | | | TAMIAMI CONFINING ZONE | | |
| -100 | | | | SRND SRND | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |
| -150 | | CLAY | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -200 | | CALCITE CALCITE | | | | |
| -250 | | | | | | |
| -300 | | PHOSPHATE SAND SAND | | | | |
| -350 | | | | | | |
| -400 | | CLAY | | | | |
| -450 | | CLAY | | MID-HAWTHORN AQUIFER | | |
| -500 | | | | | | |

HY310



GEOPHYSICS, WELL HY-310

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 311 COUNTY - HENDRY
 TOTAL DEPTH: 00460 FT. LOCATION: T.48S R.32E S.23 A
 80 SAMPLES FROM 0 TO 460 FT. LAT = N 26D 17M 46
 COMPLETION DATE - 27/08/86 ELEVATION - 020 FT
 OTHER TYPES OF LOGS AVAILABLE - CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: BIG CYPRESS SEMINOLE INDIAN RESERVATION (SITE 1 - ROAD),
 OWNER/DRILLER: DRILLED BY SFMMD (TONY LUBRANO)

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 124 SURFICIAL AQUIFER SYSTEM
 0 12 WATER TABLE AQUIFER
 12 78 TAMAIMI CONFINING ZONE
 78 127 LOWER TAMAIMI AQUIFER
 127 362 UPPER HAWTHORN CONFINING ZONE
 362 450 MID HAWTHORN AQUIFER (LOW YIELD)
 450 460 LOWER HAWTHORN CONFINING ZONE

0. - 1. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
 1. - 124. 122TMI TAMAIMI FM.
 124. - 460. 122HTRM HAWTHORN GROUP

- 0 - 1 SAND; MODERATE BROWN TO LIGHT BROWN; 20% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
 ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
 ACCESSORY MINERALS: IRON STAIN- %, HEAVY MINERALS-01%, LIMESTONE-01%;
 OTHER FEATURES: FROSTED;
- 1 - 2 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 20% POROSITY, VUGULAR;
 GRAIN TYPE: CRYSTALS, INTRACLASTS; 60% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
 CEMENT TYPE(S): SPARRY CALCITE CEMENT;
 ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%;
 FOSSILS: FOSSIL FRAGMENTS;
- 2 - 3 SAND; LIGHT YELLOWISH ORANGE TO DARK YELLOWISH ORANGE; 20% POROSITY, INTERGRANULAR;
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
 ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
 ACCESSORY MINERALS: CALCILUTITE-10%, IRON STAIN- %;
 OTHER FEATURES: FROSTED;
- 3 - 7 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
 GRAIN TYPE: CRYSTALS, INTRACLASTS, BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
 ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-15%;
 FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, MOLLUSKS;

- 7 - 10 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-20%;
OTHER FEATURES: CALCAREOUS;
- 10 - 12 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-20%;
OTHER FEATURES: CALCAREOUS;
- 12 - 15 CALCILUTITE; WHITE TO VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-50%, PHOSPHATIC SAND-01%;
- 15 - 17 AS ABOVE
- 17 - 19 AS ABOVE
- 19 - 25 CALCILUTITE; WHITE TO VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%;
- 25 - 27 AS ABOVE
- 27 - 30 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-15%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 30 - 32 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-15%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 32 - 35 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, LIMESTONE-15%, PHOSPHATIC SAND-01%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: FOSSIL FRAGMENTS;

- 35 - 40 LIMESTONE; DARK YELLOWISH ORANGE TO LIGHT GRAY; 10% POROSITY, INTERGRANULAR, VUGULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CRYSTALS, INTRACLASTS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS;
- 40 - 45 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 45 - 50 AS ABOVE
- 50 - 55 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-01%, CLAY-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 55 - 60 AS ABOVE
- 60 - 62 AS ABOVE
- 62 - 70 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 70 - 78 AS ABOVE
- 78 - 80 LIMESTONE; LIGHT GRAY TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 80 - 82 AS ABOVE
- 82 - 85 LIMESTONE; LIGHT GRAY TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 85 - 90 AS ABOVE

- 90 - 95 LIMESTONE; LIGHT GRAY TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
CALCITE CONTENT DECREASING
- 95 - 100 AS ABOVE
- 100 - 105 AS ABOVE
- 105 - 110 LIMESTONE; LIGHT GRAY TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 110 - 115 LIMESTONE; LIGHT GRAY TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 115 - 120 AS ABOVE
- 120 - 124 AS ABOVE
- 124 - 127 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-50%, PHOSPHATIC SAND-07%;
- 127 - 135 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-30%, SILT-25%, PHOSPHATIC SAND-07%;
- 135 - 140 AS ABOVE
- 140 - 145 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-05%, CALCITE-02%;
- 145 - 150 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-05%, CALCITE-02%, CALCILUTITE-02%;

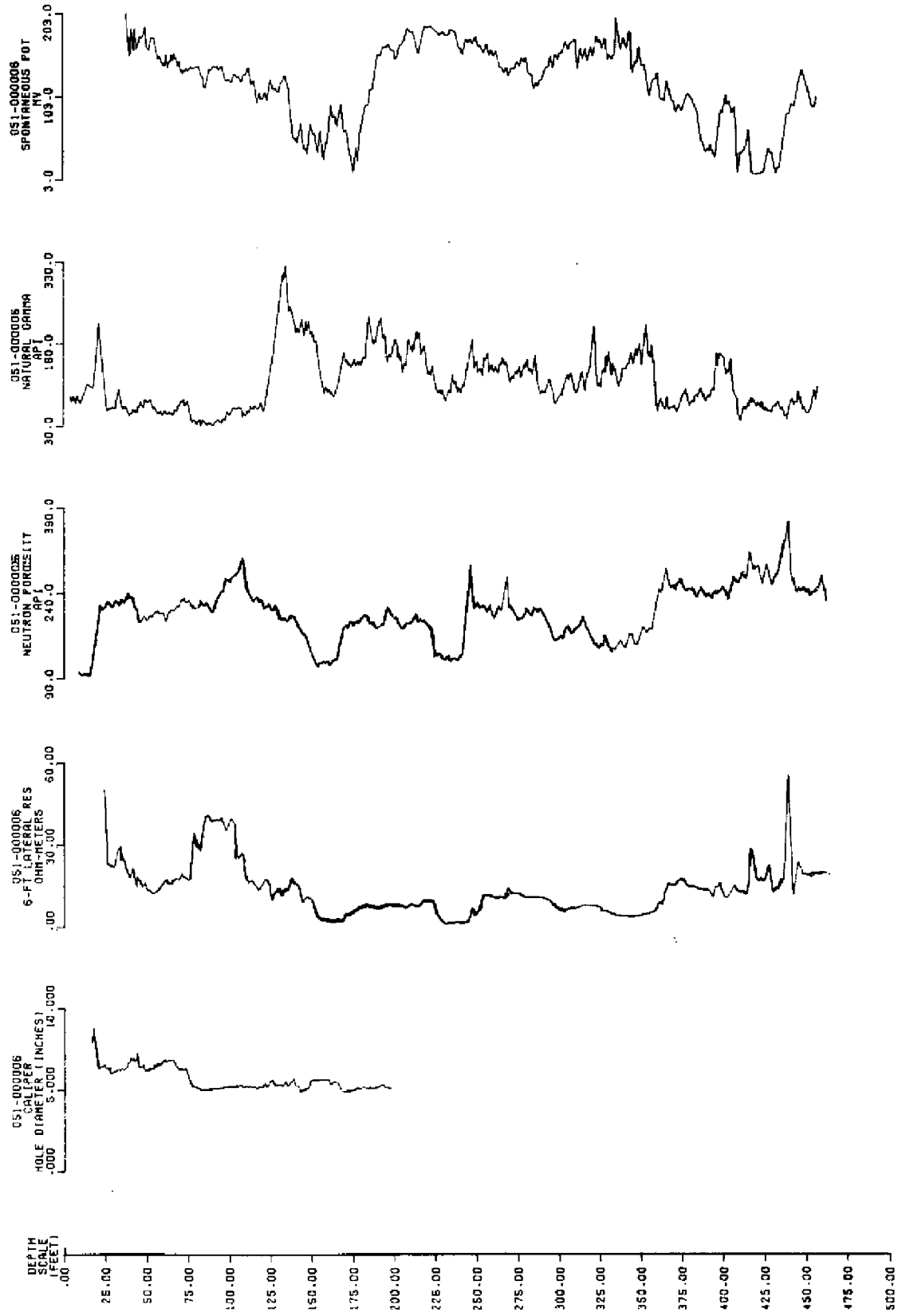
- 150 - 155 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 155 - 160 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 160 - 170 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 170 - 180 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-35%;
- 180 - 190 AS ABOVE
- 190 - 194 AS ABOVE
- 194 - 196 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-35%;
- 196 - 200 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-35%, CALCILUTITE-02%;
- 200 - 210 AS ABOVE
- 210 - 220 AS ABOVE
- 220 - 225 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%;
- 225 - 245 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-25%;
- 245 - 250 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-35%;
- 250 - 260 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%;
- 260 - 262 AS ABOVE

- 262 - 265 AS ABOVE
- 265 - 270 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%;
- 270 - 280 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-50%;
- 280 - 290 AS ABOVE
- 290 - 295 AS ABOVE
- 295 - 300 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%;
- 300 - 310 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%;
- 310 - 320 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%, PHOSPHATIC GRAVEL-02%;
- 320 - 330 AS ABOVE
- 330 - 340 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-02%;
- 340 - 350 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-01%, PHOSPHATIC GRAVEL-02%;
- 350 - 358 AS ABOVE
- 358 - 362 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 362 - 370 AS ABOVE
- 370 - 382 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-10%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
WITH 20% CALCITE REPLACED SHELLS
- 382 - 390 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-05%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;

- 390 - 400 AS ABOVE
- 400 - 410 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-05%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
WITH 7% MICRITE AND NO CALCITE REPLACED SHELLS
- 410 - 420 AS ABOVE
- 420 - 430 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, CLAY-05%, CALCITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
WITH 15% MICRITE(CALCILUTITE)
- 430 - 440 AS ABOVE
- 440 - 450 AS ABOVE
- 450 - 455 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-05%, CLAY-03%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
- 455 - 460 AS ABOVE
- 460 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|-----------------------|----------------------------------|--|----------------------------|--------------------------|
| 0 | | SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION | |
| -50 | | CALCITE CALCITE | | TAMIAMI CONFINING ZONE | | |
| -100 | | | | LOWER TAMIAMI AQUIFER | | |
| -150 | | CLAY SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | |
| -200 | | SAND CLAY | | | | UPPER CLASTIC ZONE |
| -250 | | | | | | |
| -300 | | | | MID-HAWTHORN AQUIFER | LOWER CARBONATE ZONE | |
| -350 | | | | | | |
| -400 | | | LOWER HAWTHORN CONFINING ZONE | | | |
| -450 | | CLAY | | | | |

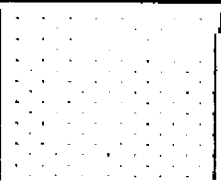
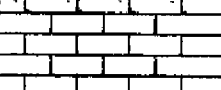
HY311



GEOPHYSICS, WELL HY-311

- 30 - 40 SAND; YELLOWISH GRAY TO MODERATE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-10%, CALCILUTITE-05%, SILT-05%;
OTHER FEATURES: FROSTED;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 40 - 45 SANDSTONE; MODERATE LIGHT GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-01%;
FOSSILS: WORM TRACES, MOLLUSKS, FOSSIL FRAGMENTS;
- 45 - 50 AS ABOVE
- 50 - 55 AS ABOVE
- 55 - 60 SANDSTONE; MODERATE LIGHT GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-01%;
FOSSILS: WORM TRACES, MOLLUSKS, FOSSIL FRAGMENTS;
- 60 - 65 LIMESTONE; MODERATE LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 65 - 70 AS ABOVE
- 70 - 75 AS ABOVE
- 75 - 80 LIMESTONE; MODERATE LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 80 - 85 AS ABOVE
- 85 - 90 AS ABOVE
- 90 - 95 LIMESTONE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, CRYSTALS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-20%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 95 - 100 AS ABOVE

100 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|---|---------------------------------|------------------------------------|-------------------------|
| 0 |  | CALCITE CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | CALCITE CALCITE SILT SILT CALCITE | | | |
| -50 |  | CALCITE | | | |
| -75 | | CALCITE | | | |
| -100 | | | TAMIAMI FORMATION | | |

HY312

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 313
TOTAL DEPTH: 00097 FT.
19 SAMPLES FROM 0 TO 97 FT.

COUNTY - HENDRY
LOCATION: T.47S R.33E S.27
LAT = N 26D 21M 40
LON = W 81D 00M 55
ELEVATION - 025 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS WELL HE-060

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

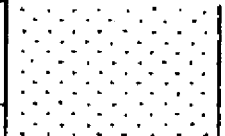

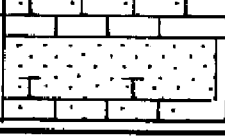
0 97 SURFICIAL AQUIFER SYSTEM
0 30 WATER TABLE AQUIFER
30 70 TAMiami CONFINING ZONE
70 97 LOWER TAMiami AQUIFER

0. - 95. 090UDSC UNDIFFERENTIATED SAND AND CLAY
95. - 97. 122TH1M TAMiami FN.

- 0 - 10 SAND; GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2;
OTHER FEATURES: FROSTED;
- 10 - 15 AS ABOVE
- 15 - 20 AS ABOVE
- 20 - 25 SAND; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2;
OTHER FEATURES: FROSTED;
- 25 - 30 SAND; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2, SILT-05%;
OTHER FEATURES: FROSTED;
- 30 - 35 SAND; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2, SILT-10%;
OTHER FEATURES: FROSTED;

- 35 - 40 SAND; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- 2, SILT-10%, PHOSPHATIC SAND-10%;
OTHER FEATURES: FROSTED;
- 40 - 47 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SILT-20%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 47 - 50 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: SHELL-50%, SILT-20%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 50 - 55 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 55 - 60 AS ABOVE
- 60 - 65 AS ABOVE
- 65 - 70 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-20%;
FOSSILS: FOSSIL FRAGMENTS;
- 70 - 75 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: CORAL, FOSSIL FRAGMENTS;
- 75 - 80 AS ABOVE
- 80 - 85 SAND; LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;
- 85 - 90 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC GRAVEL-01%;
OTHER FEATURES: FROSTED;

- 90 - 95 SAND; LIGHT OLIVE GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCITE-20%, Limestone-10%, PHOSPHATIC SAND-01%;
- 95 - 97 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY,
MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCITE-10%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 97 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|-------------------------|---------------------------------|---------------------------------------|------------------------------|
| 25 0 |  | | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 |  | SILT CALCITE | | TAMIAMI CONFINING ZONE | |
| -50 -75 |  | CALCITE | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |

HY313

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 314
TOTAL DEPTH: 00400 FT.
53 SAMPLES FROM 0 TO 400 FT.

COUNTY - HENDRY
LOCATION: T.47S R.31E S.26 A
LAT = N 26D 22M 15
LON = W 81D 11M 30

COMPLETION DATE - 29/04/87
ELEVATION - 023 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, CALIPER, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: SFNWD-BARRON COLLIER PROPERTY; DRILLER: TONY LUBRAND

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD
HYDROGEOLOGIC UNITS

0 75 SURFICIAL AQUIFER SYSTEM
0 10 WATER TABLE AQUIFER
10 40 TAMIAMI CONFINING ZONE
40 75 LOWER TAMIAMI AQUIFER
75 310 UPPER HAWTHORN CONFINING ZONE
310 400 MID HAWTHORN AQUIFER (LOW YIELD)

0. - 35. 090UDSC UNDIFFERENTIATED SAND AND CLAY
35. - 75. 122TMIM TAMIAMI FM.
75. - 400. 122HTRN HAWTHORN GROUP

0 - 2 NO SAMPLES

2 - 3 CALCILUTITE; DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-55%, IRON STAIN- 2;

3 - 7 LIMESTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN; 10% POROSITY, INTERGRANULAR,
PIN POINT VUGS, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, IRON STAIN- 2;
FOSSILS: FOSSIL FRAGMENTS;

7 - 10 AS ABOVE

10 - 14 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;

14 - 18 NO SAMPLES

- 18 - 20 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, LIMESTONE- 2%;
FOSSILS: FOSSIL FRAGMENTS;
WITH FOSSILIZED SHELL FRAGMENTS (LIMESTONE)
- 20 - 25 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 25 - 30 AS ABOVE
- 30 - 35 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%;
FOSSILS: SPICULES, FOSSIL FRAGMENTS;
- 35 - 40 CALCILUTITE; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: WORM TRACES, BRYOZOA, FOSSIL FRAGMENTS;
- 40 - 50 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;
- 50 - 58 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;
- 58 - 60 AS ABOVE
- 60 - 65 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;
- 65 - 70 AS ABOVE

- 70 - 75 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES;
- 75 - 80 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-04%;
FOSSILS: WORM TRACES;
- 80 - 89 AS ABOVE
- 89 - 96 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%, PHOSPHATIC SAND-04%;
FOSSILS: WORM TRACES;
- 96 - 100 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 100 - 105 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: SILT-10%, CLAY-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;
- 105 - 110 CLAY; OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: LIMESTONE-10%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
- 110 - 115 AS ABOVE
- 115 - 120 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-20%;
- 120 - 130 AS ABOVE

- 130 - 140 SAND; OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, SILT-05%, PHOSPHATIC SAND-01%;
- 140 - 150 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-05%, PHOSPHATIC SAND-01%;
- 150 - 155 AS ABOVE
- 155 - 160 AS ABOVE
- 160 - 171 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-05%, PHOSPHATIC SAND-01%;
- 171 - 176 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-05%, SILT-05%, PHOSPHATIC SAND-01%;
- 176 - 180 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, SILT-05%, PHOSPHATIC SAND-03%;
- 180 - 190 AS ABOVE
- 190 - 200 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-05%, PHOSPHATIC SAND-01%;
- 200 - 215 AS ABOVE
- 215 - 220 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-05%, SILT-05%, PHOSPHATIC SAND-01%;
- 220 - 230 AS ABOVE

- 230 - 235 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%, LIMESTONE-05%, PHOSPHATIC SAND-01%;
- 235 - 240 AS ABOVE
- 240 - 250 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%, LIMESTONE-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 250 - 260 AS ABOVE
- 260 - 270 AS ABOVE
- 270 - 280 SAND; GRAYISH OLIVE GREEN; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-50%, CLAY-05%, PHOSPHATIC SAND-01%;
- 280 - 300 SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-30%, CLAY-05%, PHOSPHATIC SAND-01%;
- 300 - 310 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE;
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, SILT-10%, PHOSPHATIC SAND-03%;
- 310 - 320 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-20%, CLAY-05%, PHOSPHATIC SAND-01%;
- 320 - 330 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-30%, CLAY-05%, PHOSPHATIC SAND-01%;
WITH 5% LIMESTONE PIECES
- 330 - 340 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-30%, CLAY-05%, PHOSPHATIC SAND-05%;
- 340 - 355 AS ABOVE
- 355 - 360 DOLO-SILT; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-30%, CLAY-05%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL FRAGMENTS;

360 - 375 CALCILUTITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SILT-05%, LIMESTONE-05%, PHOSPHATIC SAND-01%;

375 - 380 AS ABOVE

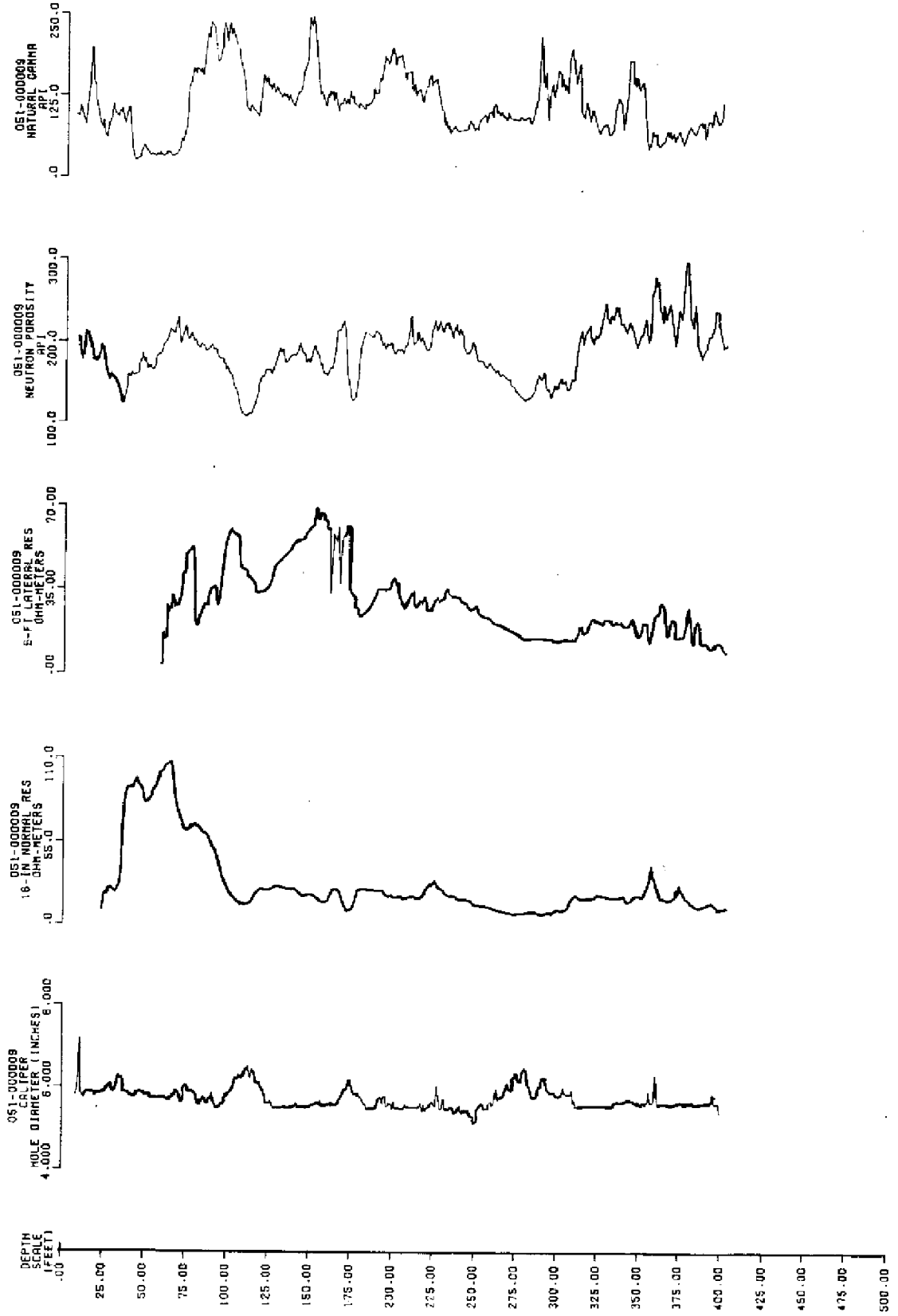
380 - 390 CALCILUTITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, SILT-05%, LIMESTONE-05%, PHOSPHATIC SAND-03%;

390 - 400 AS ABOVE

400 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | GEOLOGIC UNITS | |
|-------------------------|--------|--|-----------------------------|--|----------------------|
| 0 | | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -25 | | SAND SAND | | TAMIAMI CONFINING ZONE | |
| -50 | | CALCITE | | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |
| -75 | | SILT SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -100 | | SILT SILT CALCITE CALCITE | | | |
| -125 | | CLAY | | | |
| -150 | | CALCITE CALCITE | | | |
| -175 | | CLAY CLAY SAND SAND SAND SAND SILT SILT CALCITE CALCITE | | | |
| -200 | | CLAY CLAY SAND SAND SAND SAND SILT SILT CALCITE CALCITE | | | |
| -225 | | CLAY CLAY SAND SAND SAND SAND SILT SILT CALCITE CALCITE | | | |
| -250 | | CLAY CLAY SAND SAND SAND SAND SILT SILT CALCITE CALCITE | | | |
| -275 | | CLAY CLAY SAND SAND SAND SAND SILT SILT CALCITE CALCITE | | | |
| -300 | | CLAY CLAY SAND SAND SAND SAND SILT SILT CALCITE CALCITE | | | |
| -325 | | PHOSPHATE SILT SILT SILT | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN AQUIFER | HAWTHORN GROUP |
| -350 | | PHOSPHATE SILT SILT SILT | | | |
| -375 | | PHOSPHATE SILT SILT SILT | | | |
| -400 | | | | | |

HY314



GEOPHYSICS, WELL HY-314

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 315 COUNTY - HENDRY
TOTAL DEPTH: 00120 FT. LOCATION: T.46S R.32E S.12 A
15 SAMPLES FROM 0 TO 120 FT. LAT = N 26D 30M 00
LON = W 81D 05M 00
COMPLETION DATE - / /87 ELEVATION - 026 FT
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: MISSIMER HM-291 ROGERS RANCH (USSC)

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS


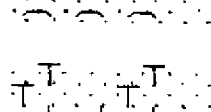
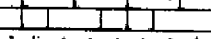


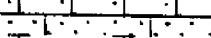
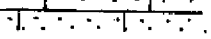

0 120 SURFICIAL AQUIFER SYSTEM
0 9 WATER TABLE AQUIFER
9 45 TAMiami CONFINING ZONE
45 120 LOWER TAMiami AQUIFER

0. - 40. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
40. - 120. 122TMI TAMiami FM.

- 0 - 9 SAND; GRAYISH BROWN; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: IRON STAIN- %;
- 9 - 14 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, SILT-05%, LIMESTONE-05%;
- 14 - 20 SHELL BED; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-20%, LIMESTONE-10%, CALCILUTITE-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 30 NO SAMPLES
- 30 - 40 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, SHELL-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 40 - 45 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-30%, CALCITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, SPICULES, WORM TRACES, BRYOZOA;

- 45 - 53 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, CALCILUTITE, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-30%, CALCITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA, WORM TRACES, SPICULES;
- 53 - 55 SAND; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: SUB-ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, CALCITE-10%;
FOSSILS: FOSSIL FRAGMENTS, SPICULES, WORM TRACES;
- 55 - 60 AS ABOVE
- 60 - 70 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-20%, CALCITE-10%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS;
- 70 - 80 AS ABOVE
- 80 - 90 LIMESTONE; LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CRYSTALS; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-20%, CALCITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS;
- 90 - 100 LIMESTONE; LIGHT OLIVE GRAY; 30% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: INTRACLASTS, BIOGENIC, CRYSTALS; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-50%, CALCILUTITE-20%, CALCITE-10%, PHOSPHATIC SAND-01%;
- 100 - 110 SANDSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ROUNDED; LOW SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CALCITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 110 - 120 SANDSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR,
PIN POINT VUGS, MOLDIC;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; LOW SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, CALCITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS, WORM TRACES;

120 TOTAL DEPTH

| ELEVATION (FT.NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | GEOLOGIC UNITS |
|------------------------|---|--|---------------------------------|------------------------------|
| 25 |  | | SURFICIAL AQUIFER SYSTEM | UNDIFFERENTIATED |
| 0 |  | CALCITE CALCITE | | |
| |  | CALCITE CALCITE | | |
| -25 |  | CALCITE CALCITE SAND | | |
| |  | CALCITE CALCITE | | |
| -50 |  | CALCITE CALCITE CALCITE CALCITE | | |
| |  | CALCITE CALCITE CALCITE CALCITE | | |
| -75 |  | | SURFICIAL AQUIFER SYSTEM | TAMIAMI FORMATION |
| -100 | | | | |

HY315

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 401

COUNTY - GLADES

TOTAL DEPTH: 460 FT.

LOCATION: T.42S R.29E S.18 A

49 SAMPLES FROM 0 TO 460 FT.

LAT = N 26D 49M 06

LONG = W 81D 27M 57

COMPLETION DATE - 84/01/02

ELEVATION - 40 FT

OTHER TYPES OF LOGS AVAILABLE - GAMMA, NEUTRON, ELECTRIC, TEMPERATURE

OWNER/DRILLER: RTA7(MGL007)DRILLED BY WOOSTER(SFMND),SR 720 1.5 MI WEST OF LYXES TOWER

WORKED BY: DESCRIBED BY SCOTT BURNS (7-5-84), SAMPLE QUALITY (POOR)

HYDROGEOLOGIC UNITS

0.0 20.0 SURFICIAL AQUIFER SYSTEM

0.0 20.0 WATER TABLE AQUIFER

20.0 60.0 CONFINING ZONE

60.0 90.0 UNNAMED WHITE LIMESTONE AQUIFER(POSS. SANDSTONE AQ)

90.0 410.0 UPPER HAWTHORN CONFINING ZONE

410.0 460.0 MID-HAWTHORN AQUIFER

0. - 20. 09QUDSC UNDIFFERENTIATED SAND AND CLAY

20. - 90. 122TMIN TAMiami FM.

90. - 460. 122HTRM HAWTHORN GROUP

- 0 - 10 SAND; MODERATE YELLOWISH BROWN TO DARK YELLOWISH ORANGE; 20% POROSITY, INTERGRANULAR; GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; ROUNDNESS: SUB-ANGULAR TO ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED; ACCESSORY MINERALS: HEMATITE-02%, IRON STAIN- 2; FOSSILS: NO FOSSILS;
- 10 - 20 LIMESTONE; WHITE; 15% POROSITY, MOLDIC, INTERGRANULAR; GRAIN TYPE: CALCILUTITE, SKELTAL CAST; 15% ALLOCHEMICAL CONSTITUENTS; GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION; ACCESSORY MINERALS: QUARTZ SAND-20%, IRON STAIN- 2; FOSSILS: FOSSIL MOLDS, ECHINOID;
- 20 - 30 SILT; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION; ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-20%, CALCILUTITE-25%; OTHER FEATURES: PLASTIC; FOSSILS: BENTHIC FORAMINIFERA; SAND MODE IS FINE AND SUBANGULAR
- 30 - 40 AS ABOVE, DECREASE IN SAND 20%, INCREASE PERCENTAGE OF MICRITE (30%)
- 40 - 50 LIMESTONE; LIGHT OLIVE GRAY TO WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS; GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; POOR INDURATION; ACCESSORY MINERALS: SILT-40%, QUARTZ SAND-20%; FOSSILS: MOLLUSKS; OLIVE GRAY SANDY SILT INTERBEDDED WITH POORLY LITHIFIED BIOGENIC MICRITE (OSTREA & PELECYPODS)

- 50 - 60 SAND; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, CLAY-15%, CALCILUTITE-10%;
FOSSILS: BENTHIC FORAMINIFERA;
CALCAREOUS DOLOSILT MATRIX
- 60 - 70 LIMESTONE; WHITE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS;
CHLAMYX NODOSUS
- 70 - 80 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, PIN POINT VUGS, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO VERY COARSE; GOOD INDURATION;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS;
PECTIN MOLDS
- 80 - 90 AS ABOVE WITH LOWER POROSITY; LESS BIOGENIC
- 90 - 100 CALCILUTITE; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 5% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, SILT-20%, PHOSPHATIC SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 100 - 110 AS ABOVE
- 110 - 120 CALCILUTITE; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 5% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, SILT-20%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 120 - 130 AS ABOVE
- 130 - 140 SILT; GRAYISH GREEN; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-02%, CLAY-10%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA;
- 140 - 150 AS ABOVE

- 150 - 160 SILT; GRAYISH GREEN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-02%, CLAY-10%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: NO FOSSILS;
- 160 - 170 AS ABOVE
- 170 - 180 CLAY; GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-15%, PHOSPHATIC SAND-06%, QUARTZ SAND-15%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA;
- 180 - 190 CLAY; GRAYISH GREEN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, CLAY-15%, PHOSPHATIC SAND-04%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA;
- 190 - 200 AS ABOVE
- 200 - 210 CALCILUTITE; VERY LIGHT GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-08%;
FOSSILS: NO FOSSILS;
- 210 - 220 AS ABOVE
- 220 - 230 CLAY; LIGHT OLIVE BROWN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%, CLAY-20%, PHOSPHATIC SAND-08%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
- 230 - 240 CALCILUTITE; VERY LIGHT GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%, DOLOMITE-10%;
OTHER FEATURES: CHALKY;
- 240 - 250 AS ABOVE
- 250 - 260 CALCILUTITE; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-07%, DOLOMITE-10%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 260 - 270 AS ABOVE
- 270 - 280 SILT; GRAYISH OLIVE; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: CLAY-20%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA;

- 280 - 300 CALCILUTITE; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 300 - 310 SILT; GRAYISH GREEN; NOT OBSERVED; POOR INDURATION;
ACCESSORY MINERALS: CLAY-20%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
OTHER FEATURES: PLASTIC, CALCAREOUS;
- 310 - 320 CALCILUTITE; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-05%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 320 - 340 AS ABOVE
- 340 - 360 CALCILUTITE; WHITE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
MODERATE INDURATION;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-15%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CHALKY;
FOSSILS: NO FOSSILS;
- 360 - 370 AS ABOVE WITH 3% QTZ & PHOSPHATIC GRAVEL
- 370 - 380 CLAY; LIGHT GRAYISH GREEN; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-04%;
OTHER FEATURES: CALCAREOUS;
- 380 - 400 CALCILUTITE; YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE;
POOR INDURATION;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-05%, PHOSPHATIC GRAVEL-02%,
PHOSPHATIC SAND-03%;
- 400 - 410 AS ABOVE
- 410 - 420 LIMESTONE; WHITE; 13% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-08%, DOLOMITE-10%;
- 420 - 430 LIMESTONE; WHITE; 11% POROSITY, INTERGRANULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-02%;

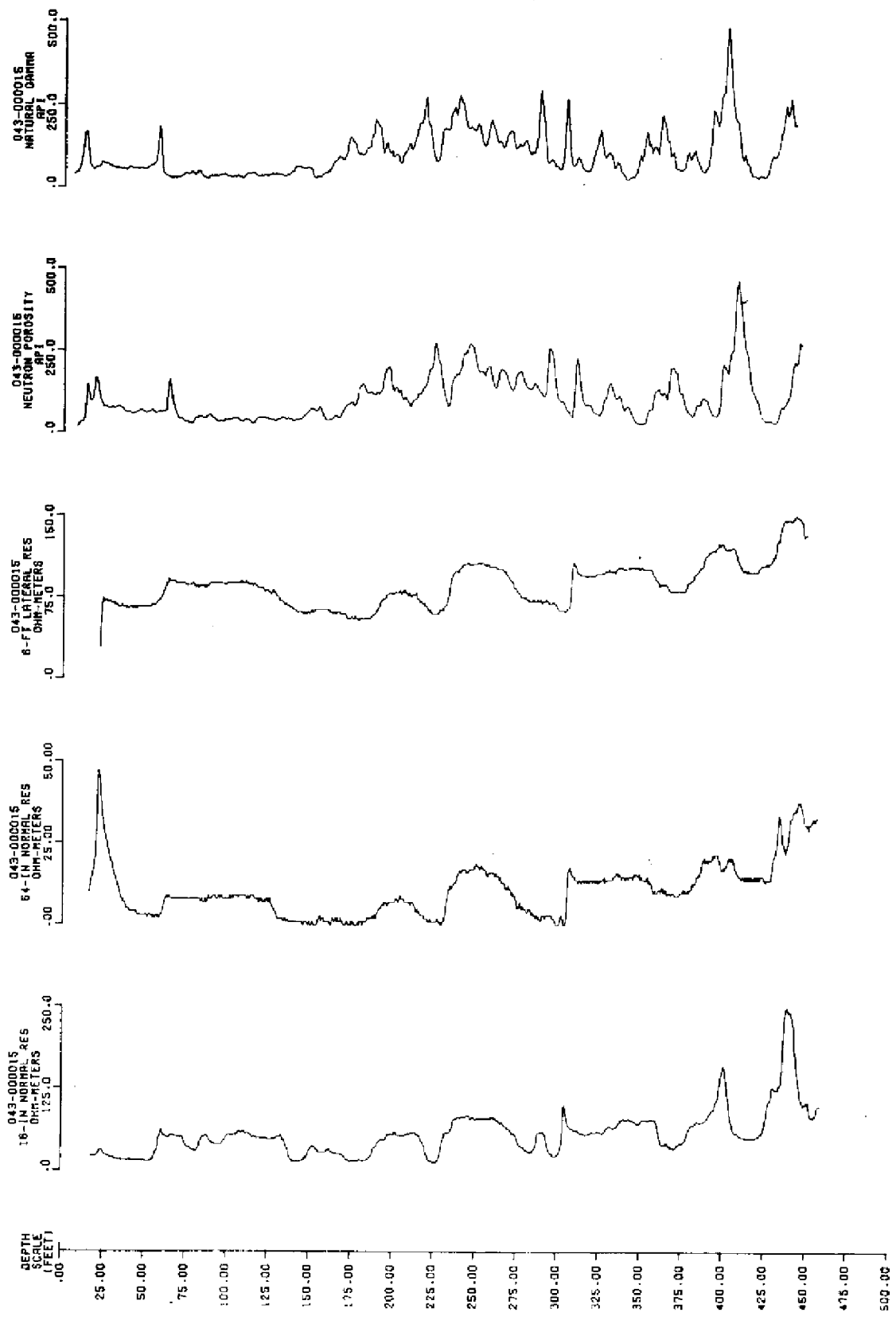
430 - 450 LIMESTONE; VERY LIGHT GRAY; 13% POROSITY, INTERGRAMULAR, PIN POINT VUGS;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 12% ALLOCHEMICAL CONSTITUENTS;
GOOD INDURATION;
ACCESSORY MINERALS: DOLOMITE-15%;

450 - 460 AS SAMPLE 420 TO 430

460 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | | |
|-------------------------|--------|------------------------------------|-----------------------------|--|---------------------------------------|--------------------------|-----------------------------|----------------------------|
| | | | S.A.S. | WATER TABLE AQUIFER | UNDIFFERENTIATED TAMIAMI FORMATION | | | |
| 0 | | CALCITE SAND SAND CALCITE | INTERMEDIATE AQUIFER SYSTEM | CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE | | |
| -50 | | SILT SILT | | UNNAMED WHITE LIMESTONE AQUIFER* | | | | |
| -100 | | SILT SAND CLAY | | UPPER HAWTHORN CONFINING ZONE | | | | |
| -150 | | SAND CLAY | | | | | | |
| -200 | | CLAY PHOSPHATE SAND | | | | | | |
| -250 | | SAND SAND | | | | | | |
| -300 | | SAND SAND | | | | | | |
| -350 | | SAND | | | | | | |
| -400 | | SAND | | | | | MID- HAWTHORN AQUIFER | LOWER CARBONATE ZONE |

*This unit may be part of the sandstone aquifer as discussed in text.



GEOPHYSICS, WELL G-401

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 402 COUNTY - GLADES
TOTAL DEPTH: 120 FT. LOCATION: T.42S R.28E S.16 B
17 SAMPLES FROM 0 TO 120 FT. LAT = N 260 49N 08
LON = W 81D 31M 10
COMPLETION DATE - / /81 ELEVATION - 40 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST

OWNER/DRILLER: RTA16 ROLAND WALKER (OWNER) SIX L'S FARMS; MUD ROTARY

WORKED BY: DESCRIBED BY SCOTT BURNS (7-5-84) SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

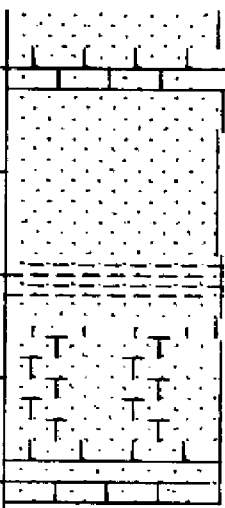
0 60 SURFICIAL AQUIFER SYSTEM
0 15 WATER TABLE AQUIFER
15 20 TAMIAMI CONFINING ZONE
20 60 LOWER TAMIAMI AQUIFER
60 120 UPPER HAWTHORN CONFINING ZONE

0. - 10. 090UDSC UNDIFFERENTIATED SAND AND CLAY
10. - 60. 122TMIN TAMIAMI FM.
60. - 120. 122HTRN HAWTHORN GROUP

- 0 - 10 SAND; GRAYISH BROWN; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): ORGANIC MATRIX;
- 10 - 15 LIMESTONE; GRAYISH ORANGE; 12% POROSITY, MOLDIC, VUGULAR;
GRAIN TYPE: CALCILUTITE, PELLET; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: CRYPTOCRYSTALLINE; RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-25%, SPAR-20%, IRON STAIN- %;
OTHER FEATURES: MUDDY;
FOSSILS: FOSSIL MOLDS;
WELL LITHOFIED SPARY CALCITE FRAGMENT IN POORLY INDURATED MICRITE; GASTROPOD MOLDS
- 15 - 20 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%;
OTHER FEATURES: MUDDY;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 30 SANDSTONE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL FRAGMENTS;
25% SAND SIZE PELYCOPOD FRAGMENTS
- 30 - 40 SAND; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%;

- 40 - 50 AS ABOVE
- 50 - 60 SAND; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%;
- 60 - 70 SILT; LIGHT OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-10%, CALCILUTITE-35%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: BENTHIC FORAMINIFERA, DIATOMS;
- 70 - 75 SAND; LIGHT GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC GRAVEL-02%, PHOSPHATIC SAND-03%;
OTHER FEATURES: FROSTED;
- 75 - 78 GRAVEL; MODERATE LIGHT GRAY TO DARK GRAY; 35% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: GRANULE; RANGE: MEDIUM TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-05%;
OTHER FEATURES: FROSTED;
- 78 - 80 SAND; LIGHT GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;
- 80 - 90 SAND; WHITE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: MEDIUM TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-05%;
OTHER FEATURES: CHALKY, FROSTED;
- 90 - 100 SAND; WHITE; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-03%;
OTHER FEATURES: FROSTED;
- 100 - 105 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, LIMESTONE-15%;
LIMESTONE PELLETS 15%

- 105 - 110 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, INTRACLASTS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%;
- 110 - 115 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO ; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-03%;
FOSSILS: NO FOSSILS;
- 115 - 120 CALCILUTITE; YELLOWISH GRAY; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, INTRACLASTS, PELLET; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
ACCESSORY MINERALS: QUARTZ SAND-30%;
OTHER FEATURES: FROSTED;
- 120 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|---|-----------------------------------|---------------------------------|--------------------------------|--|----------------|
| 25 |  | CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| | | CALCITE CALCITE | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION | |
| 0 | | | LOWER TAMIAMI | | | |
| -25 | | | CALCITE CALCITE PHOSPHATE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -50 | | CALCITE PHOSPHATE PHOSPHATE | UPPER CLASTIC ZONE | | | |
| -75 | | CALCITE | | | | |

G402

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2040
TOTAL DEPTH: 520 FT.
52 SAMPLES FROM 0 TO 520 FT.

COUNTY - COLLIER
LOCATION: T.47S R.28E S.24
LAT = N 26D 22M 10
LON = W 81D 28M 40
ELEVATION - 20 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: C2040-SFMB-ALVIN WOOSTER (DRILLER)

WORKED BY: DESCRIBED BY MIKE KNAPP (12-15-83), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0 208.0 SURFICIAL AQUIFER SYSTEM
0.0- 90.0 WATER TABLE AQUIFER
90.0- 150.0 TAMIAMI CONFINING ZONE
150.0-208.0 LOWER TAMIAMI AQUIFER
208.0-290.0 UPPER HAWTHORN CONFINING ZONE
290.0-335.0 CLASTIC ZONE - SANDSTONE AQUIFER
335.0-375.0 CARBONATE ZONE - SANDSTONE AQUIFER
375.0-470.0 MID-HAWTHORNE CONFINING ZONE
470.0-520.0 MID-HAWTHORN AQUIFER

0.0- 4.0 000N05H NO SAMPLES
4.0- 37.0 090V05C UNDIFFERENTIATED SAND AND CLAY
37.0- 176.0 122T01M TAMIAMI FN.
176.0- 520.0 122H01M HAWTHORN GROUP

- 0 - 4 NO SAMPLES
- 4 - 10 SHELL BED; BROWNISH GRAY TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-20%, CLAY-05%;
FOSSILS: MOLLUSKS;
- 10 - 20 AS ABOVE, BUT UNCONSOLIDATED, CHIONE AND LARGE GASTROPODS
- 20 - 30 AS ABOVE
- 30 - 35 SHELL BED, LOOSELY CEMENTED WITH MICRITE AND SAND
- 35 - 40 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL;
- 40 - 50 AS ABOVE

- 50 - 60 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-25%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 60 - 70 AS ABOVE
- 70 - 80 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: CORAL, MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
- 80 - 90 AS ABOVE
- 90 - 100 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-05%, QUARTZ SAND-10%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, PLANKTONIC FORAMINIFERA, BENTHIC FORAMINIFERA;
- 100 - 120 AS ABOVE
- 120 - 130 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-02%, QUARTZ SAND-25%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, PLANKTONIC FORAMINIFERA, BENTHIC FORAMINIFERA;
- 130 - 140 AS ABOVE
- 140 - 150 AS ABOVE
- 150 - 155 LIMESTONE; LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 155 - 160 AS ABOVE
- 160 - 176 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: MOLLUSKS, BRYOZOA, FOSSIL MOLDS;
- 176 - 180 SAND; WHITE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;

- 180 - 195 NO RECOVERY-CLEAN SANDS
- 195 - 200 SANDSTONE; MODERATE LIGHT GRAY; 15% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR-30%, CALCILUTITE-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 200 - 208 AS ABOVE-WITH PHOSPHATE (5%)
- 208 - 220 SAND; LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-05%;
FOSSILS: MOLLUSKS;
- 220 - 230 AS ABOVE
- 230 - 240 AS ABOVE
- 240 - 250 AS ABOVE WITH SHELL (5%) AND PHOSPHATE (5%)
- 250 - 260 SAND; DARK YELLOWISH BROWN; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
- 280 - 290 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-30%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS;
- 290 - 300 SAND; YELLOWISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-02%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 300 - 310 AS ABOVE BUT UNCONSOLIDATED-QUARTZITE PEBBLES
- 310 - 320 SANDSTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-40%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;

- 320 - 340 SAND; WHITE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-01%;
FOSSILS: NO FOSSILS;
- 340 - 355 SAND; LIGHT OLIVE TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 355 - 360 LIMESTONE; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 360 - 373 AS ABOVE
- 373 - 374 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, BRYOZOA;
- 374 - 375 AS ABOVE - (SANDIER 10%)
- 375 - 380 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-05%, QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 380 - 390 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-25%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 390 - 400 AS ABOVE
- 400 - 410 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, QUARTZ SAND-30%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 410 - 420 AS ABOVE
- 420 - 440 AS ABOVE - WITH MORE PHOS (15%)
- 440 - 450 AS ABOVE

- 450 - 460 SAND; LIGHT OLIVE TO GRAYISH OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, CLAY-05%, CALCILUTITE-10%, PHOSPHATIC SAND-20%;
FOSSILS: MOLLUSKS;
- 460 - 470 SAMPLE IS A MIX OF ABOVE LITHO-SANDY, PHOS, DOLO Limestone
- 470 - 480 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, PHOSPHATIC SAND-05%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BRYOZOA;
- 480 - 490 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS;
- 490 - 500 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, PLANT REMAINS, BENTHIC FORAMINIFERA, BRYOZOA;
- 500 - 510 AS ABOVE
- 510 - 520 AS ABOVE
- 520 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|-------------------------|-----------|----------------------------------|-----------------------------|--|--------------------------------------|----------------------------|--|
| 0 | | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE | UNDIFFERENTIATED | | |
| -50 | | SAND DOLOMITE SAND SAND | | AQUIFER | TAMIAMI FORMATION | | |
| -100 | | | | TAMIAMI CONFINING ZONE | | | |
| -150 | | SAND | | LOWER TAMIAMI AQUIFER | | | |
| -200 | | | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | MIOCENE COARSE CLASTIC | | |
| -250 | | CLAY | | | | | |
| -300 | | | | SANDSTONE AQUIFER | CLASTIC ZONE | UPPER CLASTIC ZONE | |
| -350 | | DOLOMITE CLAY | | | CARBONATE ZONE | | |
| -400 | | SAND SAND CALCITE | | HAWTHORN GROUP | MID HAWTHORN CONFINING ZONE | LOWER CARBONATE ZONE | |
| -450 | | PHOSPHATE | | | | | |
| -500 | PHOSPHATE | | | | | | |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2041 COUNTY - COLLIER
TOTAL DEPTH: 380 FT. LOCATION: T.48S R.28E S.23 A
55 SAMPLES FROM 0 TO 380 FT. LAT = N 26D 17M 33
LON = W 81D 31M 07

COMPLETION DATE - 03/14/09 ELEVATION - 25 FT
OTHER TYPES OF LOGS AVAILABLE - GAMMA, ELECTRIC, CALIPER, NEUTRON

OWNER/DRILLER: SFWMD C2041, OIL WELL RD. & 846, ALVIN WOOSTER DRILLER

WORKED BY: 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 ZONE
75.0 170.0 LOWER TAMIAMI AQUIFER
170.0 232.0 UPPER HAWTHORN CONFINING ZONE
232.0 270.0 CARBONATE ZONE - SANDSTONE AQUIFER
270.0 345.0 MID-HAWTHORN CONFINING ZONE
345.0 380.0 MID-HAWTHORN AQUIFER

0.0- 8.0 000NDSM NO SAMPLES
8.0- 170.0 122TMIH TAMIAMI FM.
170.0- 380.0 122HTRN HAWTHORN GROUP

0 - 8 NO SAMPLES

- 8 - 15 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;
SHELL INTERMIXED
- 15 - 20 SHELL BED; WHITE; 25% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
CALOOSAHATCHEE TYPE MOLLUSKS
- 20 - 28 AS ABOVE
- 28 - 32 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
MUCH SHELL IN SAMPLE

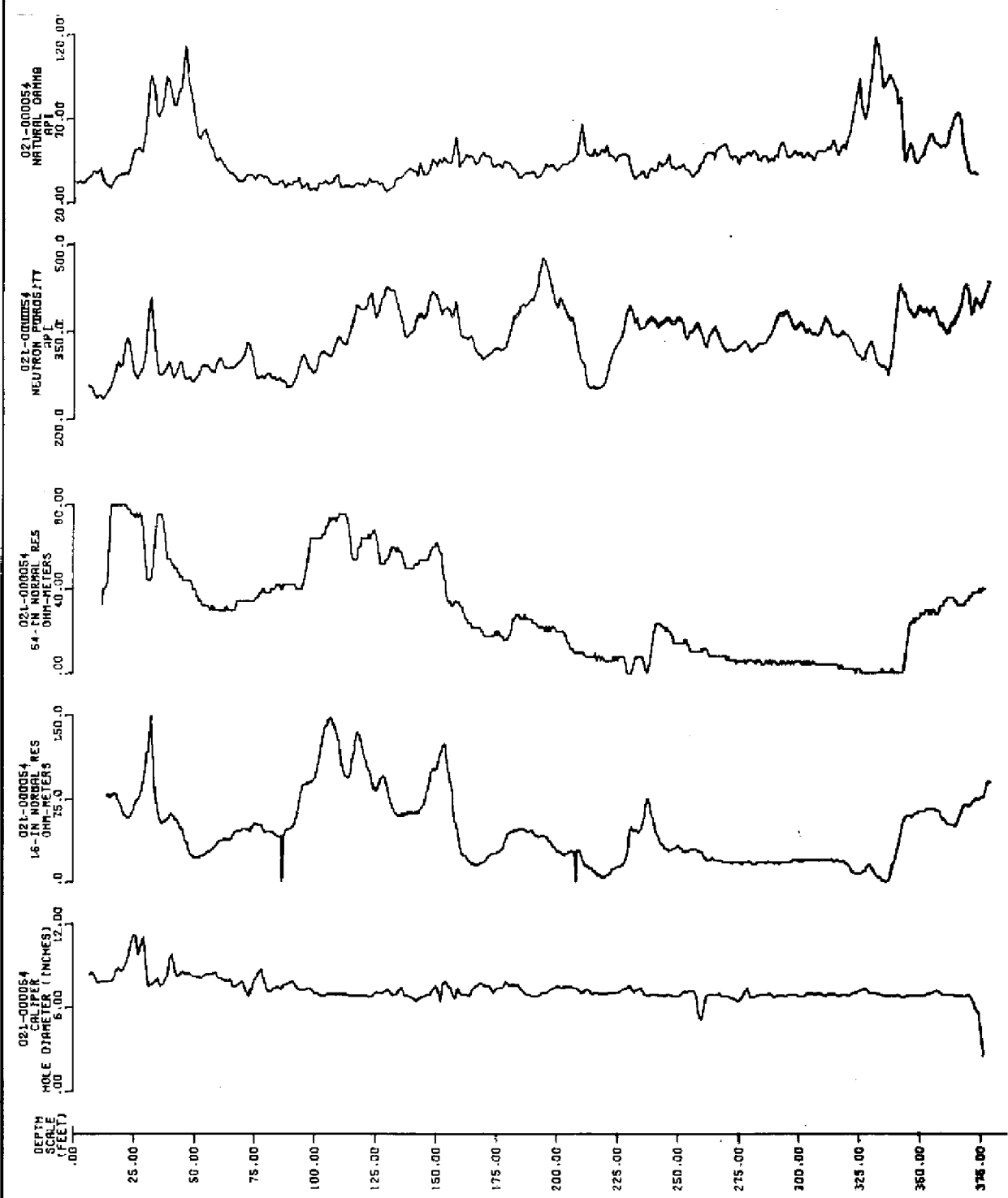
- 32 - 35 LIMESTONE; GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR, VUGULAR;
GRAIN TYPE: BIOGENIC, CRYSTALS; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%;
- 35 - 40 AS ABOVE - SANDIER (40%)
- 40 - 45 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BRYOZOA;
TYPE OCHOPEE
- 45 - 50 AS ABOVE
- 50 - 55 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, SILT-15%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 55 - 60 CALCILUTITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 02% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, SILT-15%, QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
- 60 - 70 AS ABOVE - MORE SHELL
- 70 - 75 AS ABOVE
- 75 - 80 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 80 - 90 AS ABOVE
- 90 - 100 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-03%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS;
- 100 - 110 AS ABOVE - GOOD TAMiami

- 110 - 115 AS ABOVE
- 115 - 120 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-08%;
FOSSILS: MOLLUSKS, BRYOZOA, CORAL, FOSSIL MOLDS;
- 120 - 135 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 135 - 140 AS ABOVE - VERY SANDY (45%) - LOWER POROSITY (15%)
- 140 - 150 AS ABOVE
- 150 - 170 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BRYOZOA;
- 170 - 180 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%;
FOSSILS: MOLLUSKS;
- 180 - 190 AS ABOVE
- 190 - 200 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS, BRYOZOA;
- 200 - 203 AS ABOVE
- 203 - 210 DOLOMITE; LIGHT GRAY; 10% POROSITY, INTERCRYSTALLINE, PIN POINT VUGS;
50-70% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-10%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: MOLLUSKS;

- 210 - 220 CLAY; VERY LIGHT ORANGE TO LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
- 220 - 232 AS ABOVE
- 232 - 238 SANDSTONE; DARK YELLOWISH ORANGE; 15% POROSITY, INTERGRANULAR, INTERCRYSTALLINE;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%;
SOME LOOSE GRANULE SIZE QUARTZ
- 238 - 240 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: MOLLUSKS;
- 240 - 250 AS ABOVE
- 250 - 260 SANDSTONE; WHITE TO LIGHT GRAY; 20% POROSITY, INTERGRANULAR, INTERCRYSTALLINE,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, SPAR-20%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: MOLLUSKS;
- 260 - 270 AS ABOVE
- 270 - 280 SANDSTONE; LIGHT GRAYISH GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-02%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 280 - 290 AS ABOVE
- 290 - 300 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-05%, QUARTZ SAND-15%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 300 - 315 AS ABOVE
- 315 - 322 NO SAMPLE-DRILLER REPORTS HARD DRILLING-DOLOMITE

- 322 - 330 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-05%, QUARTZ SAND-25%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS;
- 330 - 335 AS ABOVE-MUCH SHELL
- 335 - 340 CLAY; GRAYISH BLUE GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-08%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 340 - 345 AS ABOVE
- 345 - 350 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;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-05%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 350 - 355 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-02%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 355 - 365 AS ABOVE
- 365 - 380 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-05%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 380 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | GEOLOGIC UNITS | | |
|-------------------------|---|---|------------------------------------|-----------------------------|-------------------------------|--------------------------------------|
| 25 | | SAND | SURFICIAL AQUIFER SYSTEM | TAMIAMI FORMATION | | |
| 0 | | SAND SAND SAND SAND | | | WATER TABLE AQUIFER | |
| -25 | | SILT SILT | | | TAMIAMI CONFINING ZONE | |
| -50 | | SAND | LOWER TAMIAMI AQUIFER | | | |
| -75 | | | | | | |
| -100 | | SAND | | | | |
| -125 | | | | | | |
| -150 | | | INTERMEDIATE AQUIFER SYSTEM | | HAWTHORN GROUP | |
| -150 | | CALCITE CALCITE | | | | UPPER HAWTHORN CONFINING ZONE |
| -175 | | SAND SAND CALCITE SAND SAND SAND | | | | |
| -200 | | SANDSTONE AQUIFER (CARBONATE ZONE) | | | | |
| -225 | DOLOMITE SAND | | | | | |
| -250 | CLAY CLAY | MID HAWTHORN CONFINING ZONE | | | | |
| -275 | SAND SAND | | | | | |
| -300 | CALCITE CALCITE CALCITE PHOSPHATE PHOSPHATE | | | | | |
| -325 | PHOSPHATE | MID HAWTHORN AQUIFER | | | | |
| -350 | SAND SAND SAND | | | | | |
| -375 | | | | | | |
| | | | | UPPER CLASTIC ZONE | | |
| | | | | LOWER CARBONATE ZONE | | |



GEOPHYSICS, WELL C-2041

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2042 COUNTY - COLLIER
TOTAL DEPTH: 460 FT. LOCATION: T.47S R.30E S.29 A
60 SAMPLES FROM 0 TO 460 FT. LAT = N 26D 21M 38
LOM = W 81D 20M 55
COMPLETION DATE - 19/10/83 ELEVATION - 22 FT
OTHER TYPES OF LOGS AVAILABLE - GAMMA, ELECTRIC, CALIPER

OWNER/DRILLER: SFWMD C2042, ALVIN WOOSTER (DRILLER)

WORKED BY: DESCRIBED BY MIKE KNAPP (3-19-84), SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0- 130.0 SURFICIAL AQUIFER SYSTEM
0.0- 55.0 WATER TABLE AQUIFER
55.0- 85.0 TAMIAHI CONFINING ZONE
85.0- 130.0 LOWER TAMIAHI AQUIFER
130.0- 310.0 UPPER HAWTHORN CONFINING ZONE
310.0- 390.0 CLASTIC ZONE - SANDSTONE AQUIFER
390.0- 450.0 MID-HAWTHORN CONFINING ZONE
450.0- 460.0 MID-HAWTHORN AQUIFER

0.0- 3.0 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
3.0- 120.0 122TMIH TAMIAHI FM.
120.0- 460.0 122HTRN HAWTHORN GROUP

- 0 - 3 SAND; GRAYISH BROWN; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%;
FOSSILS: MOLLUSKS;
- 3 - 5 LIMESTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;
- 5 - 10 LIMESTONE; DARK YELLOWISH ORANGE; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;

- 10 - 15 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;
SHELL INTERMIXED
- 15 - 20 AS ABOVE-CHIONE CANCELLATA
- 20 - 25 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC, VUGULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: MOLLUSKS;
- 25 - 30 AS ABOVE
- 30 - 35 LIMESTONE; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC, INTERCRYSTALLINE;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 35 - 40 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;
- 40 - 45 AS ABOVE
- 45 - 55 AS ABOVE - WELL INDURATED
- 55 - 60 CLAY; GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-02%, QUARTZ SAND-35%;
FOSSILS: MOLLUSKS;
- 60 - 70 SAND; GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CLAY-05%, CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 70 - 80 CLAY; GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-45%;
FOSSILS: MOLLUSKS;
- 80 - 85 AS ABOVE

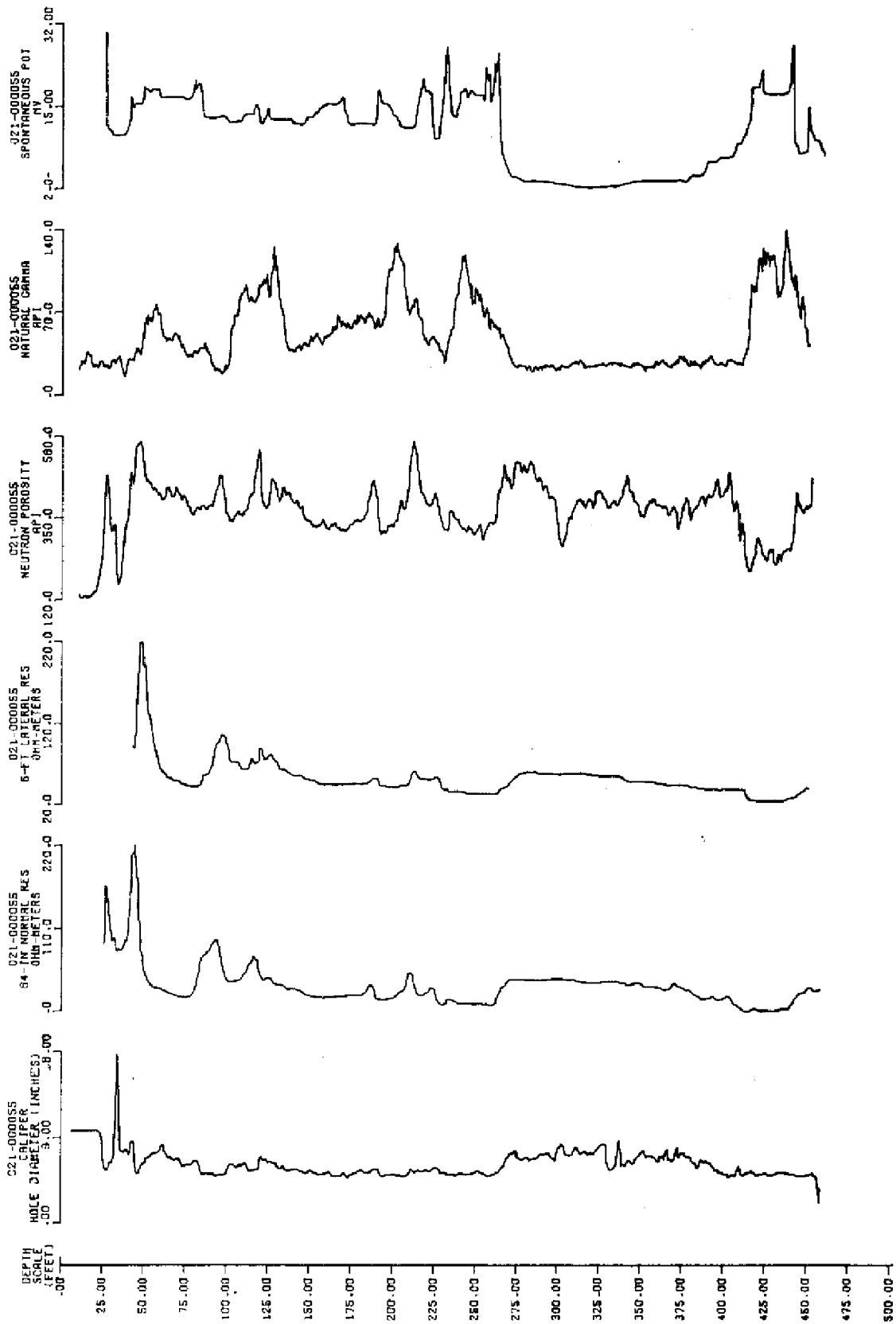
- 85 - 95 LIMESTONE; LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-04%;
FOSSILS: MOLLUSKS, BRYOZOA, FOSSIL MOLDS, CORAL;
- 95 - 100 AS ABOVE
- 100 - 115 LIMESTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
SOME V.C. QUARTZITE AND PHOS. GRAINS
- 115 - 120 AS ABOVE
- 120 - 130 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%;
FOSSILS: MOLLUSKS;
- 130 - 140 SAND; LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, CLAY-05%, CALCILUTITE-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 140 - 145 SAND; VERY LIGHT GRAY; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 145 - 150 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, CLAY-05%;
FOSSILS: MOLLUSKS;
- 150 - 160 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-05%, CLAY-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 160 - 170 AS ABOVE

- 170 - 180 AS ABOVE
- 180 - 190 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-02%, CLAY-02%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 190 - 210 AS ABOVE
- 210 - 220 SAND; GREENISH GRAY; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: COARSE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%, DOLOMITE-02%;
- 220 - 237 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-10%, CLAY-02%, PHOSPHATIC SAND-05%;
- 237 - 345 AS ABOVE
- 345 - 255 CLAY; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 255 - 260 LIMESTONE; WHITE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 260 - 265 AS ABOVE
- 265 - 275 SANDSTONE; WHITE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 275 - 280 AS ABOVE
- 280 - 310 NO SAMPLES
- 310 - 320 LIMESTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;

- 320 - 330 SAND; VERY LIGHT ORANGE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, SHARKS TEETH;
- 330 - 350 AS ABOVE
- 350 - 380 SAND; VERY LIGHT ORANGE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, CALCILUTITE-03%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 380 - 390 AS ABOVE
- 390 - 400 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-02%, PHOSPHATIC SAND-05%, QUARTZ SAND-40%;
FOSSILS: MOLLUSKS;
- 400 - 410 AS ABOVE
- 410 - 420 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-02%, PHOSPHATIC SAND-10%, QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
- 420 - 430 AS ABOVE
- 430 - 440 SAND; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CLAY-02%, CALCILUTITE-05%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 440 - 450 AS ABOVE
- 450 - 460 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-02%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 460 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|----------------------|--------|--|-----------------------------|----------------------------------|-------------------------------|
| 0 | | SAND CLAY CALCITE CLAY | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION |
| -50 | | | | TAMIAMI CONFINING ZONE | |
| -100 | | | | LOWER TAMIAMI AQUIFER | |
| -150 | | SAND CALCITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE DOLOMITE CLAY PHOSPHATE DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | MIOCENE COARSE CLASTICS |
| -200 | | | | | |
| -250 | | | | SANDSTONE AQUIFER (CLASTIC ZONE) | UPPER CLASTIC ZONE |
| -300 | | | | | |
| -350 | | | | MID HAWTHORN CONFINING ZONE | LOWER CARBONATE ZONE |
| -400 | | | | MID HAWTHORN AQUIFER | |
| -450 | | | | | |

C2042



GEOPHYSICS, WELL C-2042

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2046 COUNTY - COLLIER
TOTAL DEPTH: 200 FT. LOCATION: T.48S R.28E S.36 C
20 SAMPLES FROM 0 TO 200 FT. LAT = N 26D 15M 18
ELEVATION - 15 FT
COMPLETION DATE - 01/01/84
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: SFWMD C2046-CATHERINE ISLAND

WORKED BY: DESCRIBED BY MIKE KNAPP (5-17-84),SAMPLE QUALITY (6000)

HYDROGEOLOGIC UNITS

0.0- 170.0 SURFICIAL AQUIFER SYSTEM
0.0- 60.0 WATER TABLE AQUIFER
60.0- 90.0 TAMIAMI CONFINING ZONE
90.0- 170.0 LOWER TAMIAMI AQUIFER
170.0- 200.0 UPPER HAWTHORN CONFINING ZONE

0.0- 3.0 090UBSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
3.0- 170.0 122TMM TAMIAMI FM.
170.0- 200.0 122HTRN HAWTHORN GROUP

- 0 - 3 SAND; MODERATE LIGHT GRAY; 42% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: HEAVY MINERALS-01%;
- 3 - 10 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 10 - 15 SHELL BED; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: MOLLUSKS, CORAL;
- 15 - 20 SANDSTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;

- 20 - 36 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%;
FOSSILS: MOLLUSKS;
SHELL INTERMIXED
- 36 - 40 LIMESTONE; LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 40 - 50 SANDSTONE; VERY LIGHT ORANGE TO LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 50 - 60 AS ABOVE
- 60 - 75 SAND; OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-02%, CALCILUTITE-10%, DOLOMITE-20%;
FOSSILS: MOLLUSKS;
- 75 - 90 AS ABOVE WITH SHELL
- 90 - 100 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL;
- 100 - 110 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL;

- 110 - 120 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS, BRYOZOA;
GOOD OCHOPEE
- 120 - 130 AS ABOVE
- 130 - 140 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS, BRYOZOA;
- 140 - 150 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
SAMPLE IS A MIX OF ABOVE LITHO AND 150.
- 150 - 160 AS ABOVE
- 160 - 170 SAND; LIGHT GRAY; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-10%;
OTHER FEATURES: FROSTED;
FOSSILS: MOLLUSKS;
- 170 - 180 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CLAY-05%, DOLOMITE-10%;
FOSSILS: MOLLUSKS;
- 180 - 200 AS ABOVE
- 200 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|-------------------------|--------|---|--------------------------------|--|----------------------|-------------------------------|------------------------------|
| 0 | | SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION | | |
| -25 | | SAND | | | | | TAMIAMI CONFINING ZONE |
| -50 | | CALCITE CALCITE CALCITE SAND SAND SAND SAND SAND SAND SAND | | LOWER TAMIAMI AQUIFER | | | |
| -75 | | SAND SAND | | | | | |
| -100 | | SAND SAND | | | | | |
| -125 | | SAND SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | MIOCENE COARSE CLASTICS | |
| -150 | | CALCITE CALCITE PHOSPHATE PHOSPHATE | | | | | |
| -175 | | | | | | | |
| -200 | | | | | | | |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2054
TOTAL DEPTH: 340 FT.
68 SAMPLES FROM 0 TO 340 FT.
COMPLETION DATE - 01/02/84
OTHER TYPES OF LOGS AVAILABLE - NONE

COUNTY - COLLIER
LOCATION: T.46S R.29E S.31 D
LAT = N 26D 26M 02
LON = W 81D 27M 01
ELEVATION - 25 FT

OWNER/DRILLER: USGS C632

WORKED BY: DESCRIBED BY MIKE KNAPP 2-1-84, SAMPLE QUALITY (GOOD)

HYDROGEOLOGIC UNITS

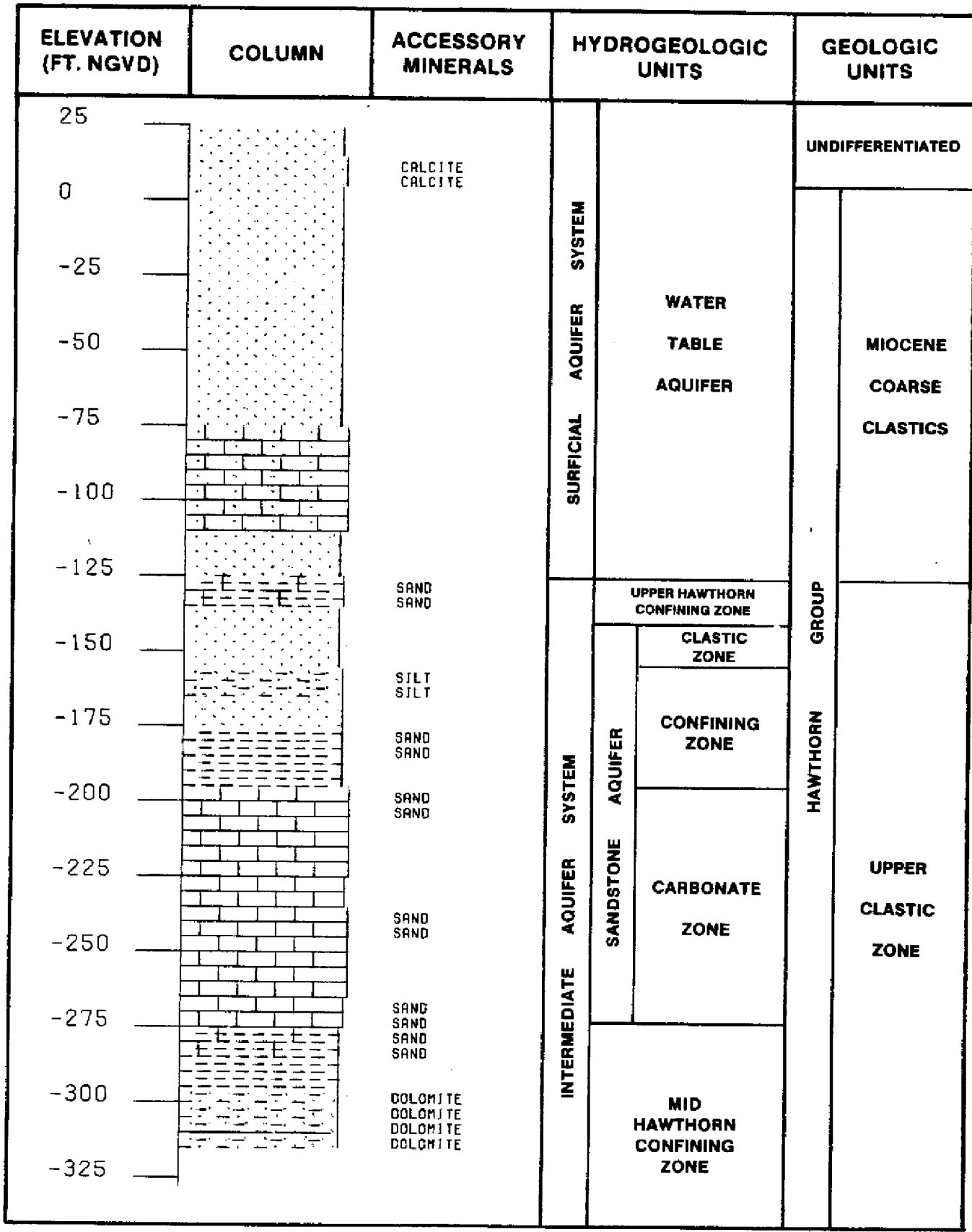
0 150 SURFICIAL AQUIFER SYSTEM
0 150 WATER TABLE AQUIFER
150 160 UPPER HAWTHORN CONFINING ZONE
160 180 CLASTIC ZONE - SANDSTONE AQUIFER
180 220 CONFINING ZONE
220 300 CARBONATE ZONE - SANDSTONE AQUIFER
300 340 MID HAWTHORN CONFINING ZONE

0.0- 20.0 090UDSC UNDIFFERENTIATED SAND AND CLAY
20.0- 340.0 122HTRN HAWTHORN GROUP

- 0 - 10 SAND; GRAYISH ORANGE; 42% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 10 - 20 SAND; VERY LIGHT ORANGE TO LIGHT GREENISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, HEAVY MINERALS-01%;
FOSSILS: MOLLUSKS;
- 20 - 30 SAND; VERY LIGHT ORANGE TO WHITE; 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;
- 30 - 80 SAMPLE ARE ALL SAND SAME AS ABOVE-FROSTED, ROUNDED, MARINE
- 80 - 100 SAND; VERY LIGHT ORANGE; 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
OTHER FEATURES: FROSTED;

- 100 - 135 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: MOLLUSKS;
MUCH SAND IN SAMPLE
- 135 - 140 SAND; WHITE TO VERY LIGHT ORANGE; 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-02%;
FOSSILS: MOLLUSKS;
- 140 - 150 AS ABOVE
- 150 - 160 CLAY; LIGHT GREENISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-25%;
FOSSILS: MOLLUSKS;
- 160 - 180 SAND; VERY LIGHT ORANGE; 42% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 180 - 190 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: SILT-20%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 190 - 200 AS ABOVE
- 200 - 210 CLAY; LIGHT GRAYISH GREEN; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-10%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS;
- 210 - 220 AS ABOVE
- 220 - 230 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS;
- 230 - 245 AS ABOVE -SANDIER (35%)
- 245 - 250 AS ABOVE

- 250 - 260 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-03%;
FOSSILS: MOLLUSKS;
- 260 - 270 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS;
- 270 - 280 AS ABOVE-NO SAND
- 280 - 290 AS ABOVE
- 290 - 300 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 300 - 310 CLAY; LIGHT GREENISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-25%;
FOSSILS: MOLLUSKS;
- 310 - 320 AS ABOVE
- 320 - 340 SAND; LIGHT GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-02%, DOLOMITE-25%;
FOSSILS: MOLLUSKS;
- 340 TOTAL DEPTH



LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2055
TOTAL DEPTH: 00540 FT.
54 SAMPLES FROM 0 TO 540 FT.

COUNTY - COLLIER
LOCATION: T.47S R.29E S.01 A
LAT = N 26D 25M 09
LON = W 81D 22M 37
ELEVATION - 030 FT

COMPLETION DATE - 01/02/84
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS C681

WORKED BY: DESCRIBED BY MIKE KNAPP (2-1-84), SAMPLE QUALITY (FAIR)
HYDROGEOLOGIC UNITS

0.0 50.0 SURFICIAL AQUIFER SYSTEM
0.0 50.0 WATER TABLE AQUIFER
50.0 130.0 UPPER HAWTHORN CONFINING ZONE
130.0 160.0 CLASTIC ZONE - SANDSTONE AQUIFER
160.0 230.0 CARBONATE ZONE - SANDSTONE AQUIFER
230.0 490.0 MID-HAWTHORN CONFINING ZONE
490.0 540.0 MID-HAWTHORN AQUIFER

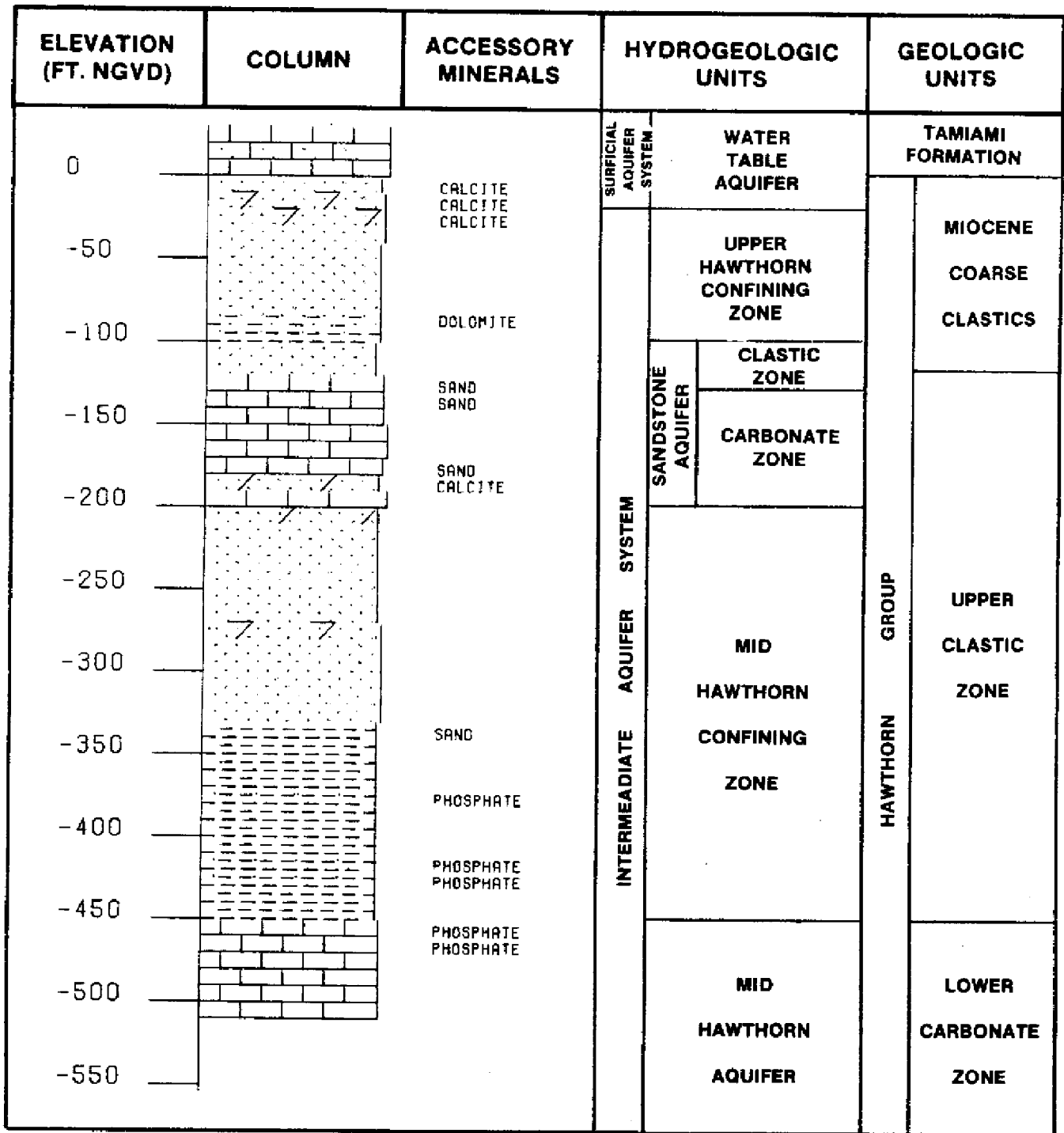
0.0- 30.0 122TMIN TAMiami FM.
30.0- 540.0 122HTRN HAWTHORN GROUP

- 0 - 10 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS;
- 10 - 20 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 20 - 30 AS ABOVE
- 30 - 40 SAND; WHITE TO VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%;
FOSSILS: MOLLUSKS;
- 40 - 50 AS ABOVE-SOME PHOS (02%) AND A FEW CHIPS OF S/S

- 50 - 60 SANDSTONE; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 60 - 70 AS ABOVE
- 70 - 80 AS ABOVE WITH POOR INDURATION
- 80 - 90 SAND; VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%;
- 90 - 100 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
FOSSILS: DIATOMS;
- 100 - 110 AS ABOVE
- 110 - 120 SAND; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-02%, DOLOMITE-15%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS, BRYOZOA;
- 120 - 130 CLAY; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 130 - 140 SAND; WHITE; 40% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, PHOSPHATIC GRAVEL-03%;
FOSSILS: MOLLUSKS;
- 140 - 150 AS ABOVE
- 150 - 160 AS ABOVE WITH POOR INDURATION-DOLOSILT (5%)
- 160 - 170 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 170 - 180 AS ABOVE

- 180 - 190 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 190 - 200 AS ABOVE
- 200 - 210 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 210 - 220 SANDSTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-15%, DOLOMITE-30%;
FOSSILS: MOLLUSKS;
- 220 - 230 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: MOLLUSKS;
- 230 - 240 SANDSTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%;
- 240 - 250 AS ABOVE
- 250 - 260 AS ABOVE
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
- 280 - 290 250 TO 290 COARSE SANDS WITH DOLOSILT MATRIX (15%)
- 290 - 300 AS ABOVE
- 300 - 310 SANDSTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-02%;
- 310 - 320 AS ABOVE

- 320 - 340 AS ABOVE-POORLY INDURATED
- 340 - 350 AS ABOVE-SOME GRANULE SIZE QUARTZ
- 350 - 360 AS ABOVE
- 360 - 370 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 370 - 400 AS ABOVE
- 400 - 410 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 410 - 440 AS ABOVE
- 440 - 460 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS;
- 460 - 480 AS ABOVE
- 480 - 490 AS ABOVE-WITH PHOSPHATE RUBBLE
- 490 - 500 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS;
- 500 - 540 AS ABOVE
- 540 TOTAL DEPTH



C2055

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2056 COUNTY - COLLIER
 TOTAL DEPTH: 183 FT. LOCATION: T.46S R.29E S.10 E
 36 SAMPLES FROM 5 TO 180 FT. LAT = N 26D 29M 25
 COMPLETION DATE - 11/11/83 ELEVATION - 30 FT
 OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: MISSIMER CO-753,SILVER STRAND FARMS-NORTH

WORKED BY: DESCRIBED BY MIKE KNAPP (6-18-84), QUALITY (POOR)

HYDROGEOLOGIC UNITS

0.0 95.0 SURFICIAL AQUIFER SYSTEM
 0.0 95.0 WATER TABLE AQUIFER
 95.0 120.0 UPPER HAWTHORN CONFINING ZONE
 120.0 140.0 CLASTIC ZONE - SANDSTONE AQUIFER
 140.0 165.0 CONFINING ZONE
 165.0 183.0 CARBONATE ZONE - SANDSTONE AQUIFER

0.0- 30.0 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
 30.0- 45.0 122TMI TAMiami FM.
 45.0- 180.0 122HTRN HAWTHORN GROUP

0 - 5 NO SAMPLES

5 - 10 SAND; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
 GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
 ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-03%;

10 - 15 AS ABOVE

15 - 20 SANDSTONE; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
 GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
 ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
 ACCESSORY MINERALS: CALCILUTITE-30%, SPAR-10%;
 FOSSILS: MOLLUSKS;

20 - 25 AS ABOVE

25 - 30 AS ABOVE

30 - 35 LIMESTONE; LIGHT GRAY TO VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
 GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
 GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
 CEMENT TYPE(S): CALCILUTITE MATRIX;
 ACCESSORY MINERALS: QUARTZ SAND-20%;
 FOSSILS: MOLLUSKS;

35 - 40 AS ABOVE

- 40 - 45 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;
- 45 - 50 SAND; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
- 50 - 55 SAND; LIGHT GRAY; 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, LIMESTONE-05%;
FOSSILS: MOLLUSKS;
- 55 - 60 AS ABOVE
- 60 - 65 AS ABOVE
- 65 - 70 AS ABOVE
- 70 - 75 SAND; LIGHT GRAY; 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%;
- 75 - 80 SAND; LIGHT GRAY; 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%;
- 80 - 85 AS ABOVE BECOMING SLIGHTLY CEMENTED WITH MICRITE
- 85 - 90 AS ABOVE
- 90 - 95 AS ABOVE COARSE QUARTZ (05%)
- 95 - 105 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-05%, DOLOMITE-20%;
FOSSILS: MOLLUSKS;
- 105 - 110 AS ABOVE

- 110 - 115 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-05%, DOLOMITE-20%;
FOSSILS: MOLLUSKS;
- 115 - 120 AS ABOVE
- 120 - 125 SANDSTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 125 - 130 AS ABOVE-POORLY INDURATED
- 130 - 135 SANDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 135 - 140 SAND; VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%;
- 140 - 165 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-15%, DOLOMITE-15%, CLAY-02%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 165 - 170 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 170 - 180 AS ABOVE
- 170 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|---|-----------------------------|---------------------------|--|
| 25 | | CALCITE CALCITE DOLOMITE DOLOMITE DOLOMITE PHOSPHATE PHOSPHATE PHOSPHATE CALCITE CALCITE CALCITE CALCITE SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION |
| 0 | | HAWTHORN GROUP | | | UPPER HAWTHORN CONFINING ZONE |
| -25 | | | INTERMEDIATE AQUIFER SYSTEM | SANDSTONE AQUIFER | |
| -50 | | CONFINING ZONE | | | |
| -75 | | CARBONATE ZONE | UPPER CLASTIC ZONE | | |
| -100 | | | | | |
| -125 | | | | | |
| -150 | | | | | |

C2056

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2058 COUNTY - COLLIER
TOTAL DEPTH: 260 FT. LOCATION: T.46S R.28E S.28 B
26 SAMPLES FROM 0 TO 260 FT. LAT = N 26D 26M 40
LON = W 81D 31M 01
COMPLETION DATE - 16/01/79 ELEVATION - 21 FT
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS C578, EDDIE MILLER (DRILLER)

WORKED BY: DESCRIBED BY MIKE KNAPP (6-27-86), SAMPLE QUALITY ()

HYDROGEOLOGICAL UNITS

0.0 100.0 SURFICIAL AQUIFER SYSTEM
0.0 55.0 WATER TABLE AQUIFER
55.0 90.0 TAMIAMI CONFINING ZONE
90.0 100.0 LOWER TAMIAMI AQUIFER
100.0 110.0 UPPER HAWTHORN CONFINING ZONE
110.0 180.0 CLASTIC ZONE - SANDSTONE AQUIFER
180.0 260.0 MID HAWTHORN CONFINING ZONE

0.0- 10.0 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
10.0- 100.0 122TMM TAMIAMI FM.
100.0- 260.0 122HTRM HAWTHORN GROUP

- 0 - 5 SHELL BED; WHITE TO VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-40%;
FOSSILS: MOLLUSKS;
- 5 - 10 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 10 - 20 SANDSTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%;
FOSSILS: MOLLUSKS;
- 20 - 30 SANDSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN; 15% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-30%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 30 - 40 AS ABOVE

- 40 - 55 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS;
- 55 - 65 CLAY; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 65 - 70 AS ABOVE
- 70 - 80 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-10%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 80 - 90 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-10%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 90 - 100 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 100 - 110 SANDSTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, SPAR-10%;
FOSSILS: MOLLUSKS;
- 110 - 140 SANDSTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 140 - 160 SAND; WHITE TO VERY LIGHT ORANGE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 160 - 170 AS ABOVE

- 170 - 180 SAND; WHITE TO LIGHT GRAY; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
WELL INDURATED FRAGS OF S/S IN SAMPLE
- 180 - 200 AS ABOVE
- 200 - 210 SAND; WHITE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CLAY-02%;
FOSSILS: MOLLUSKS;
- 210 - 220 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, QUARTZ SAND-40%;
FOSSILS: MOLLUSKS;
- 220 - 235 SANDSTONE; LIGHT GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-20%;
FOSSILS: MOLLUSKS;
SAMPLE IS A MIXTURE OF SHELL, COARSE SAND AND SS.
- 235 - 240 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, QUARTZ SAND-25%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
COARSE SAND
- 240 - 260 AS ABOVE
- 260 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|--|-----------------------------|---|----------------------|--------------------------|
| 0 | | CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -25 | | SAND SAND SAND SAND SAND | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION | |
| -50 | | SAND SAND SAND SAND | | | | |
| -75 | | | | LOWER TAMIAMI AQUIFER | | |
| -100 | | CALCITE CALCITE CALCITE CALCITE CALCITE CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | |
| -125 | | | | SANDSTONE AQUIFER (CLASTIC ZONE) | | UPPER CLASTIC ZONE |
| -150 | | PHOSPHATE PHOSPHATE | | MID HAWTHORN CONFINING ZONE | | |
| -175 | | PHOSPHATE PHOSPHATE CALCITE CALCITE | | | | |
| -200 | | | | | | |
| -225 | | PHOSPHATE | | | | |
| -250 | | | | | | |

C2058

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2059

TOTAL DEPTH: 410 FT.

40 SAMPLES FROM 0 TO 410 FT.

COUNTY - COLLIER

LOCATION: T.46S R.29E S.07 A

LAT = N 26D 28M 59

LONG = W 81D 27M 30

COMPLETION DATE - 22/10/75

ELEVATION - 42 FT

OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: USGS 531,NORTH OF IMMOKALEE,DRILLER (COASTAL CAISSENS)

WORKED 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 TAMIAHI CONFINING ZONE
35.0 96.0 LOWER TAMIAHI AQUIFER
96.0 190.0 UPPER HAWTHORN CONFINING ZONE
190.0 250.0 CARBONATE ZONE - SANDSTONE AQUIFER
250.0 390.0 MID-HAWTHORN CONFINING ZONE
390.0 410.0 MID-HAWTHORN AQUIFER

0.0- 20.0 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
20.0- 35.0 122TMI TAMIAHI FM.
35.0- 410.0 122HTRN HAWTHORN GROUP

- 0 - 5 SAND; LIGHT GRAY; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 5 - 10 SAND; DARK YELLOWISH ORANGE; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
- 10 - 15 AS ABOVE
- 15 - 20 SAND; DARK GRAYISH YELLOW; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-35%, CALCILUTITE-15%;
DOLOSILT INTERMIXED
- 20 - 25 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 25 - 30 AS ABOVE

- 30 - 35 AS ABOVE
- 35 - 50 SAND; WHITE TO LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%;
FOSSILS: MOLLUSKS;
- 50 - 60 AS ABOVE
- 60 - 65 SAND; VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO GRANULE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-02%;
- 65 - 70 SAND; VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%;
- 70 - 80 SAND; VERY LIGHT GRAY; 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: VERY COARSE; RANGE: COARSE TO GRANULE;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 80 - 96 SAND; VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC SAND-02%;
- 96 - 110 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, CLAY-05%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 110 - 120 AS ABOVE
- 120 - 130 SAND; VERY LIGHT GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-10%, CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 130 - 140 AS ABOVE
- 140 - 150 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, QUARTZ SAND-30%;
FOSSILS: MOLLUSKS;

- 150 - 160 AS ABOVE
- 160 - 170 SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-30%, CALCILUTITE-10%, CLAY-05%;
FOSSILS: MOLLUSKS;
- 170 - 180 AS ABOVE
- 180 - 190 SAND; LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-30%, CALCILUTITE-10%, CLAY-10%;
- 190 - 200 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 200 - 210 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL, WORM TRACES;
- 210 - 220 AS ABOVE
- 220 - 250 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 250 - 260 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-15%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
- 280 - 290 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-10%, QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 290 - 300 AS ABOVE - COARSE SAND (CAVINGS?)

- 300 - 320 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, CLAY-10%, QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 320 - 340 AS ABOVE
- 340 - 350 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-10%, QUARTZ SAND-25%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 350 - 360 SAND; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, CLAY-05%, CALCILUTITE-05%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 360 - 370 AS ABOVE
- 370 - 380 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-10%, QUARTZ SAND-15%;
FOSSILS: MOLLUSKS;
- 380 - 390 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-15%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 390 - 400 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-10%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS;
- 400 - 410 AS ABOVE
- 400 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|----------------------|--|---|---|-------------------------------|--------------------------------|--|
| 25 | | CALCITE SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| 0 | | CALCITE CALCITE CALCITE | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION | |
| -25 | | CALCITE CALCITE | | LOWER TAMIAMI AQUIFER | MIOCENE COARSE CLASTICS | |
| -50 | | CALCITE CALCITE CALCITE DOLomite DOLomite DOLomite | UPPER HAWTHORN CONFINING ZONE | | | |
| -75 | | CALCITE CALCITE | | | | |
| -100 | | CALCITE CALCITE | | | | |
| -125 | | CALCITE CALCITE | SANDSTONE AQUIFER (CARBONATE ZONE) | HAWTHORN GROUP | | |
| -150 | | CALCITE CALCITE SAND SAND | | | | |
| -175 | | SAND SAND | MID-HAWTHORN CONFINING ZONE | | UPPER CLASTIC ZONE | |
| -200 | | | | | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE |
| -225 | | | | | | |
| -250 | | | | | | |
| -275 | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | MID-HAWTHORN AQUIFER | LOWER CARBONATE ZONE | | | |
| -300 | | | | | | |
| -325 | | | | | | |
| -350 | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE | | | | | |
| -375 | | | | | | |

C2059

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2061
TOTAL DEPTH: 498 FT.
50 SAMPLES FROM 0 TO 498 FT.

COUNTY - COLLIER
LOCATION: T.48S R.29E S.23 A
LAT = N 26D 17M 40
LON = W 81D 23M 54

COMPLETION DATE - 20/11/80
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 18 FT

OWNER/DRILLER: USGS C684, NIXON (DRILLER)

WORKED BY: DESCRIBED BY MIKE KNAPP (6-27-84), QUALITY (GOOD)

HYDROGEOLOGIC UNITS

0.0 160.0 SURFICIAL AQUIFER SYSTEM
0.0 30.0 WATER TABLE AQUIFER
30.0 50.0 TAMIAH CONFINING ZONE
50.0 160.0 LOWER TAMIAH AQUIFER
160.0 190.0 UPPER HAWTHORN CONFINING ZONE
190.0 220.0 CLASTIC ZONE - SANDSTONE AQUIFER
220.0 320.0 CARBONATE ZONE - SANDSTONE AQUIFER
320.0 400.0 MID-HAWTHORN CONFINING ZONE
400.0 498.0 MID-HAWTHORN AQUIFER

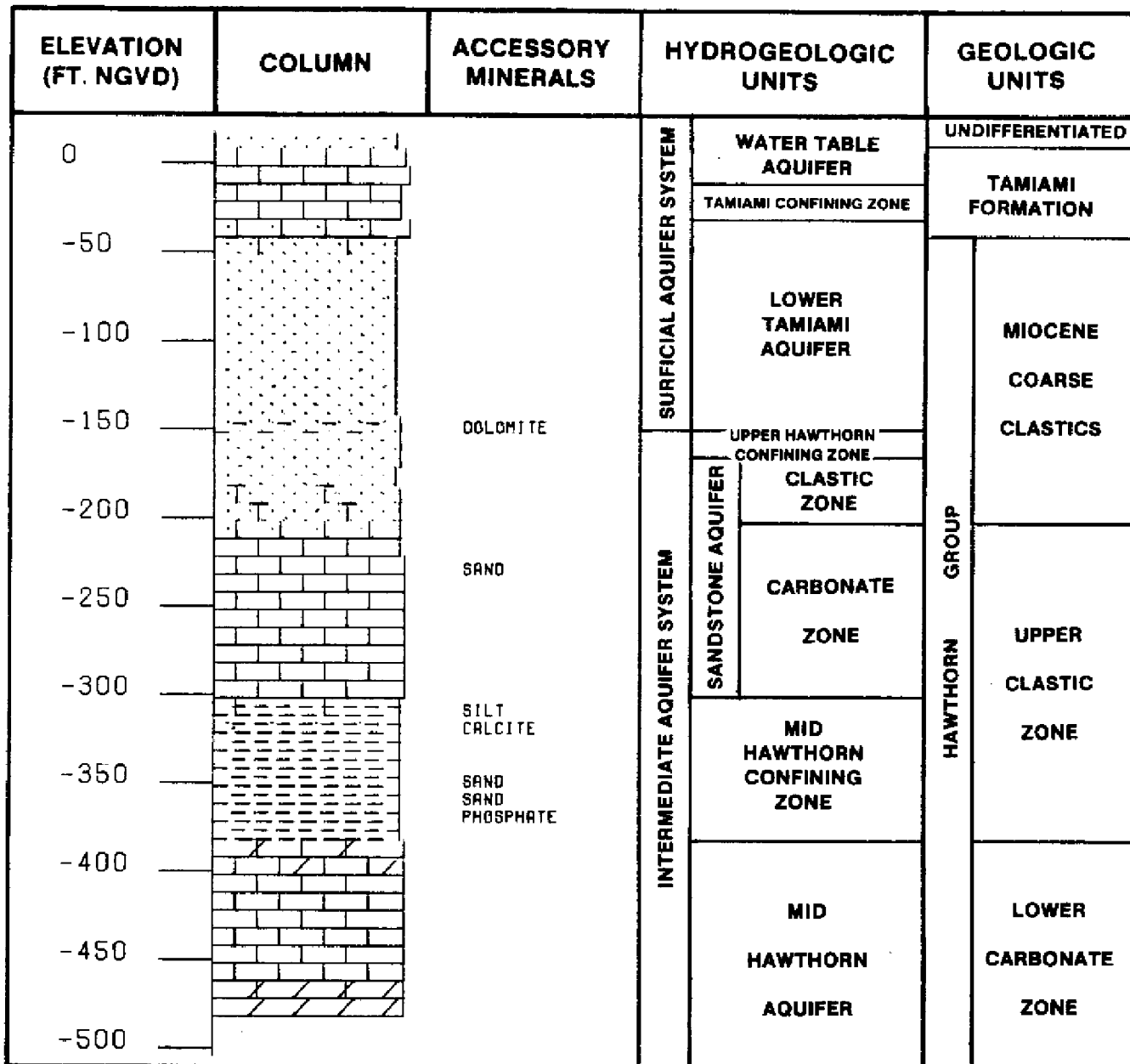
0.0- 10.0 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
10.0- 60.0 122TMIH TAMIAH FN.
60.0- 498.0 122HTRN HAWTHORN GROUP

- 0 - 10 SAND; VERY LIGHT ORANGE TO WHITE; 32% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 10 - 15 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 15 - 20 AS ABOVE
- 20 - 30 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, ECHINOID, PLANT REMAINS, FOSSIL MOLDS;

- 30 - 40 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
FOSSILS: MOLLUSKS, ECHINOID, BRYOZOA, FOSSIL MOLDS;
- 40 - 50 AS ABOVE
- 50 - 60 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 60 - 70 SAND; WHITE TO LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: LIMESTONE-20%;
FOSSILS: MOLLUSKS;
- 70 - 100 AS ABOVE
- 100 - 120 SAND; LIGHT GRAY; 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
- 120 - 140 AS ABOVE
- 140 - 160 SAND; LIGHT GRAY; 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%;
OTHER FEATURES: FROSTED;
- 160 - 170 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, CALCILUTITE-02%, CLAY-05%, DOLOMITE-25%;
OTHER FEATURES: FROSTED;
- 170 - 180 AS ABOVE
- 180 - 190 AS ABOVE
- 190 - 200 SAND; LIGHT GRAY; 35% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE;
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, PHOSPHATIC SAND-02%;
OTHER FEATURES: FROSTED;

- 200 - 220 SANDSTONE; VERY LIGHT ORANGE TO LIGHT GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%;
- 220 - 230 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%;
- 230 - 240 AS ABOVE
- 240 - 250 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 250 - 260 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID;
- 260 - 270 AS ABOVE
- 270 - 280 AS ABOVE
- 280 - 300 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
COARSE QUARTZ IN SAMPLE (40%)
- 300 - 320 AS ABOVE
- 320 - 330 CLAY; VERY LIGHT ORANGE TO YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-25%, SILT-10%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 330 - 340 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-40%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 340 - 360 AS ABOVE

- 360 - 380 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-10%, QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 380 - 390 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-10%, PHOSPHATIC SAND-15%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 390 - 400 AS ABOVE
- 400 - 420 LIMESTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLomite CEMENT;
ACCESSORY MINERALS: DOLomite-25%, PHOSPHATIC SAND-05%, QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BRYOZOA;
- 420 - 440 AS ABOVE
- 440 - 460 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%, QUARTZ SAND-02%;
FOSSILS: MOLLUSKS;
- 460 - 480 AS ABOVE
- 480 - 490 DOLomite; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR; 50-90% ALTERED;
Euhedral;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-08%, QUARTZ SAND-04%;
FOSSILS: MOLLUSKS;
- 490 - 498 AS ABOVE
- 498 TOTAL DEPTH



C2061

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2062
TOTAL DEPTH: 460 FT.
46 SAMPLES FROM 0 TO 460 FT.

COUNTY - COLLIER
LOCATION: T.48S R.28E S.17 C
LAT = N 26D 17M 36
LON = W 81D 32M 45

COMPLETION DATE - 20/11/80
OTHER TYPES OF LOGS AVAILABLE - NONE

ELEVATION - 16 FT

OWNER/DRILLER: USGS C683, MIXSON (DRILLER)

WORKED BY: 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 TAMIAMI CONFINING ZONE
65.0 150.0 LOWER TAMIAMI AQUIFER
150.0 360.0 MID-HAWTHORN CONFINING ZONE
360.0 460.0 MID-HAWTHORN AQUIFER

0.0- 17.0 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
17.0- 70.0 122TMIM TAMIAMI FM.
70.0- 460.0 122HTRM HAWTHORN GROUP

- 0 - 10 SAND; LIGHT BROWN; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
- 10 - 17 AS ABOVE
- 17 - 20 LIMESTONE; GRAYISH BROWN; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 20 - 55 AS ABOVE
- 55 - 65 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 65 - 70 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL;

- 70 - 80 SANDSTONE; WHITE TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, DOLOMITE-25%;
FOSSILS: MOLLUSKS;
- 80 - 90 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BRYOZOA;
- 90 - 100 SANDSTONE; WHITE TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-10%;
FOSSILS: MOLLUSKS;
- 100 - 120 AS ABOVE
- 120 - 135 SANDSTONE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 135 - 140 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
FOSSILS: MOLLUSKS, PLANT REMAINS, FOSSIL MOLDS;
- 140 - 150 AS ABOVE
- 150 - 160 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%;
- 160 - 177 AS ABOVE
- 177 - 187 SAND; WHITE TO VERY LIGHT ORANGE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-03%;
FOSSILS: MOLLUSKS;
- 187 - 200 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-10%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;

- 200 - 220 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-10%, QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS;
- 220 - 240 AS ABOVE
- 240 - 250 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, PHOSPHATIC GRAVEL-02%, QUARTZ SAND-04%,
CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 250 - 260 AS ABOVE
- 260 - 270 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%, QUARTZ SAND-10%, CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 270 - 280 AS ABOVE
- 280 - 300 AS ABOVE
- 300 - 320 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 320 - 340 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS;
- 340 - 360 AS ABOVE
- 360 - 380 DOLOMITE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 380 - 385 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 385 - 400 AS ABOVE

- 400 - 420 DOLOMITE; YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-05%, QUARTZ SAND-15%;
FOSSILS: MOLLUSKS;
- 420 - 440 AS ABOVE
- 440 - 460 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 460 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|----------------------------|-------------------------------------|--|--|-----------------------------------|
| 0 | | | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | |
| -50 | | CALCITE SAND CALCITE | | TAMIAMI CONFINING ZONE | TAMIAMI FORMATION | |
| -100 | | DOLOMITE | | LOWER TAMIAMI AQUIFER | MIOCENE COARSE CLASTICS | |
| -150 | | CALCITE DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN AQUIFER | UPPER CLASTIC ZONE |
| -200 | | CALCITE | | | | |
| -250 | | SAND SAND SAND | | | | |
| -300 | | PHOSPHATE SAND | | MID HAWTHORN AQUIFER | LOWER CARBONATE ZONE | |
| -350 | | CALCITE | | | | |
| -400 | | SAND SAND | | | | |
| -450 | | SAND SAND | | | | |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2064 COUNTY - COLLIER
 TOTAL DEPTH: 00245 FT. LOCATION: T.46S R.30E S.18 A
 22 SAMPLES FROM 0 TO 245 FT. LAT = N 26D 28M 55
 COMPLETION DATE - 28/03/86 ELEVATION - 030 FT
 OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: BIG CYPRESS BASIN BOARD WELL NO. C-2064(COLLIER COUNTY)
 OWNER/DRILLER: DRILLED BY DANNY BRAWLEY

WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY GOOD

HYDROGEOLOGIC UNITS

0 100 SURFICIAL AQUIFER SYSTEM
 0 40 WATER TABLE AQUIFER
 40 60 TAMIAMI CONFINING ZONE
 60 100 LOWER TAMIAMI AQUIFER
 100 160 UPPER HAWTHORN CONFINING ZONE
 160 210 CLASTIC ZONE - SANDSTONE AQUIFER
 210 245 MID HAWTHORN CONFINING ZONE

0. - 60. 090UDSS UNDIFFERENTIATED SAND, CLAY, AND SHELLS
 60. - 100. 122TMM TAMIAMI FM.
 100. - 245. 122HTRN HAWTHORN GROUP

- 0 - 10 SHELL BED; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED; ACCESSORY MINERALS: CALCILUTITE-10%, CLAY-05%; FOSSILS: BRYOZOA;
- 10 - 30 SHELL BED; VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR, POSSIBLY HIGH PERMEABILITY; UNCONSOLIDATED; ACCESSORY MINERALS: QUARTZ SAND-07%, PHOSPHATIC SAND-01%; FOSSILS: BRYOZOA; SHELL FRAGMENTS ALTERED TO CALCITE
- 30 - 40 SHELL BED; VERY LIGHT ORANGE; 25% POROSITY, INTERGRANULAR; UNCONSOLIDATED; ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-02%, CLAY-01%; SHELL FRAGMENTS ALTERED TO CALCITE
- 40 - 50 CALCILUTITE; YELLOWISH GRAY; 02% POROSITY, INTERGRANULAR, LOW PERMEABILITY; GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS; GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION; CEMENT TYPE(S): CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCITE-10%, PHOSPHATIC SAND-05%; FOSSILS: BRYOZOA;
- 50 - 60 SILT; GRAYISH OLIVE TO YELLOWISH GRAY; 03% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION; ACCESSORY MINERALS: CALCITE-10%, CALCILUTITE-10%, PHOSPHATIC SAND-07%; FOSSILS: SPICULES;

- 60 - 70 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY; 08% POROSITY, MOLDIC, PIN POINT VUGS;
50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT-05%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 70 - 80 AS ABOVE
- 80 - 90 AS ABOVE
- 90 - 100 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%;
FOSSILS: BRYOZOA;
SHELL FRAGMENTS INCREASE WITH DEPTH, SOME COARSE FROSTED GRAINS
- 100 - 110 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, SILT-03%, CALCILUTITE-01%;
LARGER GRAINS FROSTED AND WELL ROUNDED
- 110 - 120 SAND; YELLOWISH GRAY TO OLIVE GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: LIMESTONE-30%, PHOSPHATIC SAND-02%;
HIGH BROKEN SHELL CONTENT, SOME COARSE FROSTED GRAINS
- 120 - 130 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, SILT-03%, CALCILUTITE-01%;
LARGER GRAINS FROSTED AND WELL ROUNDED, SHELLS
- 130 - 140 SAND; LIGHT OLIVE GRAY TO MODERATE GRAYISH GREEN; 05% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE;
ROUNDNESS: ROUNDED; HIGH SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-01%;
SOME COARSE FROSTED GRAINS
- 140 - 160 AS ABOVE
- 160 - 180 GRAVEL; YELLOWISH GRAY TO MODERATE GRAY; 25% POROSITY, INTERGRANULAR,
POSSIBLY HIGH PERMEABILITY;
GRAIN SIZE: GRANULE; RANGE: FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC GRAVEL-02%, LIMONITE-01%;
OTHER FEATURES: FROSTED;

180 - 190 AS ABOVE

190 - 200 AS ABOVE

200 - 210 AS ABOVE
SAND CONTENT INCREASES WITH DEPTH FROM 160 TO 210

210 - 220 CALCILUTITE; YELLOWISH GRAY; 04% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO GRANULE; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-01%;
30% OF SAMPLE CONSISTS OF COARSE FROSTED ROUNDED GRAINS

220 - 230 GRAVEL; GRAYISH YELLOW TO LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: GRANULE; RANGE: FINE TO GRAVEL;
ROUNDNESS: ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: QUARTZ SAND-05%, CALCILUTITE-05%, PHOSPHATIC SAND-02%,
PHOSPHATIC GRAVEL-02%;
OTHER FEATURES: FROSTED;

230 - 245 AS ABOVE
WITH 30% SAND

245 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | | |
|-------------------------|--------|--|--------------------------|--|--------------------------------------|---|-------------------|-----------------------------------|
| 25 | | CALCITE CALCITE SAND SAND SAND SAND CALCITE CALCITE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE SILT SILT | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED | | | |
| 0 | | | | TAMIAMI CONFINING ZONE | | | | |
| -25 | | | | LOWER TAMIAMI AQUIFER | | | | |
| -50 | | | | PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE PHOSPHATE SAND SAND SAND SAND SAND SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | MIOCENE COARSE CLASTICS |
| -75 | | | | | | SANDSTONE AQUIFER (CLASTIC ZONE) | | |
| -100 | | | | | MID HAWTHORN CONFINING ZONE | | | |
| -125 | | | | | | | | |
| -150 | | | | | | | | |
| -175 | | | | | | | | |
| -200 | | | | | | | | |
| -225 | | | | | | | | |

C2064

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2066 COUNTY - COLLIER
TOTAL DEPTH: 00130 FT. LOCATION: T.47S R.30E S.01 B
13 SAMPLES FROM 0 TO 130 FT. LAT = N 26D 25M 10
ELEVATION - 027 FT
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: SFWMD WELL C-2066(COLLIER COUNTY), DRILLED BY G. COOKE & D. BRAWLEY


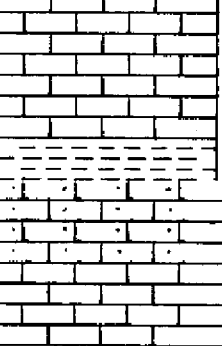
WORKED BY: SMITH AND ADAMS, SAMPLE QUALITY FAIR
HYDROGEOLOGIC UNITS

0 130 SURFICIAL AQUIFER SYSTEM
0 80 WATER TABLE AQUIFER
80 90 TAMiami CONFINING ZONE
90 130 LOWER TAMiami AQUIFER

0. - 20. 090UDSC UNDIFFERENTIATED SAND AND CLAY
20. - 130. 122TMI TAMiami FM.

- 0 - 10 SAND; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; HIGH SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 10 - 20 SAND; LIGHT OLIVE; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM;
ROUNDNESS: ANGULAR TO SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL FRAGMENTS;
- 20 - 30 LIMESTONE; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-30%, CALCITE-25%;
FOSSILS: BRYOZOA, FOSSIL FRAGMENTS;
- 30 - 40 LIMESTONE; LIGHT OLIVE TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-30%, CALCILUTITE-25%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 40 - 50 AS ABOVE
- 50 - 60 AS ABOVE

- 60 - 70 LIMESTONE; LIGHT OLIVE TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-30%, CALCILUTITE-25%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 70 - 80 LIMESTONE; LIGHT OLIVE TO MODERATE DARK GRAY; 25% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE; 90% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCITE-10%, CALCILUTITE-25%, PHOSPHATIC SAND-05%;
OTHER FEATURES: POOR SAMPLE;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 80 - 90 CLAY; OLIVE GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
ACCESSORY MINERALS: QUARTZ SAND-15%, SILT-10%, LIMESTONE-05%, PHOSPHATIC SAND-04%;
- 90 - 100 LIMESTONE; MODERATE LIGHT GRAY TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-40%, CALCILUTITE-20%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS, BRYOZOA;
- 100 - 110 LIMESTONE; MODERATE LIGHT GRAY TO YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-15%, SILT-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 110 - 120 LIMESTONE; MODERATE LIGHT GRAY TO YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: INTRACLASTS, BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-15%, SILT-05%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
VERY POOR SAMPLE
- 120 - 130 AS ABOVE
- 130 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---|--|--------------------------|---------------------------|--|
| 25 |  | CALCITE CALCITE SAND SAND SAND SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| 0 | | | | | SILT SILT CALCITE CALCITE SILT SILT |
| -25 |  | LOWER TAMIAMI AQUIFER | | | |
| -50 | | | | | |
| -75 | | | | | |
| -100 | | | | | |
| -125 | | | | | |

C2066

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 1 COUNTY - LEE
TOTAL DEPTH: 1340 FT. LOCATION: T.45S R.27E S.33 C
90 SAMPLES FROM 0 TO 1340 FT. LAT = N 26D 30M 53
LON = W 81D 36M 37
COMPLETION DATE - 27/03/81 ELEVATION - 30 FT
OTHER TYPES OF LOGS AVAILABLE - GEOLOGIST, GAMMA, ELECTRIC, GAMMA, NEUTRON

OWNER/DRILLER: USGS WELL L2063 - ALLEN BAUM

WORKED BY: WORKED BY MIKE KNAPP, JAN. 1981, SAMPLE QUAL FAIR.

HYDROGEOLOGIC UNITS

0.0- 125.0 SURFICIAL AQUIFER SYSTEM
0.0- 125.0 WATER TABLE AQUIFER
125.0- 170.0 UPPER HAWTHORN CONFINING ZONE
170.0- 330.0 CARBONATE ZONE - SANDSTONE AQUIFER
330.0- 395.0 MID-HAWTHORN CONFINING ZONE
395.0- 475.0 MID-HAWTHORN AQUIFER
480.0- 815.0 LOWER HAWTHORN / TAMPA PRODUCING ZONE
815.0- 1220.0 SUWANNEE AQUIFER

0.0- 45.0 090UDSC UNDIFFERENTIATED SAND AND CLAY
45.0- 125.0 122TRM TAMiami FM.
125.0- 480.0 122HTRM HAWTHORN GROUP
480.0- 815.0 122TAMP TAMPA MEMBER OF ARCADIA FM.
815.0- 1220.0 123SMNN SUWANNEE LIMESTONE
1220.0- 1340.0 124CLRV CRYSTAL RIVER FM.

- 0 - 5 SAND; WHITE TO VERY LIGHT GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 5 - 10 AS ABOVE
- 10 - 17 SHELL BED; VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-01%, CALCILUTITE-10%, QUARTZ SAND-35%;
FOSSILS: MOLLUSKS;
- 17 - 28 SHELL BED; WHITE; 20% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CLAY-01%, CALCILUTITE-10%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 28 - 39 SANDSTONE; VERY LIGHT ORANGE TO WHITE; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%;
FOSSILS: MOLLUSKS;

- 39 - 45 AS ABOVE
- 45 - 50 LIMESTONE; VERY LIGHT ORANGE; 16% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 50 - 85 AS ABOVE
- 85 - 103 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-08%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 103 - 125 AS ABOVE
- 125 - 140 DOLO-SILT; GREENISH GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-03%, PHOSPHATIC SAND-02%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;
- 140 - 170 AS ABOVE
- 170 - 180 LIMESTONE; GREENISH GRAY TO VERY LIGHT ORANGE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-06%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 180 - 190 AS ABOVE
- 190 - 200 SANDSTONE; VERY LIGHT ORANGE TO GREENISH GRAY; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-15%, DOLOMITE-15%;
FOSSILS: MOLLUSKS, CORAL;
- 200 - 255 AS ABOVE
- 255 - 265 DOLOMITE; GREENISH GRAY; 12% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 265 - 275 AS ABOVE

- 275 - 285 SANDSTONE; GREENISH GRAY TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-01%, DOLOMITE-30%;
FOSSILS: MOLLUSKS;
- 285 - 330 AS ABOVE
- 330 - 340 SAND; GREENISH GRAY; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 340 - 350 AS ABOVE
- 350 - 375 SAND; GREENISH GRAY TO DARK GRAYISH YELLOW; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-02%, PHOSPHATIC GRAVEL-01%, PHOSPHATIC SAND-03%, DOLOMITE-15%;
FOSSILS: MOLLUSKS;
- 375 - 395 DOLOMITE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR,
MOLDIC; 50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, PHOSPHATIC SAND-01%, QUARTZ SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
SAMPLE IS A MIXTURE OF SAND (50%) AND DOLOMITE
- 395 - 435 AS ABOVE
- 435 - 445 LIMESTONE; VERY LIGHT ORANGE TO GREENISH GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, PHOSPHATIC SAND-01%, QUARTZ SAND-03%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 445 - 475 AS ABOVE
- 475 - 480 DOLO-SILT; GREENISH GRAY TO DARK GRAYISH YELLOW; 12% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-01%, CALCILUTITE-25%, QUARTZ SAND-20%, PHOSPHATIC SAND-06%;
FOSSILS: SHARKS TEETH, MOLLUSKS;
- 480 - 500 AS ABOVE

- 500 - 510 DOLOMITE; VERY LIGHT ORANGE TO WHITE; 12% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, PHOSPHATIC SAND-04%, QUARTZ SAND-03%;
FOSSILS: MOLLUSKS, ECHINOID;
- 510 - 525 AS ABOVE
- 525 - 540 LIMESTONE; VERY LIGHT ORANGE TO GREENISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, PHOSPHATIC SAND-02%, QUARTZ SAND-02%;
FOSSILS: MOLLUSKS;
- 540 - 560 DOLO-SILT; GREENISH GRAY TO DARK GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-04%, PHOSPHATIC SAND-04%, PHOSPHATIC GRAVEL-01%;
FOSSILS: SHARKS TEETH;
- 560 - 570 LIMESTONE; WHITE TO GREENISH GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, PHOSPHATIC SAND-03%, QUARTZ SAND-01%;
FOSSILS: MOLLUSKS, BRYOZOA;
- 570 - 590 AS ABOVE
- 590 - 600 DOLOMITE; WHITE TO GREENISH GRAY; 12% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, PHOSPHATIC SAND-02%, QUARTZ SAND-01%;
FOSSILS: MOLLUSKS, CORAL;
- 600 - 645 AS ABOVE
- 645 - 665 DOLOMITE; VERY LIGHT ORANGE TO GREENISH GRAY; 14% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-11%;
OTHER FEATURES: SUCROSIC;
FOSSILS: MOLLUSKS;
- 665 - 680 AS ABOVE

- 680 - 695 LIMESTONE; WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-04%;
FOSSILS: MOLLUSKS, ECHINOID;
- 695 - 704 AS ABOVE
- 704 - 740 LIMESTONE; WHITE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, QUARTZ SAND-04%;
FOSSILS: MOLLUSKS, ECHINOID, CORAL, BENTHIC FORAMINIFERA;
SORITIES
- 740 - 760 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, ECHINOID, CORAL, BENTHIC FORAMINIFERA;
- 760 - 800 AS ABOVE
- 800 - 810 SAND; WHITE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%;
FOSSILS: BENTHIC FORAMINIFERA;
- 810 - 815 DOLO-SILT; GREENISH GRAY TO DARK GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-05%, PHOSPHATIC GRAVEL-01%;
FOSSILS: BENTHIC FORAMINIFERA, SHARKS TEETH;
- 815 - 820 SAMPLE IS A MIXTURE OF GREEN DOLO/CLAY AND LIMESTONE
- 820 - 830 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-02%;
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, MOLLUSKS, CORAL, BRYOZOA;
MILLICOLIDS
- 830 - 880 AS ABOVE

- 880 - 890 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, BRYOZOA, CORAL;
- 890 - 910 AS ABOVE WITH SOME PHOS.
- 910 - 920 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-06%, PHOSPHATIC SAND-01%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID;
- 920 - 960 AS ABOVE
- 960 - 1000 NO SAMPLES
- 1000 - 1022 SAND; WHITE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-03%;
FOSSILS: BENTHIC FORAMINIFERA;
- 1022 - 1060 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA;
- 1060 - 1060 SAND; WHITE; 35% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%;
SAMPLE IS A MIXTURE OF SAND AND LIMESTONE (CAVINGS?)
- 1060 - 1080 AS ABOVE
- 1080 - 1100 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-04%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA, ECHINOID;
- 1100 - 1142 AS ABOVE WITH SOME GREEN DOLO/CLAY AND GRAVEL SIZE PHOS.
- 1142 - 1200 AS ABOVE

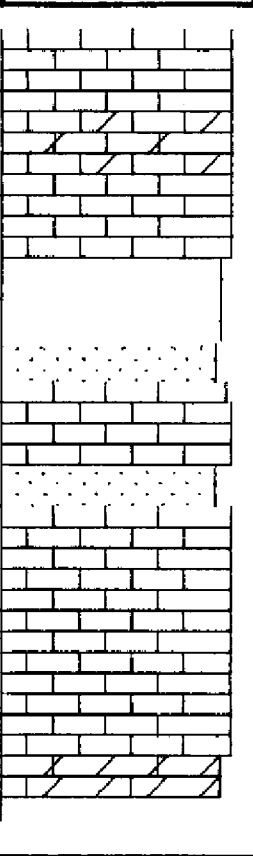
1200 - 1220 DOLO-SILT; GREENISH GRAY TO DARK GRAYISH YELLOW; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-30%, PHOSPHATIC SAND-10%, PHOSPHATIC GRAVEL-01%;
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA;

1220 - 1340 AS ABOVE W/ MANY OCALA FORAMS (OPERCULINOIDES MOODYSBR.)

1340 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|---------------------|---------------------------------------|--------------------------------|--|----------------------|
| 0 | | CALCITE CALCITE CALCITE SAND | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| -50 | | | | | TAMIAMI FORMATION |
| -100 | | CALCITE SAND | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP |
| -150 | | CALCITE | | SANDSTONE AQUIFER (CARBONATE ZONE) | |
| -200 | | SAND SAND CALCITE CALCITE | | | |
| -250 | | DOLomite DOLomite CALCITE | | MID HAWTHORN CONFINING ZONE | |
| -300 | | CALCITE | | MID HAWTHORN AQUIFER | |
| -350 | | DOLomite DOLomite | | | |
| -400 | | SAND | | LOWER HAWTHORN CONFINING ZONE | |
| -450 | | DOLomite CLAY CLAY | | | |
| -500 | | CALCITE | | | |
| -550 | | DOLomite | | | |
| -600 | | CALCITE | FLORIDAN AQUIFER SYSTEM | LOWER HAWTHORN/ TAMPA PRODUCING ZONE | TAMPA LIMESTONE |
| -650 | | DOLomite | | | |
| -700 | | CALCITE DOLomite | | | |
| -750 | | CALCITE DOLomite | SUWANNEE AQUIFER | SUWANNEE LIMESTONE | |
| -800 | CALCITE DOLomite | | | | |

L 01

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|---|--|--|-------------------------------|---------------------------------|--|
| -850 -900 -950 -1000 -1050 -1100 -1150 -1200 |  | CALCITE CALCITE PHOSPHATE PHOSPHATE | FLORIDAN SYSTEM AQUIFER | SUWANNEE SUWANNEE AQUIFER | SUWANNEE LIMESTONE CRYSTAL RIVER FORMATION |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 2 COUNTY - LEE
TOTAL DEPTH: 435 FT. LOCATION: T.43S R.27E S.28 A
SAMPLES - NONE LAT = N 26D 42M 12
ELEVATION - 19 FT
COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - ELECTRIC, GAMMA

OWNER/DRILLER: USGS L&28 (MOBIL)

WORKED BY: MIKE KNAPP, 12-16-80, SAMP. QUAL-GOOD.

HYDROGEOLOGIC UNITS

00.0- 30.0 SURFICIAL AQUIFER SYSTEM
00.0- 30.0 WATER TABLE AQUIFER
30.0- 65.0 UPPER HAWTHORN CONFINING ZONE
65.0- 175.0 CARBONATE ZONE - SANDSTONE AQUIFER
175.0- 240.0 MID-HAWTHORN CONFINING ZONE
240.0- 270.0 MID-HAWTHORN AQUIFER

0.0- 30.0 122TMM TAMiami FM.
30.0- 435.0 122HTRN HAWTHORN GROUP

- 0 - 10 LIMESTONE; WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-03%;
- 10 - 20 AS ABOVE
- 20 - 30 LIMESTONE; MODERATE ORANGE PINK TO VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, PHOSPHATIC SAND-01%, QUARTZ SAND-03%;
- 30 - 45 DOLO-SILT; LIGHT OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-10%, PHOSPHATIC SAND-03%, QUARTZ SAND-03%;
- 45 - 65 AS ABOVE WITH SOME COARSE PHOS(2%)
- 65 - 75 SANDSTONE; LIGHT OLIVE TO WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-15%, CALCILUTITE-20%, CLAY-10%;
- 75 - 90 AS ABOVE

- 90 - 105 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-35%, QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 105 - 120 AS ABOVE
- 120 - 135 AS ABOVE
- 135 - 150 LIMESTONE; WHITE; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CRYSTALS, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-35%, PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 150 - 175 AS ABOVE
- 175 - 180 LIMESTONE; WHITE TO YELLOWISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN TYPE: CRYSTALS, CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-04%, QUARTZ SAND-06%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 180 - 195 SAND; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-10%, CALCILUTITE-10%, DOLOMITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 195 - 220 DOLO-SILT; LIGHT OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-10%, PHOSPHATIC SAND-03%, QUARTZ SAND-20%;
FOSSILS: MOLLUSKS;
- 220 - 225 AS ABOVE WITH INCREASE IN PHOS(10%)(RUBBLE ZONE)
- 225 - 240 RUBBLE ZONE
- 240 - 255 LIMESTONE; WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CRYSTALS, CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-35%, PHOSPHATIC SAND-06%;

- 255 - 270 DOLOMITE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR; 50-90% ALTERED; Euhedral;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, PHOSPHATIC SAND-06%, QUARTZ SAND-03%;
- 270 - 285 AS ABOVE WITH FRAGS OF GREEN CLAY
- 285 - 330 SAMPLES AT 300,315, AND 330 SAME AS 270.
- 330 - 345 DOLO-SILT; LIGHT OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-10%, PHOSPHATIC SAND-08%, QUARTZ SAND-04%;
FOSSILS: MOLLUSKS;
- 345 - 360 AS ABOVE
- 360 - 375 AS ABOVE
- 375 - 390 LIMESTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CRYSTALS, CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, PHOSPHATIC SAND-03%, QUARTZ SAND-01%;
FOSSILS: MOLLUSKS;
- 390 - 405 DOLOMITE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 11% POROSITY, INTERGRANULAR, MOLDIC; 50-90% ALTERED; Euhedral;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%;
OTHER FEATURES: SUCROGIC;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 405 - 420 AS ABOVE
- 420 - 435 DOLOMITE; VERY LIGHT ORANGE TO LIGHT GRAY; 09% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, LOW PERMEABILITY; 50-90% ALTERED; Euhedral;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-01%;
- 435 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | GEOLOGIC UNITS | | |
|----------------------|--------|--|--|----------------|----------------------|--|
| 0 | | CLAY DOLOMITE CALCITE CALCITE SAND DOLOMITE DOLOMITE CLAY CALCITE SAND SAND SAND CALCITE CLAY CLAY CLAY CLAY CLAY CLAY CLAY CALCITE DOLOMITE CALCITE CALCITE CALCITE | WATER TABLE AQUIFER TAMIAHI FORMATION | HAWTHORN GROUP | | |
| -50 | | | SURFICIAL AQUIFER SYSTEM UPPER HAWTHORN CONFINING ZONE | | | |
| -100 | | | SANDSTONE AQUIFER (CARBONATE ZONE) | | | |
| -150 | | | INTERMEDIATE AQUIFER SYSTEM MID HAWTHORN CONFINING ZONE | | | |
| -200 | | | | | MID HAWTHORN AQUIFER | |
| -250 | | | | | | |
| -300 | | | | | | |
| -350 | | | | | | |
| -400 | | | | | | |
| -450 | | | | | | |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 9 COUNTY - LEE
TOTAL DEPTH: 540 FT. LOCATION: T.44S R.27E S.09 D
SAMPLES - NONE LAT = N 26D 39M 27
ELEVATION - 23 FT
COMPLETION DATE - 15/11/80
OTHER TYPES OF LOGS AVAILABLE - GAMMA, ELECTRIC

OWNER/DRILLER: USGS 625, MOBIL OIL

WORKED BY: WORKED BY MIKE KNAPP, NOV.1980, SAMPLE QUAL.GOOD

HYDROGEOLOGIC UNITS

00.0- 30.0 SURFICIAL AQUIFER SYSTEM
00.0- 30.0 WATER TABLE AQUIFER
30.0- 45.0 UPPER HAWTHORN CONFINING ZONE
45.0- 135.0 CARBONATE ZONE - SANDSTONE AQUIFER
135.0- 150.0 NO SAMPLES
150.0- 240.0 MID-HAWTHORN CONFINING ZONE
240.0- 270.0 MID-HAWTHORN AQUIFER
520.0- 540.0 LOWER HAWTHORN / TAMPA PRODUCING ZONE

0.0- 10.0 090UDSC UNDIFFERENTIATED SAND AND CLAY
10.0- 30.0 122TMIM TAMiami FM.
30.0- 520.0 122HTRN HAWTHORN GROUP
520.0- 540.0 122TAMP TAMPA MEMBER OF ARCADIA FM.

- 0 - 10 DOLOMITE; GRAYISH ORANGE PINK TO GRAYISH ORANGE; 11% POROSITY, INTERGRANULAR; 50-90% ALTERED; Euhedral;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, CLAY-02%, QUARTZ SAND-02%;
FOSSILS: MOLLUSKS;
- 10 - 20 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK; 11% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-35%, CLAY-02%, QUARTZ SAND-02%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 20 - 30 AS ABOVE
- 30 - 45 CLAY; LIGHT OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-10%, DOLOMITE-10%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS;

- 45 - 60 DOLOMITE; GRAYISH ORANGE; 12% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 60 - 60 SANDSTONE; WHITE TO MODERATE LIGHT GRAY; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-10%, SPAR-10%, DOLOMITE-10%;
FOSSILS: FOSSIL MOLDS;
- 60 - 75 AS ABOVE
- 75 - 90 SAND; WHITE TO LIGHT OLIVE GRAY; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-02%, DOLOMITE-10%;
FOSSILS: MOLLUSKS;
- 90 - 105 DOLOMITE; GRAYISH ORANGE; 13% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-20%, PHOSPHATIC SAND-04%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 105 - 115 AS ABOVE WITH DECREASE IN SAND (2%)
- 115 - 135 DOLOMITE; GREENISH GRAY; 11% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-04%, QUARTZ SAND-03%;
OTHER FEATURES: SUCROSIC;
- 135 - 150 NO SAMPLES
- 150 - 165 CLAY; WHITE TO LIGHT GRAY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE-12%, QUARTZ SAND-10%;
- 165 - 180 NO SAMPLES
- 180 - 195 SANDSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE; 11% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-05%, DOLOMITE-15%, CALCILUTITE-15%, PHOSPHATIC SAND-01%;

- 195 - 210 SANDSTONE; LIGHT OLIVE TO GRAYISH OLIVE; 09% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CLAY-10%, DOLOMITE-15%, CALCILUTITE-35%, PHOSPHATIC SAND-07%;
FOSSILS: MOLLUSKS;
SOME VERY COARSE PHOSPHATE (2%)
- 210 - 225 AS ABOVE RUBBLE ZONE
- 225 - 240 AS ABOVE
- 240 - 255 LIMESTONE; WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-05%;
- 255 - 270 AS ABOVE
- 270 - 285 DOLOMITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EIHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-10%, PHOSPHATIC SAND-03%, QUARTZ SAND-01%;
FOSSILS: MOLLUSKS;
- 285 - 300 NO SAMPLES
- 300 - 315 LIMESTONE; YELLOWISH GRAY TO WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 315 - 330 NO SAMPLES
- 330 - 345 AS 315
- 345 - 360 NO SAMPLES
- 360 - 375 LIMESTONE; YELLOWISH GRAY TO WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC GRAVEL-03%, PHOSPHATIC SAND-03%, DOLOMITE-29%;
FOSSILS: MOLLUSKS;
- 375 - 390 CLAY; YELLOWISH GRAY; 06% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-01%, PHOSPHATIC SAND-01%;

- 390 - 390 DOLOMITE; GRAYISH BROWN; 08% POROSITY, INTERGRANULAR, INTERCRYSTALLINE,
LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-11%, PHOSPHATIC SAND-04%, PHOSPHATIC GRAVEL-02%,
QUARTZ SAND-02%;
- 390 - 405 DOLOMITE; YELLOWISH GRAY; 11% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, BRYOZOA;
- 405 - 420 AS ABOVE
- 420 - 435 DOLOMITE; GRAYISH BROWN; 08% POROSITY, INTERGRANULAR, INTERCRYSTALLINE,
LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-11%;
- 435 - 450 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 11% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS; 02% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-12%, PHOSPHATIC SAND-01%, QUARTZ SAND-01%;
FOSSILS: MOLLUSKS;
- 450 - 465 NO SAMPLES
- 465 - 480 AS 450 WITH MORE SAND(6%) AND PHOS. (6%)
- 480 - 510 AS ABOVE
- 510 - 520 NO SAMPLES
- 520 - 540 LIMESTONE; VERY LIGHT ORANGE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, SPAR-05%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID, BRYOZOA;
- 540 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | GEOLOGIC UNITS | | | | |
|-------------------------|--------|---|--------------------------------|---|-------------------|-------------------------------|--|--------------------|
| 0 | | CLAY DOLOMITE | SURFICIAL AQUIFER SYSTEM | UNDIFFERENTIATED | | | | |
| | | SAND CALCITE | | TAMIAMI FORMATION | | | | |
| -50 | | DOLOMITE DOLOMITE SAND SAND CLAY CLAY CALCITE | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN AQUIFER | HAWTHORN GROUP | | | |
| -100 | | SAND CALCITE | | SANDSTONE AQUIFER (CARBONATE ZONE) | | | | |
| -150 | | CALCITE DOLOMITE DOLOMITE | | MID HAWTHORN CONFINING ZONE | | | | |
| -200 | | DOLOMITE | | MID HAWTHORN AQUIFER | | | | |
| -250 | | CLAY CALCITE | | LOWER HAWTHORN CONFINING ZONE | | | | |
| -300 | | DOLOMITE | | | | | | |
| -350 | | | | | | | | |
| -400 | | CALCITE CALCITE DOLOMITE | | | | | | |
| -450 | | | | | | | | |
| -500 | | | | | | FLORIDAN AQUIFER SYSTEM | LOWER HAWTHORN/ TAMPA PRODUCING ZONE | TAMPA LIMESTONE |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 22 COUNTY - LEE
TOTAL DEPTH: 01200 FT. LOCATION: T.43S R.27E S.10 D
240 SAMPLES FROM 0 TO 1200 FT. LAT = N 26D 44M 33
LON = W 81D 36M 06

COMPLETION DATE - 17/11/81 ELEVATION - 019 FT
OTHER TYPES OF LOGS AVAILABLE - GAMMA, NEUTRON, ELECTRIC, TEMPERATURE

OWNER/DRILLER: GREEN'S GROVE EXPLORATION WELL (REVERSE AIR - ALVIN MOOSTER, DRILLER)

WORKED BY: MIKE KNAPP, GOOD

HYDROGEOLOGIC UNITS

0 20 SURFICIAL AQUIFER SYSTEM
0 20 WATER TABLE AQUIFER
20 90 UPPER HANTHORN CONFINING ZONE
90 150 CLASTIC ZONE - SANDSTONE AQUIFER(POSS. UNNAMED WHITE LS AQ)
150 188 CARBONATE ZONE - SANDSTONE AQUIFER(POSS. UNNAMED WHITE LS AQ)
188 340 MID HANTHORN CONFINING ZONE
340 400 MID HANTHORN AQUIFER
400 620 LOWER HANTHORN CONFINING ZONE
620 920 LOWER HANTHORN/TAMPA PRODUCING ZONE
920 1200 SUWANNEE AQUIFER

0. - 4. 090UDSC UNDIFFERENTIATED SAND AND CLAY
4. - 20. 122TMIN TAMiami FM.
20. - 620. 122HTRN HANTHORN GROUP
620. - 915. 122TAMP TAMPA MEMBER OF ARCADIA FM.
920. - 1200. 123SWNN SUWANNEE LIMESTONE

0 - 4 NO SAMPLES

4 - 10 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE;
MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-12%;
FOSSILS: CORAL, MOLLUSKS, ECHINOID;

10 - 20 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR, PIN POINT VUGS,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-04%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;

20 - 30 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-10%, QUARTZ SAND-07%, PHOSPHATIC SAND-01%;
FOSSILS: CORAL, MOLLUSKS;
SAMPLE IS A MIXTURE OF 75% DOLOSILT & 25% LIMESTONE

- 30 - 40 DOLO-SILT; OLIVE GRAY TO GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-20%, PHOSPHATIC SAND-01%, QUARTZ SAND-05%;
- 40 - 50 AS ABOVE
- 50 - 60 DOLO-SILT; OLIVE GRAY TO GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-25%, QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
- 60 - 70 DOLO-SILT; OLIVE GRAY TO GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-25%, CALCILUTITE-20%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%;
FOSSILS: PLANKTONIC FORAMINIFERA, MOLLUSKS;
- 70 - 80 AS ABOVE
- 80 - 90 AS ABOVE
- 90 - 100 SAND; WHITE TO OLIVE GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-10%, CLAY-05%, PHOSPHATIC SAND-05%;
- 100 - 110 SAND; WHITE TO OLIVE GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, CALCILUTITE-05%, CLAY-02%, PHOSPHATIC SAND-02%;
- 110 - 120 SAND; WHITE TO OLIVE GRAY; 19% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-05%, CALCILUTITE-01%, CLAY-01%, PHOSPHATIC SAND-01%;
- 120 - 130 AS ABOVE
- 130 - 140 AS ABOVE
- 140 - 150 SANDSTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-04%;

- 150 - 160 LIMESTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY; 11% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, ECHINOID, CORAL;
- 160 - 170 DOLOMITE; GRAYISH ORANGE; 13% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 170 - 180 LIMESTONE; GRAYISH ORANGE TO VERY LIGHT GRAY; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
- 180 - 188 LIMESTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY; 10% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-40%, QUARTZ SAND-04%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID;
- 188 - 190 DOLO-SILT; LIGHT GREENISH GRAY; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-15%, CLAY-03%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 190 - 200 AS ABOVE
- 200 - 210 AS ABOVE
- 210 - 220 DOLO-SILT; LIGHT OLIVE GRAY TO LIGHT GREENISH GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-04%, CLAY-04%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 220 - 230 DOLO-SILT; GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-29%, QUARTZ SAND-15%, CLAY-05%, SILT-05%;
FOSSILS: MOLLUSKS;
- 230 - 240 AS ABOVE
WITH MORE PHOSPHORITE (3%)
- 240 - 250 AS ABOVE

- 250 - 260 DOLO-SILT; LIGHT GREENISH GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%, SILT-10%, CLAY-03%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
SMALL AMOUNT OF LIMESTONE FRAGMENTS IN SAMPLE
- 260 - 270 DOLO-SILT; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-12%, QUARTZ SAND-04%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 270 - 280 AS ABOVE
- 280 - 290 DOLO-SILT; DARK GREENISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-10%, QUARTZ SAND-04%, PHOSPHATIC SAND-14%;
FOSSILS: MOLLUSKS;
- 290 - 300 AS ABOVE
- 300 - 310 SAND; GRAYISH YELLOW TO YELLOWISH GRAY; 14% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-15%, PHOSPHATIC SAND-20%;
FOSSILS: MOLLUSKS;
- 310 - 320 DOLO-SILT; LIGHT OLIVE TO GRAYISH OLIVE; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-10%, CLAY-03%, PHOSPHATIC SAND-20%;
FOSSILS: MOLLUSKS;
INDURATED LIMESTONE FRAGMENTS IN SAMPLE
- 320 - 330 LIMESTONE; LIGHT GREENISH GRAY TO YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-10%, CLAY-02%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS;
- 330 - 340 LIMESTONE; YELLOWISH GRAY TO YELLOWISH GRAY; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 12% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-03%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, CORAL, ECHINOID;
- 340 - 350 AS ABOVE

- 350 - 360 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-03%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, CORAL, ECHINOID, CRUSTACEA;
- 360 - 370 AS ABOVE
- 370 - 380 AS ABOVE
- 380 - 390 LIMESTONE; WHITE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: PHOSPHATIC SAND-04%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS;
- 390 - 400 AS ABOVE
- 400 - 410 AS ABOVE
WITH 1% DOLOSILT
- 410 - 420 DOLOMITE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, QUARTZ SAND-08%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS;
- 420 - 430 AS ABOVE
- 430 - 440 DOLOMITE; YELLOWISH GRAY TO YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-05%, PHOSPHATIC SAND-07%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 440 - 450 DOLO-SILT; YELLOWISH GRAY TO LIGHT OLIVE GRAY; 10% POROSITY, INTERGRANULAR,
LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, CLAY-03%, QUARTZ SAND-02%, PHOSPHATIC SAND-15%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 450 - 460 AS ABOVE
- 460 - 470 DOLOMITE; YELLOWISH GRAY; 12% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-02%, CLAY-01%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS, ECHINOID;

- 470 - 480 AS ABOVE
- 480 - 490 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-01%, PHOSPHATIC SAND-01%;
- 490 - 500 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%;
FOSSILS: MOLLUSKS, ECHINOID, BRYOZOA;
- 500 - 510 DOLOMITE; GRAYISH ORANGE; 12% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-03%;
OTHER FEATURES: SUCROSIC;
FOSSILS: BRYOZOA, MOLLUSKS;
- 510 - 520 AS ABOVE
- 520 - 530 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-01%;
- 530 - 540 AS ABOVE
- 540 - 550 DOLOMITE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 11% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-35%, QUARTZ SAND-01%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 550 - 560 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-10%;
- 560 - 570 AS ABOVE
- 570 - 580 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-10%, PHOSPHATIC SAND-06%;
FOSSILS: MOLLUSKS;

- 580 - 590 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-01%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 590 - 600 AS ABOVE
- 600 - 610 AS ABOVE
- 610 - 620 AS ABOVE
WITH 2% PHOSPHATIC DOLOSILT
- 620 - 630 AS ABOVE
- 630 - 640 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, QUARTZ SAND-01%, PHOSPHATIC SAND-01%;
- 640 - 650 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 650 - 660 AS ABOVE
- 660 - 670 AS ABOVE
- 670 - 680 AS ABOVE
- 680 - 690 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND-10%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 690 - 700 AS ABOVE
- 700 - 710 AS ABOVE
- 710 - 720 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA, ECHINOID, CRUSTACEA;
SORITES

- 720 - 730 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 14% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA;
- 730 - 735 AS ABOVE
- 735 - 740 AS ABOVE
WITH LESS PHOSPHATE (5%)
- 740 - 760 AS ABOVE
- 760 - 770 DOLOMITE; VERY LIGHT ORANGE; 11% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-02%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 770 - 780 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 11% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-04%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA, CORAL, CRUSTACEA;
SORITES
- 780 - 790 AS ABOVE
- 790 - 795 AS ABOVE
- 795 - 800 DOLOMITE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-40%, QUARTZ SAND-04%, PHOSPHATIC SAND-04%;
FOSSILS: FOSSIL MOLDS;
- 800 - 805 SANDSTONE; WHITE TO LIGHT GRAY; 15% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%, DOLOMITE-20%, PHOSPHATIC SAND-10%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
SORITES
- 805 - 817 DOLOMITE; GRAYISH BROWN; 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE,
MOLDIC; 50-90% ALTERED; EUHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-30%, CALCILUTITE-05%, PHOSPHATIC SAND-08%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;

- 817 - 820 AS ABOVE
- 820 - 825 AS ABOVE
- 825 - 830 DOLOMITE; GRAYISH BROWN; 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-20%, CALCILUTITE-05%, PHOSPHATIC SAND-04%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;
- 830 - 835 DOLOMITE; GRAYISH BROWN TO VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-05%, PHOSPHATIC SAND-02%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;
- 835 - 838 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, PELLET, SKELETAL; 50% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: COARSE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-01%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, CORAL, BRYOZOA;
- 838 - 840 AS ABOVE
- 840 - 850 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 60% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: COARSE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-04%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, CORAL, BRYOZOA;
ABUNDANT SORITES
- 850 - 860 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-08%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID;
- 860 - 865 DOLOMITE; LIGHT GRAY TO MODERATE LIGHT GRAY; 12% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-20%, QUARTZ SAND-20%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
- 865 - 875 AS ABOVE
- 875 - 880 AS ABOVE

- 880 - 890 AS ABOVE
- 890 - 900 DOLOMITE; VERY LIGHT ORANGE TO LIGHT GRAY; 16% POROSITY, INTERGRANULAR, MOLDIC; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-40%, QUARTZ SAND-10%, PHOSPHATIC SAND-15%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
- 900 - 910 AS ABOVE
- 910 - 915 DOLOMITE; DARK GRAY; 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, MOLDIC;
50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, QUARTZ SAND-05%, PHOSPHATIC SAND-10%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;
- 915 - 920 DOLOMITE; GRAYISH BROWN; 10% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-15%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 920 - 930 AS ABOVE
- 930 - 935 AS ABOVE
- 935 - 940 DOLOMITE; GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-10%;
FOSSILS: MOLLUSKS;
- 940 - 945 AS ABOVE
- 945 - 950 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%, DOLOMITE-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID;
- 950 - 955 AS ABOVE
- 955 - 960 AS ABOVE

- 960 - 970 LIMESTONE; WHITE; 11% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: MOLLUSKS;
- 970 - 980 AS ABOVE
- 980 - 987 SAND; WHITE TO VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%;
- 987 - 1000 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN; 12% POROSITY, INTERGRANULAR,
INTERCRYSTALLINE, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-03%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 1000 - 1010 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-04%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, BRYOZOA, ECHINOID;
- 1010 - 1020 AS ABOVE
- 1020 - 1025 SAND; WHITE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-01%;
- 1025 - 1030 AS ABOVE
- 1030 - 1035 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%, DOLOMITE-15%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 1035 - 1040 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%, DOLOMITE-20%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID;
ROTALLIA SP.

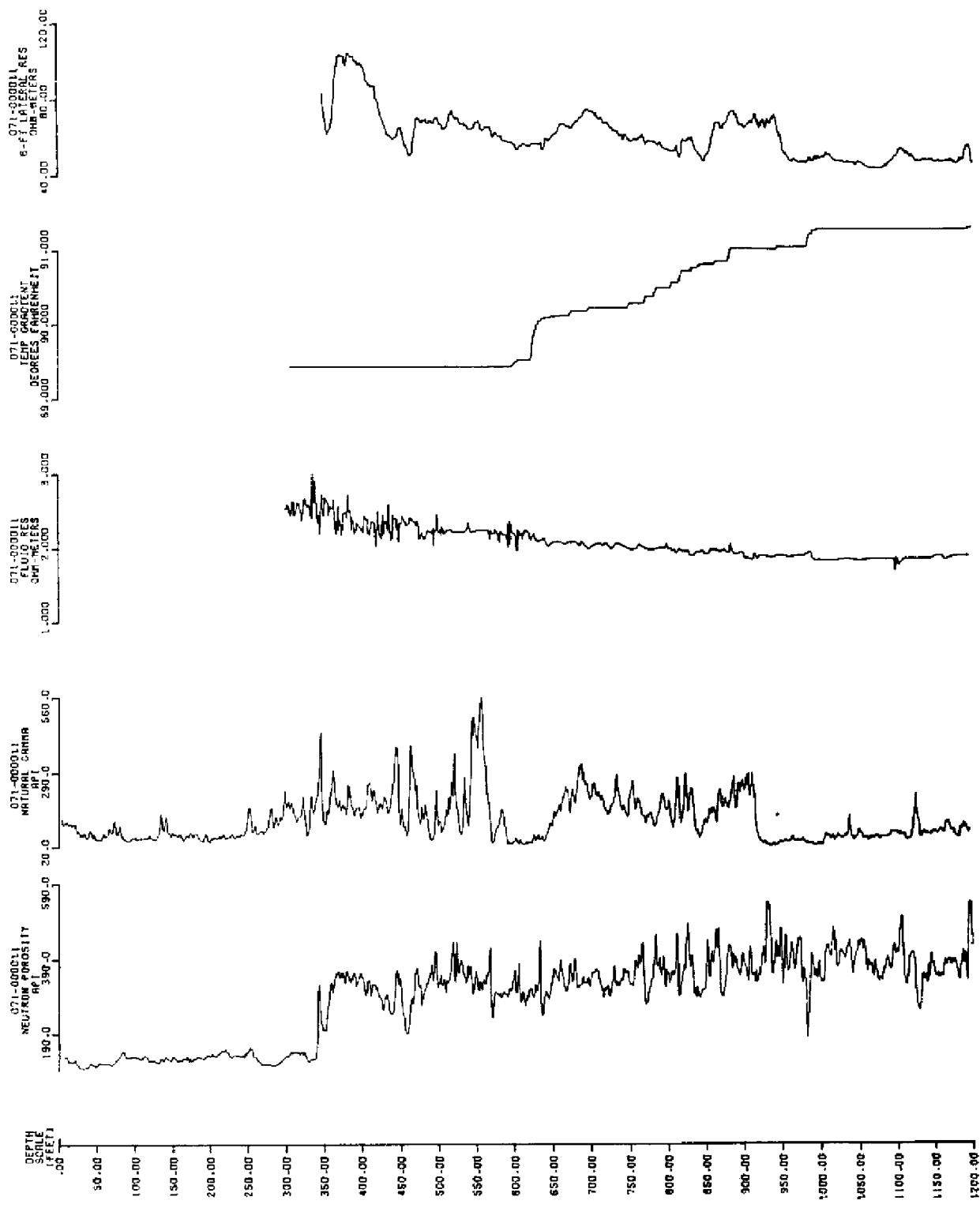
- 1040 - 1045 AS ABOVE
WITH MUCH LOOSE SAND IN SAMPLE
- 1045 - 1050 AS ABOVE
- 1050 - 1055 AS ABOVE
- 1055 - 1060 SANDSTONE; VERY LIGHT ORANGE TO WHITE; 16% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-20%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS;
- 1060 - 1065 AS ABOVE
- 1065 - 1070 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-30%, DOLOMITE-25%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 1070 - 1075 AS ABOVE
- 1075 - 1080 AS ABOVE
WITH CAVINGS FROM ABOVE
- 1080 - 1085 SAND; WHITE TO VERY LIGHT ORANGE; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%;
COULD BE CAVINGS FROM 1025
- 1085 - 1090 AS ABOVE
- 1090 - 1095 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID;
- 1095 - 1100 AS ABOVE
- 1100 - 1105 AS ABOVE
- 1105 - 1110 SANDSTONE; VERY LIGHT ORANGE TO WHITE; 14% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-15%;
FOSSILS: MOLLUSKS;

- 1110 - 1115 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%, DOLOMITE-20%;
FOSSILS: MOLLUSKS, CORAL, BENTHIC FORAMINIFERA;
- 1115 - 1120 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC; 55% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-03%;
FOSSILS: DIATOMS, MOLLUSKS, BRYOZOA, ECHINOID;
- 1120 - 1130 CALCARENITE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 70% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, BRYOZOA, CORAL;
- 1130 - 1135 AS ABOVE
GOOD SUMANNEE LITHOLOGY
- 1135 - 1140 LIMESTONE; VERY LIGHT ORANGE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 65% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, ECHINOID, BENTHIC FORAMINIFERA, MILIOLIDS, BRYOZOA;
- 1140 - 1150 AS ABOVE
- 1150 - 1155 CALCARENITE; VERY LIGHT ORANGE; 16% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%;
FOSSILS: MOLLUSKS, ECHINOID, BENTHIC FORAMINIFERA, MILIOLIDS, BRYOZOA;
- 1155 - 1160 AS ABOVE
- 1160 - 1170 AS ABOVE
- 1170 - 1175 AS ABOVE
- 1175 - 1180 CALCARENITE; VERY LIGHT ORANGE; 17% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 75% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, BRYOZOA, MILIOLIDS;

- 1180 - 1185 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 18% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 80% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, CRUSTACEA, BRYOZOA, MILIOLIDS;
APPEARS REWORKED AND RECRYSTALLIZED
- 1185 - 1190 AS ABOVE
- 1190 - 1195 AS ABOVE
- 1195 - 1200 DOLOMITE; GRAYISH ORANGE; 10% POROSITY, INTERGRANULAR, INTERCRYSTALLINE, LOW PERMEABILITY;
50-90% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%;
OTHER FEATURES: HIGH RECRYSTALLIZATION;
FOSSILS: FOSSIL MOLDS;
- 1200 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | | |
|-------------------------|--------|-----------------------|--------------------------------|--|----------------------------------|----------------------------|--------------------------|
| | | | S.A.S. | WATER TABLE AQUIFER | TAMIAMI FORMATION | | |
| 0 | | CLAY | INTERMEDIATE AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION | | |
| -100 | | GOLCHITE | | SANDSTONE AQUIFER | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -200 | | | | | CLASTIC ZONE | | |
| -300 | | | | | CARBONATE ZONE | | |
| -400 | | | | MID HAWTHORN CONFINING ZONE | MID HAWTHORN AQUIFER | LOWER CARBONATE ZONE | |
| -500 | | | | LOWER HAWTHORN CONFINING ZONE | | | |
| -600 | | | | LOWER HAWTHORN/ TAMPA PRODUCING ZONE | TAMPA LIMESTONE | | |
| -700 | | | | | | SWANNEE LIMESTONE | |
| -800 | | | | | | | |
| -900 | | | | | | | |
| -1000 | | | | | | | |
| -1100 | | | | | | | |
| -1200 | | | | | | | |

*This unit may be the same as the white limestone aquifer discussed in text.



GEOPHYSICS, WELL L-22

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 25
TOTAL DEPTH: N/A FT.
37 SAMPLES FROM 0 TO 1100 FT.

COUNTY - LEE
LOCATION: T.44S R.27E S.29
LAT = N 26D 37M 18
LON = W 81D 38M 20
ELEVATION - 025 FT

COMPLETION DATE - N/A
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER: EXXON CON TOM 29-3

WORKED BY: MIKE KNAPP 11/19/81, FAIR
HYDRGEOLOGIC UNITS

- 0 30 SURFICIAL AQUIFER SYSTEM
- 0 30 WATER TABLE AQUIFER
- 30 60 UPPER HAWTHORN CONFINING ZONE
- 60 210 CARBONATE ZONE - SANDSTONE AQUIFER (QUESTIONABLE THICKNESS DUE TO SAMPLE INTERVAL)
- 210 240 MID-HAWTHORN CONFINING ZONE
- 240 290 MID-HAWTHORN AQUIFER
- 290 560 LOWER HAWTHORN CONFINING ZONE
- 560 680 LOWER HAWTHORN/TAMPA PRODUCING ZONE
- 680 1030 SUWANNEE AQUIFER
- 1030 1100 DEEPER AQUIFER

- 0. - 30. 122TMI TANAMI FM.
- 30. - 560. 122HTRN HAWTHORN GROUP
- 560. - 680. 122TAMP TAMPA MEMBER OF ARCADIA FM.
- 680. - 1030. 123SWNN SUWANNEE LIMESTONE
- 1030. - 1100. 124CLRV CRYSTAL RIVER FM.

- 0 - 30 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC; GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL; 25% ALLOCHEMICAL CONSTITUENTS; GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION; CEMENT TYPE(S): CALCILUTITE MATRIX; ACCESSORY MINERALS: QUARTZ SAND-10%; FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 30 - 60 DOLO-SILT; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%; FOSSILS: MOLLUSKS; LIMESTONE INTERMIXED
- 60 - 90 DOLOMITE; VERY LIGHT ORANGE TO GRAYISH BROWN; 13% POROSITY, INTERGRANULAR, MOLDIC; 50-90% ALTERED; EUHEDRAL; GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%; FOSSILS: MOLLUSKS, FOSSIL MOLDS;

- 90 - 120 SANDSTONE; DARK RED PURPLE TO LIGHT GRAY; 13% POROSITY, INTERGRANULAR;
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-25%;
FOSSILS: MOLLUSKS;
- 120 - 150 DOLOMITE; VERY LIGHT ORANGE TO GRAYISH BROWN; 18% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, ECHINOID, FOSSIL MOLDS;
APPEARS REWORKED AND RECRYSTALLIZED
- 150 - 180 AS ABOVE
- 180 - 210 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-10%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
OCALA FOSSILS IN SAMPLE, DOLOSILT PRESENT
- 210 - 240 DOLO-SILT; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%, PHOSPHATIC SAND-05%,
PHOSPHATIC GRAVEL-04%;
FOSSILS: MOLLUSKS;
- 240 - 260 LIMESTONE; VERY LIGHT ORANGE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL; 30% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-10%, PHOSPHATIC SAND-01%;
FOSSILS: CORAL, MOLLUSKS, FOSSIL MOLDS;
- 260 - 290 AS ABOVE
VERY COARSE PHOSPHATIC SAND IN SAMPLE (CAVINGS?)
- 290 - 320 DOLO-SILT; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-25%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS;
- 320 - 350 AS ABOVE
- 350 - 380 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-35%, QUARTZ SAND-05%, PHOSPHATIC SAND-05%;

- 380 - 410 DOLOMITE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 12% POROSITY, INTERGRANULAR;
50-90% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-05%, CLAY-04%, PHOSPHATIC SAND-10%;
- 410 - 440 AS ABOVE
- 440 - 470 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 12% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 10% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-40%, QUARTZ SAND-05%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 470 - 500 AS ABOVE
WITH SOME HIGHLY RECRYSTALLIZED DOLOMITE
- 500 - 530 LIMESTONE; VERY LIGHT ORANGE; 13% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 20% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-15%, QUARTZ SAND-10%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
SORITES
- 530 - 560 AS ABOVE
- 560 - 590 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 15% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-15%, DOLOMITE-10%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, MILIOLIDS;
- 590 - 620 AS ABOVE
- 620 - 660 LIMESTONE; WHITE; 14% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-15%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA;
- 660 - 680 AS ABOVE
- 680 - 710 LIMESTONE; WHITE TO VERY LIGHT ORANGE; 16% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 55% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, BRYOZOA, FOSSIL MOLDS;
- 710 - 740 AS ABOVE

- 740 - 770 AS ABOVE
- 770 - 800 LIMESTONE; VERY LIGHT ORANGE; 16% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-01%;
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, ECHINOID, BRYOZOA, CORAL;
- 800 - 820 AS ABOVE
WITH MORE SAND (8%)
- 820 - 850 AS ABOVE
- 850 - 880 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS, ECHINOID, BRYOZOA;
- 880 - 910 AS ABOVE
- 910 - 940 AS ABOVE
WITH MORE SAND(8%)
- 940 - 970 LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, DIATOMS;
- 970 - 1000 AS ABOVE
- 1000 - 1030 LIMESTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC; 05% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CHERT-01%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
- 1030 - 1060 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 11% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 25% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID, BRYOZOA, CORAL;
LEPIDOCYCLINA OCALANA, HETERESTEGINA SP., OPERCS
- 1060 - 1100 AS ABOVE
- 1100 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS | |
|-------------------------|--------|--|--------------------------------|---|-------------------------------|--------------------------|
| | | | S.A.S. | | | |
| 0 | | DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | WATER TABLE AQUIFER | TAMIAMI FORMATION | |
| -100 | | | | UPPER HAWTHORN CONFINING ZONE | HAWTHORN GROUP | UPPER CLASTIC ZONE |
| -200 | | | | SANDSTONE AQUIFER (CARBONATE ZONE) | | |
| -300 | | | | MID HAWTHORN CONFINING ZONE | | |
| -400 | | | | MID-HAWTHORN AQUIFER | | |
| -500 | | LOWER HAWTHORN CONFINING ZONE | LOWER CARBONATE ZONE | | | |
| -600 | | FLORIDAN AQUIFER SYSTEM | | LOWER HAWTHORN/ TAMPA PRODUCING ZONE | TAMPA LIMESTONE | |
| -700 | | | | SUWANNEE AQUIFER | SUWANNEE LIMESTONE | |
| -800 | | | | | | |
| -900 | | | | | | |
| -1000 | | | | DEEPER AQUIFER | CRYSTAL RIVER FORMATION | |
| -1100 | | | | | | |

LITHOLOGIC WELL LOG PRINTOUT

WELL NUMBER: W- 27 COUNTY - LEE
TOTAL DEPTH: 382 FT. LOCATION: T.46S R.27E S. 8 B
20 SAMPLES FROM 0 TO 382 FT. LAT/LON - NO ENTRY
COMPLETION DATE - 08/03/82 ELEVATION - 28 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, GAMMA, ELECTRIC

OWNER/DRILLER: CORKSCREW #1,CORE,JUSTIN HODGES DRILLER,BUREAU OF GEOLOGY

WORKED BY: DESCRIBED AND CODED BY MIKE KNAPP (4-82),SAMPLE QUALITY (EXCELLENT),
X-RAY DIFFRACTOGRAM ANALYSIS CONDUCTED BY UNIVERSITY OF SOUTH FLORIDA.

HYDROGEOLOGIC UNITS

0.0 99.0 SURFICIAL AQUIFER SYSTEM
0.0- 15.0 WATER TABLE AQUIFER
15.0- 20.0 TAMIAHI CONFINING ZONE
20.0- 99.0 LOWER TAMIAHI AQUIFER
99.0- 138.0 UPPER HAWTHORN CONFINING ZONE
138.0-232.0 CARBONATE ZONE - SANDSTONE AQUIFER
232.0-246.0 NO SAMPLES
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% - DOLD.22%
82 FT.- %CO2 - 43.0, IF AS CaCO3 = 98.0%
CALCITE/DOLomite RATIO 1.4:1, CALC. 55.0% - DOLD. 42.0%
110 FT.- %CO2 - 18.8%, 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 CLINOPTILOMITE 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.

0.0- 35.0 090UDSC UNDIFFERENTIATED SAND AND CLAY
35.0- 99.0 122TMIH TAMIAHI FN.
99.0- 382.0 122HTRN HAWTHORN GROUP

- 0 - 1 SAND; MODERATE BROWN; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM;
ROUNDNESS:SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-01%;
FOSSILS: NO FOSSILS;

- 1 - 2.5 SAND; MODERATE BROWN; 20% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS:SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-02%, CLAY-01%;
FOSSILS: NO FOSSILS;

- 2.5- 3.5 SAND; DARK BROWN TO DARK GRAY; 30% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
FOSSILS: NO FOSSILS;
- 3.5- 4 SAND; GREENISH GRAY TO DARK YELLOWISH ORANGE; 12% POROSITY, INTERGRANULAR,
LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
SEDIMENTARY STRUCTURES: MOTTLED,
ACCESSORY MINERALS: CLAY-04%, CALCILUTITE-04%;
FOSSILS: NO FOSSILS;
- 4 - 4.5 SAND; GRAYISH YELLOW TO LIGHT OLIVE; 12% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: MOTTLED, STREAKED,
ACCESSORY MINERALS: CLAY-05%, CALCILUTITE-05%;
FOSSILS: NO FOSSILS;
- 4.5- 6 SAND; YELLOWISH GRAY TO LIGHT GRAY; 14% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CLAY-02%, CALCILUTITE-02%;
FOSSILS: NO FOSSILS;
- 6 - 7 SAND; YELLOWISH GRAY TO WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; UNCONSOLIDATED;
ACCESSORY MINERALS: CALCILUTITE-15%, HEAVY MINERALS-01%;
FOSSILS: MOLLUSKS;
INTERMIXED SHELL (15%), CHITONE CANCELATA
- 7 - 8 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: DOLOMITE-25%, QUARTZ SAND-15%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
INTERBEDDED WITH QUARTZ SAND
- 8 - 9 SANDSTONE; GRAYISH ORANGE; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-02%;
FOSSILS: MOLLUSKS;
BECOME LESS SANDY TOWARDS BOTTOM

- 9 - 10 Limestone; GRAYISH ORANGE; 11% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL; 0% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-40%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 10 - 10.3 AS ABOVE
- 10.3- 11 SAND; YELLOWISH GRAY TO GRAYISH ORANGE; 14% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-02%;
FOSSILS: MOLLUSKS;
- 11 - 12 SANDSTONE; WHITE TO VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR, MOLDIC;
- 12 - 15 SANDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 13% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-02%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
UNCONSOLIDATED MICRITIC QTZ SAND IN INTERVAL
- 15 - 16 SANDSTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
OTHER FEATURES: CALCAREOUS;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 16 - 17 AS ABOVE
- 17 - 18 SAND; WHITE; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 18 - 20 AS ABOVE
- 20 - 22 SANDSTONE; WHITE TO VERY LIGHT ORANGE; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-20%;
OTHER FEATURES: CALCAREOUS, CHALKY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;

- 22 - 24 AS ABOVE
- 24 - 25 NO SAMPLES
- 25 - 29 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 16% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, CRYSTALS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-35%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 29 - 30 AS ABOVE
- 30 - 33 SANDSTONE; VERY LIGHT ORANGE TO WHITE; 16% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-30%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS;
- 33 - 35 NO SAMPLES
- 35 - 36.2 DOLOMITE; GRAYISH ORANGE TO DARK YELLOWISH BROWN; 14% POROSITY, INTERGRANULAR, MOLDIC,
INTERCRYSTALLINE; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%;
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS;
EXTINCT PLIOCENE MOLLUSK REPORTED BY J. MEEDER 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 38.5- 42 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;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
LOST CIRC. AT 41FT. DUE TO HIGH PERM. AND CHANNEL PORD.
- 42 - 44 LIMESTONE; VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: CALCILUTITE, SKELETAL; 40% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: QUARTZ SAND-05%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, FOSSIL FRAGMENTS;

- 44 - 46 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: OOLITE, CRYSTALS;
GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND-05%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
VERY HIGH PERM.&POROSITY AT 46' -LARGE (30MM) MOLDS
- 46 - 47.5 DOLOMITE; DARK YELLOWISH BROWN; 10% POROSITY, INTERCRYSTALLINE, MOLDIC,
VUGULAR; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 47.5- 50 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;
CEMENT TYPE(S): SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL MOLDS;
CALCITE CRYSTALS LINING FOSSIL MOLDS
- 50 - 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;
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: DOLOMITE-35%;
FOSSILS: MOLLUSKS, CORAL, FOSSIL MOLDS;
- 51.5- 54 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL MOLDS;
- 54 - 55 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-35%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 55 - 56 DOLOMITE; GRAYISH BROWN; 12% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR-10%, CALCILUTITE-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
FRESH WATER MOLLUSKS

- 56 - 57 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;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: MOLLUSKS, BRYOZOA;
- 57 - 58 DOLOMITE; LIGHT GRAY TO VERY LIGHT ORANGE; 14% POROSITY, INTERGRANULAR,
MOLDIC; 50-90% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 58 - 62 LIMESTONE; VERY LIGHT ORANGE;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
DOLOMITE INTERBEDDED
- 62 - 63 AS ABOVE WITH SAND (10%)
- 63 - 64 AS ABOVE
- 64 - 65 DOLOMITE; GRAYISH ORANGE; 15% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
LARGE MOLLUSK CASTS AND MOLDS
- 65 - 67 AS ABOVE
- 67 - 70.5 DOLOMITE; LIGHT OLIVE BROWN; 16% POROSITY, MOLDIC, VUGULAR,
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: SPAR-15%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
PYCHNODONT OYSTER AT 68FT.
- 70.5- 75 AS ABOVE
- 75 - 77 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 18% POROSITY, INTERGRANULAR, MOLDIC,
POSSIBLY HIGH PERMEABILITY;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 45% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 77 - 79 AS ABOVE

- 79 - 82 DOLOMITE; VERY LIGHT ORANGE TO GRAYISH ORANGE; 17% POROSITY, INTERGRANULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; EUBEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: SPAR-10%, CALCILUTITE-20%, QUARTZ SAND-10%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 82 - 86 AS ABOVE WITH MANY MOLLUSKS CASTS AND MOLDS
- 86 - 87 AS ABOVE
- 87 - 88 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND-15%, PHOSPHATIC SAND-01%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 88 - 89 AS ABOVE WITH MORE SAND (35%) - POOR INDURATION
- 89 - 92 AS ABOVE
- 92 - 95 AS ABOVE
- 95 - 99 LIMESTONE; WHITE; 10% POROSITY, INTERGRANULAR;
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL; 0% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
FOSSILS: MOLLUSKS;
LITTLE RECOVERY
- 99 - 102 SAND; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 102 - 106 AS ABOVE
- 106 - 108 AS ABOVE
- 108 - 109 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-02%;
FOSSILS: FOSSIL FRAGMENTS;
- 109 - 110 CLAY; GRAYISH OLIVE TO OLIVE GRAY; 0% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: CLAY-05%, QUARTZ SAND-02%, CALCILUTITE-04%, PHOSPHATIC SAND-02%;
FOSSILS: BENTHIC FORAMINIFERA;
FLORILUS SP., ELPHIDIUM SP.

- 110 - 116.5 AS ABOVE
- 116.5- 117 SAND; DARK YELLOWISH BROWN TO WHITE; 18% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-20%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS, SHARKS TEETH;
- 117 - 119 CLAY; GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: CLAY-05%;
FOSSILS: DIATOMS;
- 119 - 119.2 SAND; DARK YELLOWISH BROWN; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: COARSE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-25%;
FOSSILS: SHARKS TEETH;
- 119.2- 120 CLAY; GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: QUARTZ SAND-02%;
FOSSILS: DIATOMS;
- 120 - 122 AS ABOVE
- 122 - 126 AS ABOVE WITH MANY DIATOMS (DIPLONEIS SP.)
- 126 - 131 AS ABOVE
- 131 - 131.2 LIMESTONE; WHITE; 15% POROSITY, INTERGRANULAR;
GRAIN TYPE: BIOGENIC, SKELETAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE; POOR INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX;
SEDIMENTARY STRUCTURES: INTERBEDDED,
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, QUARTZ SAND-02%;
OTHER FEATURES: CHALKY;
FOSSILS: MOLLUSKS, BRYOZOA;
- 131.2- 135 CLAY; GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: QUARTZ SAND-05%;
FOSSILS: DIATOMS, BENTHIC FORAMINIFERA;
MANY DIATOMS

- 135 - 136 CLAY; GRAYISH OLIVE; 09% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, QUARTZ SAND-05%;
FOSSILS: DIATOMS, BENTHIC FORAMINIFERA, PLANKTONIC FORAMINIFERA;
- 136 - 136.2 SAND; DARK YELLOWISH BROWN TO VERY LIGHT ORANGE;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-08%, LIMESTONE-04%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 136.2- 137 CLAY; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-05%, PHOSPHATIC SAND-04%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
- 137 - 138 SAND; GRAYISH OLIVE; 10% POROSITY, INTERGRANULAR, LOW PERMEABILITY;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-25%, PHOSPHATIC SAND-04%, CALCILUTITE-10%;
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS;
- 138 - 138.6 DOLOMITE; YELLOWISH GRAY TO LIGHT OLIVE; 15% POROSITY, INTERGRANULAR, VUGULAR,
INTERCRYSTALLINE; 50-90% ALTERED; EUMEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT;
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 138.6- 147 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;
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT, DOLOMITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-10%, PHOSPHATIC SAND-04%, QUARTZ SAND-15%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA;
- 147 - 150 SANDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY; 18% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: PHOSPHATIC SAND-03%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA;
- 150 - 151 AS ABOVE
- 151 - 152 AS ABOVE VERY GOOD MOLDIC POROSITY

- 152 - 155 Limestone; yellowish gray; 18% porosity, intergranular, moldic;
grain type: diagenetic, calcilutite, crystals; 5% allochemical constituents;
grain size: medium; range: microcrystalline to coarse; good induration;
cement type(s): calcilutite matrix, dolomite cement, sparry calcite cement;
accessory minerals: dolomite-15%, quartz sand-40%, phosphatic sand-03%;
fossils: mollusks, fossil molds;
- 155 - 157 AS ABOVE
- 157 - 158 Sandstone; yellowish gray; 18% porosity, intergranular, moldic;
grain size: medium; range: very fine to coarse;
roundness: sub-angular to rounded; medium sphericity; good induration;
cement type(s): calcilutite matrix, dolomite cement, sparry calcite cement;
accessory minerals: calcilutite-15%, dolomite-15%, phosphatic sand-03%;
fossils: mollusks, fossil molds;
- 158 - 160 AS ABOVE WITH MODERATE INDURATION
- 160 - 162 AS ABOVE
- 162 - 164 Sandstone; dark grayish yellow; 18% porosity, intergranular, moldic;
grain size: medium; range: very fine to coarse;
roundness: sub-angular; medium sphericity; moderate induration;
cement type(s): calcilutite matrix, dolomite cement, sparry calcite cement;
accessory minerals: calcilutite-10%, dolomite-10%, phosphatic sand-01%;
fossils: fossil molds;
- 164 - 177 Sandstone; very light orange to white;
grain size: medium; range: very fine to coarse;
roundness: sub-angular to rounded; medium sphericity; poor induration;
cement type(s): calcilutite matrix;
accessory minerals: calcilutite-05%;
fossils: fossil molds;
little recovery due weak cementation
- 177 - 187 NO RECOVERY-DRILLER REPORTS CLEAN SANDS
- 187 - 189 Sandstone; very light orange; 18% porosity, intergranular;
grain size: medium; range: very fine to coarse;
roundness: sub-angular to rounded; medium sphericity; moderate induration;
cement type(s): calcilutite matrix;
accessory minerals: calcilutite-03%, phosphatic sand-04%;
fossils: fossil molds, mollusks;
- 189 - 190 Sandstone; yellowish gray; 15% porosity, intergranular, moldic;
grain size: medium; range: very fine to coarse;
roundness: sub-angular to rounded; medium sphericity; good induration;
cement type(s): dolomite cement, calcilutite matrix;
accessory minerals: dolomite-25%, calcilutite-10%, phosphatic sand-05%;
fossils: fossil molds, mollusks;
- 190 - 192 NO RECOVERY-DRILLER REPORTS SILTY SAND

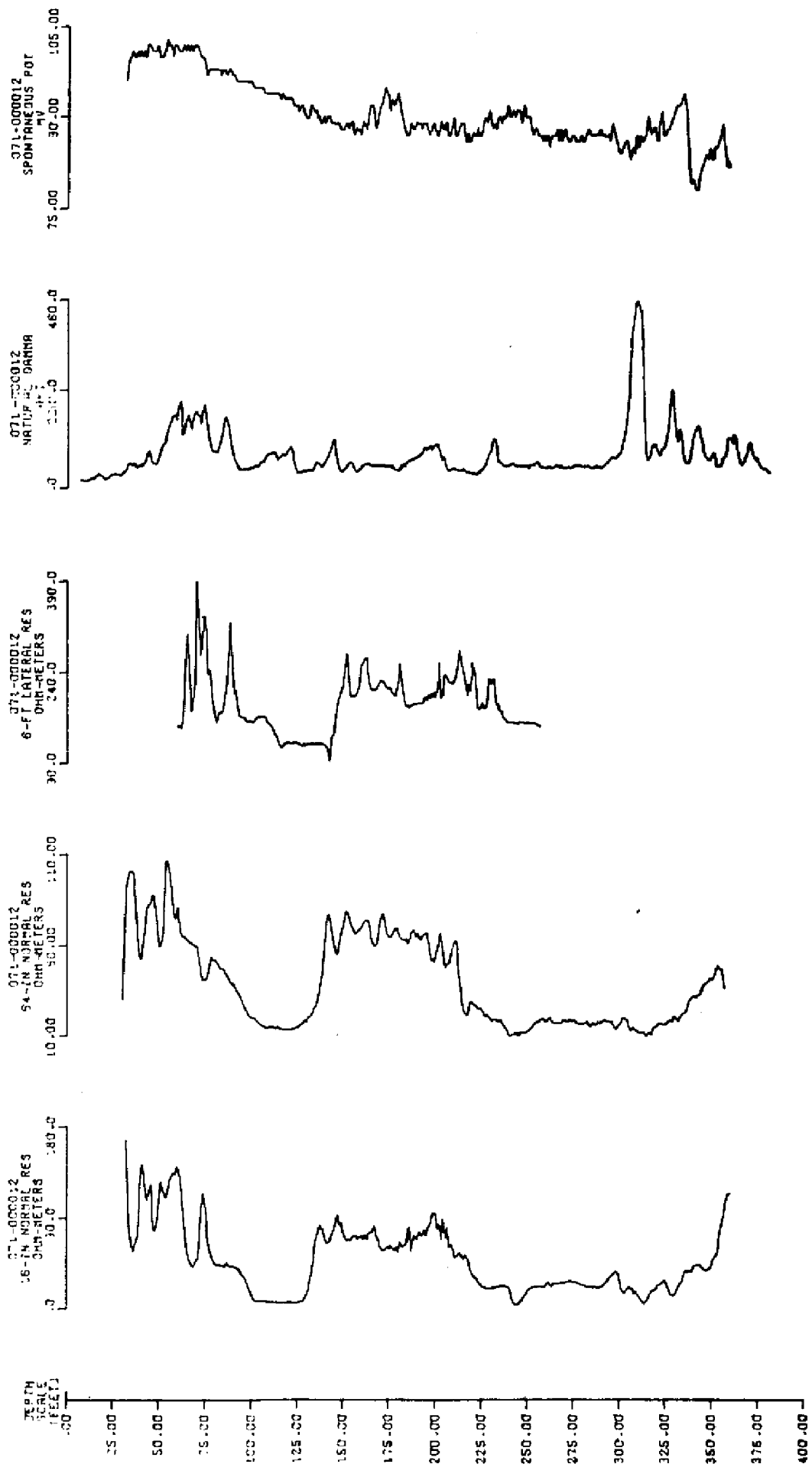
- 192 - 194 SANDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR, MOLDIC; GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; GOOD INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: DOLOMITE-30%, CALCILUTITE-10%, PHOSPHATIC SAND-05%; FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 194 - 198 CLAY; LIGHT OLIVE GRAY; 15% POROSITY, INTERGRANULAR; MODERATE INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT; ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-03%; FOSSILS: FOSSIL MOLDS, MOLLUSKS; LARGE MOLLUSK SHELLS INTERBEDDED
- 198 - 199 AS ABOVE
- 199 - 200 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; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-35%, PHOSPHATIC SAND-03%; FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 200 - 202 AS ABOVE
- 202 - 204 AS ABOVE, SPARRY CALCITE LINING FOSSIL MOLDS.
- 204 - 207 SANDSTONE; LIGHT GRAY; 15% POROSITY, INTERGRANULAR, MOLDIC; GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM; ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; GOOD INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-15%, PHOSPHATIC SAND-01%; FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 207 - 211 DOLOMITE; LIGHT GRAY; 20% POROSITY, INTERGRANULAR, MOLDIC; 50-90% ALTERED; Euhedral; GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-30%; FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 211 - 213 SANDSTONE; VERY LIGHT ORANGE; 10% POROSITY, INTERGRANULAR, MOLDIC; GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM; ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; MODERATE INDURATION; CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-10%, PHOSPHATIC SAND-01%; FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 213 - 217 NO RECOVERY-DRILLER REPORTS WEAKLY CEMENTED QTZ SANDS.
- 217 - 221 SAND; VERY LIGHT ORANGE TO WHITE; 25% POROSITY, INTERGRANULAR; GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION; CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT; ACCESSORY MINERALS: CALCILUTITE-05%, DOLOMITE-05%, PHOSPHATIC SAND-01%;

- 221 - 222 DOLOMITE; WHITE TO VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR, MOLDIC;
50-90% ALTERED; EUNE DRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-20%;
FOSSILS: FOSSIL MOLDS, MOLLUSKS;
- 222 - 227 AS ABOVE
- 227 - 232 SANDSTONE; YELLOWISH GRAY; 25% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: DOLOMITE-10%, CALCILUTITE-05%, PHOSPHATIC SAND-03%;
- 232 - 246 NO RECOVERY-DRILLER REPORTS QUARTZ SANDS
- 246 - 249 CLAY; OLIVE GRAY; 05% POROSITY, INTERGRANULAR, LOW PERMEABILITY; POOR INDURATION;
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT;
SEDIMENTARY STRUCTURES: MASSIVE,
ACCESSORY MINERALS: DOLOMITE-15%, SILT-12%, PHOSPHATIC SAND-02%, QUARTZ SAND-02%;
- 249 - 255 AS ABOVE-THIN SEAMS OF SAND INTERBEDDED
- 255 - 258 SAND; LIGHT OLIVE GRAY; 12% POROSITY, INTERGRANULAR;
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE;
ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX;
ACCESSORY MINERALS: DOLOMITE-10%, CLAY-02%, PHOSPHATIC SAND-01%;
- 258 - 262 NO RECOVERY-DRILLER REPORTS QUARTZ SANDS
- 262 - 265 DOLOMITE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; 50-90% ALTERED;
EUNE DRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-08%, PHOSPHATIC SAND-02%;
FOSSILS: MOLLUSKS;
- 265 - 305 NO RECOVERY-DRILLER REPORTS SANDS AND SILTS.
- 305 - 308 PHOSPHATE; DARK YELLOWISH BROWN; 32% POROSITY, INTERGRANULAR; UNCONSOLIDATED;
CEMENT TYPE(S): PHOSPHATE CEMENT;
ACCESSORY MINERALS: DOLOMITE-05%, PHOSPHATIC GRAVEL-2%;
RUBBLE BED-PHOSPHATE RANGES FROM .5 TO 1.0 INCH DIAM.
- 308 - 310 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-05%, PHOSPHATIC GRAVEL-05%, PHOSPHATIC SAND-02%,
QUARTZ SAND-05%;
- 310 - 311 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-05%, QUARTZ SAND-30%;
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL, FOSSIL FRAGMENTS;

- 311 - 313 **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; CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-25%, PHOSPHATIC SAND-08%; FOSSILS: FOSSIL FRAGMENTS;**
- 313 - 320 **AS ABOVE**
- 320 - 332 **CLAY; GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR; POOR INDURATION; CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC GRAVEL-05%, PHOSPHATIC SAND-05%, QUARTZ SAND-15%; FOSSILS: MOLLUSKS;**
- 332 - 335 **DOLomite; VERY LIGHT ORANGE TO WHITE; 18% POROSITY, INTERGRANULAR, MOLDIC; 50-90% ALTERED; Euhedral; GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION; CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT; ACCESSORY MINERALS: CALCILUTITE-15%, SPAR-05%, QUARTZ SAND-08%, PHOSPHATIC SAND-02%; FOSSILS: MOLLUSKS, FOSSIL MOLDS;**
- 335 - 337 **AS ABOVE**
- 337 - 339 **CLAY; VERY LIGHT ORANGE TO GRAYISH OLIVE; 08% POROSITY, INTERGRANULAR; POOR INDURATION; CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-20%, PHOSPHATIC SAND-08%; FOSSILS: MOLLUSKS;**
- 339 - 342 **AS ABOVE WITH V.C.PHOSPHATE**
- 342 - 347 **LIMESTONE; VERY LIGHT ORANGE; 20% POROSITY, INTERGRANULAR, MOLDIC; GRAIN TYPE: BIOGENIC, CRYSTALS; 20% ALLOCHEMICAL CONSTITUENTS; GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION; CEMENT TYPE(S): CALCILUTITE MATRIX, DOLomite CEMENT; ACCESSORY MINERALS: DOLomite-30%, QUARTZ SAND-05%, PHOSPHATIC SAND-02%; FOSSILS: FOSSIL MOLDS, MOLLUSKS;**
- 347 - 352 **LIMESTONE; VERY LIGHT ORANGE; 12% POROSITY, INTERGRANULAR; GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS; GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION; CEMENT TYPE(S): CALCILUTITE MATRIX, DOLomite CEMENT; ACCESSORY MINERALS: DOLomite-30%, QUARTZ SAND-15%, PHOSPHATIC SAND-02%; FOSSILS: MOLLUSKS;**
- 352 - 353 **AS ABOVE**
- 353 - 355 **SANDSTONE; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE; ROUNDNESS: SUB-ANGULAR; MEDIUM SPHERICITY; POOR INDURATION; CEMENT TYPE(S): DOLomite CEMENT, CALCILUTITE MATRIX; ACCESSORY MINERALS: DOLomite-35%, CALCILUTITE-10%, PHOSPHATIC SAND-05%; FOSSILS: MOLLUSKS;**

- 355 - 357 CLAY; YELLOWISH GRAY; 10% POROSITY, INTERGRANULAR; POOR INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX;
ACCESSORY MINERALS: CALCILUTITE-10%, QUARTZ SAND-25%, PHOSPHATIC SAND-10%;
FOSSILS: MOLLUSKS;
- 357 - 359 AS ABOVE WITH INTERBEDDED OYSTER SHELLS
- 359 - 362 AS ABOVE
- 362 - 367 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;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-30%, PHOSPHATIC SAND-01%, QUARTZ SAND-01%;
FOSSILS: CORAL, MOLLUSKS, FOSSIL MOLDS;
MANY WELL PRESERVED CORALS
- 367 - 372 AS ABOVE-CORUINA OF MOLLUSKS
- 372 - 377 DOLOMITE; GRAYISH ORANGE; 20% POROSITY, INTERGRANULAR, MOLDIC;
90-90% ALTERED; EIHEDRAL;
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: CALCILUTITE-20%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 377 - 378 LIMESTONE; VERY LIGHT ORANGE; 18% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 55% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION;
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-40%;
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL;
- 378 - 380 AS ABOVE WITH PHOSPHATE (3%)
- 380 - 381 LIMESTONE; VERY LIGHT ORANGE TO WHITE; 16% POROSITY, INTERGRANULAR, MOLDIC;
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS; 35% ALLOCHEMICAL CONSTITUENTS;
GRAIN SIZE: MICROCRYSTALLINE; RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION;
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT, SPARRY CALCITE CEMENT;
ACCESSORY MINERALS: DOLOMITE-40%, PHOSPHATIC SAND-01%;
OTHER FEATURES: SPECKLED;
FOSSILS: MOLLUSKS, FOSSIL MOLDS;
- 381 - 382 AS ABOVE
- 382 TOTAL DEPTH

| ELEVATION (FT. NGVD) | COLUMN | ACCESSORY MINERALS | HYDROGEOLOGIC UNITS | | GEOLOGIC UNITS |
|-------------------------|--------|---|-----------------------------|---|----------------------------|
| 25 | | CLAY SAND CLAY CALCITE CALCITE | SURFICIAL AQUIFER SYSTEM | WATER TABLE AQUIFER | UNDIFFERENTIATED |
| 0 | | | | TAMIAMI CONFINING ZONE | |
| -25 | | CALCITE SAND SAND | SURFICIAL AQUIFER SYSTEM | LOWER TAMIAMI AQUIFER | TAMIAMI FORMATION |
| -50 | | | | | |
| -75 | | CLAY | INTERMEDIATE AQUIFER SYSTEM | UPPER HAWTHORN CONFINING ZONE | MIocene COARSE CLASTICS |
| -100 | | | | | |
| -125 | | CALCITE CALCITE CALCITE | INTERMEDIATE AQUIFER SYSTEM | SANDSTONE AQUIFER (CARBONATE ZONE) | UPPER CLASTIC ZONE |
| -150 | | | | | |
| -175 | | CALCITE SAND SAND CALCITE CALCITE DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | UPPER CLASTIC ZONE |
| -200 | | | | | |
| -225 | | DOLOMITE SAND | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN CONFINING ZONE | UPPER CLASTIC ZONE |
| -250 | | | | | |
| -275 | | CALCITE DOLOMITE | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN AQUIFER | LOWER CARBONATE ZONE |
| -300 | | | | | |
| -325 | | | INTERMEDIATE AQUIFER SYSTEM | MID HAWTHORN AQUIFER | LOWER CARBONATE ZONE |
| -350 | | | | | |



GEOPHYSICS, WELL L-27

APPENDIX B-1

INTRODUCTION

Introduction

All the water level data information was obtained from the USGS in Ft. Myers. The USGS samples the wells once a month for water levels and water quality.

The USGS ground water monitoring network for 1988 in Hendry County is presented in Appendix B-2. Location and well construction information is provided in the subsequent tables along with the period of record for each station.

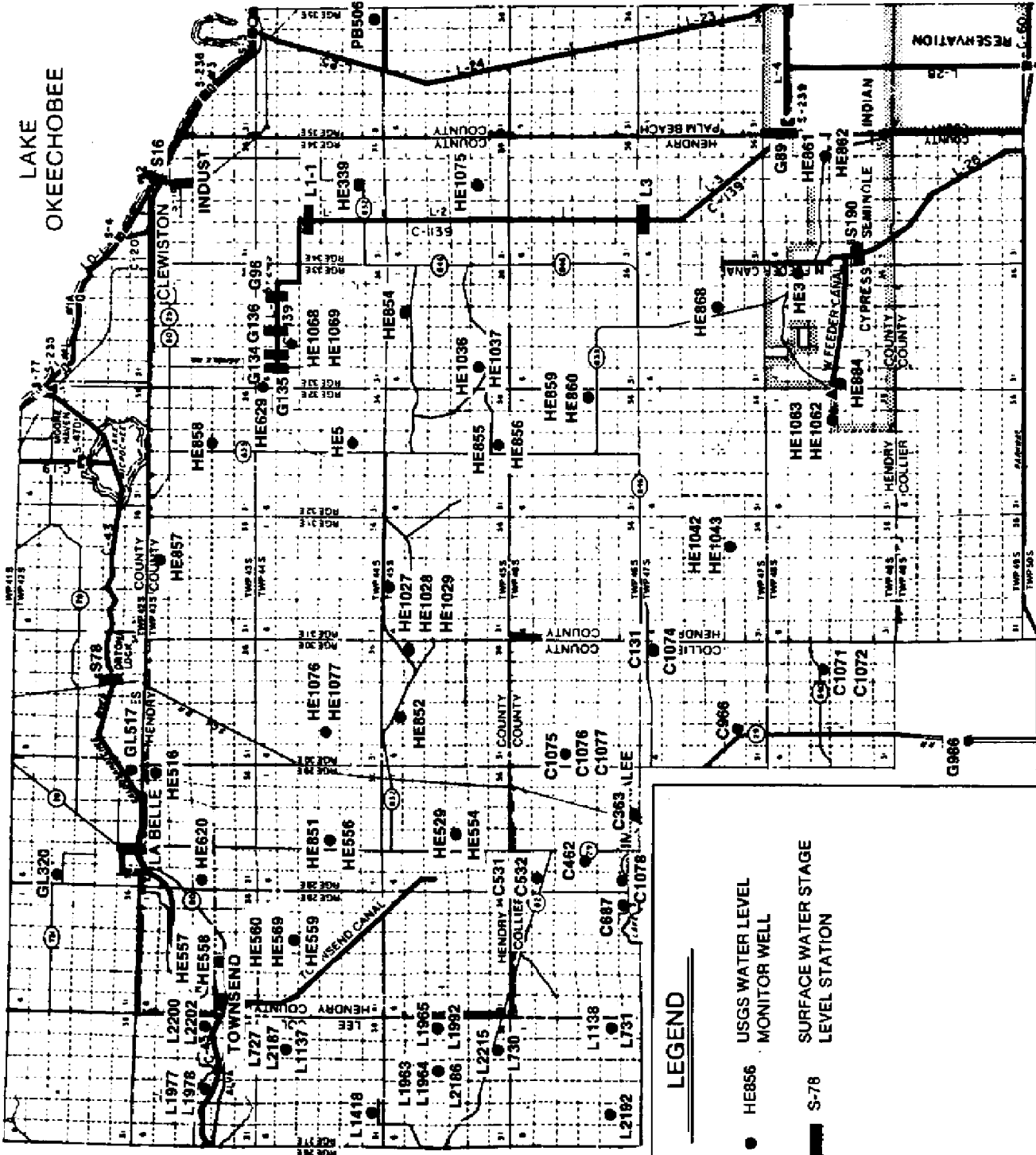
The water level hydrographs from each station are presented in Appendix B-3. Stations added to the network in October 1987 are not included. On the adjacent page is a statistical analysis of the water level data used in the hydrographs. The analysis is broken down into months. The column titled number of records indicates years of data for each month. Beginning and ending years can be obtained by looking at the hydrographs or referring to the period of record for the well as listed in Appendix B-2.

Rainfall and evaporation data are collected from several stations owned and maintained by SFWMD. Locations of these stations are presented on a map at the beginning of Appendix B-4. Rainfall data were taken from stations having at least 10 years of continuous data. These stations were also used to construct the average annual rainfall map in the text. The rainfall and evaporation data is presented as bar graphs depicting total monthly rainfall and evaporation respectively.

APPENDIX B-2

WATER LEVEL DATA AVAILABILITY

LAKE
OKEECHOBEE



LEGEND

- HE856 USGS WATER LEVEL MONITOR WELL
- S-78 SURFACE WATER STAGE LEVEL STATION



1988 USGS GROUND WATER MONITORING NETWORK AND SFWMD STAGE LEVEL STATIONS

WATER TABLE AQUIFER

| WELL # | S/T/R | LAT. | LONG. | CASING | | TOTAL DEPTH | PERIOD OF RECORD | ELEV. (ngvd) | RECOR- -DER |
|---------|----------|----------|----------|--------|------|-------------|---------------------------------|--------------|----------------|
| | | | | DIA. | DEP. | | | | |
| HE-3 | 12/48/33 | 26 18 59 | 80 58 54 | 6 | 8 | 10 | 7/50 to pres. | 19.14 | |
| HE-5 | 27/44/32 | 26 37 50 | 81 07 40 | 6 | 8.7 | 13 | 1/41/to 10/67 8/69 to pres. | 26.74 | |
| HE-339 | 27/44/34 | 26 37 27 | 80 55 10 | 2 | 5 | 9.5 | 2/64 to pres. | 15.69 | |
| HE-554 | 21/45/29 | 26 33 10 | 81 25 09 | 4 | 5 | 15 | 10/75 to pres. | 32.66 | |
| HE-558 | 28/43/28 | 26 42 35 | 81 31 06 | 4 | 3 | 14 | 10/75 to pres. | 17.70 | |
| HE-569 | 10/44/28 | 26 39 30 | 81 30 15 | 4 | 11 | 17 | 10/75 to pres. | 27.89 | |
| HE-851 | 21/44/29 | 26 38 45 | 81 26 07 | 4 | 5 | 13 | 10/77 to pres. | 27.55 | |
| HE-852 | 4/45/30 | 26 35 48 | 81 20 06 | 4 | 9 | 17 | 9/77 to 10/79 10/86 to pres. | 29.99 | |
| HE-854 | 10/45/33 | 26 35 15 | 81 01 20 | 4 | 3 | 14 | 1/77 to 10/79 10/86 to pres. | 21.72 | |
| HE-856 | 34/45/32 | 26 30 35 | 81 07 35 | 4 | 9 | 11 | 10/79 to pres. | 27.56 | |
| HE-857 | 10/43/31 | 26 45 35 | 81 13 07 | 4 | 20 | 20 | 8/77 to 10/79 9/85 to pres. | 19.50 | |
| HE-858 | 27/43/32 | 26 42 35 | 81 07 44 | 4 | 12 | 20 | 8/77 to 9/79 10/86 to pres. | 22.57 | |
| HE-860 | 24/46/32 | 26 27 35 | 81 04 46 | 4 | 9 | 16.5 | 9/77 to 9/79 10/85 to pres. | 26.63 | |
| HE-862 | 23/48/34 | 26 17 35 | 80 53 40 | 4 | 7 | 11 | 9/77 to pres. | 14.42 | |
| HE-884 | 18/48/33 | 26 18 01 | 81 04 25 | 4 | 62 | 67 | 9/77 to 9/79 10/86 to pres. | 19.86 | |
| HE-1027 | 12/45/30 | 26 35 14 | 81 17 07 | 2 | 3 | 7 | 10/87 to pres. | 30.57 | |
| HE-1036 | 30/45/33 | 26 32 13 | 81 04 08 | 2 | 5 | 10 | 10/87 to pres. | 26.33 | |
| HE-1043 | 26/47/31 | 26 22 14 | 81 11 30 | 2 | 5 | 10 | 10/87 to pres. | 23.04 | |
| HE-1062 | 23/48/32 | 26 17 46 | 81 06 18 | 2 | 5 | 10 | 10/87 to pres. | 18.34 | |
| HE-1069 | 9/44/33 | 26 40 46 | 81 02 28 | 2 | 3 | 13 | 10/87 to pres. | 20.72 | |
| HE-1077 | 20/44/30 | 26 38 39 | 81 20 39 | 6 | 5 | 10 | 10/87 to pres. | 27.48 | |
| GL-320 | 18/42/29 | 26 49 10 | 81 28 01 | 6 | 60 | 80 | 2/85 to pres. | 39.87 | |
| L-730 | 35/45/27 | 26 31 38 | 81 54 58 | 4 | 18.7 | 19 | 8/68 to pres. | 31.53 | Yes |
| L-1137 | 11/44/27 | 26 39 59 | 81 35 54 | 4 | 15 | 20 | 6/70 to pres. | 21.72 | Yes |
| L-1138 | 25/46/27 | 26 27 03 | 81 34 02 | 4 | 15 | 20 | 6/70 to pres. | 25.19 | |
| L-1964 | 15/45/27 | 26 33 44 | 81 36 17 | 4 | 14 | 24 | 10/74 to pres. | 30.6 | |
| L-1978 | 21/43/27 | 26 43 20 | 81 36 57 | 4 | 7 | 17 | 10/74 to pres. | 17.40 | |
| L-1992 | 13/45/27 | 26 33 53 | 81 33 58 | 4 | 19 | 29 | 10/74 to pres. | 29.67 | |

WATER TABLE AQUIFER

| WELL # | S/T/R | LAT. | LONG. | CASING | | TOTAL DEPTH | PERIOD OF RECORD | ELEV. (ngvd) | RECOR- DER |
|--------|----------|----------|----------|--------|------|-------------|------------------|--------------|------------|
| | | | | DIA. | DEP. | | | | |
| L-2202 | 24/43/27 | 26 43 29 | 81 34 04 | 4 | 7 | 19 | 8/75 to pres. | 17.43 | |
| L-5665 | 36/46/26 | 26 25 14 | 81 39 34 | 4 | 32 | 43 | 10/82 to pres. | 20.0 | |
| C-131 | 1/47/30 | 26 25 21 | 81 16 19 | 6 | 22 | 54 | 6/52 to pres. | 26.71 | Yes |
| C-363 | 34/46/29 | 26 25 55 | 81 24 28 | 2 | 84 | 119 | 4/81 to pres. | 34.10 | |
| C-462 | 20/46/29 | 26 27 24 | 81 26 12 | 8.6 | 50 | 99.7 | 6/52 to pres. | 34.11 | |
| C-532 | 7/46/29 | 26 29 28 | 81 27 29 | 4 | 3 | 12 | 10/75 to pres. | 41.93 | |
| C-966 | 29/47/30 | 26 21 37 | 81 20 43 | 6 | 30 | 38 | 10/84 to pres. | 21.96 | |
| C-986 | 18/49/30 | 26 12 00 | 81 20 49 | 6 | 28 | 42 | 10/84 to pres. | 16.39 | |
| C-1071 | 14/48/30 | 26 18 23 | 81 17 19 | 4 | 20 | 31 | 4/86 to pres. | 19.29 | |
| C-1075 | 18/46/30 | 26 28 22 | 81 21 32 | 4 | 8 | 28 | 4/86 to pres. | 30.64 | |
| C-1078 | 31/46/29 | 26 25 58 | 81 27 05 | 4 | 13 | 28 | 4/86 to pres. | 31.91 | |
| PB-506 | 36/43/35 | 26 41 53 | 80 47 52 | 4 | 11.4 | 15.3 | 1/64 to pres. | 13.32 | |

LOWER TAMIAMI AQUIFER

| WELL # | S/T/R | LAT. | LONG. | CASING | | TOTAL DEPTH | PERIOD OF RECORD | ELEV. (ngvd) | RECOR- DER |
|---------|-----------|----------|----------|--------|------|-------------|---------------------------------|--------------|------------|
| | | | | DIA. | DEP. | | | | |
| HE-629 | 6/44/33 | 26 41 37 | 81 04 07 | 2 | 33 | 144 | 9/77 to 9/79 4/84 to pres. | 20.81 | |
| HE-853 | 32/44/31 | 26 36 18 | 81 14 30 | 4 | 17 | 61 | 8/77 to 10/79 10/86 to pres. | 29.75 | |
| HE-855 | 34/45/33 | 26 30 35 | 81 07 35 | 4 | 70 | 90 | 10/79 to pres. | 27.56 | |
| HE-859 | 26/46/32 | 26 27 35 | 81 04 46 | 4 | 58 | 59 | 9/77 to 9/79 10/85 to pres. | 26.30 | |
| HE-861 | 23/48/34 | 26 17 35 | 80 53 40 | 4 | 37 | 70 | 9/77 to pres. | 14.51 | |
| HE-868 | 27/47/ 33 | 26 21 18 | 81 00 29 | 4 | 84 | 97 | 9/77 to 10/79 10/85 to pres. | 20.72 | |
| HE-1028 | 12/45/30 | 26 35 14 | 81 17 07 | 2 | 20 | 60 | 10/87 to pres. | 29.64 | |
| HE-1029 | 12/45/30 | 26 35 14 | 81 17 07 | 2 | 92 | 182 | 10/87 to pres. | 29.36 | |
| HE-1037 | 30/45/33 | 26 32 13 | 81 04 08 | 2 | 70 | 120 | 10/87 to pres. | 26.14 | |
| HE-1042 | 26/47/31 | 26 22 14 | 81 11 30 | 2 | 40 | 80 | 10/87 to pres. | 22.88 | |
| HE-1063 | 23/48/32 | 26 17 46 | 81 06 18 | 2 | 78 | 123 | 10/87 to pres. | 18.42 | |
| HE-1068 | 9/44/33 | 26 40 46 | 81 02 28 | 6 | 60 | 160 | 10/87 to pres. | 19.42 | |
| HE-1075 | 27/45/34 | 26 32 07 | 80 55 31 | 2 | 135 | 155 | 10/87 to pres. | 16.57 | |
| C-1074 | 1/47/30 | 26 25 19 | 81 16 21 | 4 | 100 | 101 | 4/86 to pres. | 21.71 | Yes |
| C-1076 | 18/46/30 | 26 28 22 | 81 21 32 | 4 | 65 | 66 | 4/86 to pres. | 30.64 | |

SANDSTONE AQUIFER

| WELL # | S/T/R | LAT. | LONG. | CASING | | TOTAL DEPTH | PERIOD OF RECORD | ELEV. (ngvd) | RECOR- DER |
|----------------------|----------|----------|----------|--------|------|-------------|--------------------------------|--------------|------------|
| | | | | DIA. | DEP. | | | | |
| <u>Clastic</u> | | | | | | | | | |
| HE-516 | 1/43/29 | 26 46 01 | 81 21 31 | 2 | 270 | 273 | 1/77 to 10/79 6/86 to pres. | 19.04 | |
| HE-557 | 28/43/28 | 26 42 35 | 81 31 06 | 4 | 80 | 102 | 10/75 to pres. | 17.71 | |
| HE-560 | 10/44/28 | 26 39 30 | 81 30 15 | 4 | 70 | 87 | 10/75 to pres. | 27.87 | |
| HE-1076 | 20/44/30 | 26 38 40 | 81 20 39 | 6 | 300 | 340 | 10/87 to pres. | 27.55 | |
| GL-517 | 36/42/29 | 26 46 12 | 81 21 36 | 8 | 128 | 138 | 2/77 to pres. | 16.04 | Yes |
| L-727 | 11/44/27 | 26 39 50 | 81 35 54 | 4 | 67 | 68 | 1/74 to pres. | 21.64 | Yes |
| L-1418 | 32/44/27 | 26 36 30 | 81 37 53 | 8 | 55 | 62 | 1974 to pres. | 23.47 | Yes |
| L-1963 | 15/45/27 | 26 33 44 | 81 36 17 | 4 | 68 | 74 | 10/74 to pres. | 31.0 | |
| L-2192 | 29/46/27 | 26 26 59 | 81 38 25 | 4 | 155 | 184 | 8/75 to pres. | 27.26 | |
| L-2215 | 35/45/27 | 26 31 27 | 81 35 16 | 4 | 99 | 149 | 8/75 to pres. | 30.23 | |
| C-1077 | 18/46/30 | 26 28 22 | 81 21 32 | 4 | 170 | 197 | 4/86 to pres. | 30.64 | |
| <u>Carbonate</u> | | | | | | | | | |
| HE-529 | 21/45/29 | 26 33 10 | 81 25 09 | 4 | 135 | 155 | 10/75 to pres. | 32.57 | Yes |
| HE-556 | 21/44/29 | 26 38 45 | 81 26 07 | 4 | 135 | 155 | 10/75 to pres. | 28.44 | Yes |
| HE-559 | 10/44/28 | 26 39 30 | 81 30 15 | 4 | 155 | 165 | 10/75 to pres. | 27.86 | |
| HE-620 | 19/43/29 | 26 43 53 | 81 28 11 | 2 | 171 | 350 | 4/76 to pres. | 17.13 | |
| L-2186 | 15/45/27 | 26 33 44 | 81 36 17 | 4 | 133 | 160 | 8/75 to pres. | 31.06 | Yes |
| L-2187 | 11/44/27 | 26 39 50 | 81 35 54 | 4 | 136 | 154 | 8/75 to pres. | 21.90 | |
| L-2200 | 24/43/27 | 26 43 29 | 81 34 04 | 4 | 122 | 163 | 8/75 to pres. | 17.4 | |
| C-531 | 7/46/29 | 26 28 59 | 81 27 30 | 4 | 210 | 253 | 10/75 to pres. | 41.93 | Yes |
| C-687 | 36/46/28 | 26 25 54 | 81 28 38 | 4 | 290 | 310 | 9/81 to pres. | 16.43 | |
| <u>Whole Aquifer</u> | | | | | | | | | |
| L-731 | 25/46/27 | 26 27 03 | 81 34 02 | 4 | 165 | 243 | 1968 to pres. | 25.19 | Yes |
| L-1965 | 13/45/27 | 26 33 53 | 81 33 58 | 4 | 50 | 183 | 12/65 to pres. | 29.67 | |
| L-1977 | 21/43/27 | 26 43 20 | 81 36 57 | 4 | 65 | 185 | 10/75 to pres. | 17.39 | |
| L-5664 | 36/40/26 | 26 25 14 | 81 39 34 | 4 | 180 | 300 | 11/82 to pres. | 20.0 | |
| C-1072 | 14/48/30 | 26 18 23 | 81 17 19 | 4 | 140 | 224 | 4/86 to pres. | 19.29 | Yes |

SURFACE WATER STATIONS

| STATION NAME | S/T/R | LAT. | LONG. | PERIOD OF RECORD |
|--------------|----------|----------|----------|------------------|
| G-134 | 8/44/33 | 26 39 57 | 81 03 52 | 7/86 to present |
| G-135 | 7/44/33 | 26 40 48 | 81 03 53 | 7/86 to present |
| G-136 | 9/44/34 | 26 40 00 | 80 57 03 | 7/86 to present |
| G-89 | 12/48/34 | 26 19 51 | 80 52 55 | 7/86 to present |
| G-96 | 11/44/33 | 26 40 52 | 81 00 25 | 7/86 to present |
| Indust. | 10/43/34 | 26 45 14 | 80 55 07 | 1/69 to 10/87 |
| L1-1 | 17/44/34 | 26 39 00 | 80 57 00 | 11/81 to present |
| L-3 | 4/47/34 | 26 25 50 | 80 56 50 | 10/69 to 12/87 |
| S-169 | 10/43/34 | 26 45 43 | 80 55 24 | 1/85 to present |
| S-190 | 30/48/34 | 26 17 11 | 80 56 50 | 1/78 to present |
| S-78 | 26/42/30 | 26 47 22 | 81 18 11 | 1/82 to 6/87 |
| Townsend | 30/43/28 | 26 42 33 | 81 33 30 | 12/75 to 2/87 |

APPENDIX B-3

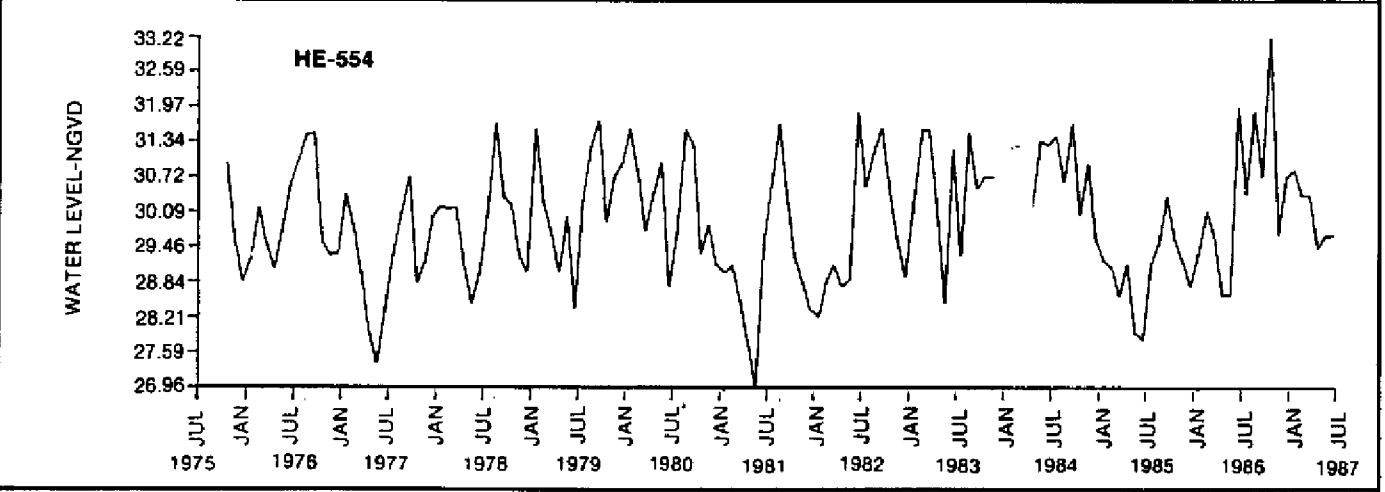
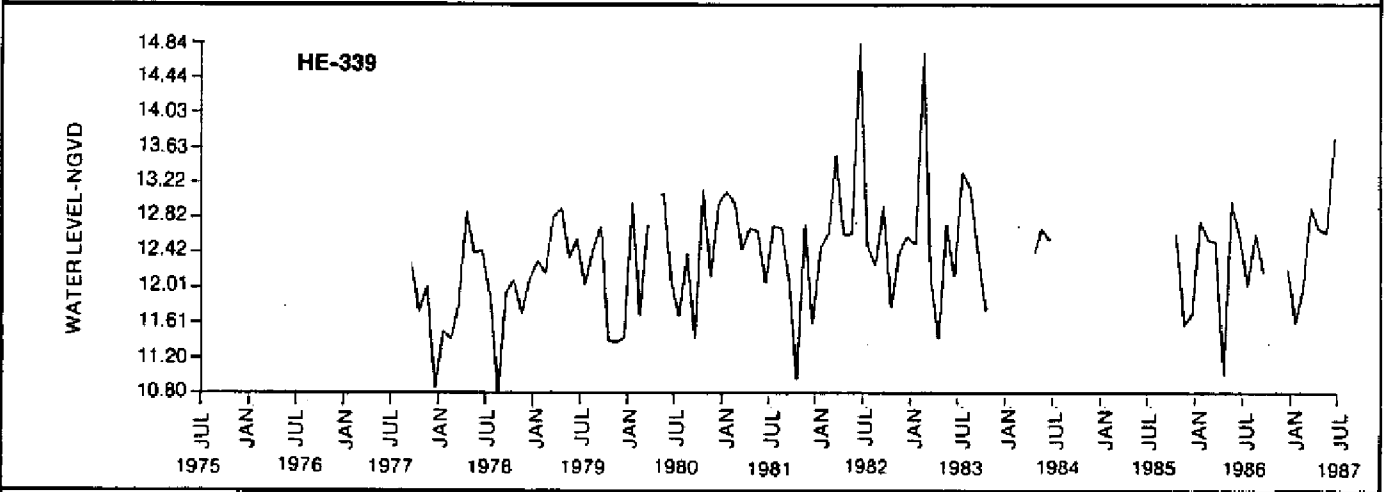
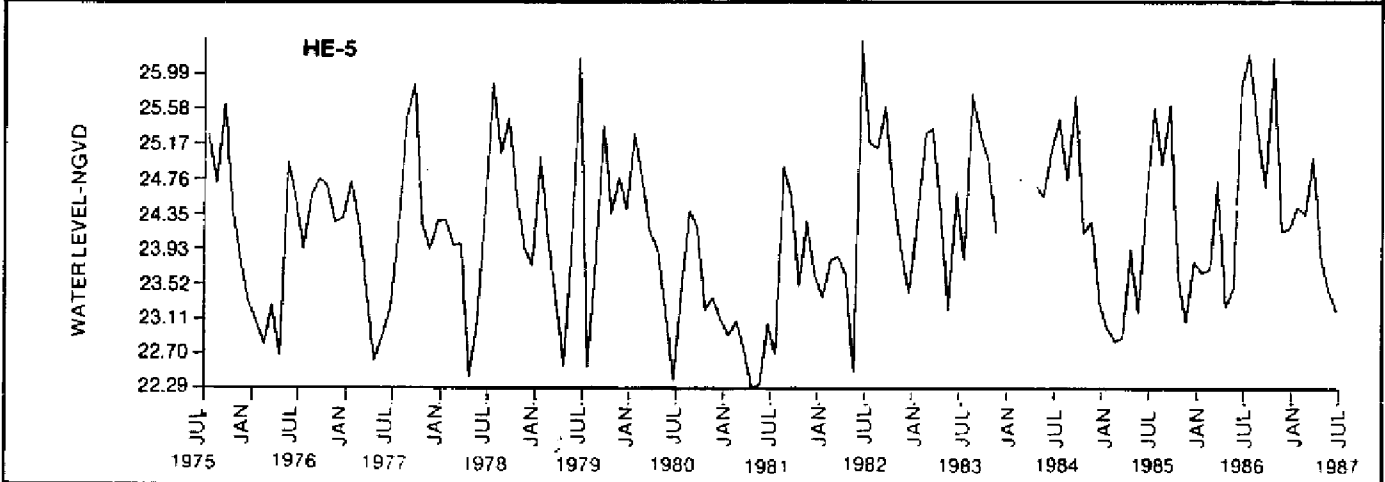
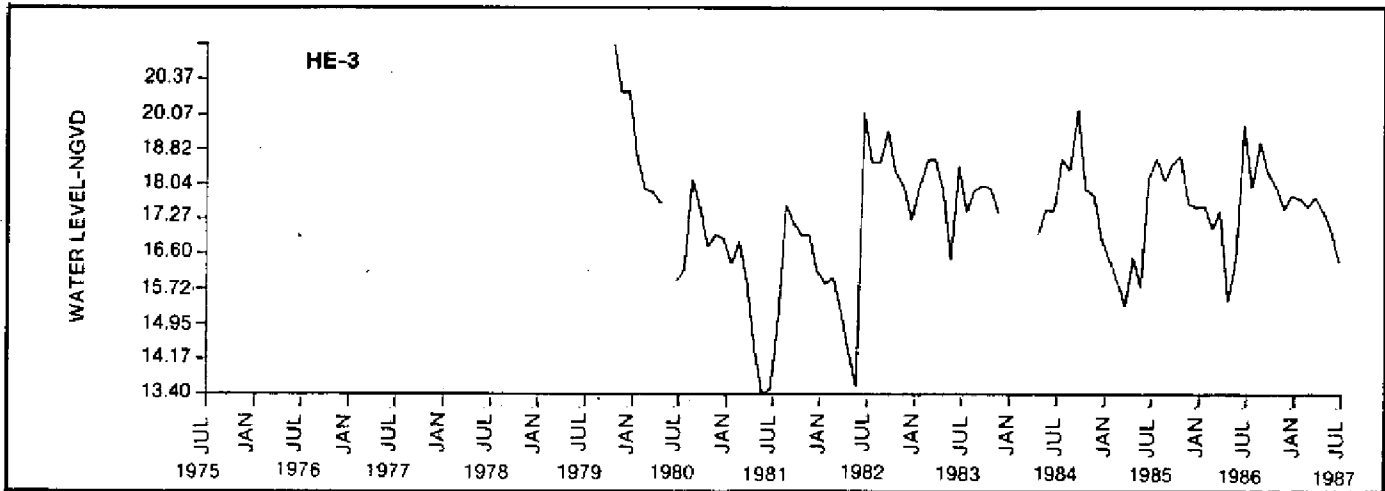
**WATER LEVEL HYDROGRAPHS
AND
STATISTICAL ANALYSES**

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|------|-----|-------|-------|-------|-------|---------|--------|--------|
| HE-3 | JAN | 7 | 18.66 | 15.86 | 17.21 | 0.9710 | 0.9429 | 5.478 |
| HE-3 | FEB | 7 | 18.60 | 15.89 | 17.11 | 0.9246 | 0.8549 | 4.996 |
| HE-3 | MAR | 7 | 18.62 | 15.32 | 16.90 | 1.2389 | 1.5349 | 9.083 |
| HE-3 | APR | 8 | 17.94 | 14.35 | 16.32 | 1.3443 | 1.8070 | 11.071 |
| HE-3 | MAY | 7 | 17.48 | 13.40 | 15.72 | 1.4981 | 2.2444 | 14.280 |
| HE-3 | JUN | 8 | 19.67 | 13.51 | 17.37 | 1.9135 | 3.6616 | 21.079 |
| HE-3 | JUL | 8 | 18.62 | 15.07 | 17.49 | 1.2080 | 1.4593 | 8.343 |
| HE-3 | AUG | 7 | 18.99 | 17.58 | 18.24 | 0.4185 | 0.1752 | 0.960 |
| HE-3 | SEP | 7 | 19.72 | 17.18 | 18.36 | 0.8392 | 0.7042 | 3.835 |
| HE-3 | OCT | 8 | 21.14 | 16.66 | 18.20 | 1.2774 | 1.6317 | 8.965 |
| HE-3 | NOV | 8 | 20.08 | 16.91 | 17.78 | 0.9405 | 0.8846 | 4.975 |
| HE-3 | DEC | 7 | 20.10 | 16.11 | 17.49 | 1.1800 | 1.3923 | 7.959 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|------|-----|-------|-------|-------|-------|---------|--------|-------|
| HE-5 | JAN | 11 | 25.29 | 22.92 | 24.01 | 0.8035 | 0.6456 | 2.689 |
| HE-5 | FEB | 12 | 25.30 | 22.81 | 23.97 | 0.7443 | 0.5539 | 2.311 |
| HE-5 | MAR | 11 | 25.35 | 22.76 | 23.90 | 0.8134 | 0.6616 | 2.769 |
| HE-5 | APR | 13 | 24.70 | 22.29 | 23.27 | 0.8118 | 0.6591 | 2.832 |
| HE-5 | MAY | 13 | 24.96 | 22.34 | 23.42 | 0.7163 | 0.5131 | 2.190 |
| HE-5 | JUN | 13 | 26.40 | 22.38 | 24.48 | 1.1950 | 1.4281 | 5.835 |
| HE-5 | JUL | 13 | 26.24 | 22.54 | 24.41 | 1.2052 | 1.4526 | 5.950 |
| HE-5 | AUG | 12 | 25.76 | 23.74 | 24.89 | 0.5098 | 0.2599 | 1.044 |
| HE-5 | SEP | 12 | 25.87 | 24.19 | 25.23 | 0.5248 | 0.2754 | 1.091 |
| HE-5 | OCT | 12 | 26.20 | 23.22 | 24.37 | 0.7418 | 0.5503 | 2.258 |
| HE-5 | NOV | 12 | 24.77 | 23.08 | 23.99 | 0.4225 | 0.1785 | 0.744 |
| HE-5 | DEC | 11 | 24.39 | 23.11 | 23.77 | 0.4342 | 0.1885 | 0.793 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| HE-339 | JAN | 8 | 13.11 | 11.50 | 12.41 | 0.5558 | 0.3089 | 2.489 |
| HE-339 | FEB | 9 | 14.73 | 11.42 | 12.55 | 0.9074 | 0.8233 | 6.560 |
| HE-339 | MAR | 8 | 13.55 | 11.79 | 12.62 | 0.5012 | 0.2512 | 1.991 |
| HE-339 | APR | 8 | 12.92 | 11.01 | 12.33 | 0.6686 | 0.4470 | 3.627 |
| HE-339 | MAY | 9 | 13.09 | 12.35 | 12.69 | 0.2294 | 0.0526 | 0.415 |
| HE-339 | JUN | 9 | 14.84 | 12.06 | 12.78 | 0.8734 | 0.7628 | 5.968 |
| HE-339 | JUL | 8 | 13.34 | 11.68 | 12.36 | 0.5062 | 0.2562 | 2.074 |
| HE-339 | AUG | 7 | 13.17 | 10.80 | 12.35 | 0.6852 | 0.4695 | 3.803 |
| HE-339 | SEP | 8 | 12.95 | 11.42 | 12.25 | 0.4366 | 0.1906 | 1.556 |
| HE-339 | OCT | 8 | 13.14 | 10.95 | 11.93 | 0.6438 | 0.4145 | 3.473 |
| HE-339 | NOV | 7 | 12.75 | 11.38 | 12.00 | 0.4487 | 0.2014 | 1.678 |
| HE-339 | DEC | 8 | 12.99 | 10.84 | 11.94 | 0.6404 | 0.4101 | 3.436 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| HE-554 | JAN | 11 | 31.58 | 28.23 | 29.99 | 1.0289 | 1.0586 | 3.530 |
| HE-554 | FEB | 12 | 31.56 | 28.88 | 30.13 | 0.7942 | 0.6307 | 2.093 |
| HE-554 | MAR | 11 | 31.56 | 28.55 | 29.65 | 0.8274 | 0.6845 | 2.309 |
| HE-554 | APR | 12 | 30.43 | 27.77 | 29.14 | 0.7882 | 0.6212 | 2.132 |
| HE-554 | MAY | 12 | 31.35 | 26.96 | 29.04 | 1.2947 | 1.6761 | 5.772 |
| HE-554 | JUN | 12 | 31.96 | 27.83 | 29.87 | 1.3972 | 1.9523 | 6.535 |
| HE-554 | JUL | 12 | 31.44 | 29.10 | 30.08 | 0.7295 | 0.5322 | 1.769 |
| HE-554 | AUG | 11 | 31.89 | 29.54 | 31.13 | 0.7095 | 0.5034 | 1.617 |
| HE-554 | SEP | 11 | 31.71 | 30.34 | 30.98 | 0.5451 | 0.2972 | 0.959 |
| HE-554 | OCT | 12 | 33.22 | 28.81 | 30.17 | 1.0976 | 1.2048 | 3.993 |
| HE-554 | NOV | 12 | 30.94 | 28.83 | 29.74 | 0.6617 | 0.4379 | 1.472 |
| HE-554 | DEC | 11 | 30.96 | 28.35 | 29.43 | 0.7892 | 0.6229 | 2.117 |



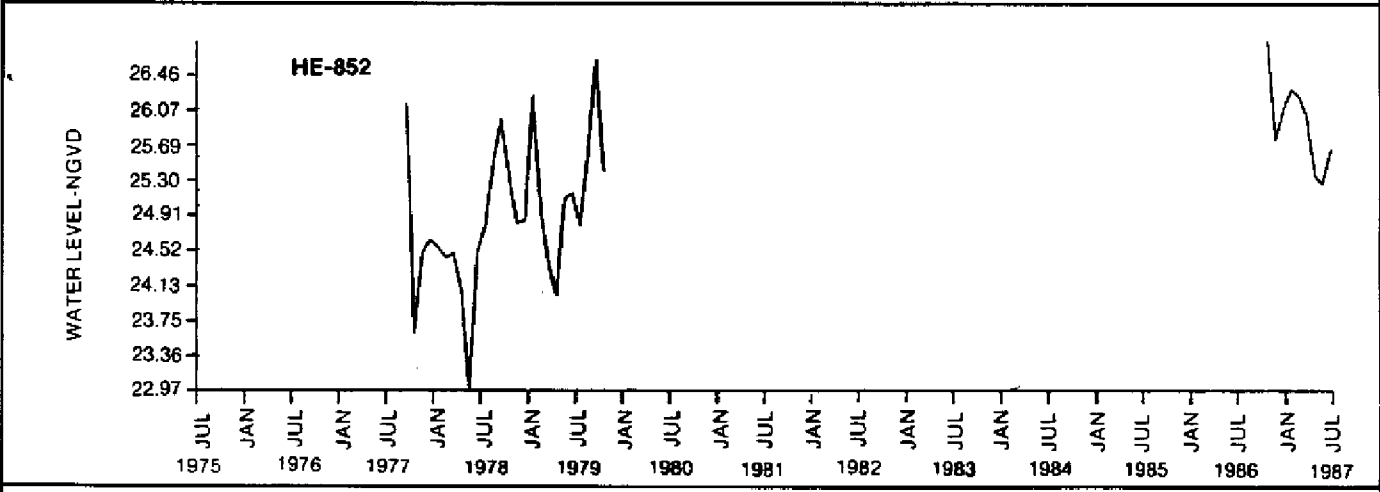
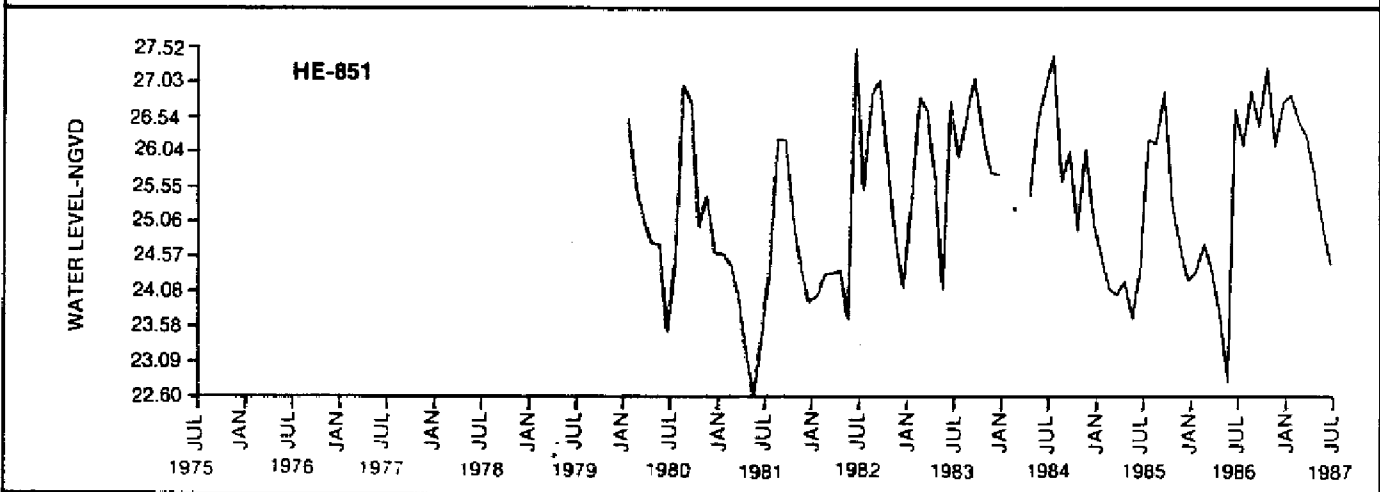
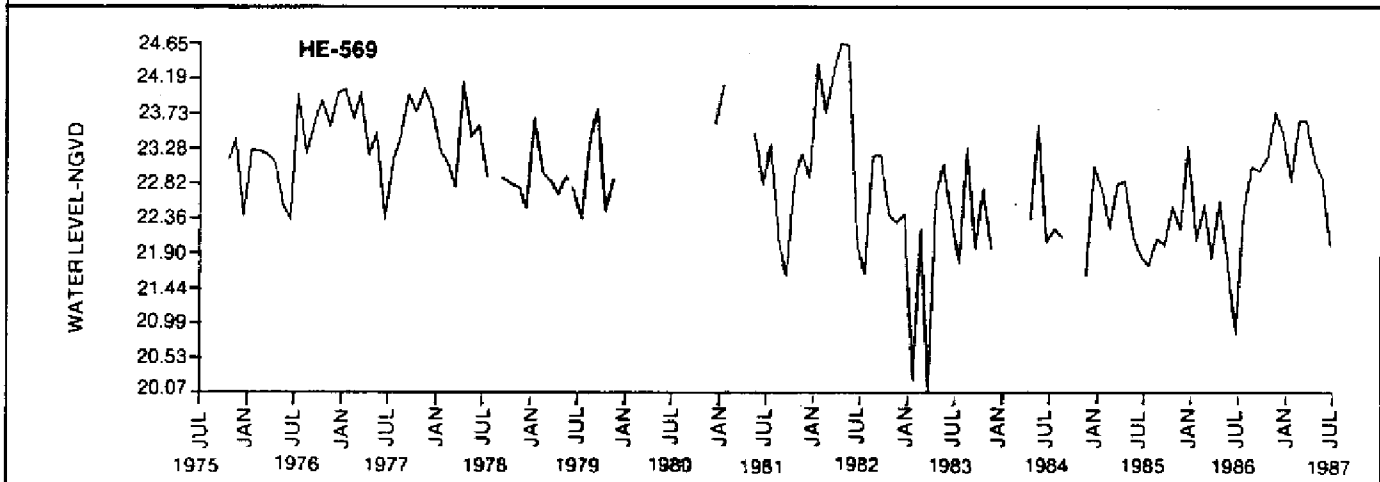
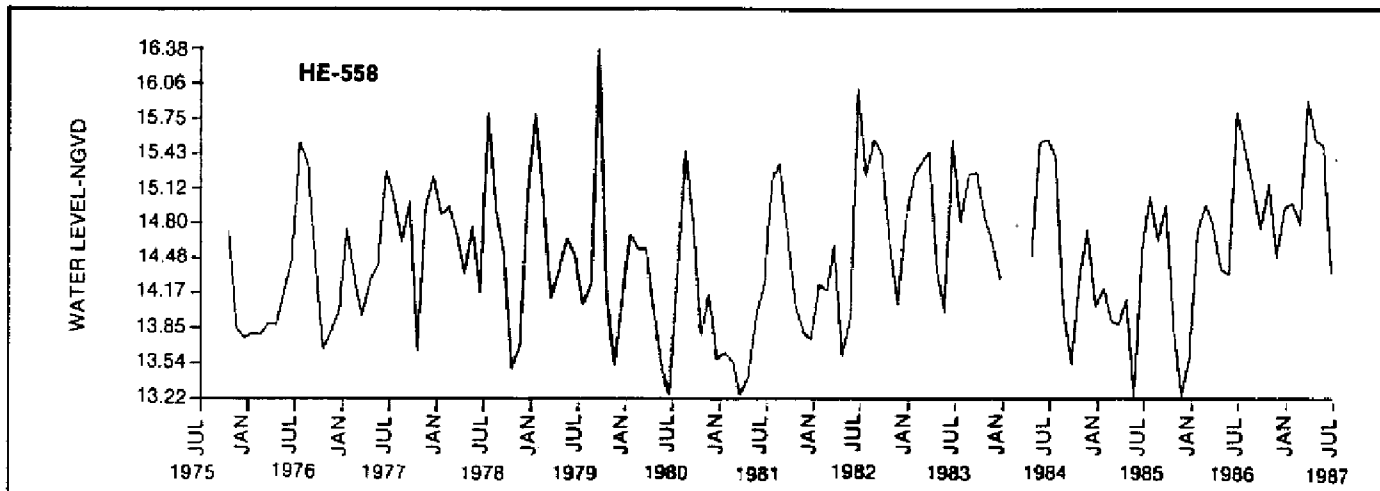
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| HE-558 | JAN | 11 | 15.80 | 13.63 | 14.63 | 0.5987 | 0.3585 | 2.450 | |
| HE-558 | FEB | 12 | 15.36 | 13.55 | 14.51 | 0.5348 | 0.2860 | 1.971 | |
| HE-558 | MAR | 11 | 15.92 | 13.25 | 14.47 | 0.7273 | 0.5290 | 3.657 | |
| HE-558 | APR | 12 | 15.55 | 13.42 | 14.24 | 0.5131 | 0.2633 | 1.850 | |
| HE-558 | MAY | 12 | 15.53 | 13.22 | 14.34 | 0.6744 | 0.4549 | 3.173 | |
| HE-558 | JUN | 12 | 16.04 | 13.25 | 14.82 | 0.7926 | 0.6283 | 4.241 | |
| HE-558 | JUL | 12 | 15.81 | 14.06 | 15.06 | 0.4793 | 0.2297 | 1.525 | |
| HE-558 | AUG | 11 | 15.57 | 13.99 | 14.96 | 0.4948 | 0.2448 | 1.637 | |
| HE-558 | SEP | 11 | 16.38 | 13.52 | 14.88 | 0.6716 | 0.4511 | 3.031 | |
| HE-558 | OCT | 12 | 15.16 | 13.48 | 14.19 | 0.5239 | 0.2744 | 1.933 | |
| HE-558 | NOV | 12 | 14.93 | 13.23 | 14.08 | 0.5012 | 0.2512 | 1.784 | |
| HE-558 | DEC | 12 | 15.23 | 13.57 | 14.27 | 0.5704 | 0.3254 | 2.281 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| HE-569 | JAN | 10 | 24.40 | 20.22 | 23.06 | 1.1656 | 1.3585 | 5.892 | |
| HE-569 | FEB | 10 | 23.74 | 22.22 | 22.99 | 0.5507 | 0.3032 | 1.319 | |
| HE-569 | MAR | 9 | 24.23 | 20.07 | 22.82 | 1.1915 | 1.4196 | 6.220 | |
| HE-569 | APR | 10 | 24.65 | 22.36 | 23.13 | 0.6884 | 0.4740 | 2.049 | |
| HE-569 | MAY | 11 | 24.62 | 21.78 | 23.09 | 0.7382 | 0.5449 | 2.360 | |
| HE-569 | JUN | 11 | 23.59 | 20.84 | 22.26 | 0.6470 | 0.4186 | 1.880 | |
| HE-569 | JUL | 11 | 24.00 | 21.63 | 22.61 | 0.7357 | 0.5412 | 2.393 | |
| HE-569 | AUG | 9 | 23.44 | 22.10 | 22.87 | 0.5535 | 0.3063 | 1.339 | |
| HE-569 | SEP | 9 | 23.99 | 21.60 | 22.89 | 0.8162 | 0.6661 | 2.910 | |
| HE-569 | OCT | 10 | 23.92 | 22.42 | 22.98 | 0.4906 | 0.2407 | 1.048 | |
| HE-569 | NOV | 11 | 24.06 | 21.63 | 22.89 | 0.7521 | 0.5656 | 2.471 | |
| HE-569 | DEC | 10 | 24.00 | 22.38 | 23.14 | 0.5577 | 0.3111 | 1.344 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-------|-------|-------|--------|---------|-------|----|
| HE-851 | JAN | 7 | 26.85 | 24.01 | 25.19 | 1.0352 | 1.0717 | 4.255 | |
| HE-851 | FEB | 8 | 26.83 | 24.10 | 25.22 | 0.9472 | 0.8972 | 3.557 | |
| HE-851 | MAR | 7 | 26.62 | 24.00 | 24.96 | 1.0036 | 1.0072 | 4.035 | |
| HE-851 | APR | 8 | 25.72 | 23.19 | 24.64 | 0.8645 | 0.7473 | 3.033 | |
| HE-851 | MAY | 8 | 26.48 | 22.60 | 24.14 | 1.1818 | 1.3967 | 5.787 | |
| HE-851 | JUN | 8 | 27.52 | 23.49 | 25.48 | 1.5598 | 2.4330 | 9.550 | |
| HE-851 | JUL | 8 | 27.41 | 24.38 | 25.62 | 0.9555 | 0.9130 | 3.564 | |
| HE-851 | AUG | 8 | 27.00 | 25.61 | 26.38 | 0.5097 | 0.2598 | 0.985 | |
| HE-851 | SEP | 7 | 27.10 | 26.07 | 26.64 | 0.3843 | 0.1476 | 0.554 | |
| HE-851 | OCT | 7 | 27.25 | 24.92 | 25.69 | 0.8030 | 0.6448 | 2.510 | |
| HE-851 | NOV | 7 | 26.11 | 24.38 | 25.32 | 0.6533 | 0.4268 | 1.686 | |
| HE-851 | DEC | 7 | 26.75 | 23.92 | 24.91 | 0.9433 | 0.8898 | 3.572 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-------|-------|-------|--------|---------|-------|----|
| HE-852 | JAN | 3 | 26.31 | 24.55 | 25.70 | 0.8159 | 0.6657 | 2.590 | |
| HE-852 | FEB | 3 | 26.23 | 24.44 | 25.22 | 0.7497 | 0.5620 | 2.229 | |
| HE-852 | MAR | 3 | 26.01 | 24.41 | 24.97 | 0.7361 | 0.5419 | 2.170 | |
| HE-852 | APR | 3 | 25.36 | 24.03 | 24.49 | 0.6155 | 0.3789 | 1.547 | |
| HE-852 | MAY | 3 | 25.26 | 22.97 | 24.44 | 1.0418 | 1.0853 | 4.441 | |
| HE-852 | JUN | 3 | 25.65 | 24.50 | 25.10 | 0.4712 | 0.2220 | 0.884 | |
| HE-852 | JUL | 3 | 25.91 | 24.80 | 25.17 | 0.5233 | 0.2738 | 1.088 | |
| HE-852 | AUG | 2 | 25.63 | 25.48 | 25.56 | 0.0750 | 0.0056 | 0.022 | |
| HE-852 | SEP | 3 | 26.65 | 25.99 | 26.26 | 0.2811 | 0.0790 | 0.301 | |
| HE-852 | OCT | 4 | 26.85 | 23.61 | 25.31 | 1.1481 | 1.3180 | 5.209 | |
| HE-852 | NOV | 3 | 25.74 | 24.49 | 25.02 | 0.5277 | 0.2785 | 1.113 | |
| HE-852 | DEC | 3 | 26.09 | 24.65 | 25.20 | 0.6351 | 0.4034 | 1.601 | |



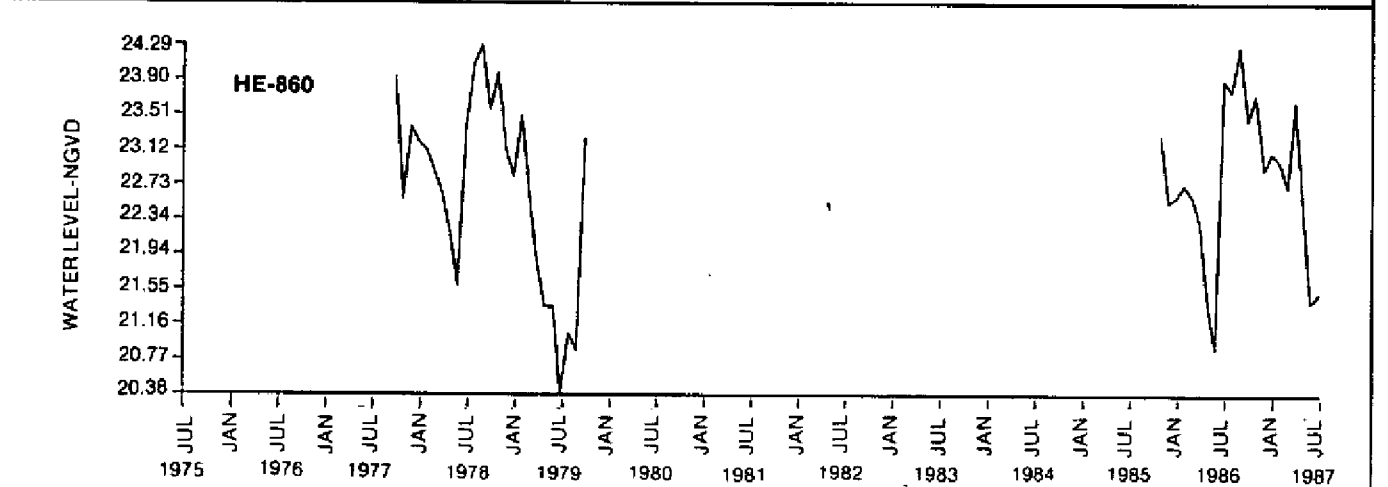
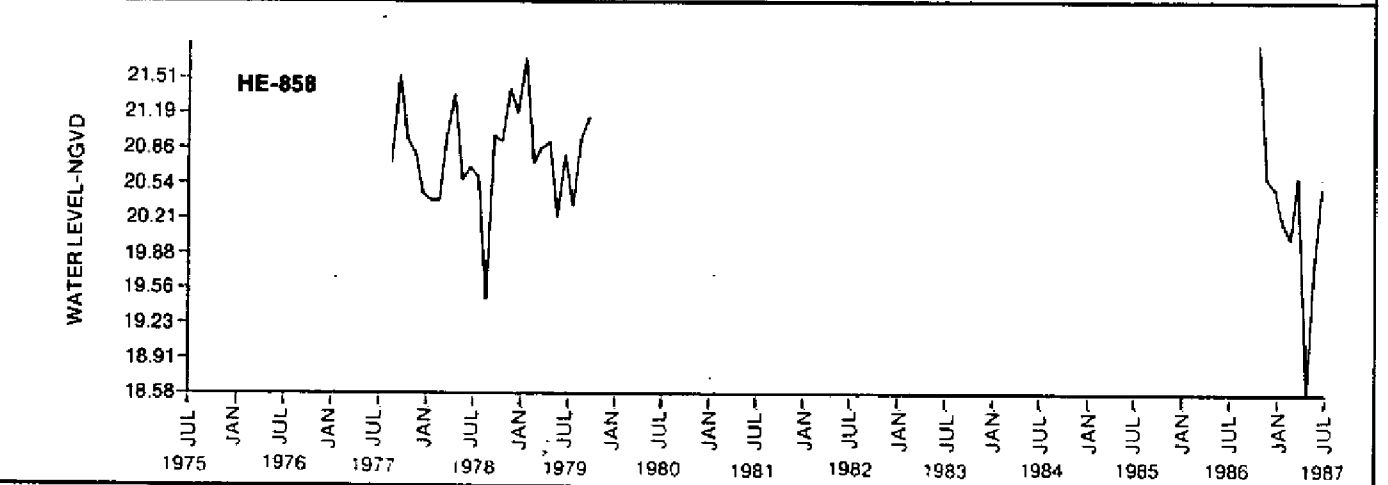
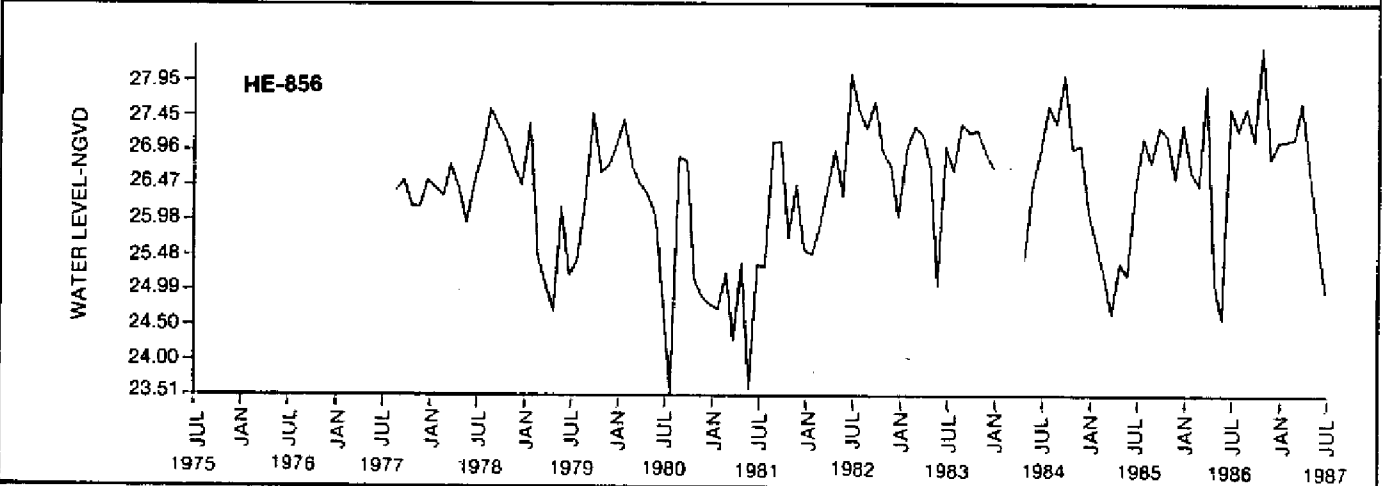
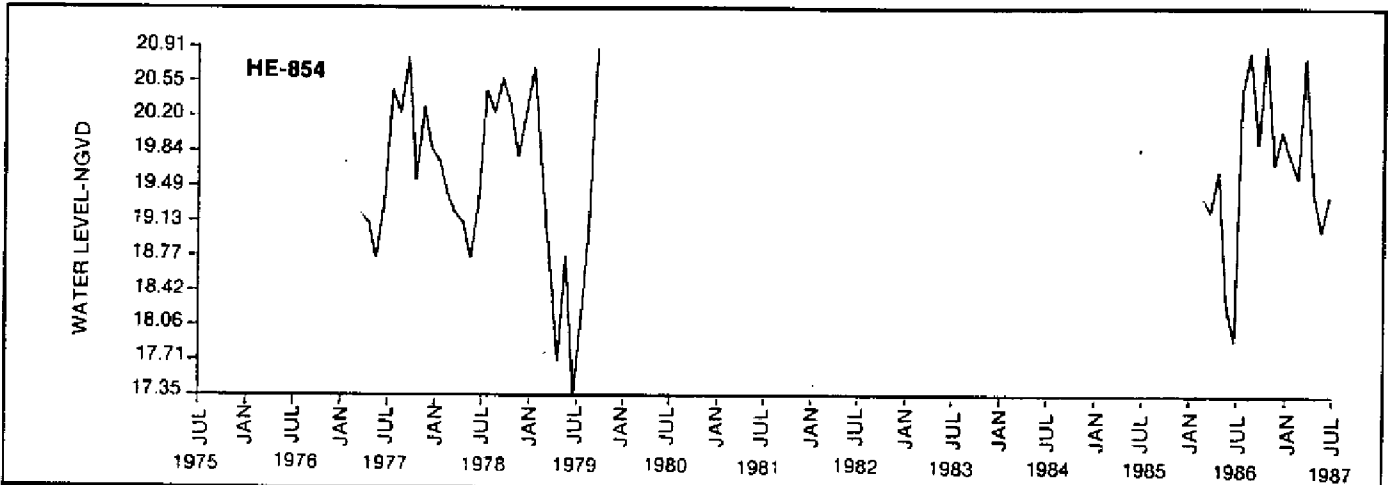
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| HE-854 | JAN | 4 | 20.69 | 19.73 | 19.98 | 0.4090 | 0.1673 | 0.837 |
| HE-854 | FEB | 4 | 19.59 | 19.36 | 19.48 | 0.1056 | 0.0111 | 0.057 |
| HE-854 | MAR | 5 | 20.80 | 18.68 | 19.43 | 0.7178 | 0.5152 | 2.652 |
| HE-854 | APR | 5 | 19.64 | 17.70 | 19.00 | 0.6808 | 0.4635 | 2.439 |
| HE-854 | MAY | 5 | 19.03 | 18.26 | 18.71 | 0.2486 | 0.0618 | 0.331 |
| HE-854 | JUN | 5 | 19.39 | 17.35 | 18.65 | 0.8551 | 0.7313 | 3.920 |
| HE-854 | JUL | 5 | 20.46 | 18.13 | 19.77 | 0.9235 | 0.8528 | 4.313 |
| HE-854 | AUG | 4 | 20.85 | 19.07 | 20.10 | 0.6436 | 0.4143 | 2.062 |
| HE-854 | SEP | 4 | 20.88 | 19.93 | 20.54 | 0.3714 | 0.1379 | 0.671 |
| HE-854 | OCT | 3 | 20.91 | 19.54 | 20.25 | 0.5604 | 0.3141 | 1.551 |
| HE-854 | NOV | 3 | 20.29 | 19.71 | 19.93 | 0.2585 | 0.0668 | 0.335 |
| HE-854 | DEC | 3 | 20.23 | 19.86 | 20.05 | 0.1511 | 0.0228 | 0.114 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| HE-856 | JAN | 9 | 27.40 | 24.73 | 26.43 | 0.8813 | 0.7767 | 2.939 |
| HE-856 | FEB | 10 | 27.30 | 25.17 | 26.25 | 0.7326 | 0.5367 | 2.045 |
| HE-856 | MAR | 9 | 27.90 | 24.28 | 26.27 | 1.2337 | 1.5219 | 5.793 |
| HE-856 | APR | 10 | 26.97 | 24.69 | 25.91 | 0.7612 | 0.5794 | 2.236 |
| HE-856 | MAY | 10 | 26.46 | 23.60 | 25.52 | 0.8559 | 0.7326 | 2.871 |
| HE-856 | JUN | 10 | 28.05 | 24.84 | 26.29 | 1.0817 | 1.1700 | 4.450 |
| HE-856 | JUL | 10 | 27.60 | 23.51 | 26.16 | 1.3822 | 1.9103 | 7.304 |
| HE-856 | AUG | 10 | 27.57 | 26.23 | 27.05 | 0.4423 | 0.1956 | 0.723 |
| HE-856 | SEP | 10 | 28.03 | 26.54 | 27.25 | 0.3983 | 0.1586 | 0.582 |
| HE-856 | OCT | 10 | 28.44 | 25.14 | 26.76 | 0.8642 | 0.7469 | 2.791 |
| HE-856 | NOV | 10 | 27.04 | 24.89 | 26.51 | 0.5896 | 0.3477 | 1.311 |
| HE-856 | DEC | 10 | 27.34 | 24.79 | 26.37 | 0.7340 | 0.5388 | 2.043 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| HE-858 | JAN | 3 | 21.70 | 20.18 | 20.75 | 0.6744 | 0.4548 | 2.191 |
| HE-858 | FEB | 3 | 20.72 | 20.04 | 20.38 | 0.2776 | 0.0771 | 0.378 |
| HE-858 | MAR | 3 | 20.97 | 20.61 | 20.82 | 0.1517 | 0.0230 | 0.111 |
| HE-858 | APR | 3 | 21.36 | 18.58 | 20.29 | 1.2201 | 1.4886 | 7.338 |
| HE-858 | MAY | 3 | 20.57 | 19.72 | 20.17 | 0.3493 | 0.1220 | 0.605 |
| HE-858 | JUN | 3 | 20.80 | 20.50 | 20.66 | 0.1233 | 0.0152 | 0.074 |
| HE-858 | JUL | 3 | 20.60 | 20.10 | 20.34 | 0.2043 | 0.0418 | 0.205 |
| HE-858 | AUG | 3 | 20.96 | 19.45 | 20.38 | 0.6643 | 0.4413 | 2.165 |
| HE-858 | SEP | 3 | 21.54 | 20.98 | 21.22 | 0.2344 | 0.0550 | 0.259 |
| HE-858 | OCT | 3 | 21.84 | 20.93 | 21.24 | 0.4266 | 0.1820 | 0.857 |
| HE-858 | NOV | 3 | 21.42 | 20.59 | 20.94 | 0.3499 | 0.1224 | 0.585 |
| HE-858 | DEC | 3 | 21.20 | 20.44 | 20.71 | 0.3450 | 0.1190 | 0.575 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|--------|
| HE-860 | JAN | 4 | 23.50 | 22.72 | 23.08 | 0.2812 | 0.0791 | 0.343 |
| HE-860 | FEB | 3 | 22.70 | 22.58 | 22.62 | 0.0566 | 0.0032 | 0.014 |
| HE-860 | MAR | 4 | 23.66 | 21.88 | 22.62 | 0.6580 | 0.4329 | 1.914 |
| HE-860 | APR | 4 | 22.46 | 21.36 | 21.85 | 0.4823 | 0.2326 | 1.064 |
| HE-860 | MAY | 4 | 21.59 | 20.89 | 21.31 | 0.2585 | 0.0668 | 0.314 |
| HE-860 | JUN | 4 | 23.90 | 20.38 | 22.29 | 1.4175 | 2.0092 | 9.013 |
| HE-860 | JUL | 4 | 24.08 | 21.06 | 22.91 | 1.1816 | 1.3961 | 6.094 |
| HE-860 | AUG | 3 | 24.29 | 20.87 | 23.15 | 1.6099 | 2.5916 | 11.197 |
| HE-860 | SEP | 4 | 23.94 | 23.24 | 23.55 | 0.2541 | 0.0646 | 0.274 |
| HE-860 | OCT | 4 | 23.98 | 22.56 | 23.39 | 0.5412 | 0.2929 | 1.252 |
| HE-860 | NOV | 4 | 23.37 | 22.53 | 22.98 | 0.3074 | 0.0945 | 0.411 |
| HE-860 | DEC | 4 | 23.20 | 22.59 | 22.92 | 0.2360 | 0.0557 | 0.243 |

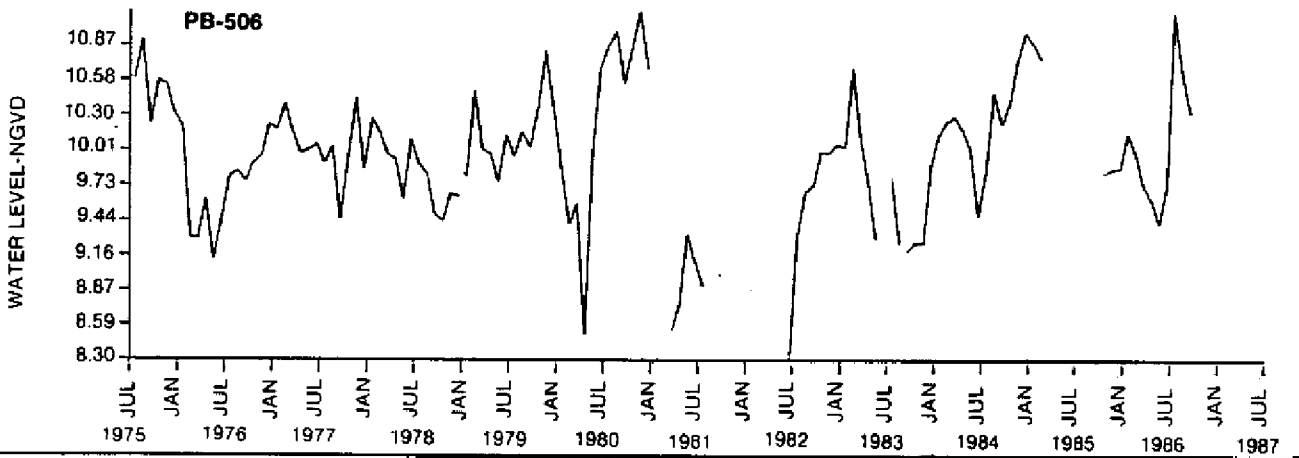
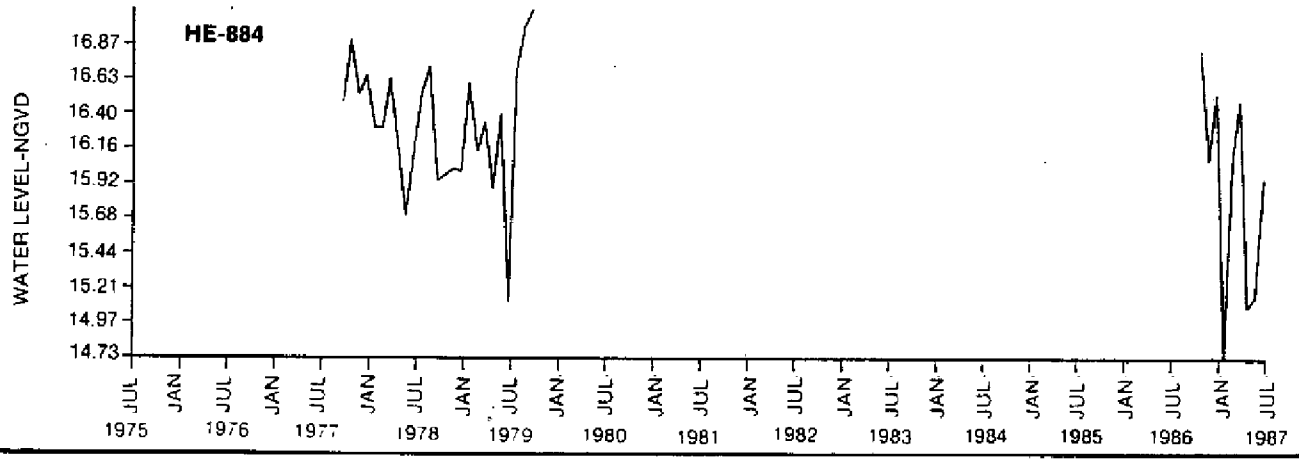
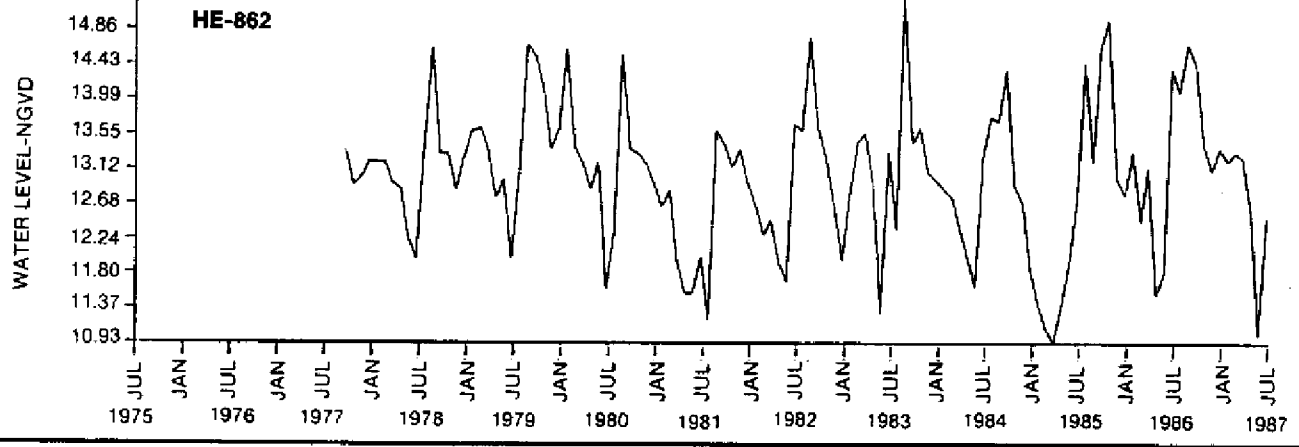


HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-----|-------|-------|-------|---------|--------|-------|
| HE-862 | JAN | 9 | | 14.61 | 11.40 | 13.05 | 0.8131 | 0.6612 | 5.065 |
| HE-862 | FEB | 10 | | 13.63 | 11.10 | 12.85 | 0.7174 | 0.5146 | 4.006 |
| HE-862 | MAR | 9 | | 13.57 | 10.93 | 12.76 | 0.7980 | 0.6368 | 4.991 |
| HE-862 | APR | 10 | | 12.96 | 11.41 | 12.25 | 0.5933 | 0.3520 | 2.874 |
| HE-862 | MAY | 10 | | 13.20 | 11.03 | 11.94 | 0.6566 | 0.4312 | 3.612 |
| HE-862 | JUN | 10 | | 14.37 | 11.61 | 12.75 | 0.8505 | 0.7234 | 5.675 |
| HE-862 | JUL | 10 | | 14.44 | 11.22 | 13.14 | 0.9097 | 0.8276 | 6.300 |
| HE-862 | AUG | 9 | | 15.30 | 13.21 | 14.35 | 0.6378 | 0.4068 | 2.835 |
| HE-862 | SEP | 10 | | 14.65 | 13.31 | 13.85 | 0.5361 | 0.2874 | 2.075 |
| HE-862 | OCT | 10 | | 14.98 | 12.90 | 13.51 | 0.5976 | 0.3572 | 2.644 |
| HE-862 | NOV | 10 | | 13.37 | 12.67 | 13.03 | 0.2322 | 0.0539 | 0.414 |
| HE-862 | DEC | 9 | | 13.61 | 11.83 | 12.88 | 0.5766 | 0.3324 | 2.581 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| HE-884 | JAN | 3 | | 16.61 | 14.73 | 15.88 | 0.8230 | 0.6773 | 4.265 |
| HE-884 | FEB | 3 | | 16.30 | 16.10 | 16.18 | 0.0864 | 0.0075 | 0.046 |
| HE-884 | MAR | 3 | | 16.64 | 16.34 | 16.49 | 0.1225 | 0.0150 | 0.091 |
| HE-884 | APR | 3 | | 16.18 | 15.08 | 15.71 | 0.4643 | 0.2156 | 1.372 |
| HE-884 | MAY | 3 | | 16.40 | 15.15 | 15.75 | 0.5115 | 0.2617 | 1.661 |
| HE-884 | JUN | 3 | | 16.13 | 15.11 | 15.73 | 0.4445 | 0.1976 | 1.256 |
| HE-884 | JUL | 3 | | 16.70 | 15.66 | 16.30 | 0.4572 | 0.2091 | 1.283 |
| HE-884 | AUG | 2 | | 17.00 | 16.72 | 16.86 | 0.1400 | 0.0196 | 0.116 |
| HE-884 | SEP | 3 | | 17.11 | 15.94 | 16.51 | 0.4781 | 0.2286 | 1.385 |
| HE-884 | OCT | 3 | | 16.90 | 15.98 | 16.57 | 0.4182 | 0.1749 | 1.055 |
| HE-884 | NOV | 3 | | 16.53 | 16.02 | 16.21 | 0.2276 | 0.0518 | 0.320 |
| HE-884 | DEC | 3 | | 16.66 | 16.00 | 16.40 | 0.2871 | 0.0824 | 0.502 |

| MONTHLY MEANS | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|---------------|-----|----|-----|-------|------|-------|---------|--------|-------|
| PB-506 | JAN | 10 | | 10.88 | 9.73 | 10.13 | 0.3051 | 0.0931 | 0.919 |
| PB-506 | FEB | 10 | | 10.76 | 9.30 | 10.11 | 0.4867 | 0.2369 | 2.344 |
| PB-506 | MAR | 10 | | 10.29 | 8.54 | 9.80 | 0.5194 | 0.2698 | 2.752 |
| PB-506 | APR | 10 | | 10.18 | 8.51 | 9.65 | 0.5422 | 0.2940 | 3.048 |
| PB-506 | MAY | 10 | | 10.03 | 9.12 | 9.66 | 0.3304 | 0.1091 | 1.130 |
| PB-506 | JUN | 10 | | 10.70 | 8.30 | 9.74 | 0.6602 | 0.4358 | 4.473 |
| PB-506 | JUL | 11 | | 11.13 | 8.91 | 10.00 | 0.6159 | 0.3794 | 3.792 |
| PB-506 | AUG | 10 | | 10.98 | 9.26 | 10.18 | 0.5317 | 0.2827 | 2.777 |
| PB-506 | SEP | 11 | | 10.56 | 9.00 | 9.82 | 0.4764 | 0.2270 | 2.311 |
| PB-506 | OCT | 10 | | 10.86 | 9.26 | 10.06 | 0.4713 | 0.2221 | 2.208 |
| PB-506 | NOV | 10 | | 11.15 | 9.26 | 10.25 | 0.5616 | 0.3154 | 3.077 |
| PB-506 | DEC | 10 | | 10.97 | 9.64 | 10.19 | 0.3883 | 0.1507 | 1.480 |



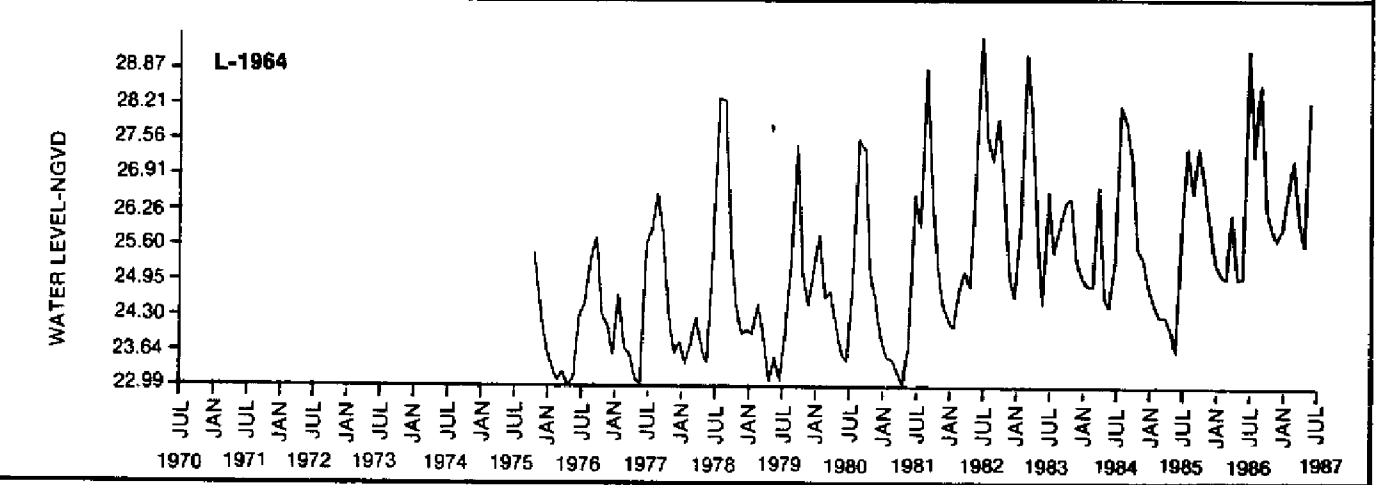
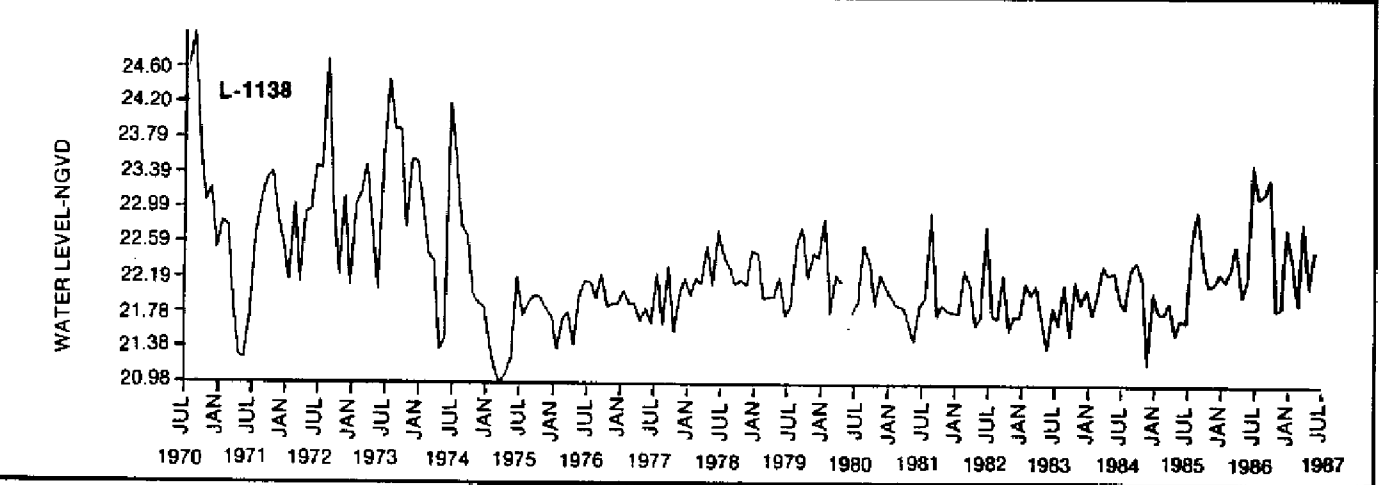
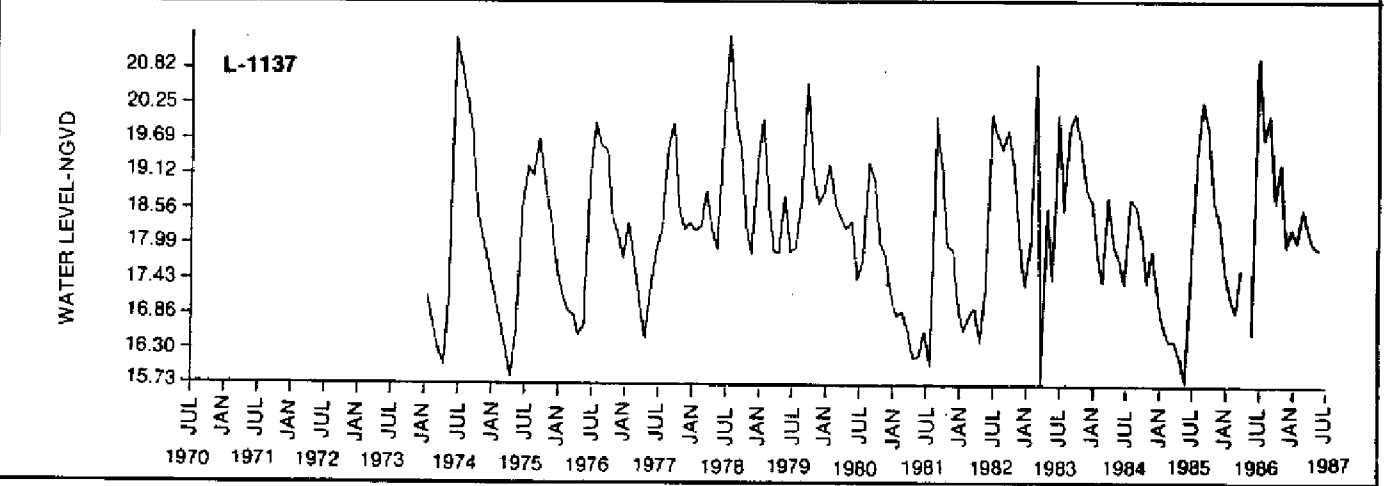
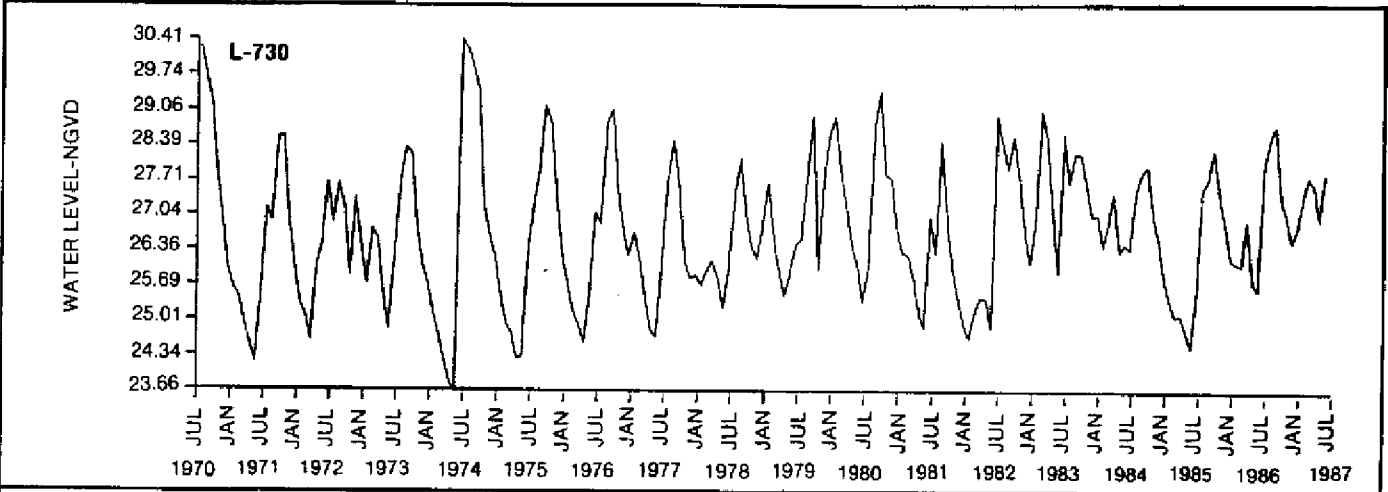
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|----|-------|-------|-------|--------|---------|-------|----|
| L-730 | JAN | 18 | 29.74 | 24.67 | 26.40 | 1.2957 | 1.6789 | 6.360 | |
| L-730 | FEB | 18 | 29.37 | 24.69 | 26.36 | 1.3631 | 1.8580 | 7.048 | |
| L-730 | MAR | 18 | 30.47 | 24.22 | 26.25 | 1.5539 | 2.4145 | 9.199 | |
| L-730 | APR | 18 | 28.92 | 23.78 | 25.65 | 1.1893 | 1.4145 | 5.514 | |
| L-730 | MAY | 18 | 29.08 | 23.66 | 25.56 | 1.3034 | 1.6990 | 6.648 | |
| L-730 | JUN | 17 | 30.41 | 25.37 | 27.17 | 1.4968 | 2.2404 | 8.247 | |
| L-730 | JUL | 17 | 30.25 | 26.05 | 27.64 | 1.1400 | 1.2996 | 4.702 | |
| L-730 | AUG | 17 | 29.87 | 26.91 | 28.32 | 0.7138 | 0.5095 | 1.799 | |
| L-730 | SEP | 17 | 29.45 | 27.01 | 28.32 | 0.8138 | 0.6623 | 2.339 | |
| L-730 | OCT | 17 | 28.81 | 25.85 | 27.19 | 0.8555 | 0.7319 | 2.691 | |
| L-730 | NOV | 17 | 27.81 | 25.46 | 26.76 | 0.6199 | 0.3843 | 1.436 | |
| L-730 | DEC | 10 | 28.63 | 24.98 | 26.52 | 0.9222 | 0.8505 | 3.207 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1137 | JAN | 14 | 20.03 | 16.60 | 17.77 | 0.9572 | 0.9162 | 5.156 | |
| L-1137 | FEB | 14 | 20.94 | 16.45 | 17.70 | 1.1884 | 1.4123 | 7.979 | |
| L-1137 | MAR | 14 | 18.86 | 15.73 | 17.29 | 0.9775 | 0.9555 | 5.525 | |
| L-1137 | APR | 13 | 18.61 | 15.84 | 17.12 | 0.9903 | 0.9808 | 5.729 | |
| L-1137 | MAY | 14 | 18.78 | 15.78 | 17.29 | 0.8134 | 0.6616 | 3.828 | |
| L-1137 | JUN | 13 | 21.32 | 16.61 | 18.83 | 1.4585 | 2.1271 | 11.296 | |
| L-1137 | JUL | 13 | 21.38 | 16.04 | 19.04 | 1.3407 | 1.7974 | 9.439 | |
| L-1137 | AUG | 13 | 20.34 | 18.65 | 19.64 | 0.5510 | 0.3036 | 1.546 | |
| L-1137 | SEP | 13 | 20.61 | 18.17 | 19.55 | 0.6090 | 0.3709 | 1.897 | |
| L-1137 | OCT | 13 | 19.66 | 17.40 | 18.65 | 0.6079 | 0.3696 | 1.982 | |
| L-1137 | NOV | 13 | 18.91 | 17.83 | 18.18 | 0.3171 | 0.1006 | 0.553 | |
| L-1137 | DEC | 13 | 19.21 | 17.00 | 17.91 | 0.6799 | 0.4622 | 2.581 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| L-1138 | JAN | 17 | 23.00 | 21.35 | 22.19 | 0.4958 | 0.2458 | 1.108 | |
| L-1138 | FEB | 17 | 23.17 | 21.11 | 22.13 | 0.4945 | 0.2445 | 1.105 | |
| L-1138 | MAR | 17 | 23.49 | 20.98 | 22.16 | 0.5091 | 0.2592 | 1.169 | |
| L-1138 | APR | 17 | 22.94 | 21.09 | 21.89 | 0.5058 | 0.2558 | 1.169 | |
| L-1138 | MAY | 16 | 22.95 | 21.25 | 21.90 | 0.4615 | 0.2130 | 0.973 | |
| L-1138 | JUN | 17 | 24.19 | 21.66 | 22.50 | 0.8252 | 0.6809 | 3.026 | |
| L-1138 | JUL | 17 | 24.60 | 21.66 | 22.59 | 0.9052 | 0.8195 | 3.628 | |
| L-1138 | AUG | 17 | 25.00 | 21.63 | 22.80 | 0.9380 | 0.8798 | 3.858 | |
| L-1138 | SEP | 17 | 23.89 | 21.53 | 22.59 | 0.6470 | 0.4186 | 1.853 | |
| L-1138 | OCT | 17 | 23.40 | 21.56 | 22.17 | 0.4729 | 0.2236 | 1.009 | |
| L-1138 | NOV | 17 | 23.54 | 21.21 | 22.23 | 0.5963 | 0.3556 | 1.600 | |
| L-1138 | DEC | 17 | 23.53 | 21.75 | 22.24 | 0.4414 | 0.1948 | 0.876 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1964 | JAN | 12 | 26.65 | 23.36 | 24.68 | 1.0370 | 1.0754 | 4.357 | |
| L-1964 | FEB | 12 | 29.19 | 23.10 | 24.89 | 1.6408 | 2.6924 | 10.816 | |
| L-1964 | MAR | 12 | 28.00 | 23.25 | 24.97 | 1.4473 | 2.0947 | 8.390 | |
| L-1964 | APR | 12 | 25.84 | 22.99 | 24.18 | 0.9809 | 0.9621 | 3.980 | |
| L-1964 | MAY | 12 | 28.32 | 23.01 | 24.46 | 1.5598 | 2.4329 | 9.947 | |
| L-1964 | JUN | 11 | 29.52 | 23.09 | 25.93 | 1.9706 | 3.8833 | 14.978 | |
| L-1964 | JUL | 11 | 28.35 | 24.04 | 26.35 | 1.4494 | 2.1008 | 7.972 | |
| L-1964 | AUG | 11 | 28.92 | 25.30 | 27.12 | 1.2127 | 1.4707 | 5.423 | |
| L-1964 | SEP | 11 | 27.99 | 25.69 | 26.75 | 0.7663 | 0.5872 | 2.195 | |
| L-1964 | OCT | 12 | 26.80 | 24.32 | 25.48 | 0.8139 | 0.6624 | 2.600 | |
| L-1964 | NOV | 12 | 26.03 | 23.61 | 24.79 | 0.7076 | 0.5007 | 2.020 | |
| L-1964 | DEC | 12 | 25.95 | 23.56 | 24.53 | 0.7175 | 0.5148 | 2.098 | |



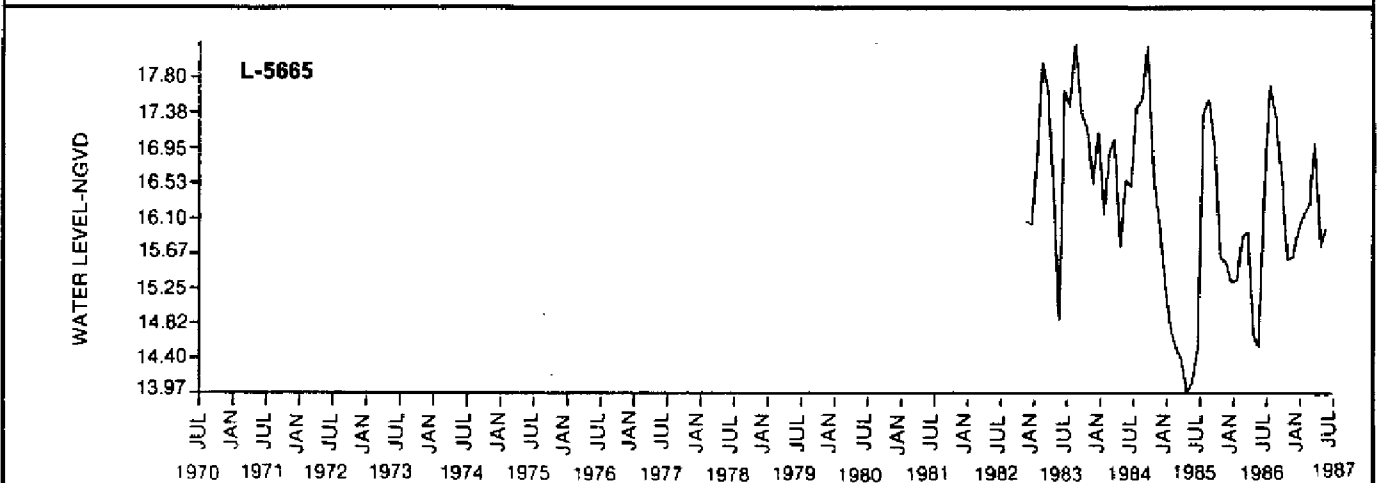
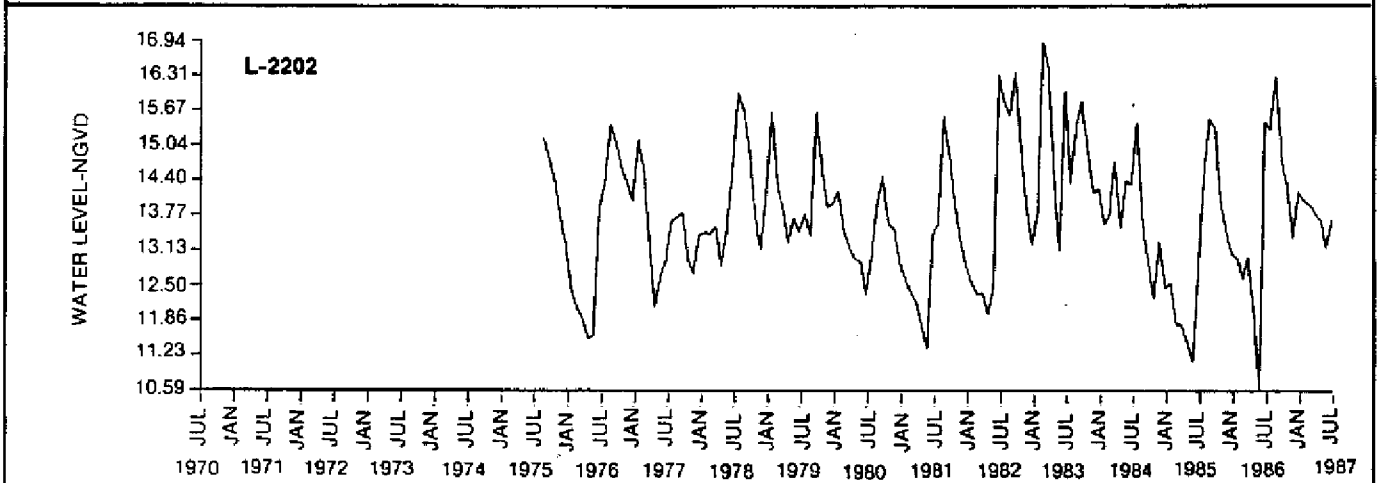
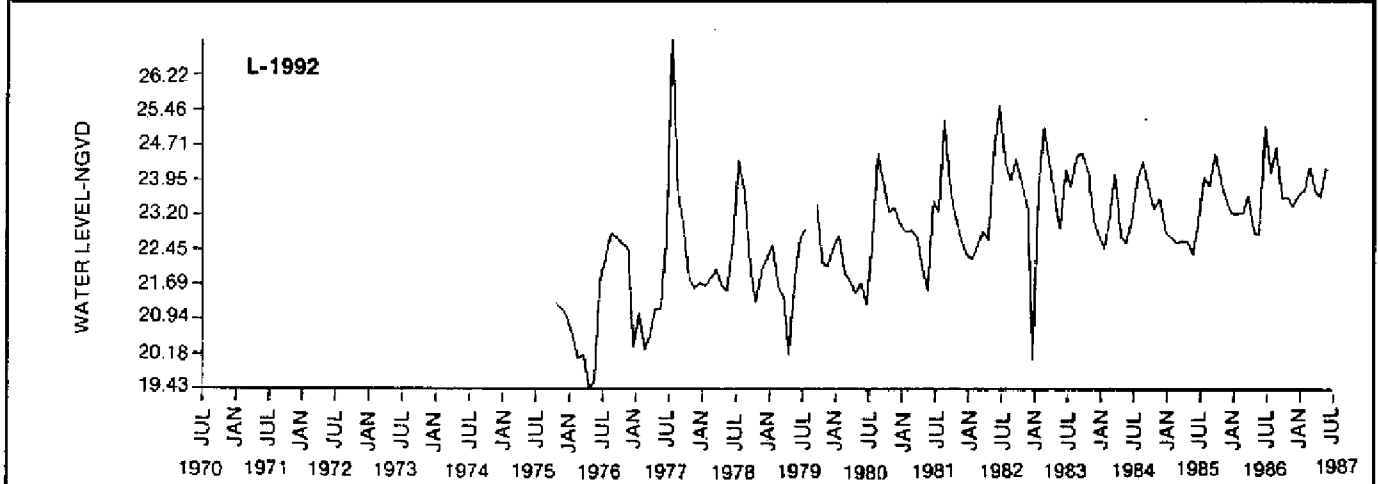
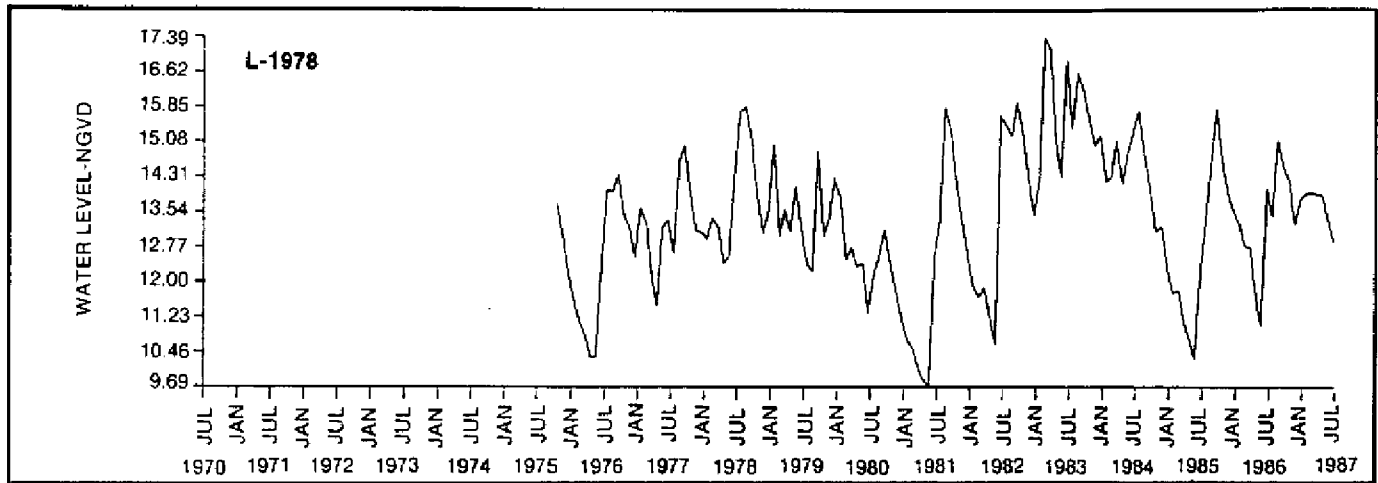
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1978 | JAN | 12 | 15.01 | 10.74 | 13.09 | 1.2653 | 1.6011 | 12.231 | |
| L-1978 | FEB | 12 | 17.39 | 10.53 | 12.98 | 1.7141 | 2.9383 | 22.637 | |
| L-1978 | MAR | 12 | 17.14 | 10.09 | 12.88 | 1.8583 | 3.4533 | 26.811 | |
| L-1978 | APR | 12 | 15.07 | 9.83 | 12.18 | 1.5531 | 2.4122 | 19.804 | |
| L-1978 | MAY | 12 | 14.82 | 9.69 | 12.23 | 1.6966 | 2.8785 | 23.540 | |
| L-1978 | JUN | 12 | 16.87 | 11.31 | 13.67 | 1.5505 | 2.4041 | 17.590 | |
| L-1978 | JUL | 11 | 15.75 | 12.15 | 13.97 | 1.3179 | 1.7369 | 12.437 | |
| L-1978 | AUG | 11 | 16.61 | 12.23 | 14.68 | 1.2726 | 1.6195 | 11.035 | |
| L-1978 | SEP | 11 | 16.20 | 13.16 | 14.93 | 0.8578 | 0.7358 | 4.928 | |
| L-1978 | OCT | 12 | 15.54 | 12.40 | 13.95 | 0.8723 | 0.7610 | 5.456 | |
| L-1978 | NOV | 12 | 14.99 | 11.80 | 13.38 | 0.7411 | 0.5493 | 4.105 | |
| L-1978 | DEC | 12 | 15.21 | 11.21 | 13.14 | 1.0238 | 1.0481 | 7.974 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| L-1992 | JAN | 12 | 23.73 | 20.59 | 22.46 | 0.9215 | 0.8491 | 3.781 | |
| L-1992 | FEB | 12 | 25.09 | 20.08 | 22.45 | 1.3934 | 1.9415 | 8.647 | |
| L-1992 | MAR | 12 | 24.38 | 20.17 | 22.50 | 1.2942 | 1.6749 | 7.445 | |
| L-1992 | APR | 12 | 23.59 | 19.43 | 21.99 | 1.2322 | 1.5182 | 6.904 | |
| L-1992 | MAY | 12 | 24.56 | 19.59 | 22.21 | 1.2868 | 1.6558 | 7.454 | |
| L-1992 | JUN | 11 | 25.56 | 21.24 | 23.23 | 1.2472 | 1.5556 | 6.697 | |
| L-1992 | JUL | 11 | 26.97 | 22.26 | 23.87 | 1.2015 | 1.4437 | 6.048 | |
| L-1992 | AUG | 10 | 25.24 | 22.81 | 24.13 | 0.6396 | 0.4090 | 1.695 | |
| L-1992 | SEP | 11 | 24.53 | 22.05 | 23.59 | 0.7535 | 0.5678 | 2.407 | |
| L-1992 | OCT | 12 | 24.16 | 21.27 | 22.87 | 0.9830 | 0.9664 | 4.225 | |
| L-1992 | NOV | 12 | 23.56 | 21.17 | 22.68 | 0.7858 | 0.6174 | 2.722 | |
| L-1992 | DEC | 12 | 23.63 | 20.05 | 22.13 | 1.0903 | 1.1887 | 5.371 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-2202 | JAN | 12 | 15.64 | 12.38 | 13.58 | 1.0090 | 1.0181 | 7.495 | |
| L-2202 | FEB | 12 | 16.94 | 11.78 | 13.47 | 1.3636 | 1.8594 | 13.803 | |
| L-2202 | MAR | 12 | 16.48 | 11.79 | 13.36 | 1.2733 | 1.6212 | 12.138 | |
| L-2202 | APR | 12 | 14.39 | 11.45 | 12.62 | 0.9238 | 0.8534 | 6.764 | |
| L-2202 | MAY | 12 | 14.40 | 10.59 | 12.55 | 1.1151 | 1.2435 | 9.908 | |
| L-2202 | JUN | 12 | 16.34 | 12.32 | 14.10 | 1.2361 | 1.5279 | 10.837 | |
| L-2202 | JUL | 11 | 16.01 | 13.05 | 14.54 | 0.9416 | 0.8867 | 6.100 | |
| L-2202 | AUG | 12 | 16.32 | 13.38 | 14.95 | 0.9412 | 0.8859 | 5.925 | |
| L-2202 | SEP | 12 | 16.38 | 12.90 | 14.90 | 0.8792 | 0.7731 | 5.188 | |
| L-2202 | OCT | 12 | 15.01 | 12.26 | 14.05 | 0.7749 | 0.6004 | 4.274 | |
| L-2202 | NOV | 12 | 14.34 | 12.70 | 13.57 | 0.4400 | 0.1936 | 1.426 | |
| L-2202 | DEC | 12 | 14.24 | 12.45 | 13.48 | 0.5875 | 0.3451 | 2.561 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-------|-------|-------|--------|---------|-------|----|
| L-5665 | JAN | 5 | 16.89 | 14.76 | 15.86 | 0.7347 | 0.5398 | 3.404 | |
| L-5665 | FEB | 5 | 17.99 | 14.52 | 16.31 | 1.1455 | 1.3121 | 8.043 | |
| L-5665 | MAR | 5 | 17.64 | 14.40 | 16.41 | 1.1462 | 1.3137 | 8.004 | |
| L-5665 | APR | 5 | 16.32 | 13.97 | 15.30 | 0.8494 | 0.7215 | 4.717 | |
| L-5665 | MAY | 5 | 16.57 | 14.11 | 15.21 | 0.9206 | 0.8475 | 5.572 | |
| L-5665 | JUN | 4 | 17.66 | 14.53 | 16.31 | 1.1276 | 1.2715 | 7.796 | |
| L-5665 | JUL | 4 | 17.73 | 17.37 | 17.50 | 0.1359 | 0.0185 | 0.106 | |
| L-5665 | AUG | 4 | 18.23 | 17.33 | 17.66 | 0.3392 | 0.1151 | 0.651 | |
| L-5665 | SEP | 4 | 18.20 | 16.59 | 17.28 | 0.6017 | 0.3620 | 2.095 | |
| L-5665 | OCT | 4 | 17.20 | 15.60 | 16.27 | 0.6806 | 0.4632 | 2.848 | |
| L-5665 | NOV | 5 | 16.52 | 15.57 | 15.97 | 0.3464 | 0.1200 | 0.751 | |
| L-5665 | DEC | 5 | 17.15 | 15.33 | 15.96 | 0.6618 | 0.4380 | 2.744 | |



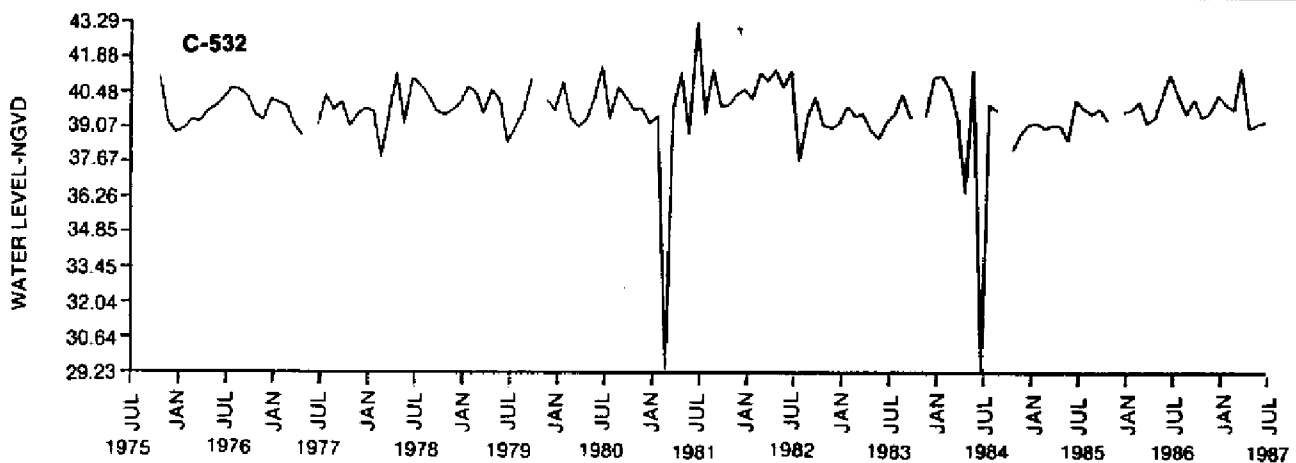
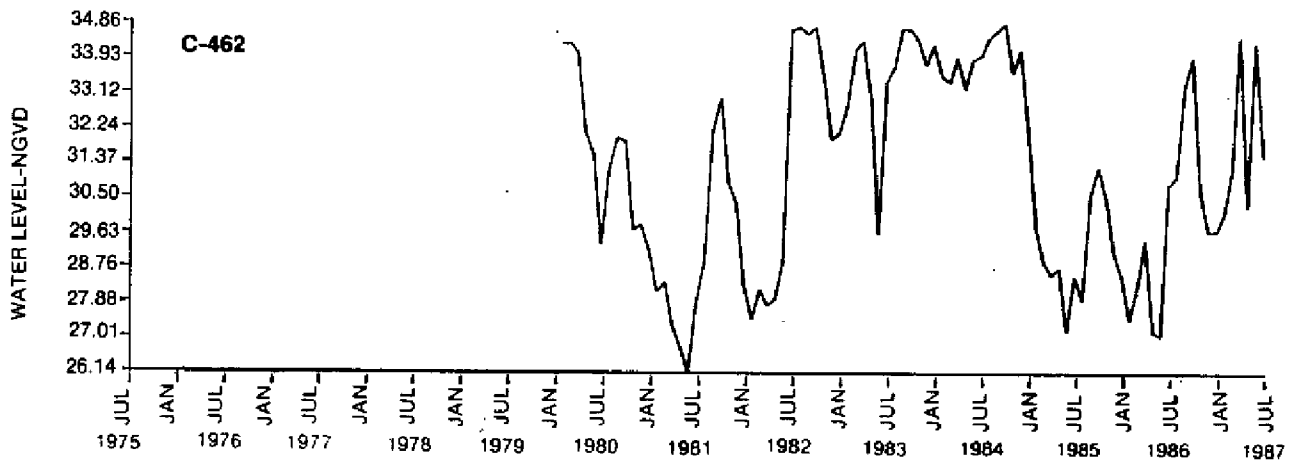
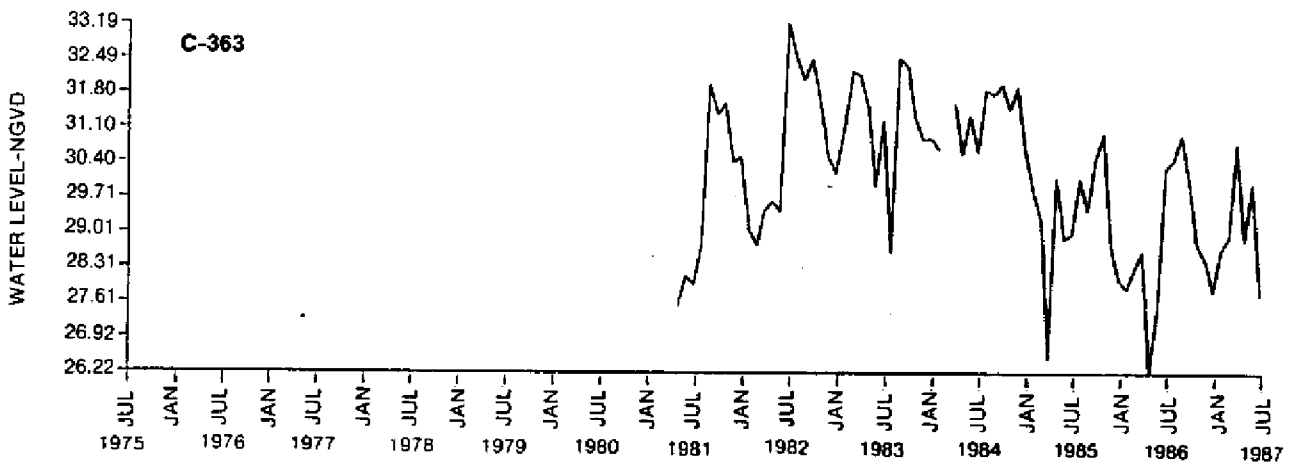
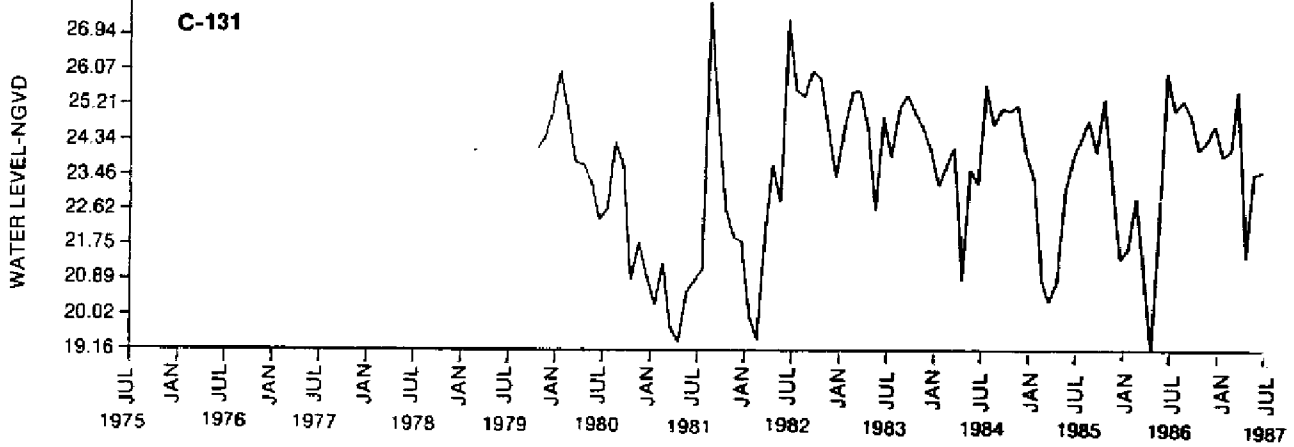
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|---|-----|-------|-------|-------|---------|--------|--------|
| C-131 | JAN | 8 | | 26.03 | 20.01 | 22.90 | 1.9702 | 3.8817 | 16.949 |
| C-131 | FEB | 8 | | 25.55 | 19.43 | 22.87 | 2.0018 | 4.0073 | 17.522 |
| C-131 | MAR | 8 | | 25.58 | 19.73 | 22.78 | 2.1538 | 4.6388 | 20.365 |
| C-131 | APR | 8 | | 24.66 | 19.16 | 21.73 | 1.9534 | 3.8157 | 17.561 |
| C-131 | MAY | 8 | | 23.63 | 20.58 | 22.72 | 0.9152 | 0.8375 | 3.686 |
| C-131 | JUN | 8 | | 27.34 | 20.86 | 24.03 | 1.9179 | 3.6785 | 15.306 |
| C-131 | JUL | 8 | | 25.71 | 21.14 | 23.80 | 1.5935 | 2.5393 | 10.668 |
| C-131 | AUG | 7 | | 27.80 | 24.30 | 25.36 | 1.0581 | 1.1197 | 4.416 |
| C-131 | SEP | 7 | | 26.06 | 23.71 | 24.91 | 0.7439 | 0.5534 | 2.222 |
| C-131 | OCT | 8 | | 25.88 | 20.88 | 24.13 | 1.5416 | 2.3765 | 9.848 |
| C-131 | NOV | 8 | | 25.21 | 21.82 | 23.78 | 1.2046 | 1.4510 | 6.101 |
| C-131 | DEC | 8 | | 25.02 | 20.97 | 23.19 | 1.4714 | 2.1649 | 9.334 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|---|-----|-------|-------|-------|---------|--------|--------|
| C-363 | JAN | 6 | | 31.08 | 27.90 | 29.54 | 1.1107 | 1.2337 | 4.176 |
| C-363 | FEB | 5 | | 32.22 | 28.32 | 29.49 | 1.3961 | 1.9491 | 6.609 |
| C-363 | MAR | 6 | | 32.16 | 26.51 | 29.87 | 1.9285 | 3.7193 | 12.453 |
| C-363 | APR | 7 | | 31.54 | 26.22 | 29.20 | 1.7012 | 2.8940 | 9.910 |
| C-363 | MAY | 7 | | 31.34 | 27.48 | 29.32 | 1.1910 | 1.4186 | 4.838 |
| C-363 | JUN | 7 | | 33.19 | 27.77 | 30.02 | 1.7845 | 3.1844 | 10.609 |
| C-363 | JUL | 7 | | 32.54 | 27.11 | 29.91 | 1.7729 | 3.1432 | 10.508 |
| C-363 | AUG | 6 | | 32.50 | 29.45 | 31.45 | 1.0065 | 1.0130 | 3.221 |
| C-363 | SEP | 6 | | 32.48 | 29.99 | 31.44 | 0.9267 | 0.8588 | 2.732 |
| C-363 | OCT | 6 | | 31.63 | 28.78 | 30.96 | 0.9968 | 0.9936 | 3.210 |
| C-363 | NOV | 6 | | 31.92 | 28.47 | 30.16 | 1.2018 | 1.4444 | 4.790 |
| C-363 | DEC | 6 | | 30.89 | 27.84 | 29.69 | 1.2462 | 1.5529 | 5.230 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|---|-----|-------|-------|-------|---------|--------|--------|
| C-462 | JAN | 8 | | 34.34 | 27.46 | 30.46 | 2.5897 | 6.7064 | 22.020 |
| C-462 | FEB | 8 | | 34.34 | 28.22 | 30.88 | 2.5831 | 6.6726 | 21.611 |
| C-462 | MAR | 8 | | 34.52 | 27.33 | 31.29 | 3.0371 | 9.2243 | 29.483 |
| C-462 | APR | 8 | | 33.25 | 26.75 | 29.91 | 2.4544 | 6.0239 | 20.137 |
| C-462 | MAY | 8 | | 34.38 | 26.14 | 29.86 | 2.9599 | 8.7611 | 29.346 |
| C-462 | JUN | 9 | | 34.69 | 27.96 | 31.23 | 2.2780 | 5.1893 | 16.615 |
| C-462 | JUL | 8 | | 34.76 | 27.97 | 31.56 | 2.3840 | 5.6834 | 18.010 |
| C-462 | AUG | 8 | | 34.72 | 30.21 | 32.79 | 1.7063 | 2.9116 | 8.879 |
| C-462 | SEP | 7 | | 34.86 | 31.27 | 33.50 | 1.3574 | 1.8425 | 5.500 |
| C-462 | OCT | 7 | | 34.44 | 29.72 | 31.92 | 1.7488 | 3.0582 | 9.580 |
| C-462 | NOV | 8 | | 34.19 | 29.12 | 31.57 | 1.9314 | 3.7304 | 11.817 |
| C-462 | DEC | 7 | | 34.31 | 28.35 | 30.64 | 2.0947 | 4.3879 | 14.321 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|----|-----|-------|-------|-------|---------|---------|--------|
| C-532 | JAN | 12 | | 41.14 | 39.01 | 40.02 | 0.6165 | 0.3801 | 0.950 |
| C-532 | FEB | 12 | | 41.26 | 29.37 | 38.89 | 2.9845 | 8.9073 | 22.904 |
| C-532 | MAR | 12 | | 41.50 | 39.10 | 39.70 | 0.7209 | 0.5197 | 1.309 |
| C-532 | APR | 12 | | 41.38 | 36.42 | 39.61 | 1.3360 | 1.7849 | 4.506 |
| C-532 | MAY | 11 | | 41.40 | 38.55 | 39.73 | 0.8816 | 0.7772 | 1.956 |
| C-532 | JUN | 12 | | 43.29 | 29.23 | 39.52 | 3.3535 | 11.2457 | 28.454 |
| C-532 | JUL | 12 | | 40.76 | 37.70 | 39.70 | 0.8093 | 0.6549 | 1.650 |
| C-532 | AUG | 11 | | 41.43 | 39.47 | 40.12 | 0.5815 | 0.3382 | 0.843 |
| C-532 | SEP | 10 | | 41.01 | 39.46 | 40.11 | 0.4017 | 0.1614 | 0.402 |
| C-532 | OCT | 10 | | 41.10 | 38.16 | 39.53 | 0.7028 | 0.4939 | 1.249 |
| C-532 | NOV | 11 | | 40.40 | 38.83 | 39.58 | 0.4335 | 0.1880 | 0.475 |
| C-532 | DEC | 12 | | 41.10 | 38.85 | 39.83 | 0.6290 | 0.3957 | 0.993 |



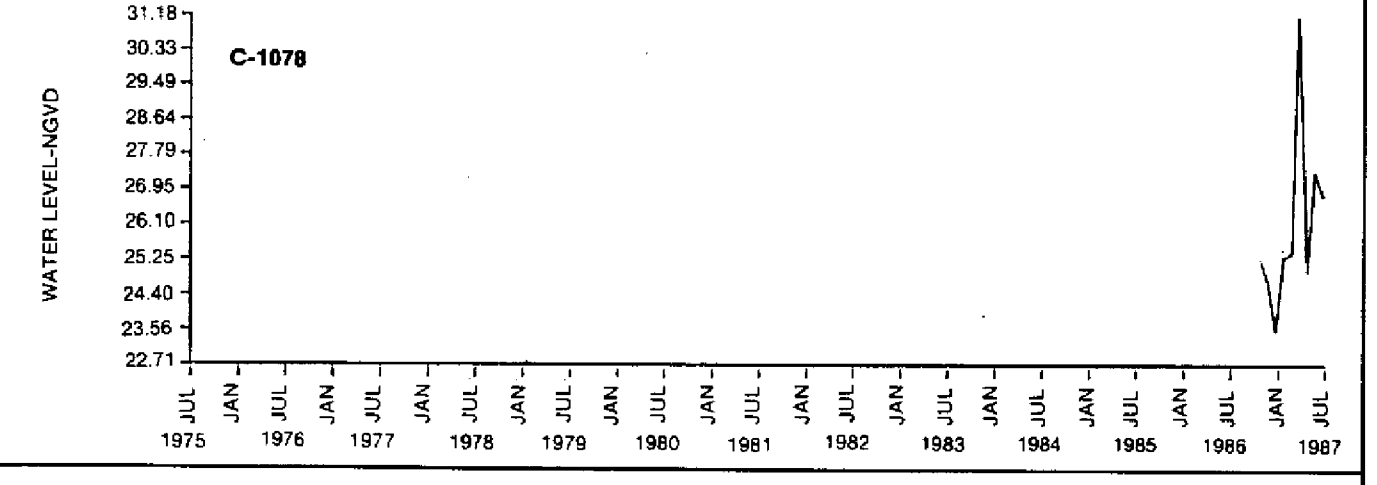
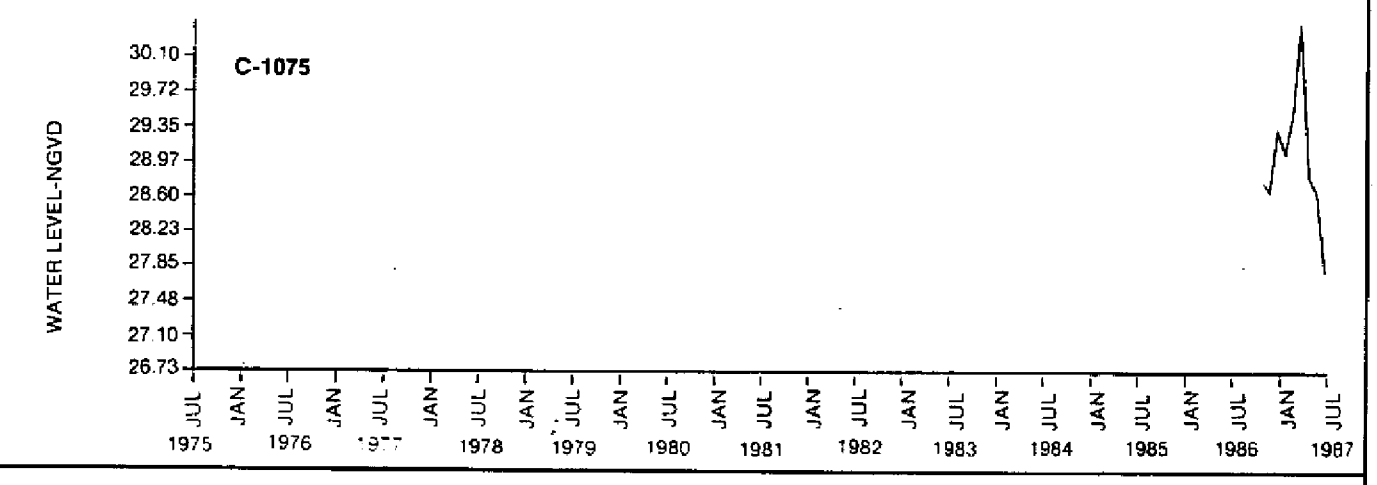
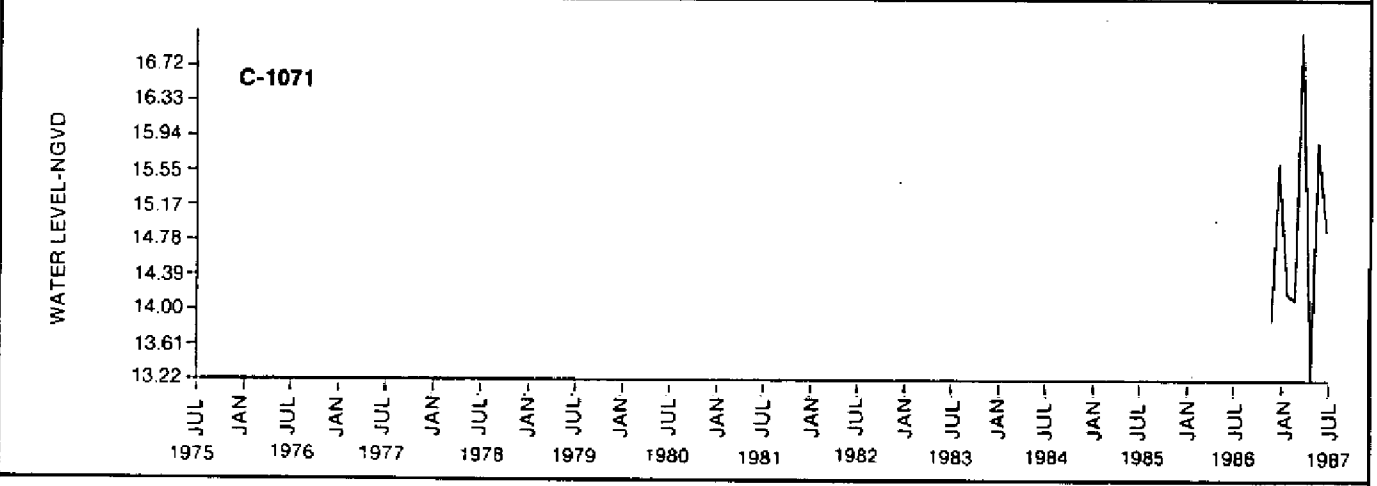
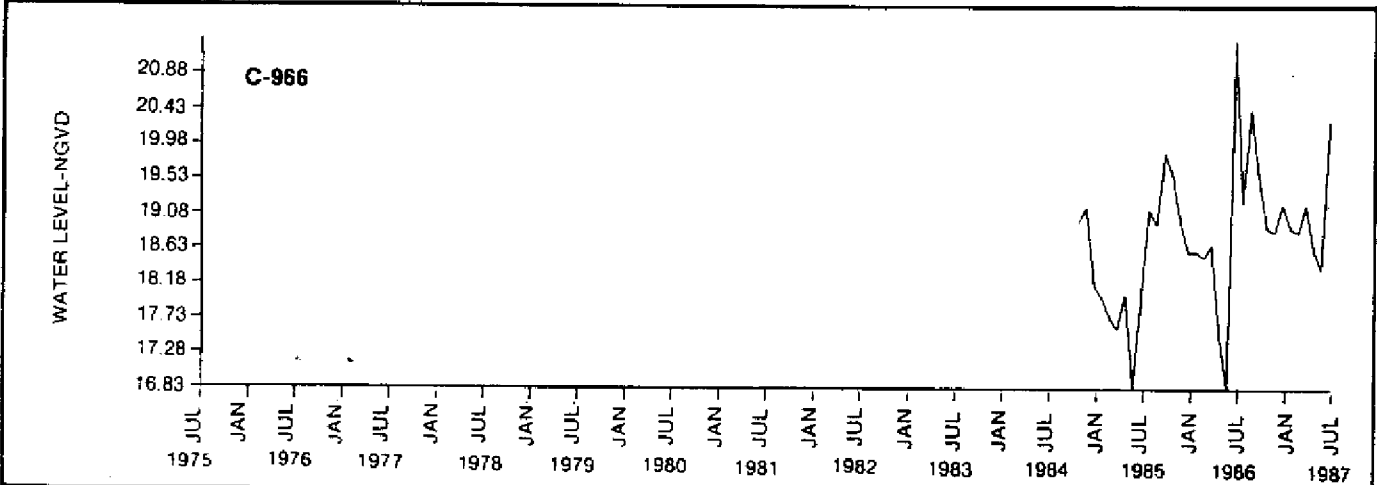
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| C-966 | JAN | 3 | | 18.91 | 18.00 | 18.50 | 0.3777 | 0.1427 | 0.771 |
| C-966 | FEB | 3 | | 18.86 | 17.75 | 18.38 | 0.4654 | 0.2166 | 1.178 |
| C-966 | MAR | 3 | | 19.22 | 17.60 | 18.51 | 0.6753 | 0.4561 | 2.464 |
| C-966 | APR | 3 | | 18.63 | 17.51 | 18.06 | 0.4573 | 0.2092 | 1.158 |
| C-966 | MAY | 3 | | 18.38 | 16.83 | 17.35 | 0.7260 | 0.5271 | 3.037 |
| C-966 | JUN | 3 | | 21.33 | 17.97 | 19.87 | 1.4055 | 1.9755 | 9.944 |
| C-966 | JUL | 3 | | 19.24 | 18.01 | 18.80 | 0.5598 | 0.3134 | 1.667 |
| C-966 | AUG | 3 | | 20.45 | 18.70 | 19.37 | 0.7710 | 0.5945 | 3.069 |
| C-966 | SEP | 3 | | 19.89 | 18.59 | 19.35 | 0.5531 | 0.3059 | 1.581 |
| C-966 | OCT | 4 | | 19.60 | 18.91 | 19.16 | 0.2703 | 0.0730 | 0.381 |
| C-966 | NOV | 3 | | 19.18 | 18.86 | 19.01 | 0.1314 | 0.0173 | 0.091 |
| C-966 | DEC | 3 | | 19.22 | 18.17 | 18.66 | 0.4310 | 0.1858 | 0.995 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| C-1071 | JAN | 1 | | 14.19 | 14.19 | 14.19 | | | |
| C-1071 | FEB | 1 | | 14.12 | 14.12 | 14.12 | | | |
| C-1071 | MAR | 1 | | 17.11 | 17.11 | 17.11 | | | |
| C-1071 | APR | 2 | | 15.01 | 13.22 | 14.12 | 0.8950 | 0.8010 | 5.675 |
| C-1071 | MAY | 1 | | 15.88 | 15.88 | 15.88 | | | |
| C-1071 | JUN | 1 | | 14.89 | 14.89 | 14.89 | | | |
| C-1071 | JUL | 1 | | 16.17 | 16.17 | 16.17 | | | |
| C-1071 | AUG | 0 | | | | | | | |
| C-1071 | SEP | 0 | | | | | | | |
| C-1071 | OCT | 0 | | | | | | | |
| C-1071 | NOV | 1 | | 13.85 | 13.85 | 13.85 | | | |
| C-1071 | DEC | 1 | | 15.64 | 15.64 | 15.64 | | | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| C-1075 | JAN | 1 | | 29.08 | 29.08 | 29.08 | | | |
| C-1075 | FEB | 1 | | 29.54 | 29.54 | 29.54 | | | |
| C-1075 | MAR | 1 | | 30.47 | 30.47 | 30.47 | | | |
| C-1075 | APR | 2 | | 28.84 | 26.73 | 27.79 | 1.0550 | 1.1130 | 4.006 |
| C-1075 | MAY | 1 | | 28.66 | 28.66 | 28.66 | | | |
| C-1075 | JUN | 1 | | 27.81 | 27.81 | 27.81 | | | |
| C-1075 | JUL | 1 | | 28.31 | 28.31 | 28.31 | | | |
| C-1075 | AUG | 0 | | | | | | | |
| C-1075 | SEP | 0 | | | | | | | |
| C-1075 | OCT | 1 | | 28.79 | 28.79 | 28.79 | | | |
| C-1075 | NOV | 1 | | 28.67 | 28.67 | 28.67 | | | |
| C-1075 | DEC | 1 | | 29.34 | 29.34 | 29.34 | | | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| C-1078 | JAN | 1 | | 25.33 | 25.33 | 25.33 | | | |
| C-1078 | FEB | 1 | | 25.42 | 25.42 | 25.42 | | | |
| C-1078 | MAR | 1 | | 31.18 | 31.18 | 31.18 | | | |
| C-1078 | APR | 2 | | 24.95 | 22.71 | 23.83 | 1.1200 | 1.2544 | 5.264 |
| C-1078 | MAY | 1 | | 27.39 | 27.39 | 27.39 | | | |
| C-1078 | JUN | 1 | | 26.81 | 26.81 | 26.81 | | | |
| C-1078 | JUL | 1 | | 26.30 | 26.30 | 26.30 | | | |
| C-1078 | AUG | 0 | | | | | | | |
| C-1078 | SEP | 0 | | | | | | | |
| C-1078 | OCT | 1 | | 25.29 | 25.29 | 25.29 | | | |
| C-1078 | NOV | 1 | | 24.70 | 24.70 | 24.70 | | | |
| C-1078 | DEC | 1 | | 23.53 | 23.53 | 23.53 | | | |



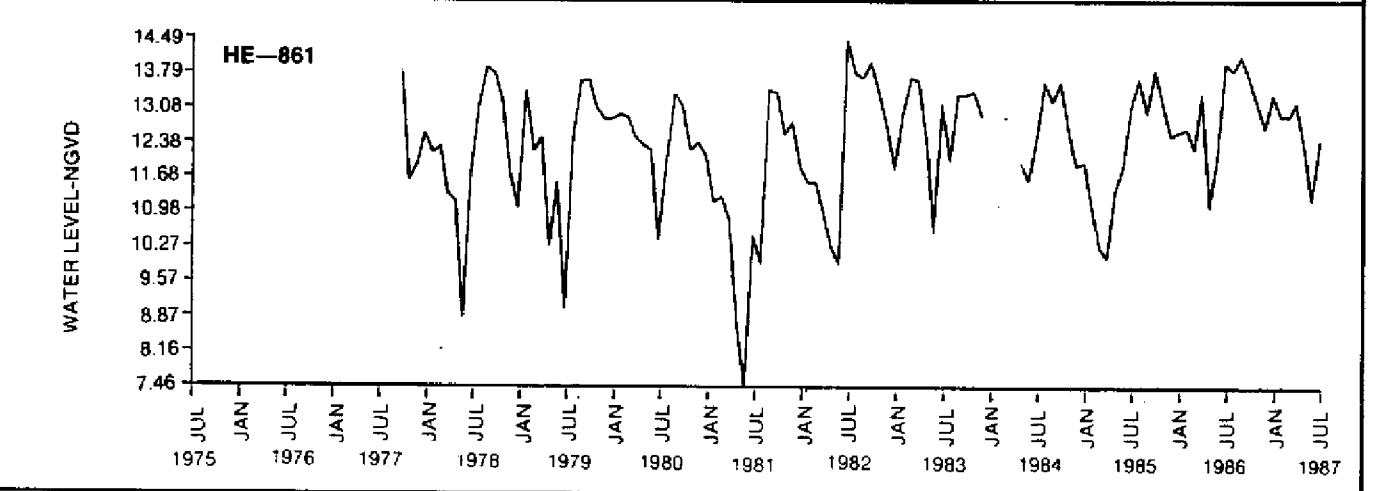
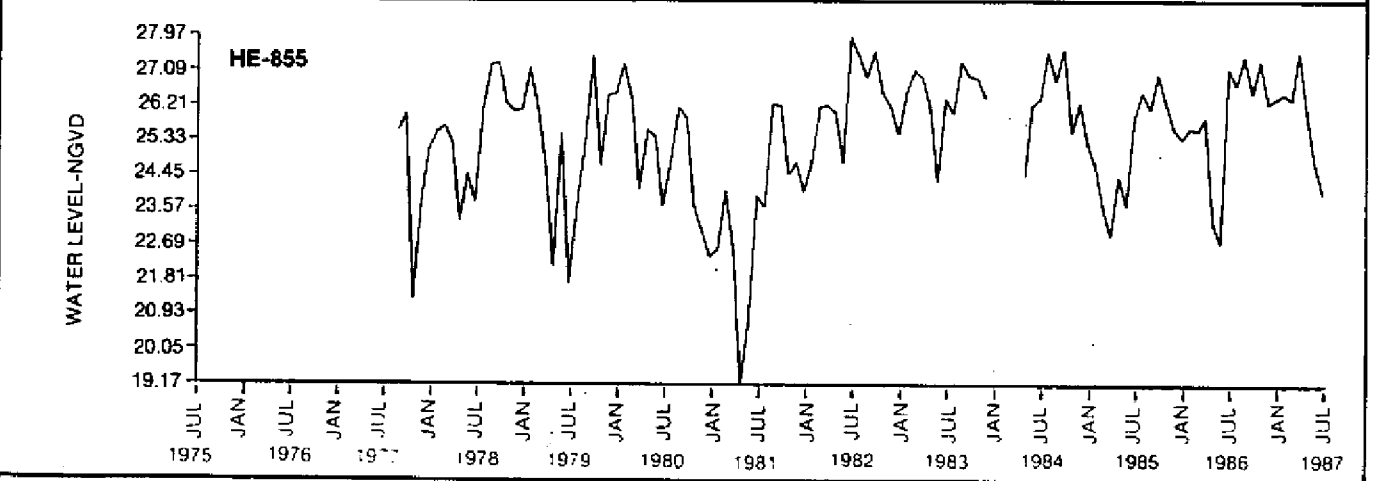
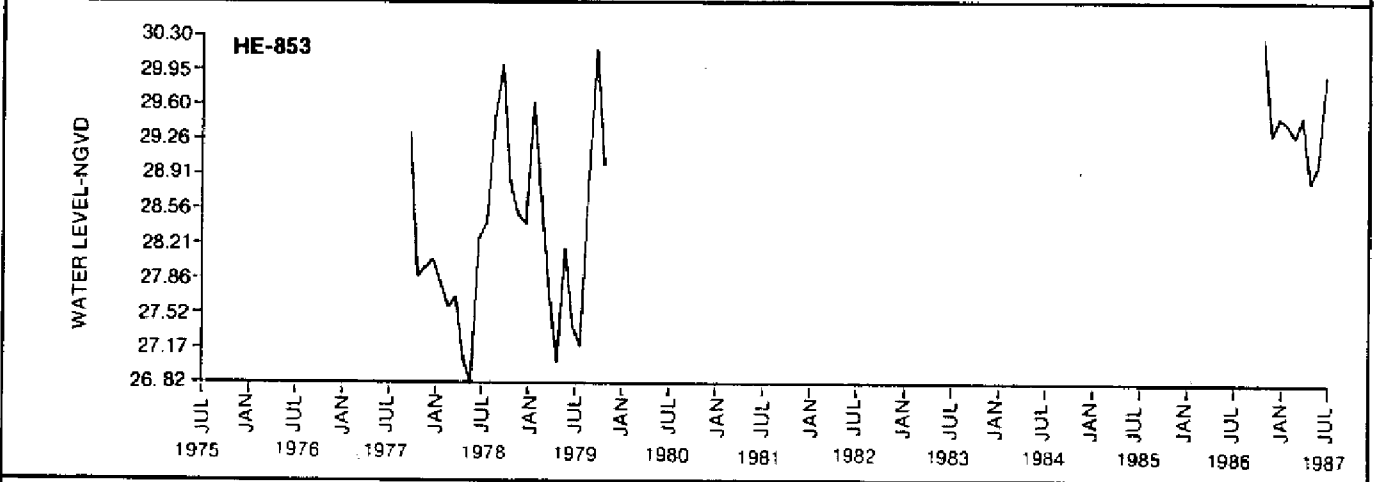
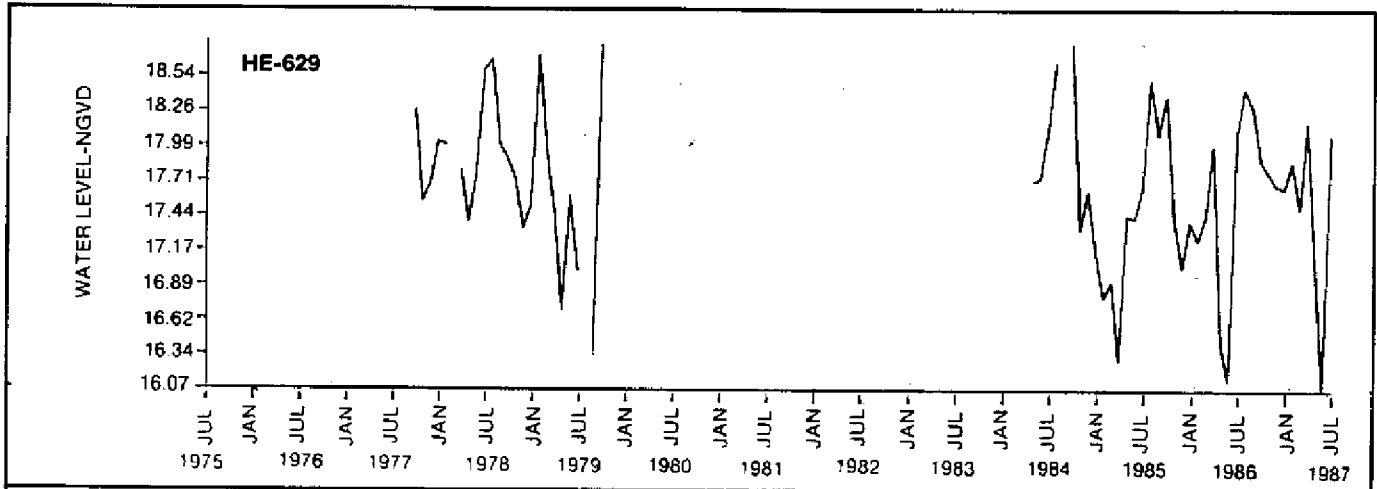
HYDROGRAPHS - WATER TABLE AQUIFER

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| HE-629 | JAN | 5 | | 18.70 | 16.80 | 17.73 | 0.6510 | 0.4238 | 2.391 |
| HE-629 | FEB | 4 | | 17.90 | 16.92 | 17.45 | 0.3489 | 0.1217 | 0.698 |
| HE-629 | MAR | 5 | | 18.18 | 16.30 | 17.55 | 0.6675 | 0.4456 | 2.538 |
| HE-629 | APR | 6 | | 17.72 | 16.44 | 17.13 | 0.4442 | 0.1973 | 1.152 |
| HE-629 | MAY | 6 | | 17.78 | 16.07 | 17.13 | 0.7291 | 0.5316 | 3.104 |
| HE-629 | JUN | 6 | | 18.59 | 17.01 | 17.93 | 0.4903 | 0.2404 | 1.341 |
| HE-629 | JUL | 5 | | 18.67 | 16.79 | 18.22 | 0.7177 | 0.5150 | 2.827 |
| HE-629 | AUG | 4 | | 18.30 | 16.34 | 17.68 | 0.7827 | 0.6126 | 3.465 |
| HE-629 | SEP | 6 | | 18.81 | 17.88 | 18.34 | 0.3745 | 0.1403 | 0.765 |
| HE-629 | OCT | 5 | | 17.79 | 17.34 | 17.57 | 0.1731 | 0.0300 | 0.171 |
| HE-629 | NOV | 5 | | 17.70 | 17.04 | 17.48 | 0.2574 | 0.0663 | 0.379 |
| HE-629 | DEC | 5 | | 18.02 | 17.16 | 17.55 | 0.2866 | 0.0821 | 0.468 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| HE-853 | JAN | 3 | | 29.63 | 27.81 | 28.95 | 0.8130 | 0.6610 | 2.283 |
| HE-853 | FEB | 3 | | 29.30 | 27.57 | 28.47 | 0.7083 | 0.5018 | 1.762 |
| HE-853 | MAR | 3 | | 29.50 | 27.68 | 28.30 | 0.8464 | 0.7164 | 2.531 |
| HE-853 | APR | 3 | | 28.84 | 27.02 | 27.64 | 0.8510 | 0.7242 | 2.620 |
| HE-853 | MAY | 3 | | 29.01 | 26.82 | 28.00 | 0.9021 | 0.8138 | 2.906 |
| HE-853 | JUN | 3 | | 29.91 | 27.39 | 28.52 | 1.0443 | 1.0905 | 3.823 |
| HE-853 | JUL | 3 | | 28.42 | 27.18 | 27.98 | 0.5688 | 0.3235 | 1.156 |
| HE-853 | AUG | 2 | | 29.48 | 28.84 | 29.16 | 0.3200 | 0.1024 | 0.351 |
| HE-853 | SEP | 3 | | 30.16 | 29.32 | 29.83 | 0.3642 | 0.1326 | 0.445 |
| HE-853 | OCT | 4 | | 30.30 | 27.88 | 29.00 | 0.8627 | 0.7442 | 2.566 |
| HE-853 | NOV | 3 | | 29.31 | 27.97 | 28.59 | 0.5510 | 0.3036 | 1.062 |
| HE-853 | DEC | 3 | | 29.49 | 28.05 | 28.65 | 0.6119 | 0.3744 | 1.307 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-----|-------|-------|-------|---------|--------|--------|
| HE-855 | JAN | 9 | | 27.27 | 22.58 | 25.66 | 1.4015 | 1.9642 | 7.655 |
| HE-855 | FEB | 10 | | 27.14 | 23.61 | 25.72 | 1.0266 | 1.0539 | 4.098 |
| HE-855 | MAR | 9 | | 27.61 | 22.67 | 25.15 | 1.6121 | 2.5990 | 10.332 |
| HE-855 | APR | 10 | | 26.22 | 19.17 | 24.07 | 2.0987 | 4.4046 | 18.302 |
| HE-855 | MAY | 10 | | 26.25 | 20.70 | 24.28 | 1.5072 | 2.2717 | 9.357 |
| HE-855 | JUN | 10 | | 27.97 | 21.72 | 25.11 | 1.8557 | 3.4436 | 13.715 |
| HE-855 | JUL | 10 | | 27.59 | 22.62 | 25.54 | 1.6594 | 2.7536 | 10.784 |
| HE-855 | AUG | 10 | | 27.50 | 25.26 | 26.54 | 0.7266 | 0.5279 | 1.989 |
| HE-855 | SEP | 10 | | 27.66 | 25.92 | 26.88 | 0.6310 | 0.3982 | 1.481 |
| HE-855 | OCT | 10 | | 27.36 | 21.31 | 25.32 | 1.7368 | 3.0165 | 11.914 |
| HE-855 | NOV | 10 | | 26.48 | 23.07 | 25.51 | 1.1634 | 1.3536 | 5.306 |
| HE-855 | DEC | 9 | | 26.55 | 22.42 | 25.21 | 1.2195 | 1.4872 | 5.899 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-----|-------|-------|-------|---------|--------|--------|
| HE-861 | JAN | 9 | | 13.43 | 11.06 | 12.34 | 0.8230 | 0.6774 | 5.488 |
| HE-861 | FEB | 10 | | 13.72 | 10.26 | 12.24 | 0.9418 | 0.8869 | 7.246 |
| HE-861 | MAR | 9 | | 13.65 | 10.07 | 12.05 | 1.2077 | 1.4586 | 12.100 |
| HE-861 | APR | 10 | | 12.47 | 8.69 | 11.21 | 1.1323 | 1.2820 | 11.438 |
| HE-861 | MAY | 10 | | 12.24 | 7.46 | 10.75 | 1.4962 | 2.2387 | 20.817 |
| HE-861 | JUN | 10 | | 14.49 | 9.02 | 12.15 | 1.6392 | 2.6870 | 22.117 |
| HE-861 | JUL | 10 | | 13.87 | 9.95 | 12.75 | 1.1501 | 1.3228 | 10.375 |
| HE-861 | AUG | 9 | | 14.16 | 13.02 | 13.54 | 0.3321 | 0.1103 | 0.815 |
| HE-861 | SEP | 10 | | 14.02 | 13.14 | 13.65 | 0.2548 | 0.0649 | 0.476 |
| HE-861 | OCT | 10 | | 13.44 | 11.62 | 12.87 | 0.5587 | 0.3121 | 2.426 |
| HE-861 | NOV | 10 | | 12.95 | 11.74 | 12.46 | 0.4194 | 0.1759 | 1.412 |
| HE-861 | DEC | 9 | | 13.39 | 11.06 | 12.27 | 0.6407 | 0.4105 | 3.347 |



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| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|--------|
| HE-868 | JAN | 4 | 20.10 | 18.06 | 19.08 | 0.7898 | 0.6237 | 3.269 |
| HE-868 | FEB | 4 | 19.94 | 17.77 | 18.77 | 0.9430 | 0.8893 | 4.739 |
| HE-868 | MAR | 4 | 20.35 | 17.84 | 19.11 | 1.0859 | 1.1792 | 6.172 |
| HE-868 | APR | 4 | 18.82 | 17.26 | 18.12 | 0.6329 | 0.4005 | 2.211 |
| HE-868 | MAY | 4 | 19.01 | 17.21 | 18.46 | 0.7362 | 0.5419 | 2.936 |
| HE-868 | JUN | 4 | 21.83 | 17.25 | 19.44 | 1.6607 | 2.7581 | 14.191 |
| HE-868 | JUL | 4 | 20.36 | 17.15 | 19.08 | 1.1856 | 1.4057 | 7.369 |
| HE-868 | AUG | 3 | 20.11 | 18.27 | 19.00 | 0.7994 | 0.6390 | 3.364 |
| HE-868 | SEP | 4 | 19.56 | 18.25 | 19.00 | 0.4973 | 0.2473 | 1.302 |
| HE-868 | OCT | 5 | 20.07 | 16.95 | 18.60 | 1.2104 | 1.4651 | 7.877 |
| HE-868 | NOV | 4 | 19.86 | 17.22 | 18.79 | 0.9990 | 0.9980 | 5.310 |
| HE-868 | DEC | 4 | 20.25 | 17.09 | 18.88 | 1.2709 | 1.6153 | 8.557 |

| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| C-1074 | JAN | 1 | 25.14 | 25.14 | 25.14 | | | |
| C-1074 | FEB | 1 | 25.02 | 25.02 | 25.02 | | | |
| C-1074 | MAR | 1 | 25.62 | 25.62 | 25.62 | | | |
| C-1074 | APR | 2 | 25.17 | 24.45 | 24.81 | 0.3600 | 0.1296 | 0.522 |
| C-1074 | MAY | 1 | 24.59 | 24.59 | 24.59 | | | |
| C-1074 | JUN | 1 | 24.03 | 24.03 | 24.03 | | | |
| C-1074 | JUL | 1 | 23.71 | 23.71 | 23.71 | | | |
| C-1074 | AUG | | | | | | | |
| C-1074 | SEP | | | | | | | |
| C-1074 | OCT | | | | | | | |
| C-1074 | NOV | 1 | 25.11 | 25.11 | 25.11 | | | |
| C-1074 | DEC | 1 | 24.93 | 24.93 | 24.93 | | | |

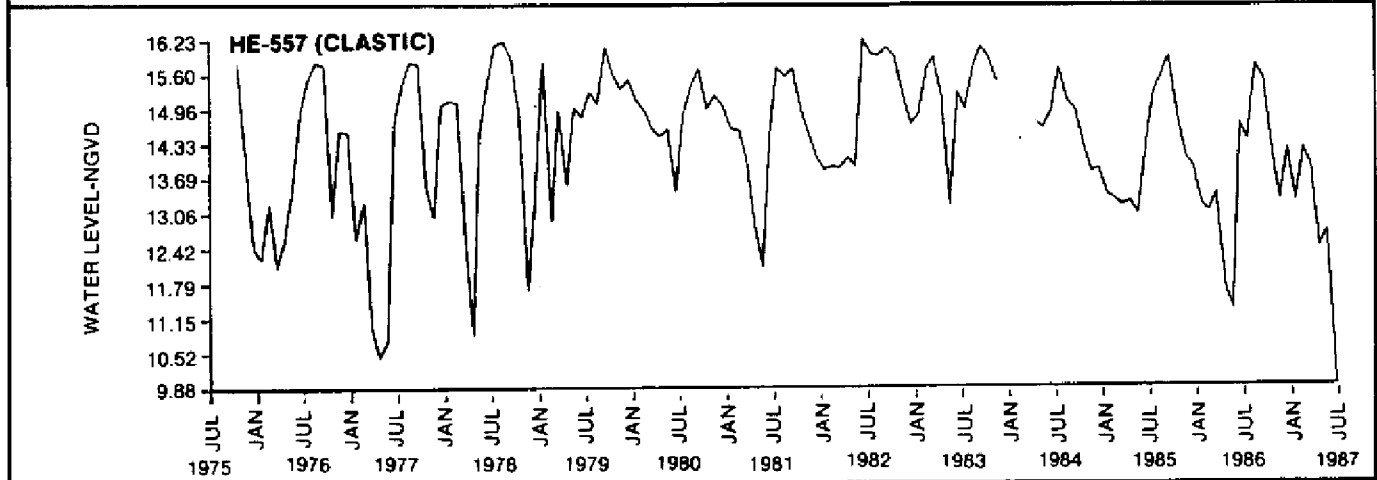
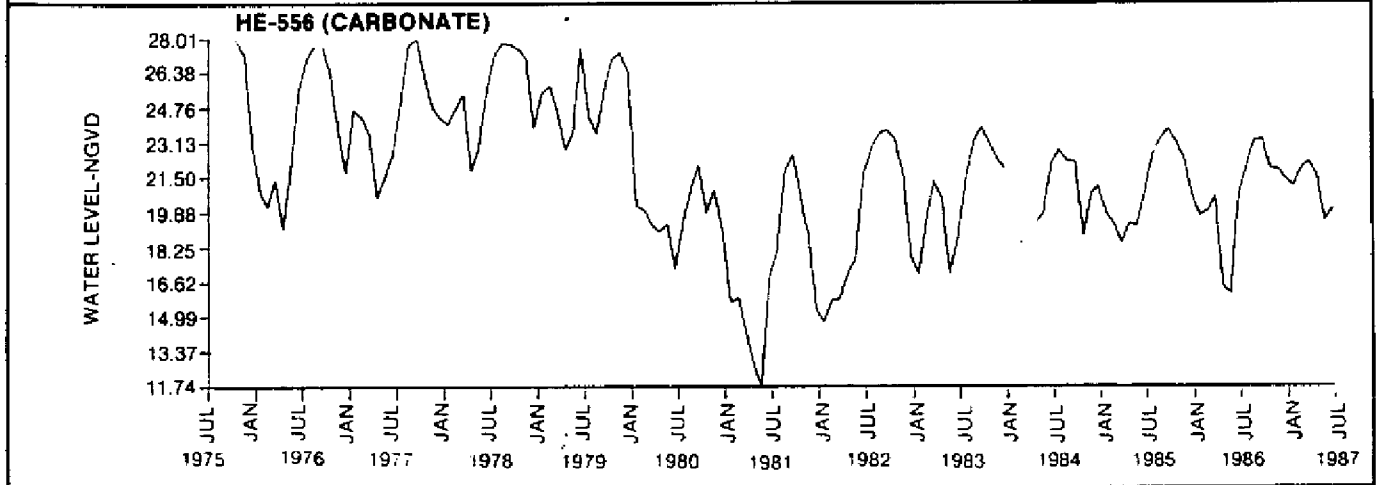
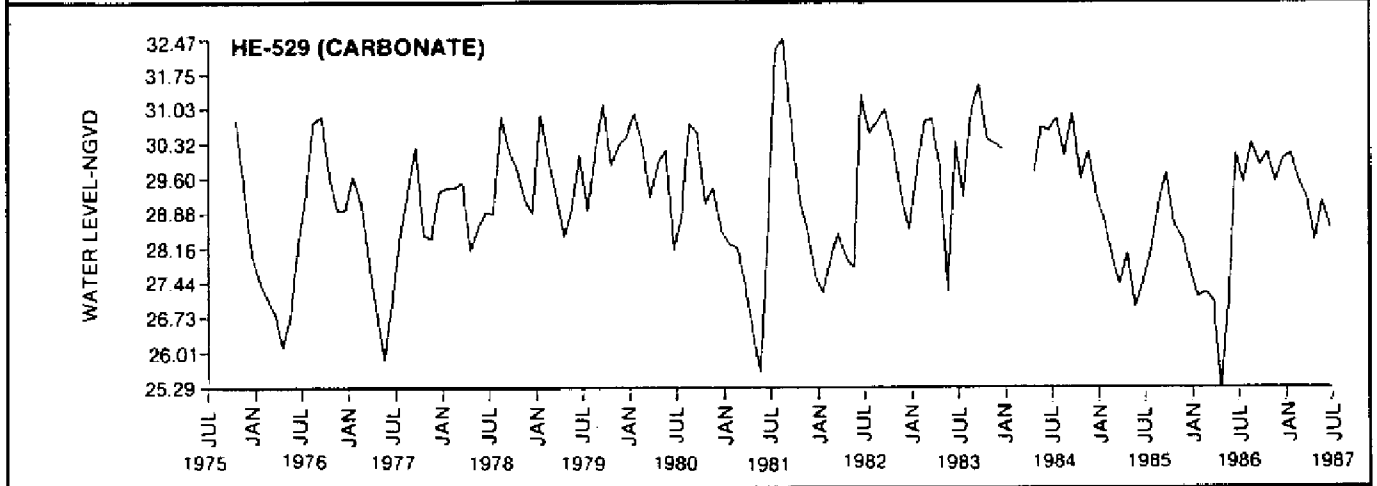
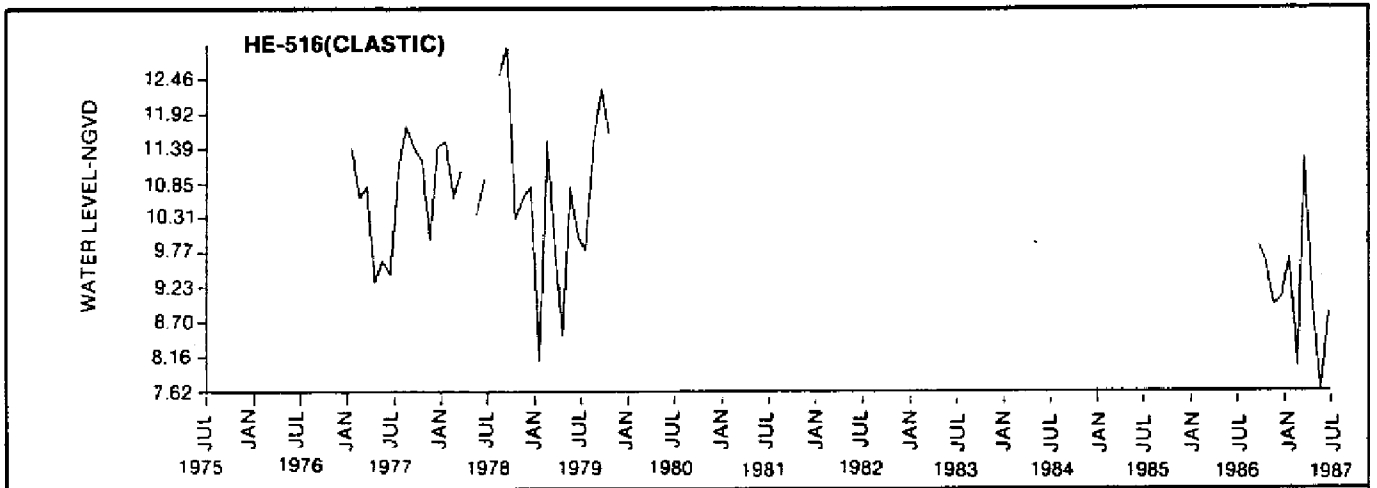
| | | # Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|-------|-------|-------|-------|---------|--------|-------|
| C-1076 | JAN | 1 | 28.90 | 28.90 | 28.90 | | | |
| C-1076 | FEB | 1 | 29.13 | 29.13 | 29.13 | | | |
| C-1076 | MAR | 1 | 29.90 | 29.90 | 29.90 | | | |
| C-1076 | APR | 2 | 28.45 | 28.36 | 28.41 | 0.0450 | 0.0020 | 0.007 |
| C-1076 | MAY | 1 | 28.42 | 28.42 | 28.42 | | | |
| C-1076 | JUN | 1 | 27.47 | 27.47 | 27.47 | | | |
| C-1076 | JUL | 1 | 27.56 | 27.56 | 27.56 | | | |
| C-1076 | AUG | | | | | | | |
| C-1076 | SEP | | | | | | | |
| C-1076 | OCT | 1 | 28.45 | 28.45 | 28.45 | | | |
| C-1076 | NOV | 1 | 28.42 | 28.42 | 28.42 | | | |
| C-1076 | DEC | 1 | 28.69 | 28.69 | 28.69 | | | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|--------|
| HE-516 | JAN | 4 | | 11.50 | 8.08 | 10.19 | 1.4161 | 2.0053 | 19.689 |
| HE-516 | FEB | 4 | | 11.52 | 7.99 | 10.19 | 1.3209 | 1.7447 | 17.126 |
| HE-516 | MAR | 4 | | 11.24 | 10.01 | 10.78 | 0.4671 | 0.2182 | 2.025 |
| HE-516 | APR | 3 | | 9.29 | 8.47 | 8.91 | 0.3374 | 0.1139 | 1.278 |
| HE-516 | MAY | 4 | | 10.80 | 7.62 | 9.60 | 1.2127 | 1.4706 | 15.319 |
| HE-516 | JUN | 5 | | 10.92 | 8.84 | 9.78 | 0.6914 | 0.4780 | 4.890 |
| HE-516 | JUL | 3 | | 11.05 | 8.88 | 9.91 | 0.8893 | 0.7909 | 7.980 |
| HE-516 | AUG | 3 | | 12.51 | 11.48 | 11.91 | 0.4361 | 0.1902 | 1.596 |
| HE-516 | SEP | 4 | | 13.00 | 9.95 | 11.67 | 1.1427 | 1.3057 | 11.191 |
| HE-516 | OCT | 4 | | 11.61 | 9.61 | 10.68 | 0.7844 | 0.6154 | 5.762 |
| HE-516 | NOV | 3 | | 10.62 | 8.95 | 9.84 | 0.6867 | 0.4716 | 4.791 |
| HE-516 | DEC | 3 | | 11.42 | 9.07 | 10.43 | 0.9944 | 0.9889 | 9.481 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-----|-------|-------|-------|---------|--------|-------|
| HE-529 | JAN | 11 | | 30.95 | 27.14 | 29.05 | 1.3235 | 1.7515 | 6.029 |
| HE-529 | FEB | 12 | | 30.76 | 27.11 | 28.97 | 1.1934 | 1.4241 | 4.916 |
| HE-529 | MAR | 11 | | 30.80 | 26.81 | 28.47 | 1.1779 | 1.3874 | 4.873 |
| HE-529 | APR | 12 | | 29.88 | 25.29 | 27.89 | 1.4222 | 2.0228 | 7.252 |
| HE-529 | MAY | 12 | | 30.64 | 25.59 | 27.89 | 1.5468 | 2.3926 | 8.580 |
| HE-529 | JUN | 12 | | 31.32 | 27.08 | 29.11 | 1.2856 | 1.6527 | 5.677 |
| HE-529 | JUL | 12 | | 32.24 | 28.07 | 29.42 | 1.1509 | 1.3246 | 4.503 |
| HE-529 | AUG | 11 | | 32.47 | 29.04 | 30.49 | 0.8732 | 0.7625 | 2.501 |
| HE-529 | SEP | 11 | | 31.52 | 29.69 | 30.61 | 0.5406 | 0.2922 | 0.955 |
| HE-529 | OCT | 12 | | 30.86 | 28.42 | 29.66 | 0.6943 | 0.4821 | 1.626 |
| HE-529 | NOV | 12 | | 30.30 | 28.36 | 29.30 | 0.6600 | 0.4356 | 1.487 |
| HE-529 | DEC | 12 | | 30.44 | 27.62 | 28.96 | 0.8933 | 0.7981 | 2.756 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-----|-------|-------|-------|---------|---------|--------|
| HE-556 | JAN | 11 | | 25.47 | 14.75 | 20.32 | 3.3620 | 11.3029 | 55.634 |
| HE-556 | FEB | 12 | | 25.83 | 15.82 | 20.52 | 3.0715 | 9.4342 | 45.966 |
| HE-556 | MAR | 11 | | 25.40 | 14.30 | 20.65 | 3.3072 | 10.9376 | 52.971 |
| HE-556 | APR | 12 | | 22.83 | 12.74 | 19.20 | 2.6444 | 6.9930 | 36.427 |
| HE-556 | MAY | 12 | | 23.63 | 11.74 | 19.21 | 3.1388 | 9.8524 | 51.299 |
| HE-556 | JUN | 12 | | 27.62 | 16.84 | 21.61 | 3.1783 | 10.1017 | 46.740 |
| HE-556 | JUL | 12 | | 27.22 | 18.07 | 22.84 | 2.6296 | 6.9150 | 30.273 |
| HE-556 | AUG | 11 | | 27.80 | 20.89 | 24.09 | 2.3541 | 5.5419 | 23.008 |
| HE-556 | SEP | 11 | | 28.01 | 22.12 | 24.62 | 2.1663 | 4.6928 | 19.062 |
| HE-556 | OCT | 12 | | 27.94 | 18.78 | 23.84 | 3.0238 | 9.1435 | 38.360 |
| HE-556 | NOV | 12 | | 27.37 | 18.76 | 23.26 | 2.7121 | 7.3554 | 31.626 |
| HE-556 | DEC | 12 | | 26.52 | 15.37 | 21.41 | 2.8773 | 8.2791 | 38.671 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-----|-------|-------|-------|---------|--------|--------|
| HE-557 | JAN | 11 | | 15.81 | 12.23 | 13.99 | 1.1131 | 1.2391 | 8.857 |
| HE-557 | FEB | 12 | | 15.65 | 12.91 | 14.03 | 0.8694 | 0.7558 | 5.385 |
| HE-557 | MAR | 11 | | 15.88 | 10.99 | 13.58 | 1.2989 | 1.6872 | 12.421 |
| HE-557 | APR | 12 | | 15.14 | 10.44 | 12.99 | 1.4295 | 2.0434 | 15.734 |
| HE-557 | MAY | 12 | | 14.98 | 10.75 | 13.24 | 1.3098 | 1.7157 | 12.954 |
| HE-557 | JUN | 12 | | 16.23 | 9.88 | 14.39 | 1.5087 | 2.2762 | 15.823 |
| HE-557 | JUL | 12 | | 16.13 | 14.34 | 15.29 | 0.5292 | 0.2801 | 1.832 |
| HE-557 | AUG | 11 | | 16.19 | 15.06 | 15.61 | 0.3270 | 0.1069 | 0.685 |
| HE-557 | SEP | 11 | | 16.08 | 14.92 | 15.75 | 0.3198 | 0.1022 | 0.649 |
| HE-557 | OCT | 12 | | 15.89 | 13.01 | 14.82 | 0.8897 | 0.7916 | 5.341 |
| HE-557 | NOV | 12 | | 15.43 | 11.66 | 14.16 | 1.0825 | 1.1717 | 8.275 |
| HE-557 | DEC | 11 | | 15.50 | 12.43 | 14.22 | 0.8268 | 0.6836 | 4.807 |



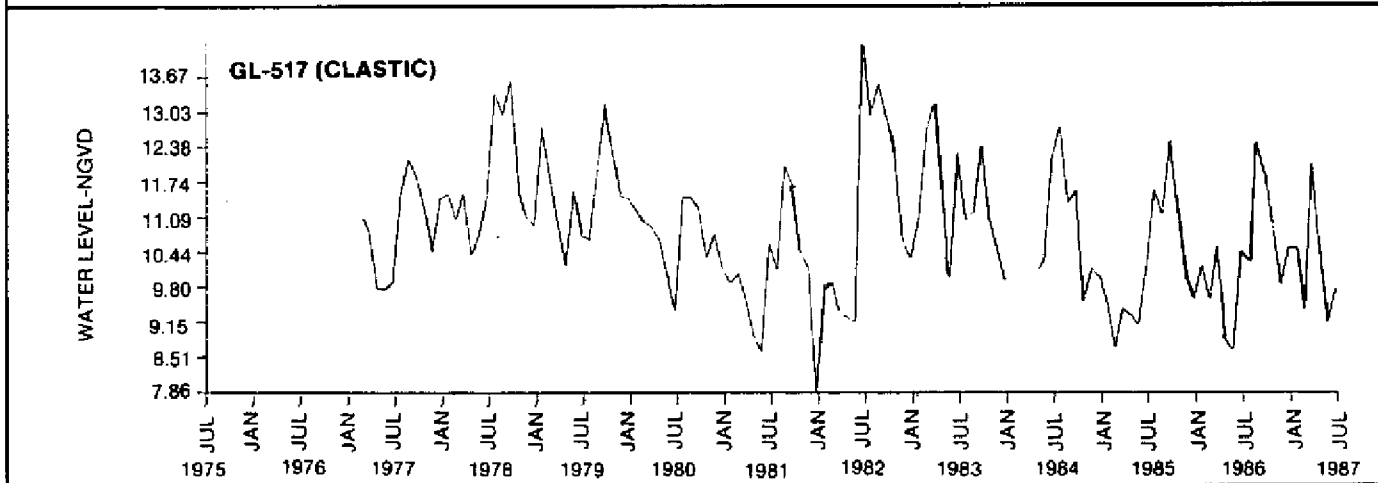
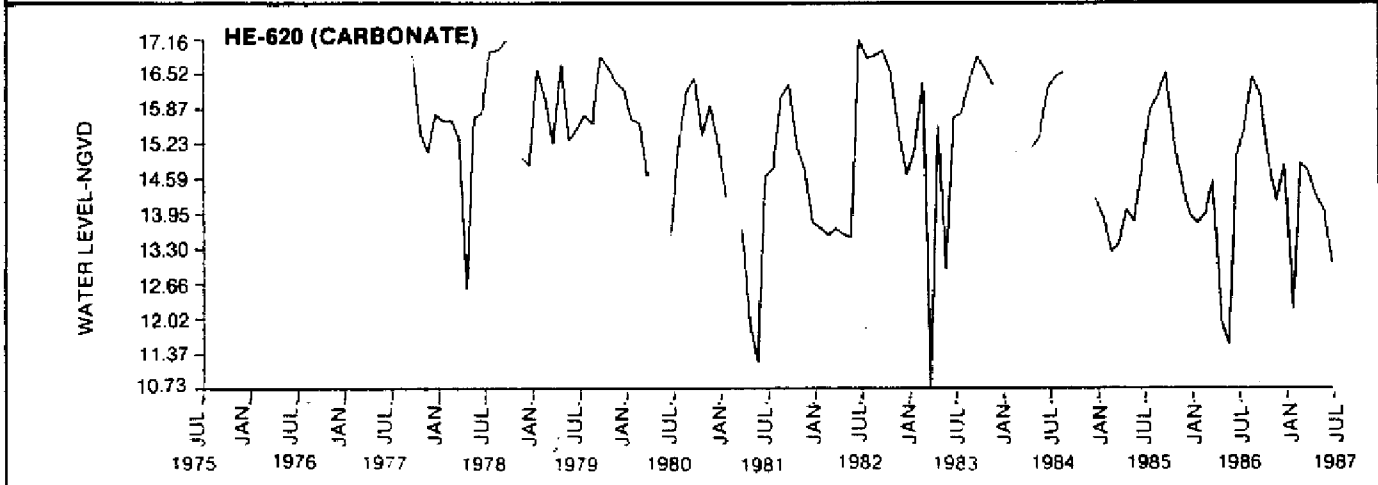
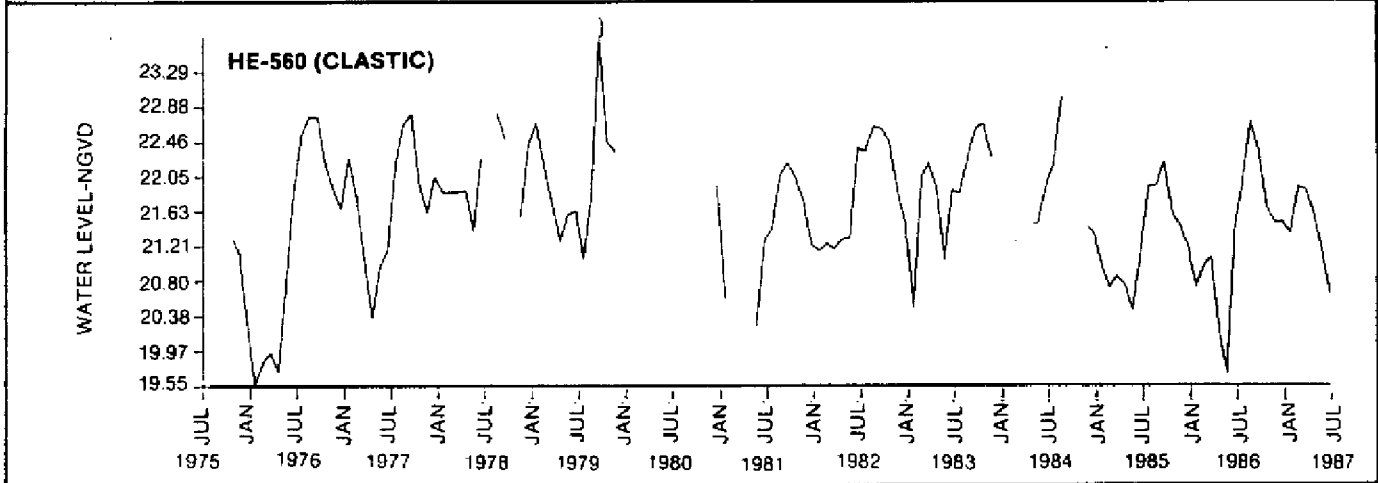
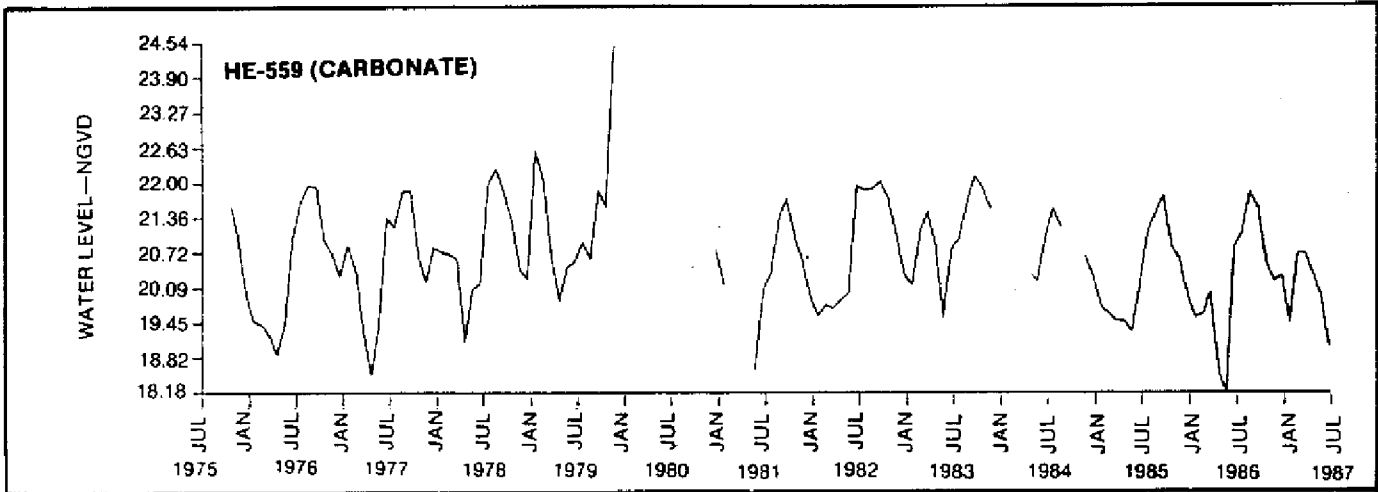
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| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| HE-559 | JAN | 10 | 22.58 | 19.45 | 20.22 | 0.9228 | 0.8515 | 4.211 | |
| HE-559 | FEB | 10 | 22.04 | 19.42 | 20.34 | 0.7814 | 0.6106 | 3.002 | |
| HE-559 | MAR | 9 | 21.47 | 19.23 | 20.14 | 0.7257 | 0.5266 | 2.615 | |
| HE-559 | APR | 10 | 20.83 | 18.50 | 19.58 | 0.7683 | 0.5902 | 3.015 | |
| HE-559 | MAY | 11 | 20.45 | 18.18 | 19.55 | 0.6556 | 0.4297 | 2.198 | |
| HE-559 | JUN | 11 | 21.94 | 19.01 | 20.61 | 0.7347 | 0.5398 | 2.619 | |
| HE-559 | JUL | 11 | 21.96 | 20.36 | 21.19 | 0.4939 | 0.2439 | 1.151 | |
| HE-559 | AUG | 10 | 22.26 | 20.61 | 21.59 | 0.4478 | 0.2006 | 0.929 | |
| HE-559 | SEP | 9 | 22.13 | 21.55 | 21.85 | 0.1594 | 0.0254 | 0.116 | |
| HE-559 | OCT | 10 | 21.89 | 20.56 | 21.22 | 0.4493 | 0.2019 | 0.951 | |
| HE-559 | NOV | 11 | 24.54 | 20.18 | 21.04 | 1.1686 | 1.3610 | 6.468 | |
| HE-559 | DEC | 10 | 20.82 | 19.96 | 20.30 | 0.2851 | 0.0813 | 0.400 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| HE-560 | JAN | 10 | 22.69 | 19.55 | 21.16 | 0.8789 | 0.7725 | 3.650 | |
| HE-560 | FEB | 10 | 22.15 | 19.83 | 21.37 | 0.6883 | 0.4737 | 2.217 | |
| HE-560 | MAR | 9 | 22.20 | 19.94 | 21.31 | 0.6518 | 0.4249 | 1.994 | |
| HE-560 | APR | 10 | 21.89 | 19.72 | 21.04 | 0.7115 | 0.5062 | 2.406 | |
| HE-560 | MAY | 11 | 21.59 | 19.69 | 20.91 | 0.5567 | 0.3099 | 1.482 | |
| HE-560 | JUN | 11 | 22.38 | 20.65 | 21.59 | 0.5016 | 0.2516 | 1.165 | |
| HE-560 | JUL | 10 | 22.54 | 21.05 | 21.89 | 0.4390 | 0.1927 | 0.880 | |
| HE-560 | AUG | 10 | 22.99 | 21.82 | 22.46 | 0.3925 | 0.1540 | 0.686 | |
| HE-560 | SEP | 9 | 23.71 | 22.21 | 22.64 | 0.4290 | 0.1841 | 0.813 | |
| HE-560 | OCT | 9 | 22.67 | 21.36 | 22.05 | 0.4184 | 0.1751 | 0.794 | |
| HE-560 | NOV | 11 | 22.35 | 21.11 | 21.71 | 0.3493 | 0.1220 | 0.562 | |
| HE-560 | DEC | 10 | 22.43 | 20.31 | 21.51 | 0.5440 | 0.2959 | 1.375 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| HE-620 | JAN | 9 | 16.59 | 12.17 | 14.52 | 1.2723 | 1.6188 | 11.147 | |
| HE-620 | FEB | 9 | 16.35 | 13.23 | 14.92 | 1.0558 | 1.1148 | 7.472 | |
| HE-620 | MAR | 9 | 15.33 | 10.73 | 13.99 | 1.3243 | 1.7538 | 12.539 | |
| HE-620 | APR | 9 | 16.69 | 11.88 | 13.96 | 1.5591 | 2.4308 | 17.418 | |
| HE-620 | MAY | 9 | 15.70 | 11.21 | 13.70 | 1.5225 | 2.3180 | 16.924 | |
| HE-620 | JUN | 10 | 17.16 | 13.03 | 15.12 | 1.1674 | 1.3628 | 9.012 | |
| HE-620 | JUL | 10 | 16.93 | 14.76 | 15.82 | 0.6684 | 0.4468 | 2.824 | |
| HE-620 | AUG | 9 | 16.95 | 15.58 | 16.33 | 0.3983 | 0.1586 | 0.971 | |
| HE-620 | SEP | 9 | 17.13 | 16.13 | 16.66 | 0.3096 | 0.0958 | 0.575 | |
| HE-620 | OCT | 8 | 16.63 | 14.89 | 15.74 | 0.6693 | 0.4480 | 2.846 | |
| HE-620 | NOV | 9 | 16.35 | 14.14 | 15.27 | 0.7383 | 0.5451 | 3.570 | |
| HE-620 | DEC | 9 | 16.23 | 13.78 | 14.82 | 0.7675 | 0.5891 | 3.974 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| GL-517 | JAN | 9 | 12.76 | 9.51 | 10.73 | 0.9695 | 0.9400 | 8.758 | |
| GL-517 | FEB | 11 | 12.74 | 8.68 | 10.49 | 1.1171 | 1.2478 | 11.895 | |
| GL-517 | MAR | 10 | 13.20 | 9.38 | 10.85 | 1.1659 | 1.3593 | 12.527 | |
| GL-517 | APR | 11 | 11.56 | 8.84 | 9.94 | 0.7915 | 0.6264 | 6.303 | |
| GL-517 | MAY | 11 | 11.59 | 8.61 | 9.73 | 0.8780 | 0.7708 | 7.918 | |
| GL-517 | JUN | 11 | 14.32 | 9.36 | 11.04 | 1.3860 | 1.9210 | 17.408 | |
| GL-517 | JUL | 11 | 13.39 | 10.11 | 11.47 | 1.0890 | 1.1859 | 10.339 | |
| GL-517 | AUG | 10 | 13.57 | 11.16 | 12.04 | 0.7567 | 0.5727 | 4.755 | |
| GL-517 | SEP | 11 | 13.63 | 11.26 | 12.22 | 0.7456 | 0.5559 | 4.550 | |
| GL-517 | OCT | 10 | 12.29 | 9.53 | 11.09 | 0.8090 | 0.6545 | 5.901 | |
| GL-517 | NOV | 10 | 11.49 | 9.84 | 10.52 | 0.4912 | 0.2412 | 2.293 | |
| GL-517 | DEC | 10 | 11.45 | 7.86 | 10.23 | 0.9889 | 0.9779 | 9.564 | |



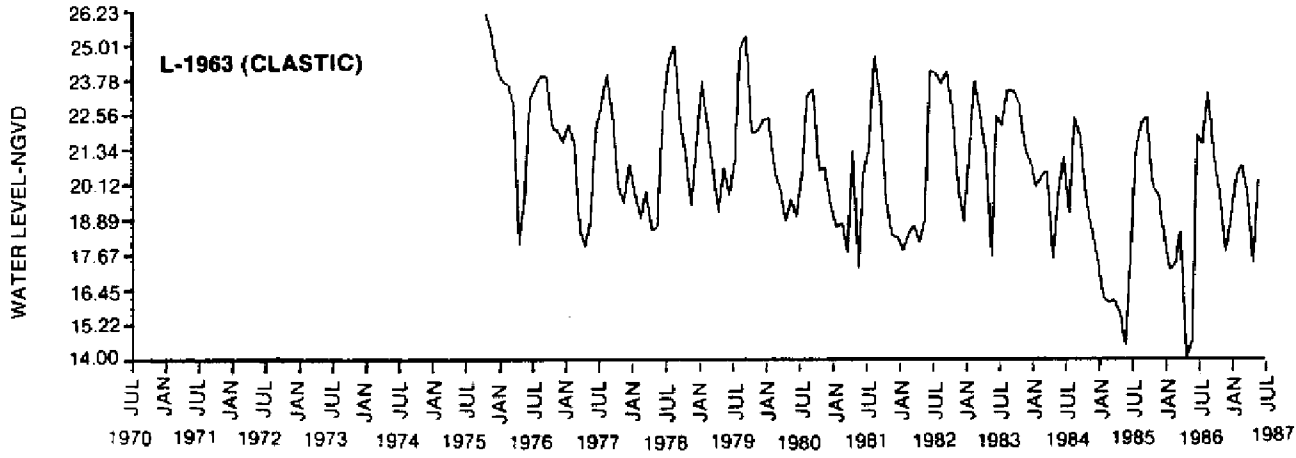
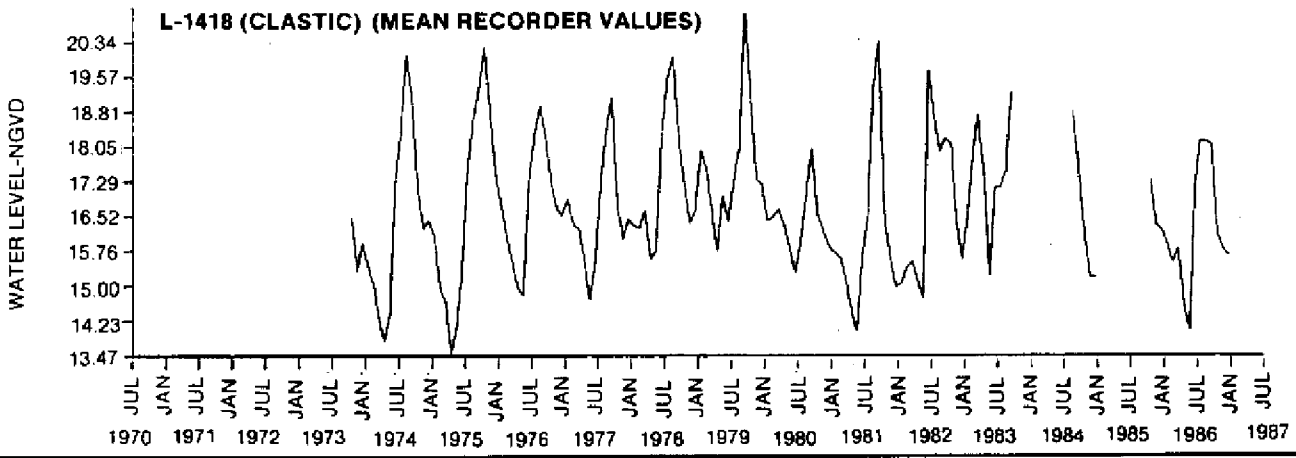
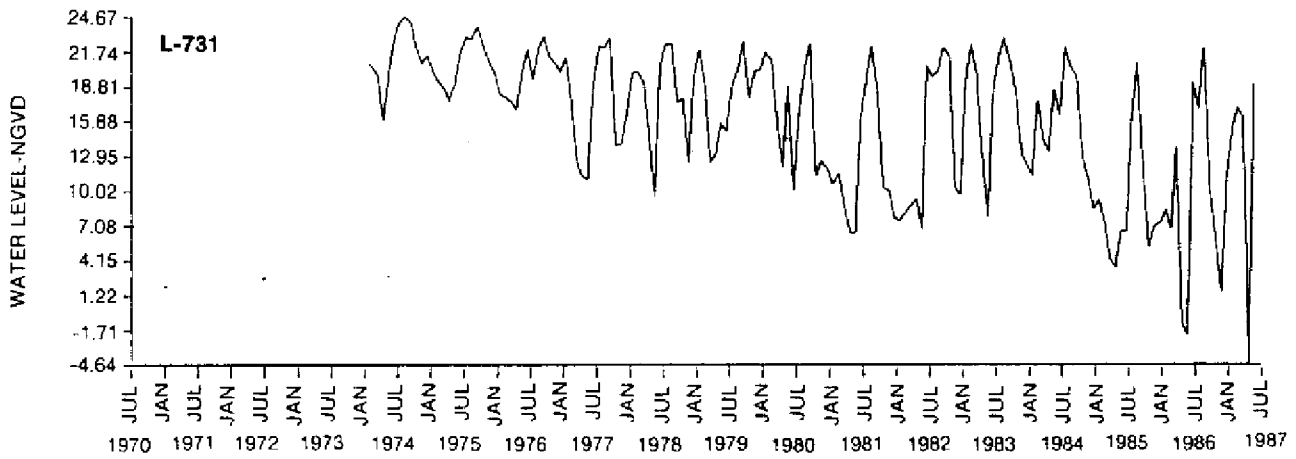
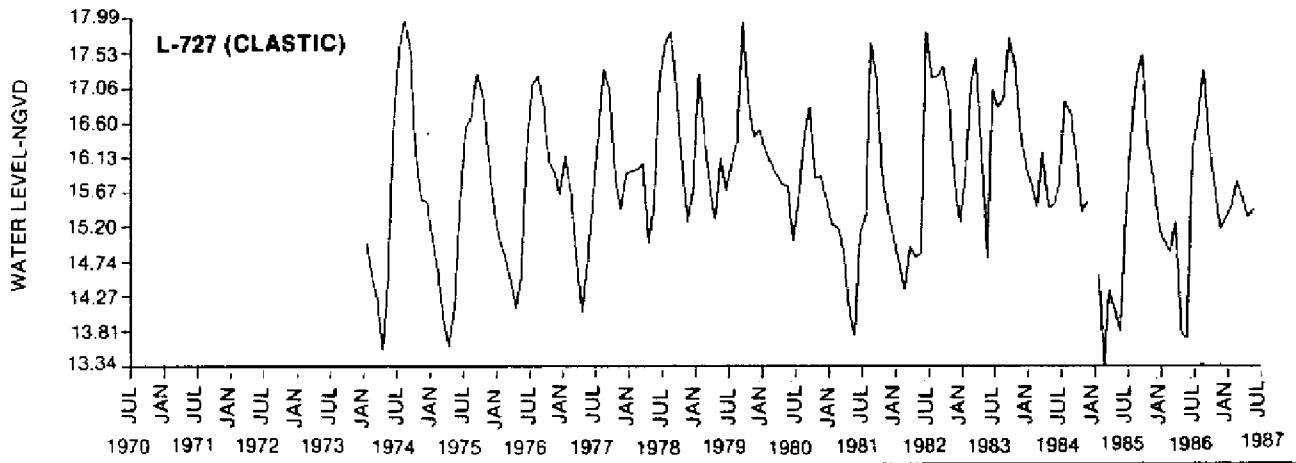
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| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|----|-------|-------|-------|--------|---------|-------|----|
| L-727 | JAN | 14 | 17.26 | 14.60 | 15.52 | 0.7024 | 0.4933 | 3.179 | |
| L-727 | FEB | 14 | 17.09 | 13.34 | 15.29 | 0.9346 | 0.8735 | 5.712 | |
| L-727 | MAR | 14 | 17.46 | 13.95 | 15.27 | 0.9195 | 0.8454 | 5.537 | |
| L-727 | APR | 14 | 16.21 | 13.55 | 14.64 | 0.8359 | 0.6987 | 4.772 | |
| L-727 | MAY | 14 | 16.12 | 13.70 | 14.79 | 0.7531 | 0.5671 | 3.835 | |
| L-727 | JUN | 13 | 17.80 | 15.00 | 16.07 | 0.8359 | 0.6988 | 4.347 | |
| L-727 | JUL | 13 | 17.64 | 15.33 | 16.62 | 0.6699 | 0.4488 | 2.700 | |
| L-727 | AUG | 13 | 17.99 | 16.36 | 17.14 | 0.4876 | 0.2378 | 1.387 | |
| L-727 | SEP | 13 | 17.94 | 16.15 | 17.12 | 0.5008 | 0.2508 | 1.465 | |
| L-727 | OCT | 13 | 17.36 | 15.38 | 16.27 | 0.5671 | 0.3216 | 1.977 | |
| L-727 | NOV | 13 | 16.42 | 15.15 | 15.75 | 0.3959 | 0.1567 | 0.995 | |
| L-727 | DEC | 12 | 16.51 | 15.05 | 15.59 | 0.3881 | 0.1506 | 0.966 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|----|-------|-------|-------|--------|---------|---------|----|
| L-731 | JAN | 14 | 21.87 | 7.47 | 16.05 | 5.3210 | 28.3129 | 176.381 | |
| L-731 | FEB | 14 | 22.27 | 6.75 | 16.09 | 5.1801 | 26.8337 | 166.772 | |
| L-731 | MAR | 14 | 19.94 | 4.26 | 14.38 | 4.5941 | 21.1056 | 146.792 | |
| L-731 | APR | 14 | 17.62 | -4.64 | 10.03 | 6.4802 | 41.9929 | 418.584 | |
| L-731 | MAY | 14 | 19.75 | -2.20 | 12.57 | 6.6987 | 44.8727 | 357.064 | |
| L-731 | JUN | 13 | 22.73 | 6.55 | 17.47 | 4.5784 | 20.9619 | 120.009 | |
| L-731 | JUL | 13 | 24.26 | 16.07 | 20.11 | 2.5152 | 6.3264 | 31.465 | |
| L-731 | AUG | 13 | 24.67 | 20.10 | 21.74 | 1.3045 | 1.7018 | 7.828 | |
| L-731 | SEP | 13 | 24.22 | 9.75 | 19.90 | 4.4084 | 19.4342 | 97.656 | |
| L-731 | OCT | 13 | 22.22 | 5.14 | 15.38 | 5.7569 | 33.1420 | 215.423 | |
| L-731 | NOV | 13 | 20.91 | 1.38 | 13.39 | 5.7195 | 32.7128 | 244.322 | |
| L-731 | DEC | 13 | 21.43 | 7.24 | 14.27 | 5.2284 | 27.3361 | 191.626 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1418 | JAN | 11 | 17.98 | 15.04 | 16.27 | 0.7628 | 0.5818 | 3.577 | |
| L-1418 | FEB | 12 | 17.86 | 14.91 | 16.12 | 0.8777 | 0.7704 | 4.779 | |
| L-1418 | MAR | 11 | 18.76 | 14.21 | 15.99 | 1.1733 | 1.3767 | 8.612 | |
| L-1418 | APR | 12 | 17.44 | 13.47 | 15.23 | 1.0565 | 1.1162 | 7.330 | |
| L-1418 | MAY | 11 | 16.98 | 14.00 | 14.95 | 0.8790 | 0.7727 | 5.167 | |
| L-1418 | JUN | 11 | 19.73 | 15.26 | 16.79 | 1.3288 | 1.7656 | 10.517 | |
| L-1418 | JUL | 11 | 19.53 | 15.98 | 17.71 | 0.9835 | 0.9672 | 5.462 | |
| L-1418 | AUG | 12 | 20.07 | 17.04 | 18.58 | 0.8864 | 0.7857 | 4.230 | |
| L-1418 | SEP | 12 | 21.10 | 17.58 | 18.89 | 0.9902 | 0.9805 | 5.189 | |
| L-1418 | OCT | 13 | 20.22 | 16.14 | 17.34 | 1.1628 | 1.3522 | 7.798 | |
| L-1418 | NOV | 13 | 18.77 | 15.18 | 16.33 | 0.8941 | 0.7994 | 4.897 | |
| L-1418 | DEC | 13 | 17.42 | 14.98 | 16.16 | 0.6983 | 0.4876 | 3.016 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1963 | JAN | 12 | 23.75 | 16.16 | 20.26 | 2.4119 | 5.8171 | 28.718 | |
| L-1963 | FEB | 12 | 23.76 | 15.98 | 20.18 | 2.3039 | 5.3078 | 26.305 | |
| L-1963 | MAR | 12 | 22.91 | 16.09 | 19.66 | 1.8699 | 3.4963 | 17.780 | |
| L-1963 | APR | 12 | 21.28 | 14.00 | 18.11 | 1.9451 | 3.7835 | 20.891 | |
| L-1963 | MAY | 12 | 20.69 | 14.45 | 18.34 | 1.9439 | 3.7786 | 20.602 | |
| L-1963 | JUN | 11 | 24.12 | 17.59 | 21.27 | 1.8358 | 3.3701 | 15.845 | |
| L-1963 | JUL | 11 | 24.40 | 19.07 | 21.98 | 1.5434 | 2.3821 | 10.839 | |
| L-1963 | AUG | 11 | 25.00 | 22.21 | 23.71 | 0.8706 | 0.7579 | 3.196 | |
| L-1963 | SEP | 11 | 25.35 | 21.08 | 23.04 | 1.1318 | 1.2811 | 5.561 | |
| L-1963 | OCT | 12 | 26.23 | 19.53 | 21.39 | 1.8695 | 3.4949 | 16.340 | |
| L-1963 | NOV | 12 | 25.41 | 17.72 | 20.38 | 2.0133 | 4.0534 | 19.892 | |
| L-1963 | DEC | 12 | 24.24 | 17.47 | 20.20 | 1.9244 | 3.7033 | 18.332 | |



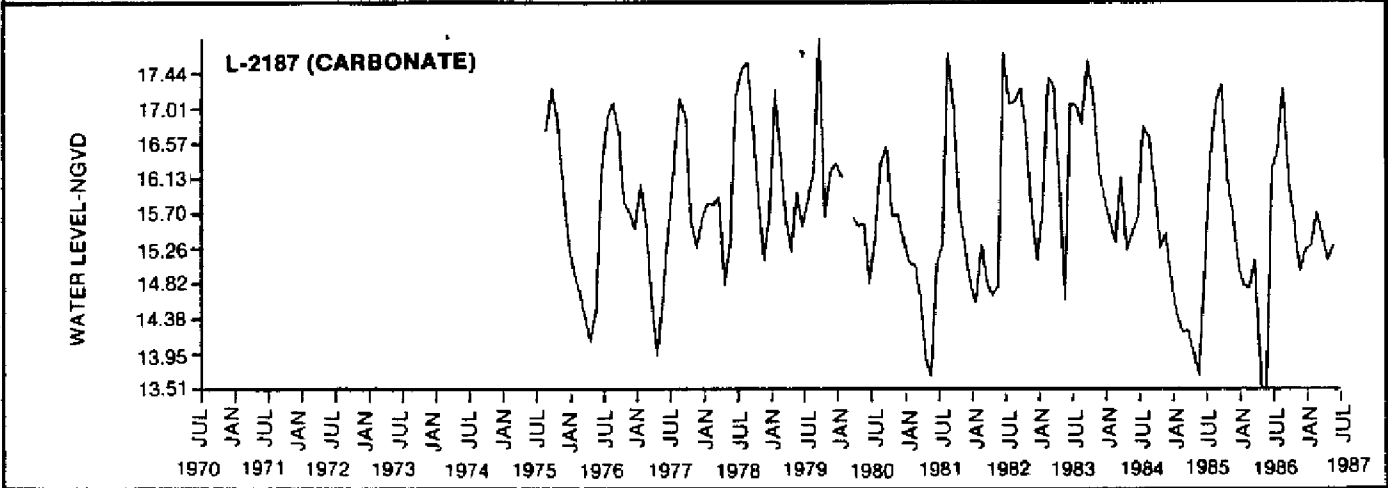
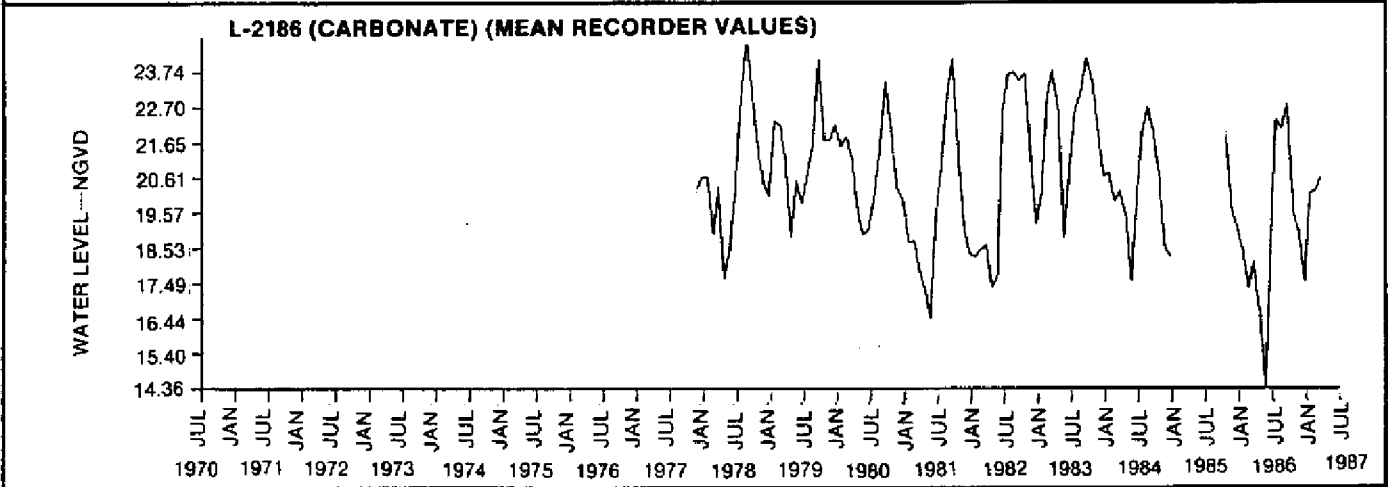
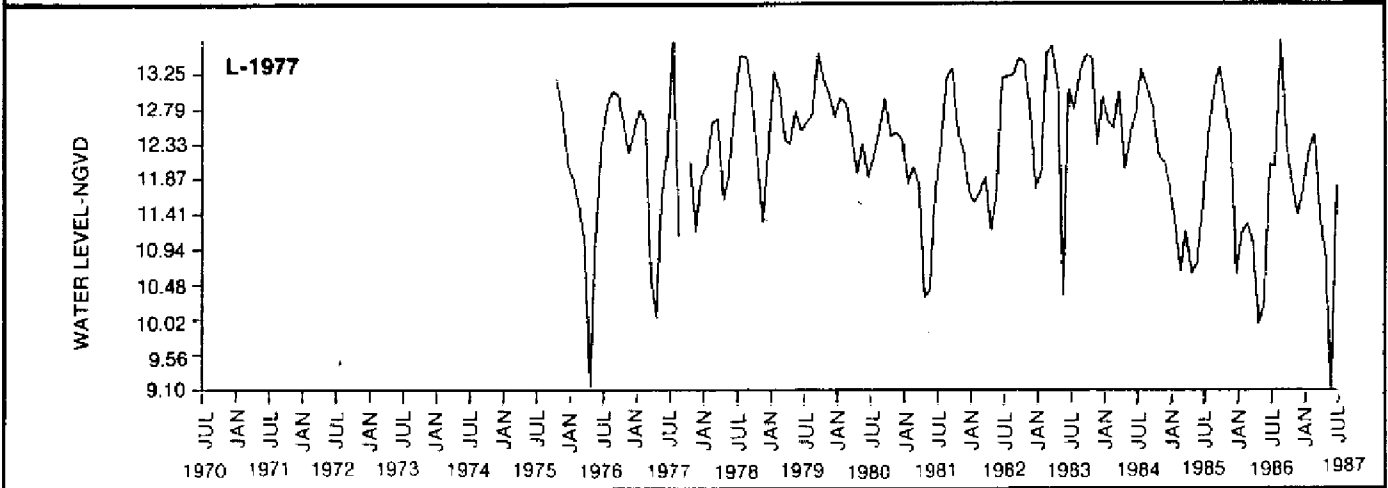
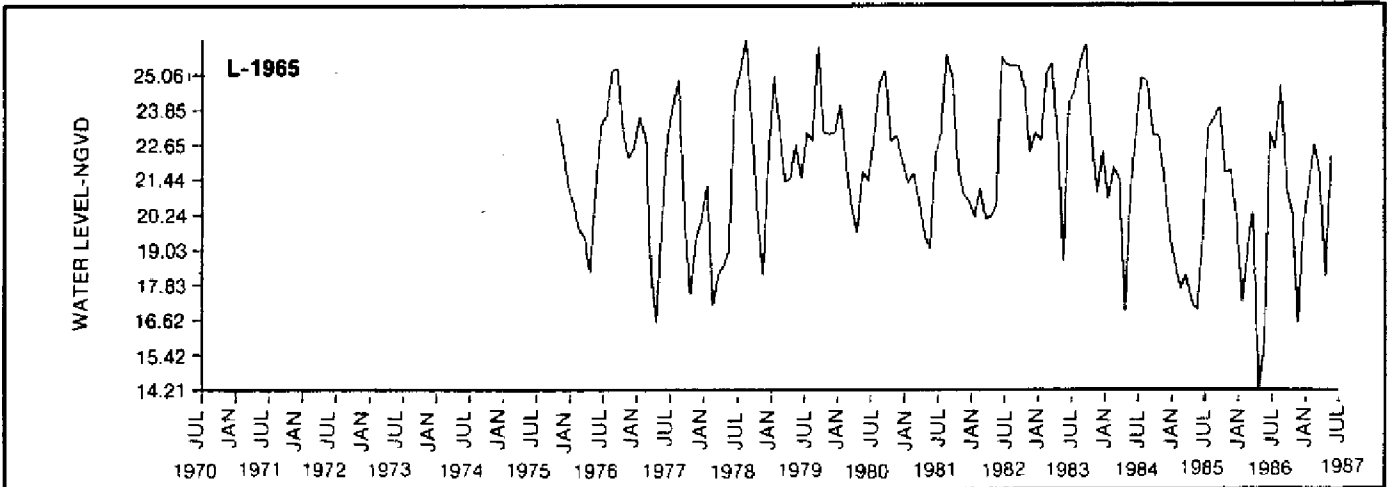
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| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1965 | JAN | 12 | 25.02 | 17.20 | 21.38 | 2.1495 | 4.6202 | 21.611 | |
| L-1965 | FEB | 12 | 25.13 | 17.13 | 21.19 | 2.2640 | 5.1257 | 24.191 | |
| L-1965 | MAR | 12 | 25.46 | 18.16 | 20.48 | 1.9213 | 3.6916 | 18.022 | |
| L-1965 | APR | 12 | 22.70 | 14.21 | 18.59 | 2.2093 | 4.8809 | 26.250 | |
| L-1965 | MAY | 12 | 22.66 | 15.77 | 19.88 | 1.9928 | 3.9711 | 19.979 | |
| L-1965 | JUN | 11 | 25.68 | 19.45 | 22.83 | 1.5961 | 2.5475 | 11.158 | |
| L-1965 | JUL | 11 | 25.40 | 22.50 | 23.86 | 0.9746 | 0.9499 | 3.981 | |
| L-1965 | AUG | 11 | 26.26 | 22.79 | 24.88 | 0.9336 | 0.8716 | 3.504 | |
| L-1965 | SEP | 11 | 26.12 | 19.94 | 24.04 | 1.9166 | 3.6735 | 15.284 | |
| L-1965 | OCT | 12 | 24.62 | 17.49 | 22.06 | 1.8480 | 3.4149 | 15.484 | |
| L-1965 | NOV | 12 | 23.03 | 16.48 | 21.05 | 1.9544 | 3.8198 | 18.150 | |
| L-1965 | DEC | 12 | 23.09 | 19.62 | 21.43 | 1.2609 | 1.5899 | 7.418 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-1977 | JAN | 12 | 13.29 | 11.15 | 12.13 | 0.6428 | 0.4132 | 3.407 | |
| L-1977 | FEB | 12 | 13.53 | 10.65 | 12.24 | 0.7865 | 0.6186 | 5.055 | |
| L-1977 | MAR | 12 | 13.62 | 10.59 | 11.93 | 0.8794 | 0.7733 | 6.483 | |
| L-1977 | APR | 12 | 13.09 | 9.15 | 11.09 | 1.0970 | 1.2035 | 10.857 | |
| L-1977 | MAY | 12 | 12.77 | 9.10 | 11.22 | 1.0469 | 1.0960 | 9.769 | |
| L-1977 | JUN | 12 | 13.20 | 11.48 | 12.30 | 0.5377 | 0.2892 | 2.350 | |
| L-1977 | JUL | 11 | 13.69 | 12.04 | 12.80 | 0.5357 | 0.2870 | 2.242 | |
| L-1977 | AUG | 11 | 13.71 | 11.12 | 12.94 | 0.6563 | 0.4308 | 3.328 | |
| L-1977 | SEP | 10 | 13.53 | 12.36 | 13.13 | 0.3532 | 0.1247 | 0.950 | |
| L-1977 | OCT | 12 | 13.48 | 11.79 | 12.66 | 0.5408 | 0.2925 | 2.310 | |
| L-1977 | NOV | 12 | 12.98 | 11.16 | 12.18 | 0.5771 | 0.3331 | 2.734 | |
| L-1977 | DEC | 12 | 12.96 | 10.61 | 12.03 | 0.5812 | 0.3378 | 2.809 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-2186 | JAN | 9 | 22.32 | 18.30 | 20.13 | 1.3229 | 1.7501 | 8.695 | |
| L-2186 | FEB | 9 | 23.11 | 17.34 | 20.09 | 1.8220 | 3.3198 | 16.522 | |
| L-2186 | MAR | 9 | 23.83 | 17.86 | 20.22 | 1.7482 | 3.0563 | 15.113 | |
| L-2186 | APR | 8 | 22.62 | 16.56 | 18.69 | 1.8127 | 3.2857 | 17.584 | |
| L-2186 | MAY | 8 | 20.56 | 14.36 | 17.85 | 1.7389 | 3.0236 | 16.940 | |
| L-2186 | JUN | 8 | 22.53 | 18.68 | 20.10 | 1.1118 | 1.2361 | 6.150 | |
| L-2186 | JUL | 8 | 23.71 | 20.11 | 21.93 | 1.1527 | 1.3287 | 6.060 | |
| L-2186 | AUG | 8 | 24.78 | 21.54 | 22.85 | 1.0194 | 1.0392 | 4.547 | |
| L-2186 | SEP | 8 | 24.17 | 21.98 | 23.43 | 0.7166 | 0.5135 | 2.192 | |
| L-2186 | OCT | 9 | 23.73 | 19.60 | 21.80 | 1.2091 | 1.4618 | 6.706 | |
| L-2186 | NOV | 10 | 22.10 | 18.56 | 20.27 | 1.1198 | 1.2538 | 6.186 | |
| L-2186 | DEC | 10 | 22.20 | 17.53 | 19.62 | 1.3141 | 1.7269 | 8.803 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| L-2187 | JAN | 12 | 17.24 | 14.42 | 15.48 | 0.7611 | 0.5793 | 3.744 | |
| L-2187 | FEB | 11 | 17.39 | 14.21 | 15.47 | 0.8262 | 0.6826 | 4.413 | |
| L-2187 | MAR | 12 | 17.30 | 14.24 | 15.32 | 0.8391 | 0.7040 | 4.595 | |
| L-2187 | APR | 12 | 16.04 | 13.53 | 14.66 | 0.7538 | 0.5682 | 3.876 | |
| L-2187 | MAY | 12 | 15.96 | 13.51 | 14.74 | 0.7766 | 0.6031 | 4.091 | |
| L-2187 | JUN | 11 | 17.71 | 14.81 | 15.98 | 0.9283 | 0.8618 | 5.392 | |
| L-2187 | JUL | 11 | 17.49 | 15.28 | 16.44 | 0.6758 | 0.4567 | 2.778 | |
| L-2187 | AUG | 12 | 17.70 | 16.22 | 16.97 | 0.4300 | 0.1849 | 1.090 | |
| L-2187 | SEP | 12 | 17.88 | 16.02 | 16.95 | 0.5366 | 0.2879 | 1.699 | |
| L-2187 | OCT | 12 | 17.14 | 15.25 | 16.01 | 0.5655 | 0.3198 | 1.998 | |
| L-2187 | NOV | 12 | 16.24 | 14.96 | 15.61 | 0.3992 | 0.1593 | 1.021 | |
| L-2187 | DEC | 12 | 16.32 | 14.80 | 15.39 | 0.4256 | 0.1811 | 1.177 | |



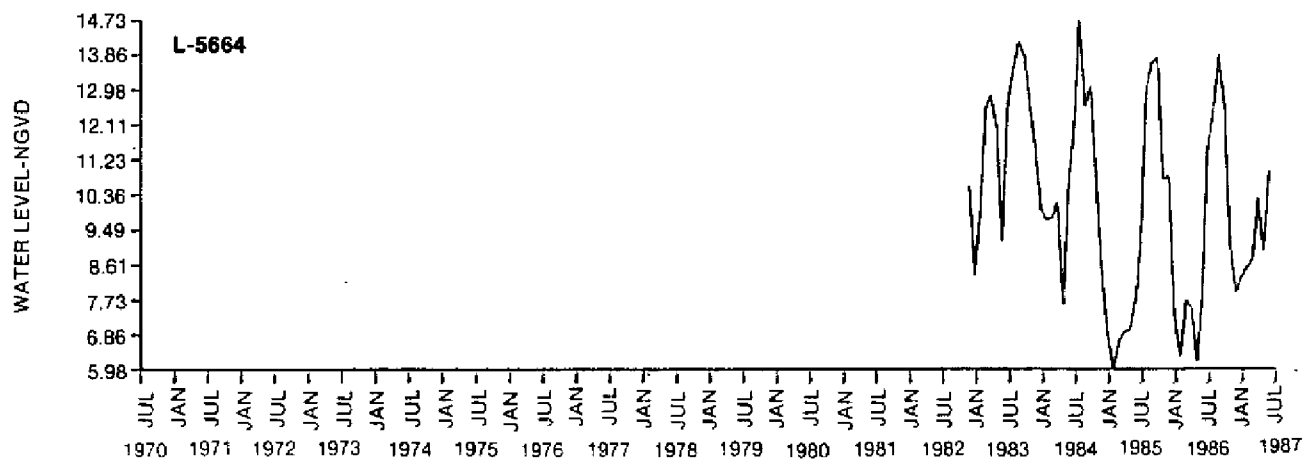
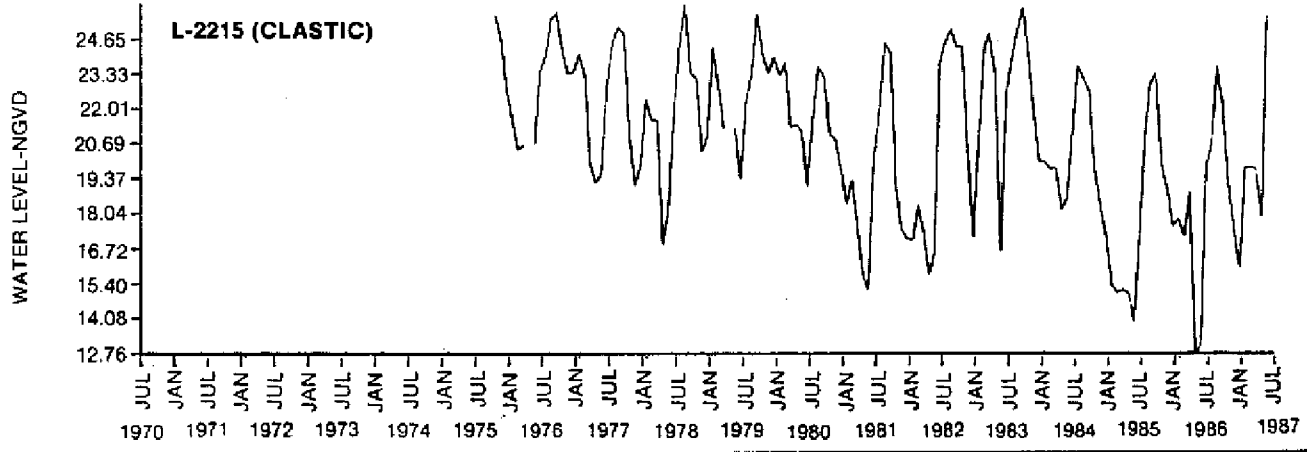
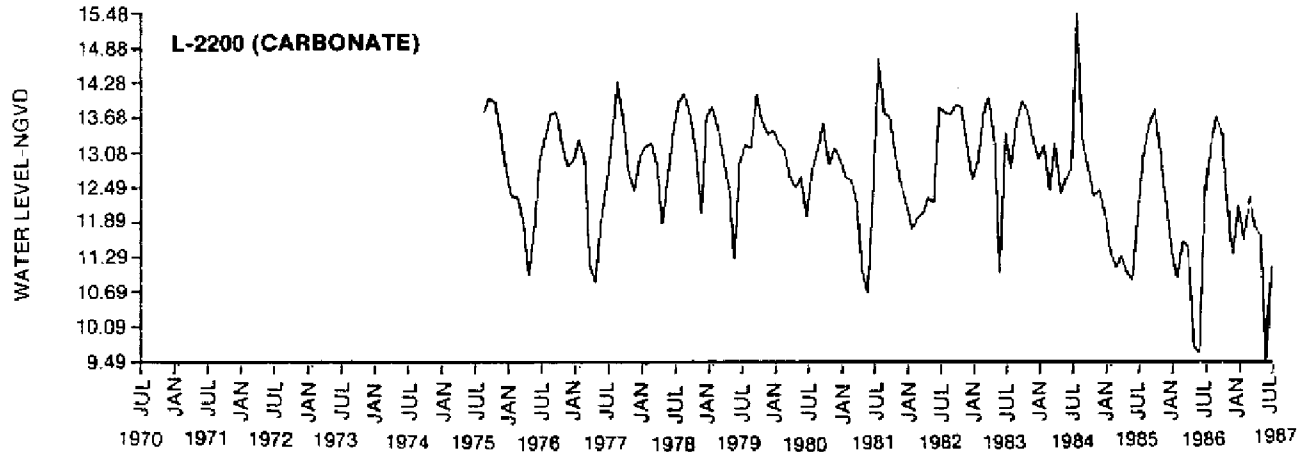
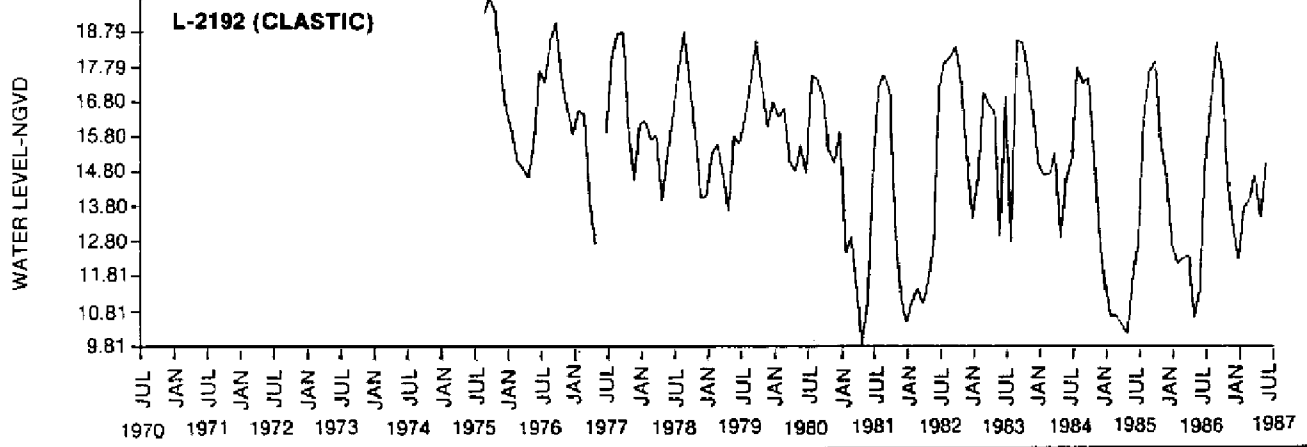
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| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-2192 | JAN | 12 | 16.54 | 10.66 | 14.16 | 2.0207 | 4.0834 | 28.843 | |
| L-2192 | FEB | 12 | 17.06 | 10.68 | 14.39 | 2.0216 | 4.0870 | 28.411 | |
| L-2192 | MAR | 12 | 16.72 | 10.41 | 13.89 | 1.9624 | 3.8510 | 27.735 | |
| L-2192 | APR | 12 | 16.51 | 9.81 | 12.91 | 1.9568 | 3.8290 | 29.653 | |
| L-2192 | MAY | 11 | 15.80 | 11.03 | 13.77 | 1.7717 | 3.1391 | 22.792 | |
| L-2192 | JUN | 11 | 17.71 | 12.73 | 15.63 | 1.3639 | 1.8603 | 11.903 | |
| L-2192 | JUL | 11 | 18.08 | 12.79 | 16.90 | 1.4294 | 2.0431 | 12.091 | |
| L-2192 | AUG | 12 | 19.30 | 17.33 | 18.17 | 0.6387 | 0.4079 | 2.245 | |
| L-2192 | SEP | 12 | 19.79 | 16.96 | 18.14 | 0.8261 | 0.6825 | 3.762 | |
| L-2192 | OCT | 12 | 19.41 | 13.41 | 16.30 | 1.5552 | 2.4186 | 14.843 | |
| L-2192 | NOV | 12 | 17.75 | 11.21 | 14.82 | 1.7240 | 2.9723 | 20.052 | |
| L-2192 | DEC | 12 | 16.79 | 10.49 | 14.23 | 2.0566 | 4.2297 | 29.723 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|-------|----|
| L-2200 | JAN | 12 | 13.86 | 10.92 | 12.52 | 0.8822 | 0.7782 | 6.214 | |
| L-2200 | FEB | 12 | 13.75 | 11.10 | 12.58 | 0.7602 | 0.5779 | 4.594 | |
| L-2200 | MAR | 12 | 14.02 | 11.14 | 12.31 | 0.8357 | 0.6984 | 5.674 | |
| L-2200 | APR | 12 | 13.30 | 9.74 | 11.67 | 0.9448 | 0.8926 | 7.649 | |
| L-2200 | MAY | 12 | 12.66 | 9.49 | 11.40 | 1.0570 | 1.1172 | 9.802 | |
| L-2200 | JUN | 12 | 13.84 | 11.11 | 12.64 | 0.7175 | 0.5148 | 4.072 | |
| L-2200 | JUL | 11 | 15.48 | 12.79 | 13.59 | 0.8025 | 0.6440 | 4.740 | |
| L-2200 | AUG | 12 | 14.31 | 13.13 | 13.65 | 0.3395 | 0.1152 | 0.844 | |
| L-2200 | SEP | 12 | 14.07 | 12.80 | 13.70 | 0.3231 | 0.1044 | 0.762 | |
| L-2200 | OCT | 12 | 13.95 | 12.11 | 13.14 | 0.5629 | 0.3168 | 2.412 | |
| L-2200 | NOV | 12 | 13.40 | 11.31 | 12.69 | 0.6160 | 0.3794 | 2.989 | |
| L-2200 | DEC | 12 | 13.70 | 11.40 | 12.68 | 0.6141 | 0.3771 | 2.973 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|----|-------|-------|-------|--------|---------|--------|----|
| L-2215 | JAN | 12 | 24.36 | 15.30 | 20.41 | 2.7620 | 7.6289 | 37.377 | |
| L-2215 | FEB | 12 | 24.37 | 15.07 | 20.47 | 2.7050 | 7.3172 | 35.740 | |
| L-2215 | MAR | 12 | 24.86 | 15.17 | 19.83 | 2.3633 | 5.5850 | 28.163 | |
| L-2215 | APR | 10 | 23.34 | 12.76 | 17.62 | 2.9674 | 8.8054 | 49.980 | |
| L-2215 | MAY | 12 | 25.52 | 13.10 | 18.35 | 3.3867 | 11.4699 | 62.501 | |
| L-2215 | JUN | 11 | 23.80 | 17.04 | 20.98 | 2.0149 | 4.0596 | 19.350 | |
| L-2215 | JUL | 11 | 24.54 | 20.57 | 22.92 | 1.4796 | 2.1892 | 9.550 | |
| L-2215 | AUG | 11 | 25.97 | 22.97 | 24.34 | 0.9840 | 0.9683 | 3.978 | |
| L-2215 | SEP | 11 | 25.82 | 22.20 | 24.12 | 1.1991 | 1.4378 | 5.962 | |
| L-2215 | OCT | 12 | 25.55 | 19.08 | 22.11 | 2.2813 | 5.2044 | 23.539 | |
| L-2215 | NOV | 12 | 24.62 | 17.34 | 20.49 | 2.2986 | 5.2837 | 25.784 | |
| L-2215 | DEC | 12 | 23.97 | 16.00 | 19.63 | 2.5932 | 6.7247 | 34.263 | |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-------|-------|-------|--------|---------|--------|----|
| L-5664 | JAN | 5 | 9.99 | 5.98 | 8.10 | 1.6913 | 2.8605 | 35.315 | |
| L-5664 | FEB | 5 | 12.55 | 6.70 | 9.10 | 2.0110 | 4.0442 | 44.452 | |
| L-5664 | MAR | 5 | 12.82 | 6.90 | 9.53 | 2.1288 | 4.5317 | 47.542 | |
| L-5664 | APR | 5 | 12.05 | 6.16 | 8.35 | 2.0658 | 4.2675 | 51.108 | |
| L-5664 | MAY | 5 | 10.92 | 7.69 | 9.24 | 1.3282 | 1.7640 | 19.083 | |
| L-5664 | JUN | 4 | 12.65 | 9.12 | 11.32 | 1.3296 | 1.7678 | 15.624 | |
| L-5664 | JUL | 4 | 14.73 | 12.38 | 13.38 | 0.8743 | 0.7645 | 5.713 | |
| L-5664 | AUG | 4 | 14.16 | 12.57 | 13.56 | 0.6000 | 0.3600 | 2.655 | |
| L-5664 | SEP | 4 | 13.82 | 12.54 | 13.30 | 0.5341 | 0.2852 | 2.145 | |
| L-5664 | OCT | 4 | 12.64 | 9.06 | 10.78 | 1.2681 | 1.6081 | 14.925 | |
| L-5664 | NOV | 5 | 11.53 | 7.91 | 9.82 | 1.4363 | 2.0631 | 21.005 | |
| L-5664 | DEC | 5 | 9.97 | 6.77 | 8.13 | 1.0948 | 1.1986 | 14.735 | |



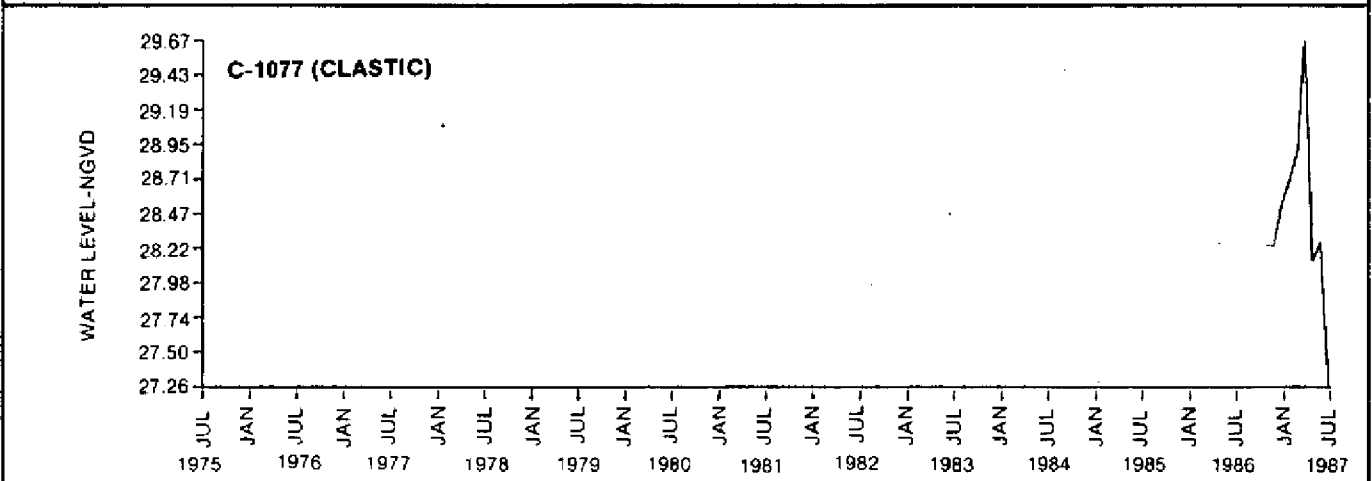
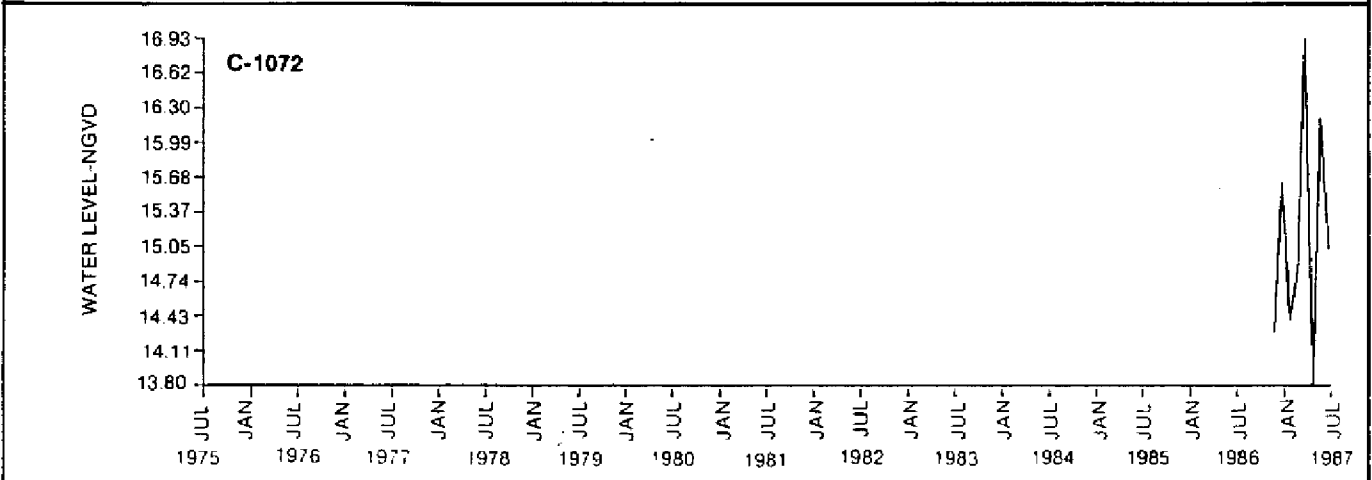
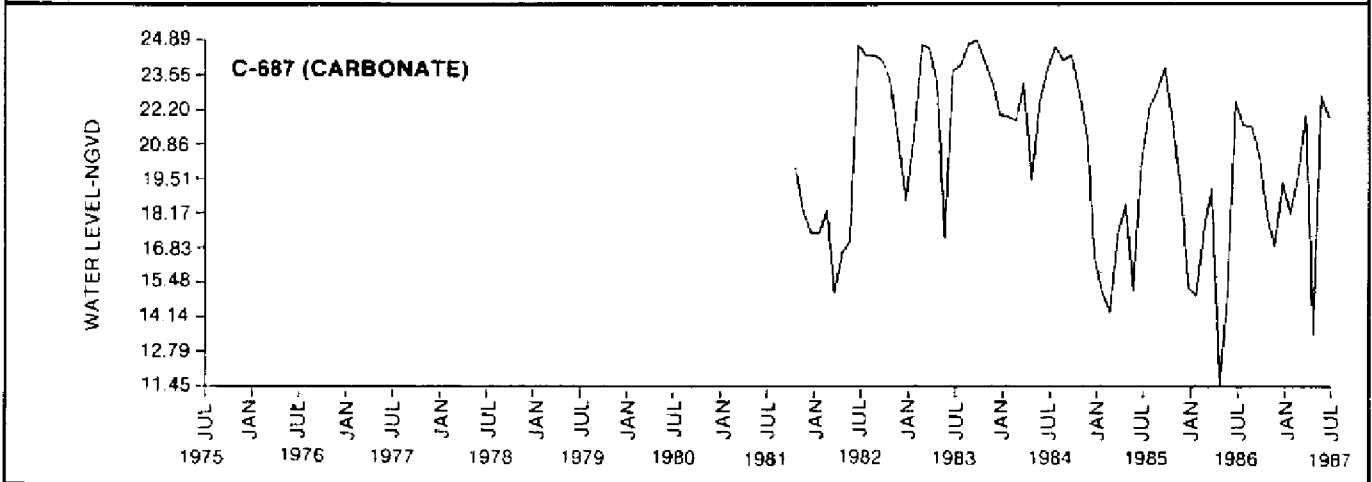
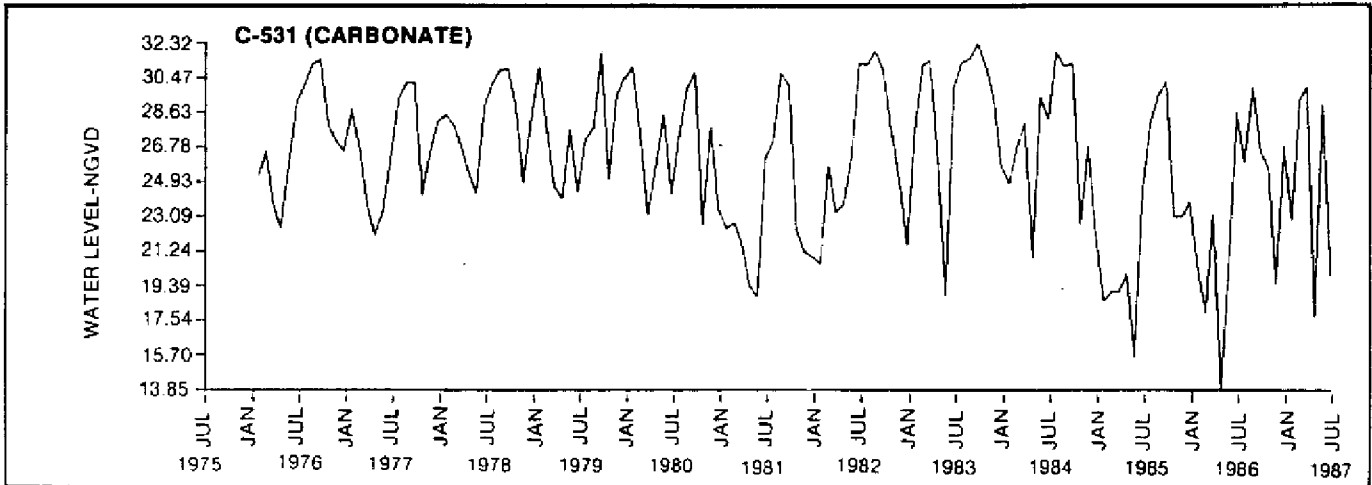
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| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|----|-----|-------|-------|-------|---------|---------|--------|
| C-531 | JAN | 12 | | 31.08 | 18.63 | 25.19 | 4.0723 | 16.5833 | 65.822 |
| C-531 | FEB | 12 | | 31.25 | 17.97 | 25.76 | 3.7641 | 14.1684 | 55.000 |
| C-531 | MAR | 12 | | 31.46 | 19.13 | 24.94 | 3.3845 | 11.4548 | 45.928 |
| C-531 | APR | 12 | | 26.01 | 13.85 | 21.80 | 3.4856 | 12.1493 | 55.720 |
| C-531 | MAY | 12 | | 29.50 | 15.63 | 24.02 | 4.4216 | 19.5509 | 81.392 |
| C-531 | JUN | 12 | | 31.29 | 20.01 | 26.84 | 3.0504 | 9.3048 | 34.671 |
| C-531 | JUL | 12 | | 31.87 | 23.72 | 28.64 | 2.3639 | 5.5878 | 19.511 |
| C-531 | AUG | 11 | | 31.94 | 27.83 | 30.46 | 1.0775 | 1.1610 | 3.811 |
| C-531 | SEP | 11 | | 32.32 | 26.56 | 30.62 | 1.4369 | 2.0648 | 6.744 |
| C-531 | OCT | 11 | | 31.21 | 22.37 | 25.64 | 2.8554 | 8.1532 | 31.802 |
| C-531 | NOV | 11 | | 29.60 | 19.50 | 25.56 | 3.0826 | 9.5025 | 37.172 |
| C-531 | DEC | 11 | | 30.48 | 20.98 | 25.28 | 2.9419 | 8.6549 | 34.230 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|-------|-----|---|-----|-------|-------|-------|---------|---------|----------|
| C-687 | JAN | 6 | | 21.92 | 14.97 | 18.12 | 2.6969 | 7.2732 | 431.217 |
| C-687 | FEB | 6 | | 24.71 | 14.32 | 19.39 | 3.2725 | 10.7092 | 362.204 |
| C-687 | MAR | 6 | | 24.59 | 15.04 | 20.22 | 3.3619 | 11.3027 | 298.224 |
| C-687 | APR | 6 | | 23.21 | 11.45 | 17.12 | 3.8776 | 15.0356 | 2189.649 |
| C-687 | MAY | 6 | | 22.74 | 14.92 | 18.24 | 3.1800 | 10.1126 | 558.705 |
| C-687 | JUN | 6 | | 24.70 | 20.03 | 22.78 | 1.5282 | 2.3354 | 36.806 |
| C-687 | JUL | 6 | | 24.63 | 21.59 | 23.14 | 1.1840 | 1.4020 | 20.909 |
| C-687 | AUG | 5 | | 24.74 | 21.54 | 23.52 | 1.1608 | 1.3474 | 18.994 |
| C-687 | SEP | 5 | | 24.89 | 20.35 | 23.50 | 1.6124 | 2.5997 | 36.771 |
| C-687 | OCT | 6 | | 24.07 | 18.10 | 21.66 | 2.0706 | 4.2872 | 81.999 |
| C-687 | NOV | 6 | | 23.26 | 16.84 | 19.89 | 2.1232 | 4.5079 | 130.412 |
| C-687 | DEC | 6 | | 21.99 | 15.25 | 18.20 | 2.1597 | 4.6642 | 263.765 |

| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| C-1072 | JAN | 1 | | 14.39 | 14.39 | 14.39 | | | |
| C-1072 | FEB | 1 | | 14.85 | 14.85 | 14.85 | | | |
| C-1072 | MAR | 1 | | 16.93 | 16.93 | 16.93 | | | |
| C-1072 | APR | 2 | | 15.58 | 13.80 | 14.69 | 0.8900 | 0.7921 | 5.392 |
| C-1072 | MAY | 1 | | 16.22 | 16.22 | 16.22 | | | |
| C-1072 | JUN | 1 | | 15.04 | 15.04 | 15.04 | | | |
| C-1072 | JUL | 1 | | 16.87 | 16.87 | 16.87 | | | |
| C-1072 | AUG | 0 | | | | | | | |
| C-1072 | SEP | 0 | | | | | | | |
| C-1072 | OCT | 0 | | | | | | | |
| C-1072 | NOV | 1 | | 14.24 | 14.24 | 14.24 | | | |
| C-1072 | DEC | 1 | | 15.63 | 15.63 | 15.63 | | | |

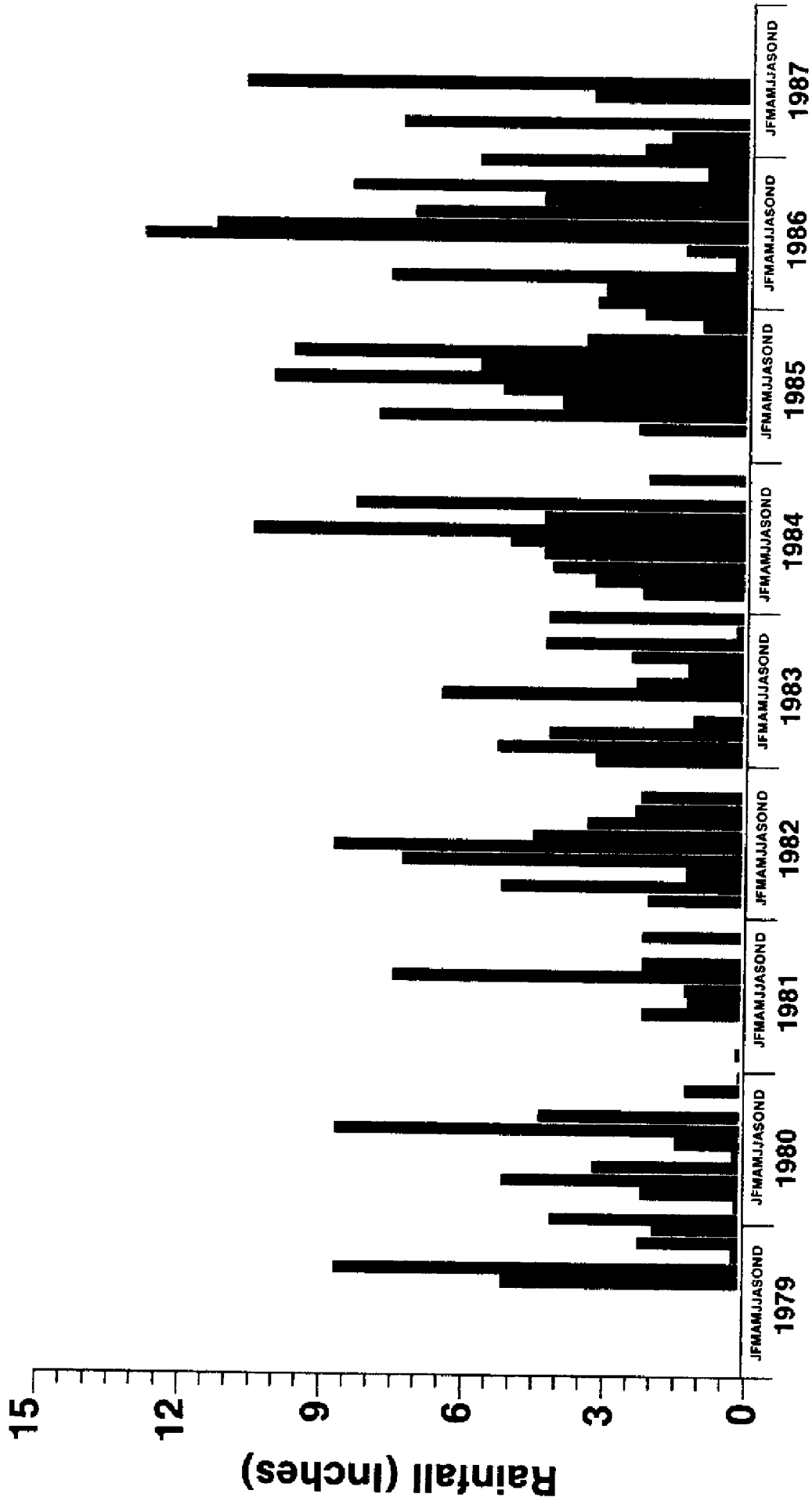
| | | # | Rec | Max | Min | Mean | Std Dev | Var | CV |
|--------|-----|---|-----|-------|-------|-------|---------|--------|-------|
| C-1077 | JAN | 1 | | 28.70 | 28.70 | 28.70 | | | |
| C-1077 | FEB | 1 | | 28.91 | 28.91 | 28.91 | | | |
| C-1077 | MAR | 1 | | 29.67 | 29.67 | 29.67 | | | |
| C-1077 | APR | 2 | | 28.26 | 28.13 | 28.20 | 0.0650 | 0.0042 | 0.015 |
| C-1077 | MAY | 1 | | 28.26 | 28.26 | 28.26 | | | |
| C-1077 | JUN | 1 | | 27.26 | 27.26 | 27.26 | | | |
| C-1077 | JUL | 1 | | 27.23 | 27.23 | 27.23 | | | |
| C-1077 | AUG | 0 | | | | | | | |
| C-1077 | SEP | 0 | | | | | | | |
| C-1077 | OCT | 1 | | 28.24 | 28.24 | 28.24 | | | |
| C-1077 | NOV | 1 | | 28.24 | 28.24 | 28.24 | | | |
| C-1077 | DEC | 1 | | 28.53 | 28.53 | 28.53 | | | |



HYDROGRAPHS - SANDSTONE AQUIFER

APPENDIX B-4

RAINFALL AND EVAPORATION DATA



Monthly Rainfall MRF 247 (Girl Scout Camp, 8/79-6/87)

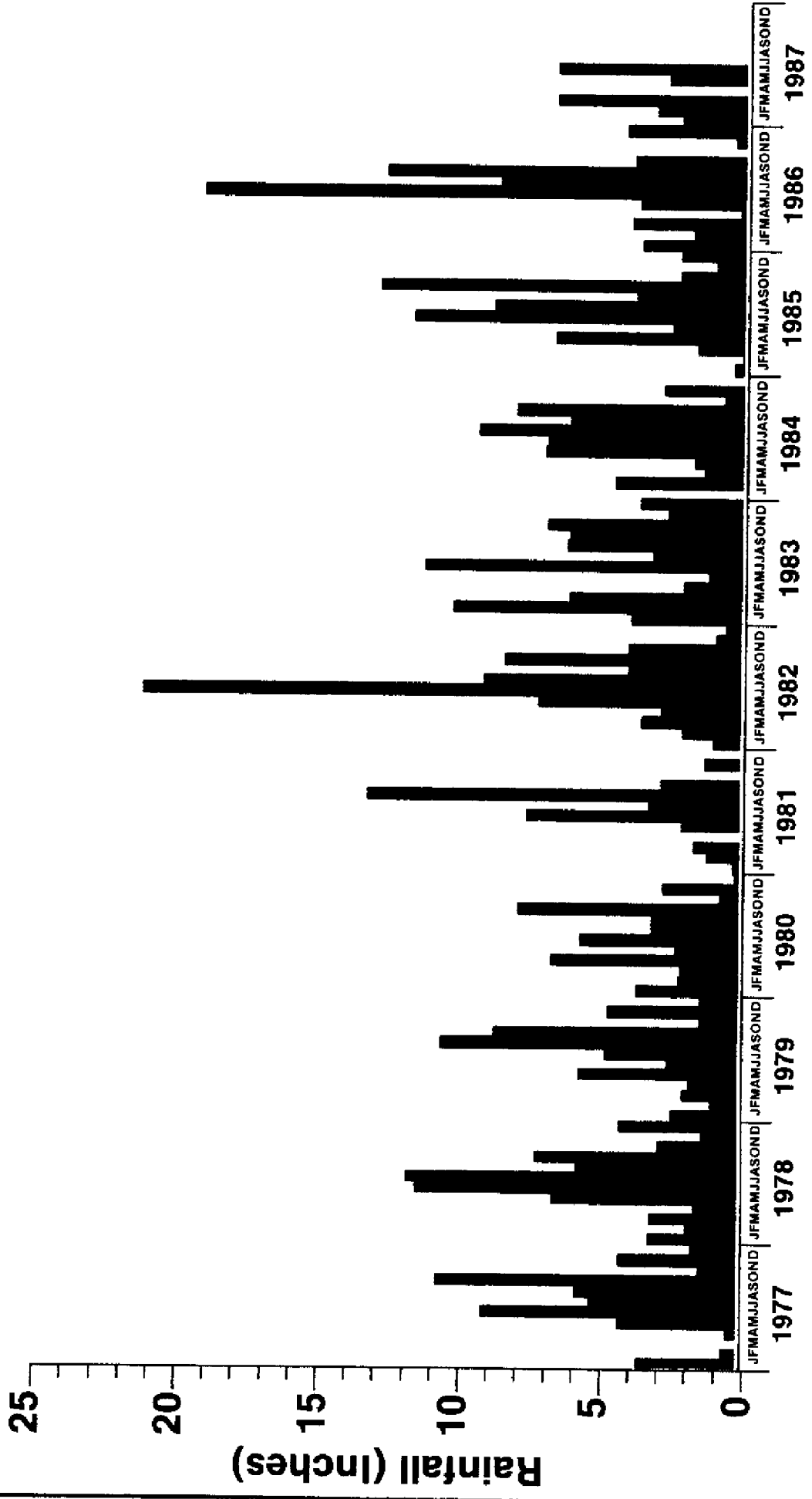
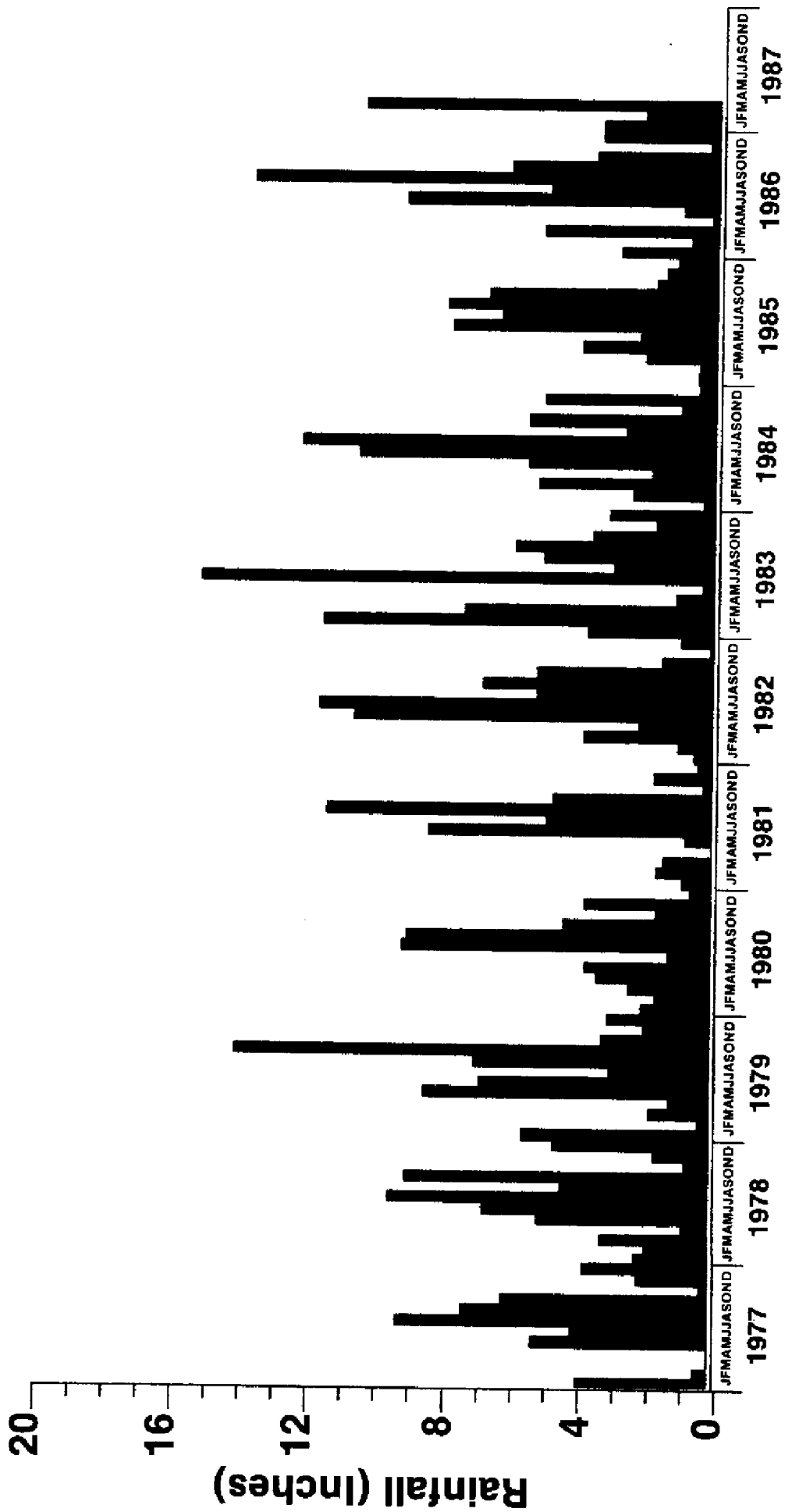
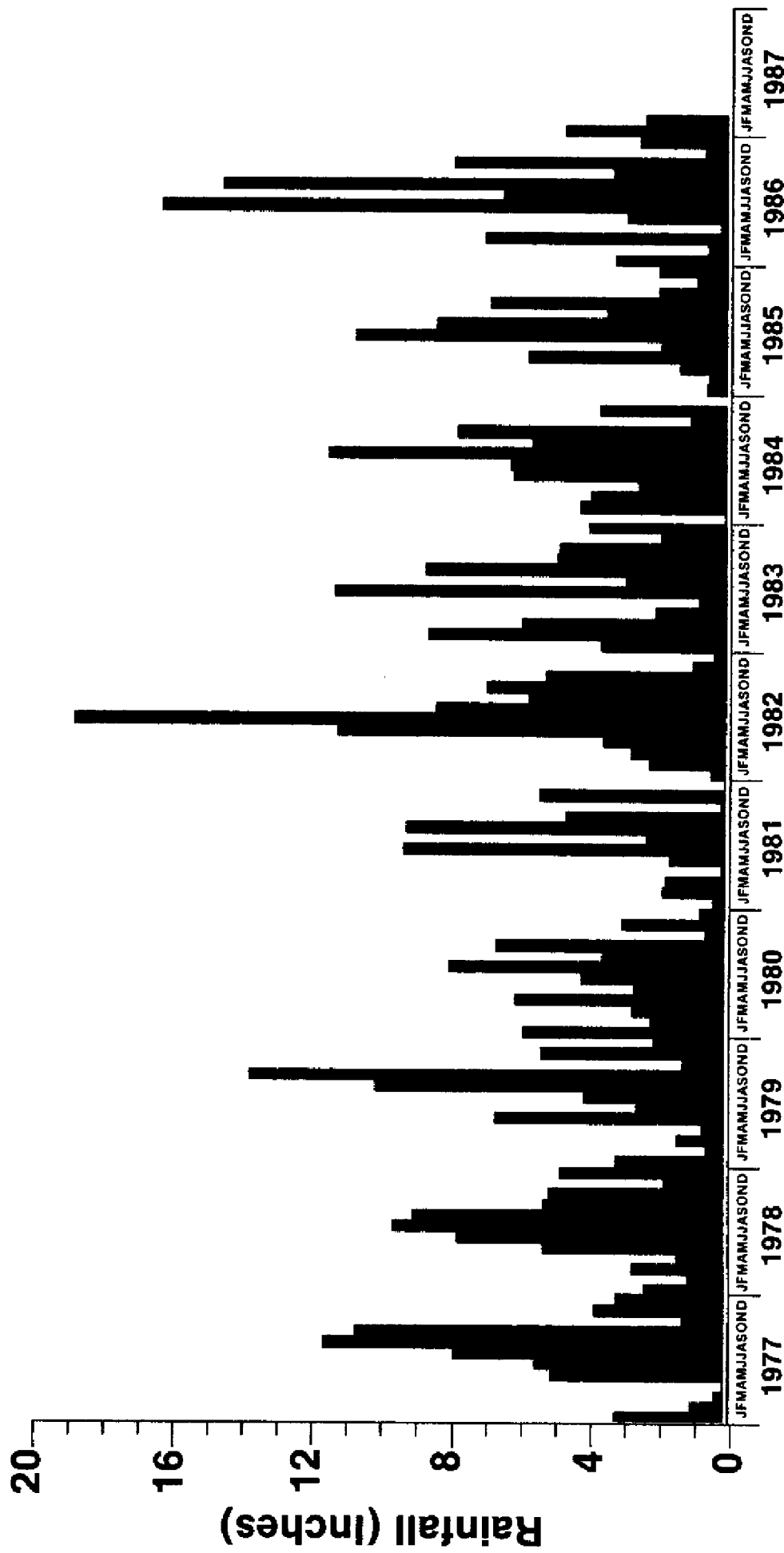


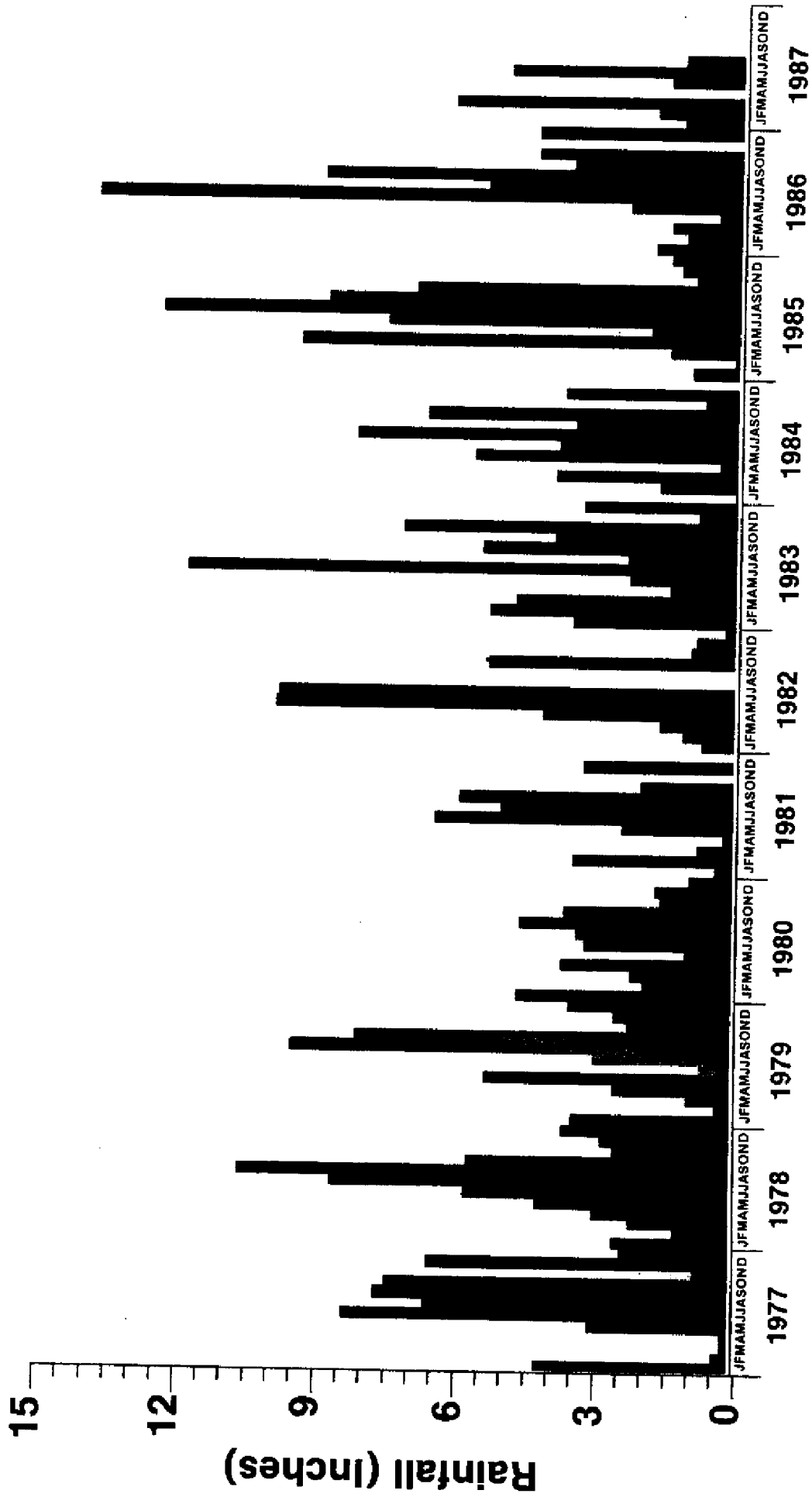
Figure Monthly Rainfall MRF 5002 (Devil's Garden Tower, 1/177-6/87)



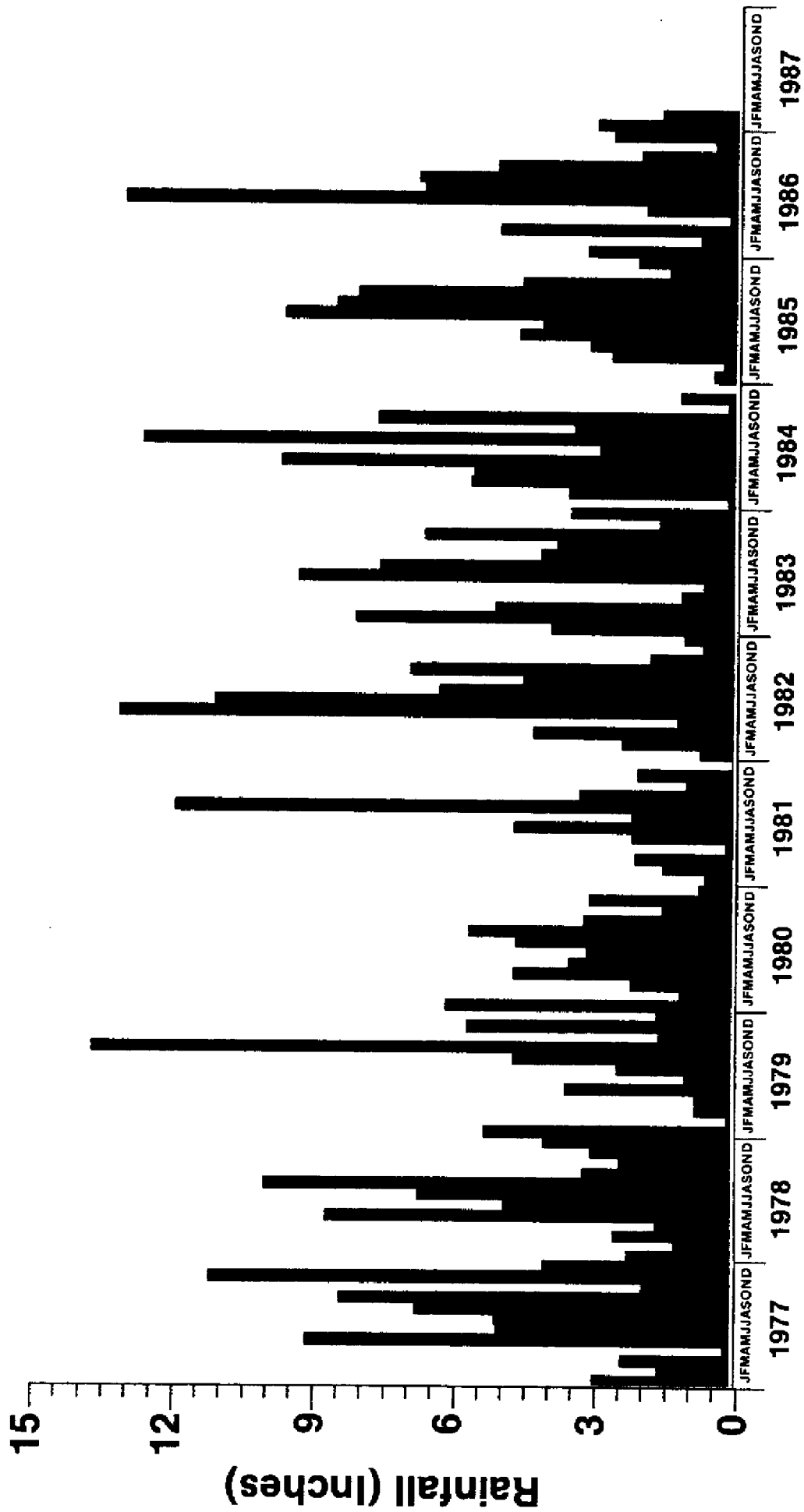
Monthly Rainfall MRF 6044 (La Belle, 1/77-6/87)



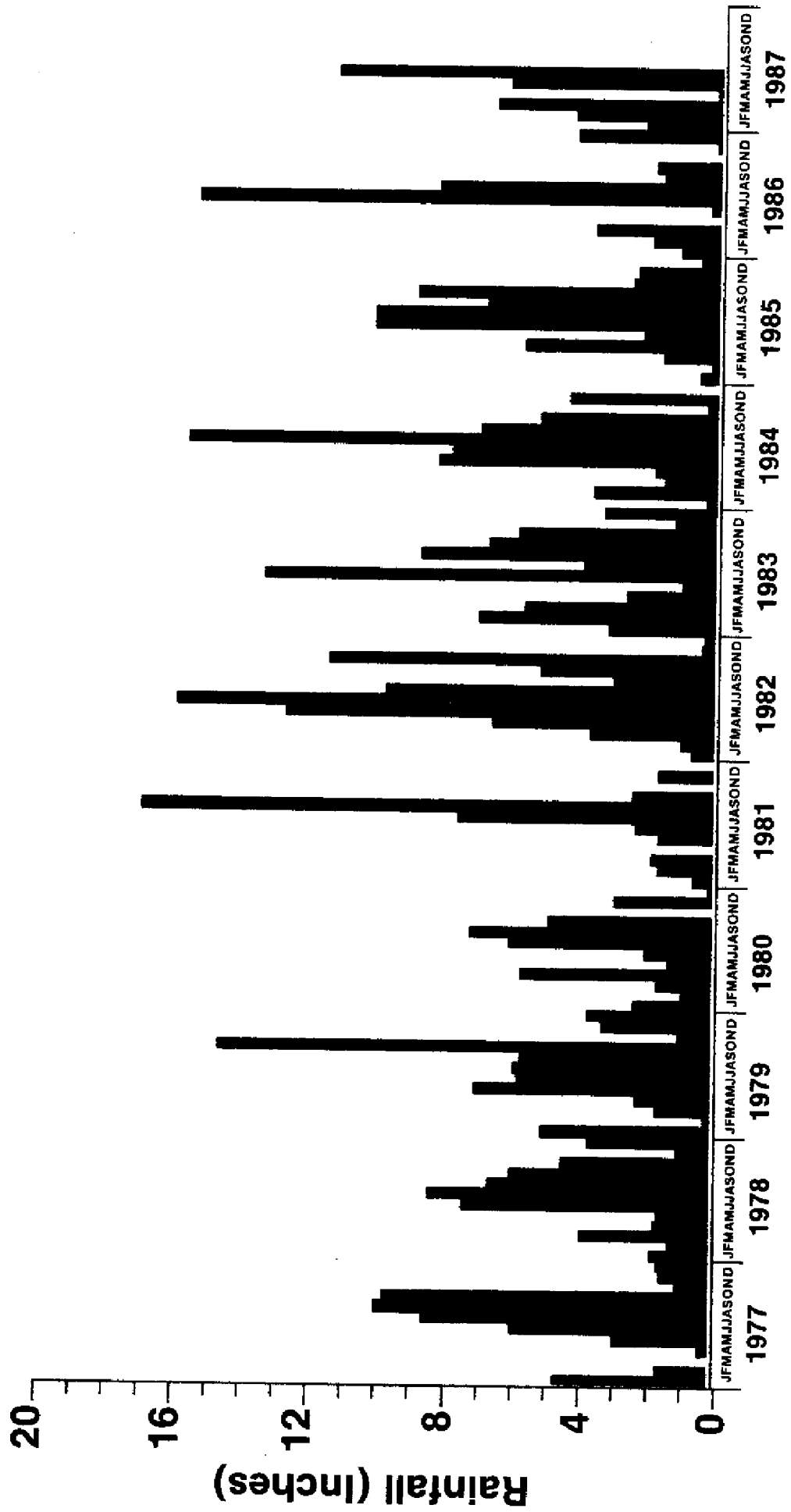
Monthly Rainfall MRF 6118 (Devil's Garden, 1/77-6/87)



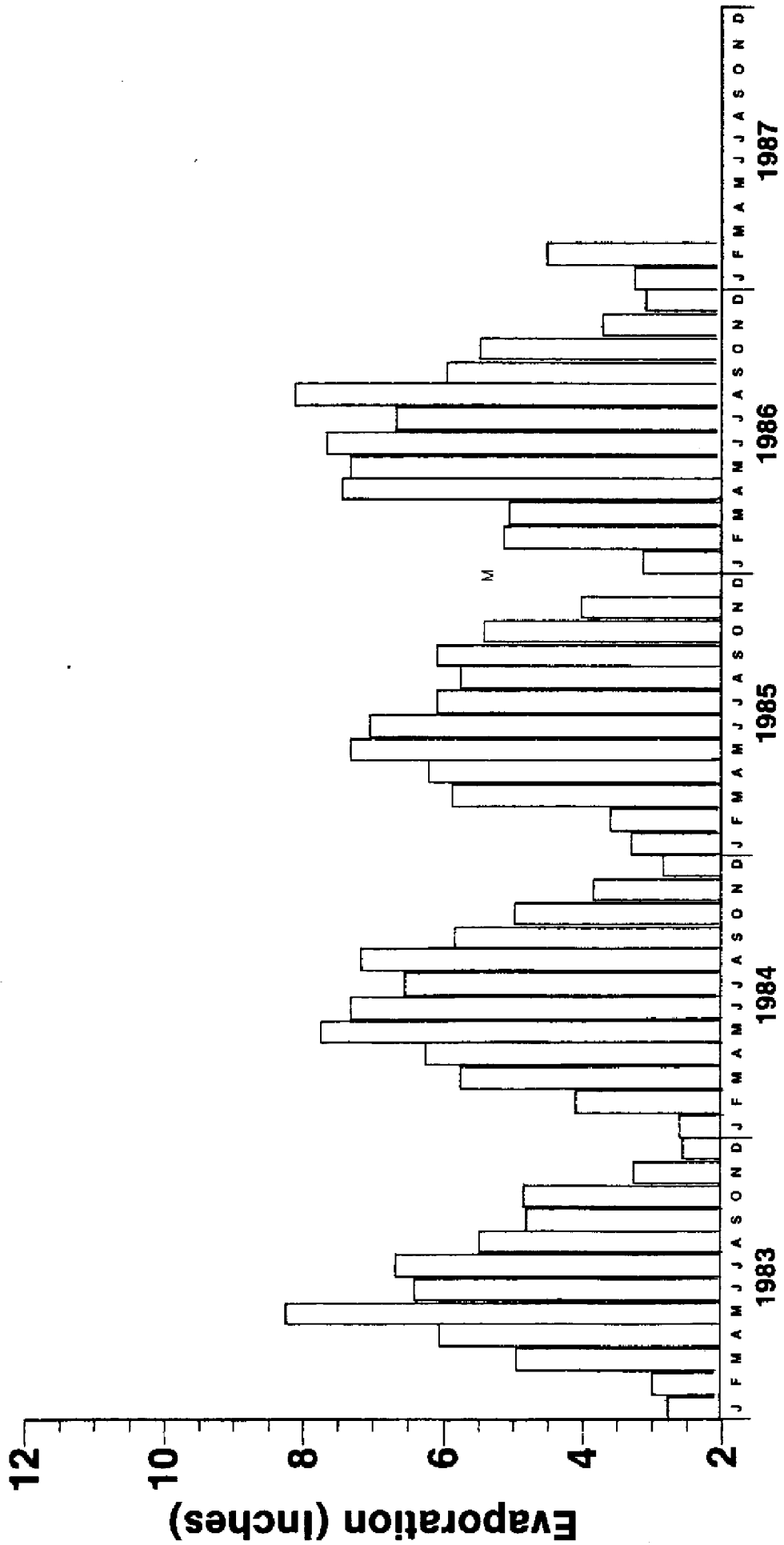
Monthly Rainfall MRF 182 (Alico, 1/77-6/87)



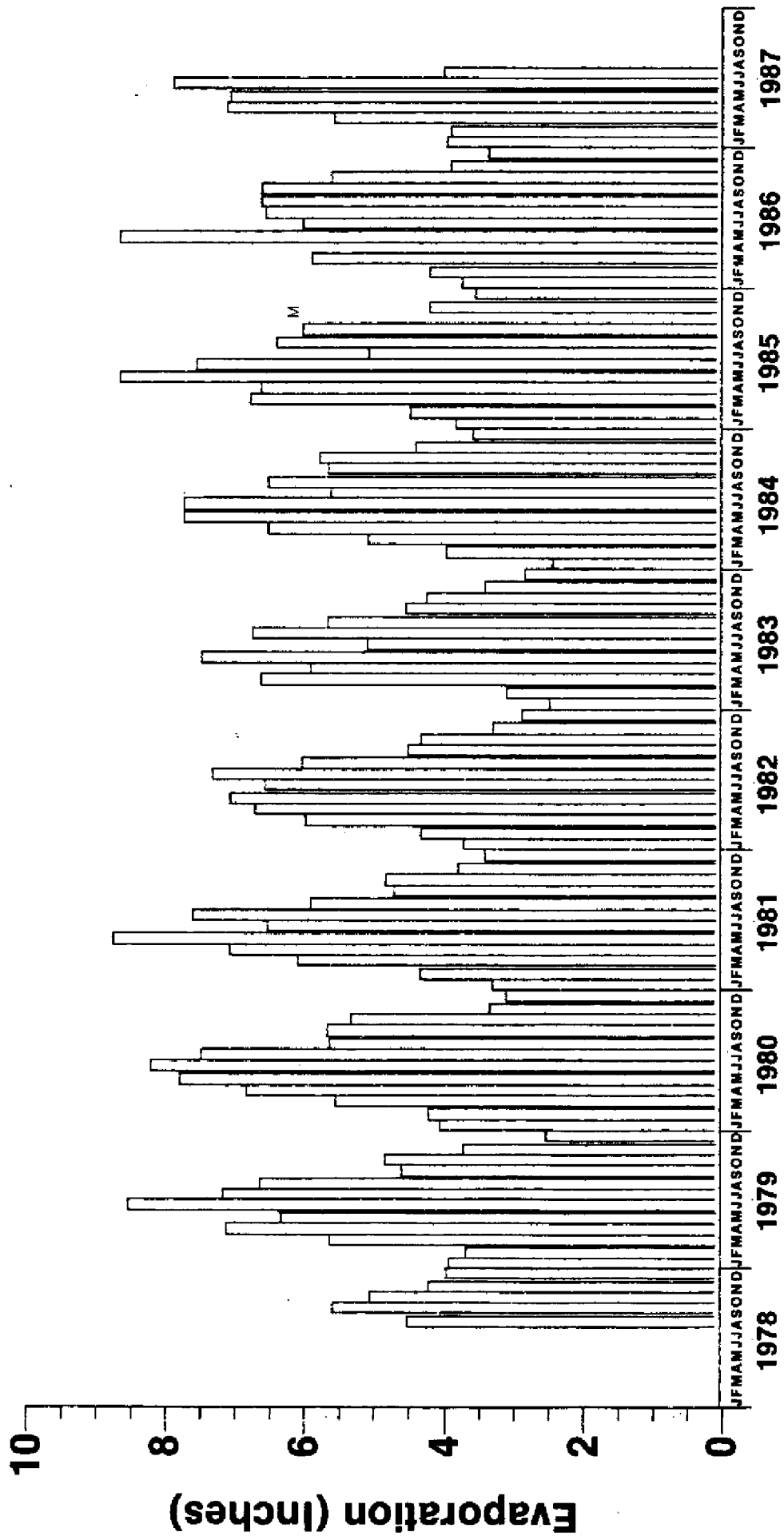
Monthly Rainfall MRF 6039 (Clewiston, 1/77-6/87)



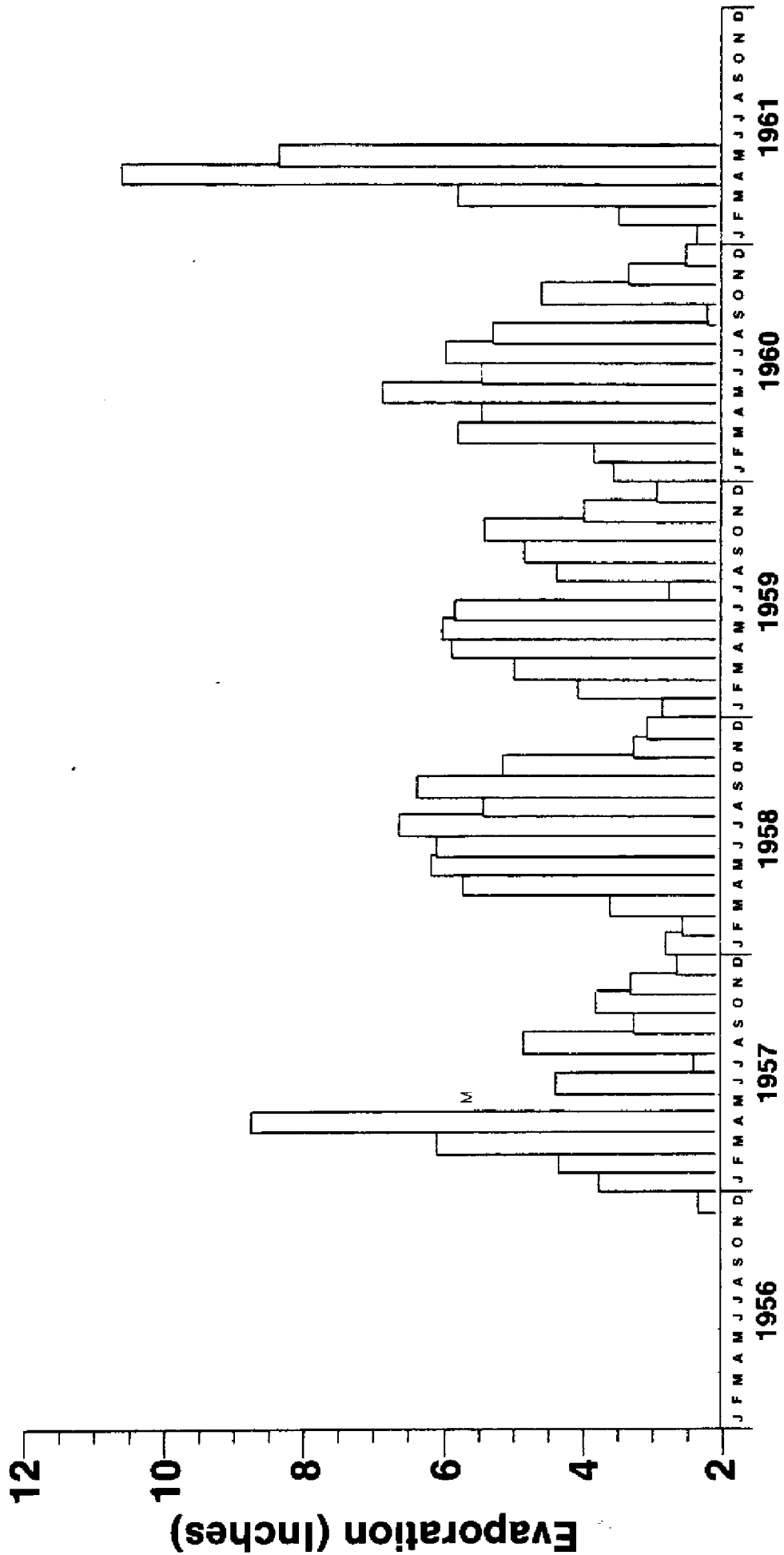
Monthly Rainfall MRF 5006 (KERI Tower, 1/77-6/87)



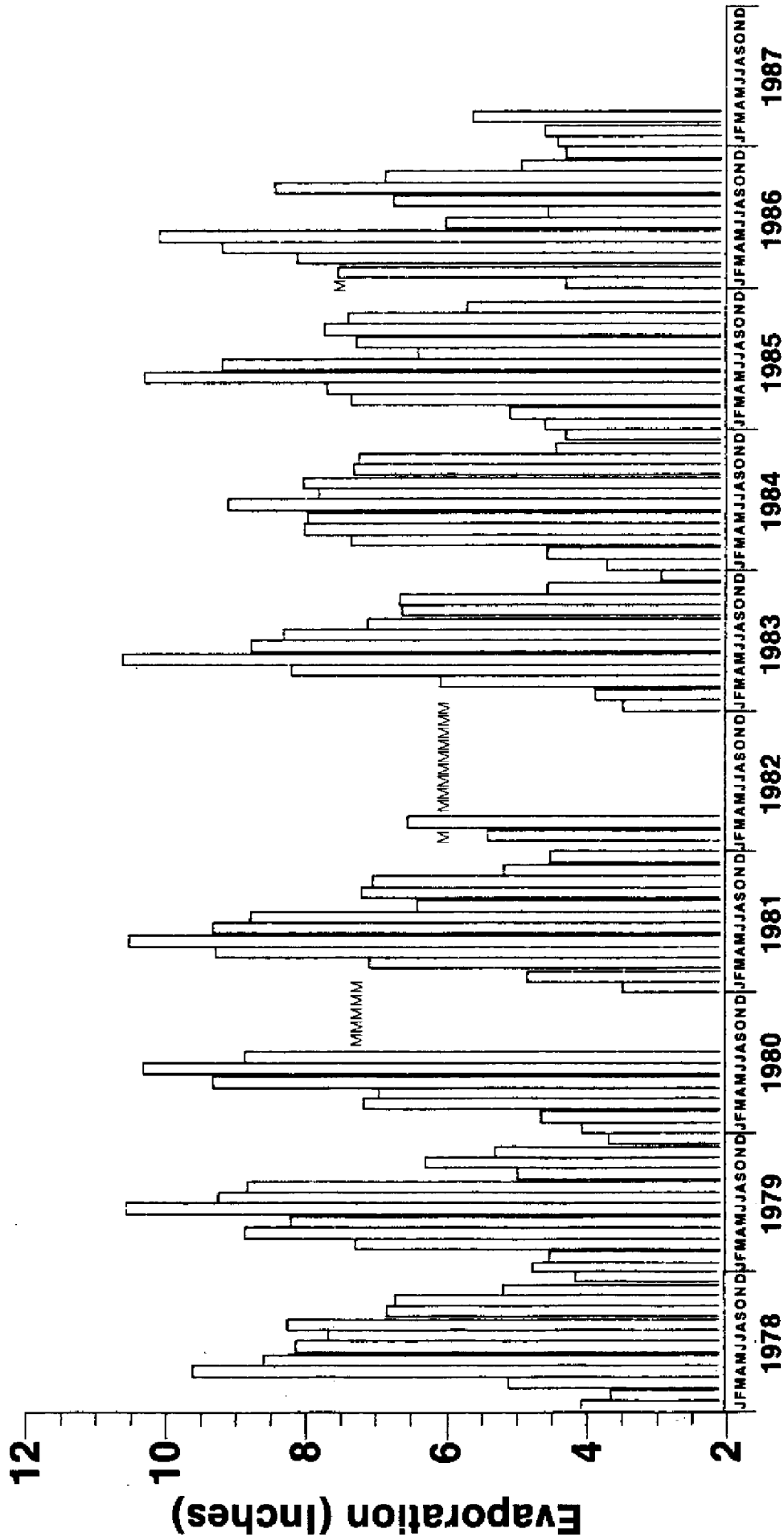
Monthly Pan Evaporation — Clewiston



Monthly Pan Evaporation — Lehigh Acres



Monthly Pan Evaporation — Miles City Tower



Monthly Pan Evaporation — Moore Haven (HGS-1)

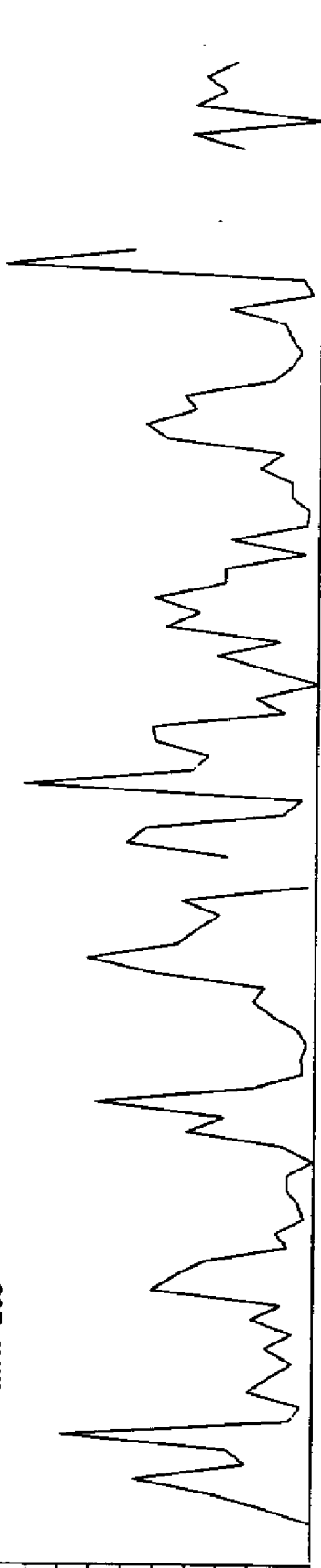
APPENDIX B-5

COMPARISON OF RAINFALL AND WATER LEVELS

MRF 265

17.90
16.11
14.32
12.53
10.74
8.95
7.16
5.37
3.58
1.79
.00

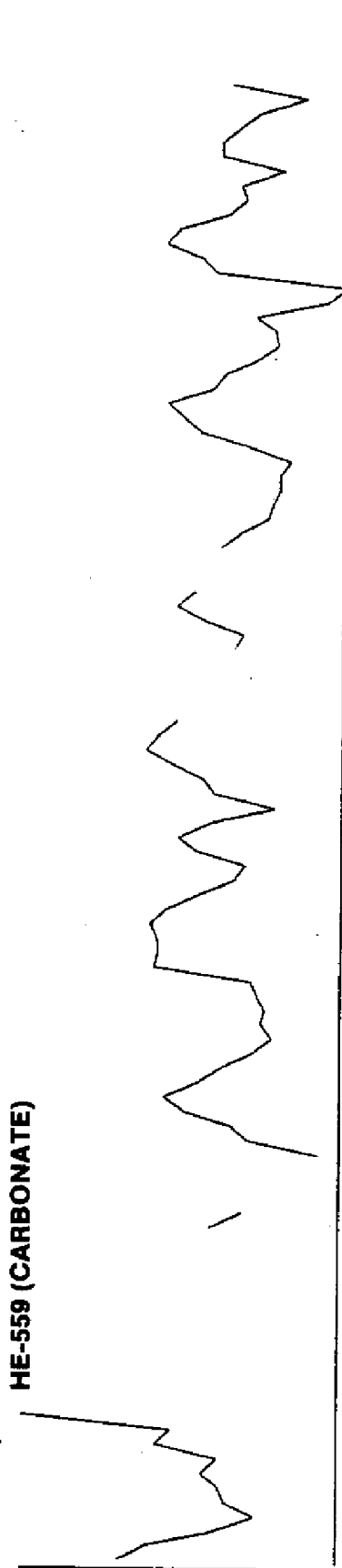
RAINFALL-INCHES



HE-559 (CARBONATE)

24.54
23.90
23.27
22.63
22.00
21.36
20.72
20.09
19.45
18.82
18.18

WATERLEVEL-FT.



HE-560 (CLASTIC)

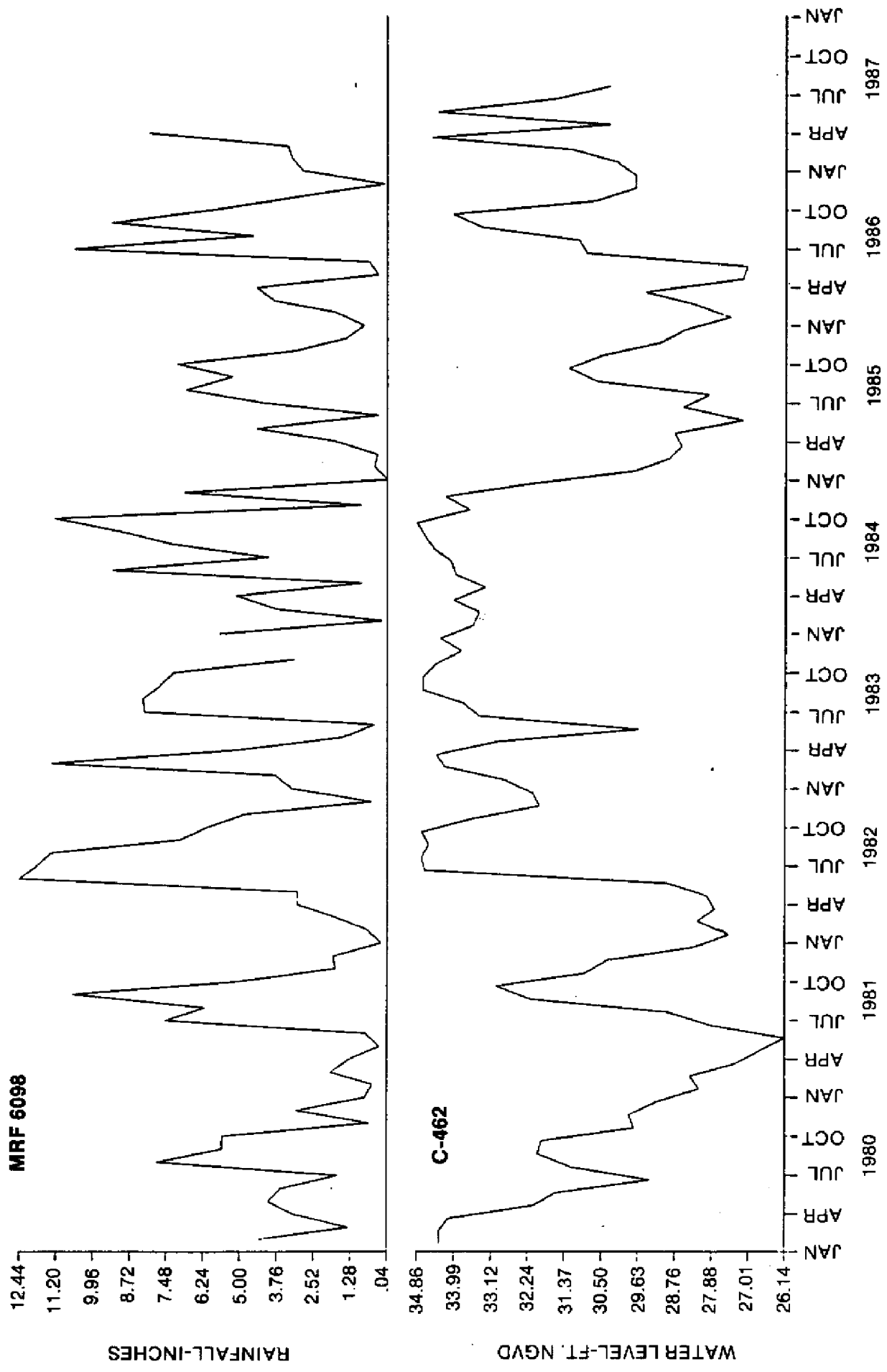
23.31
22.91
22.50
22.10
21.70
21.30
20.90
20.49
20.09
19.69

WATERLEVEL-FT.

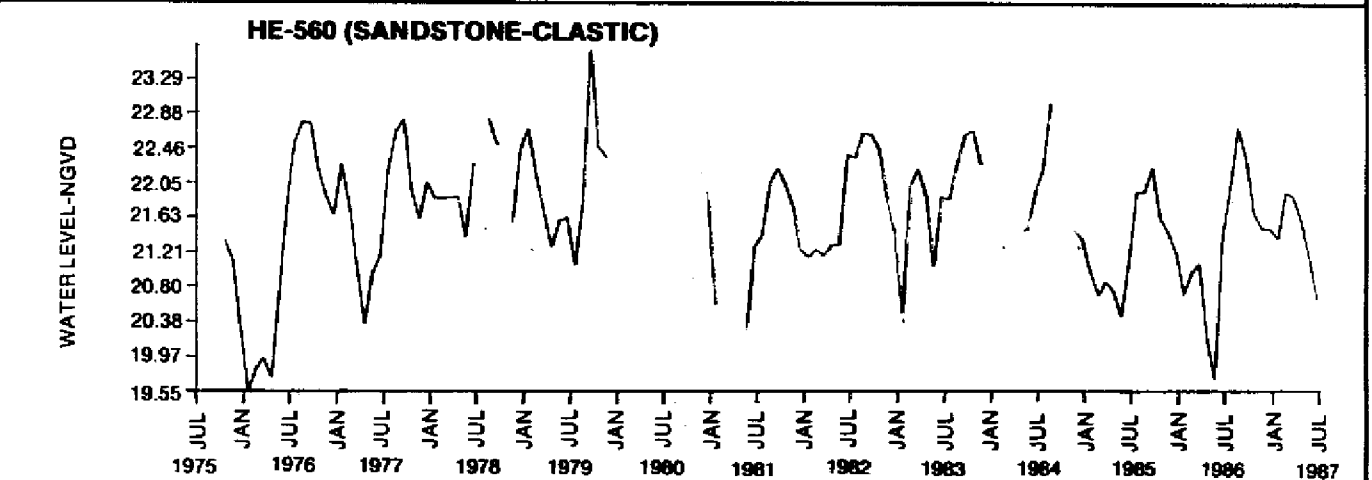
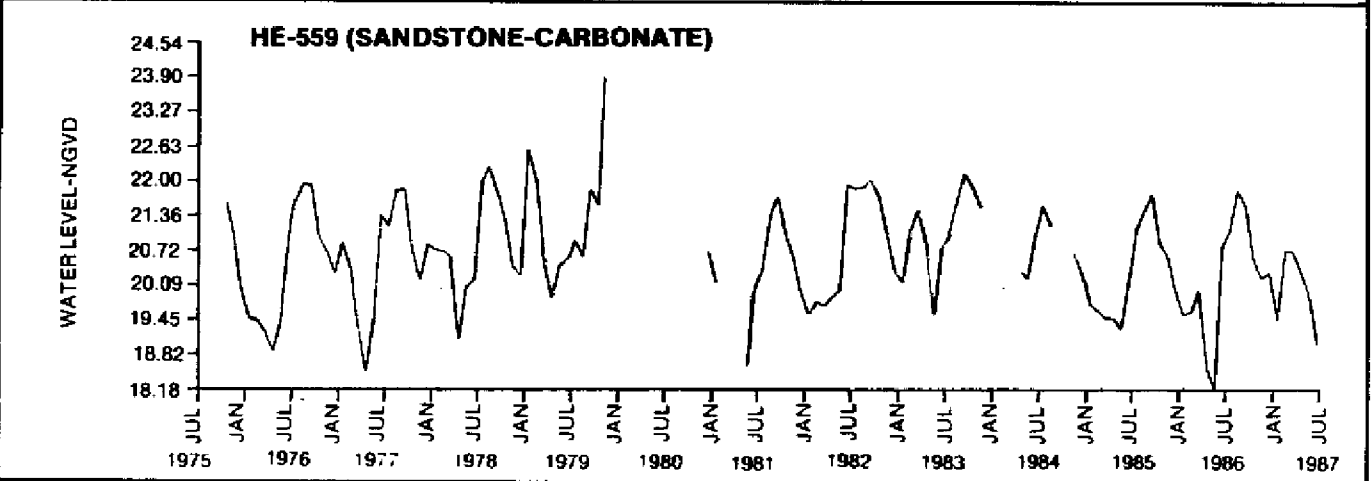
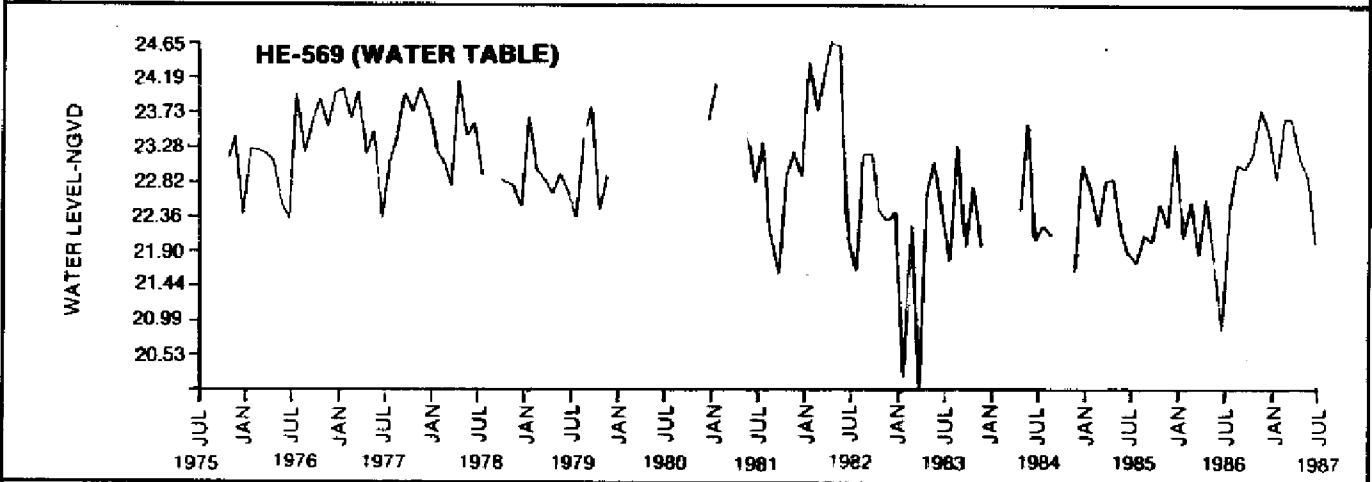
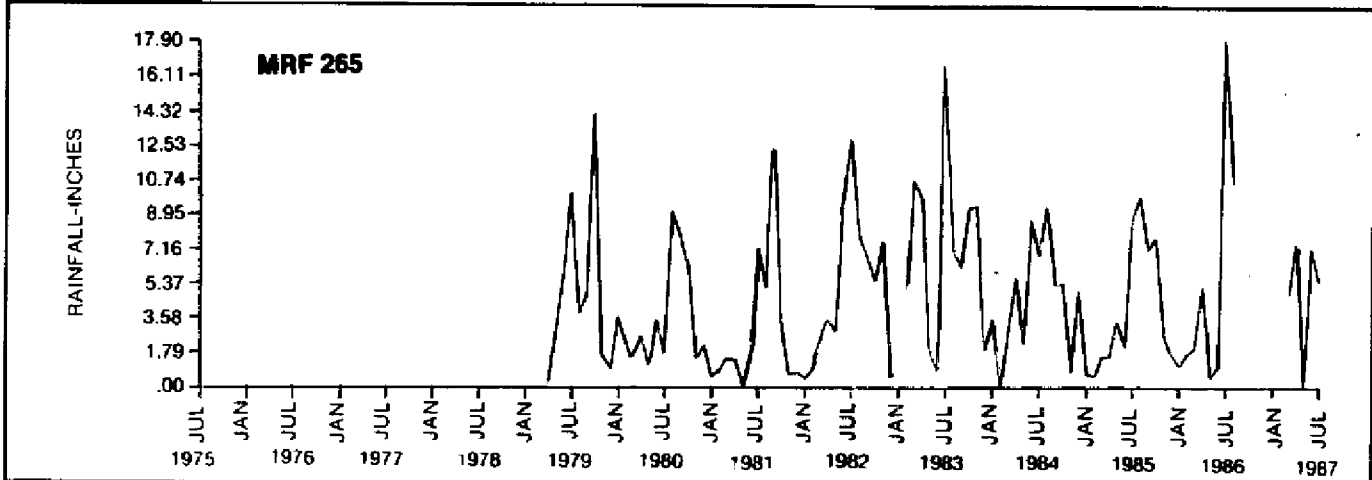


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APR
JUL
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JUL
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1986
JAN
APR
JUL
OCT
1987

**COMPARISON OF RAINFALL AT STATION MRF-265 AND SANDSTONE
AQUIFER WELLS HE-559 AND HE-560**



**COMPARISON OF RAINFALL AT STATION MRF-6098 AND WATER LEVELS
IN LOWER TAMIAMI AQUIFER WELL C-462**



COMPARISON OF RAINFALL, WATER LEVELS IN THE WATER TABLE AQUIFER AND POTENTIOMETRIC SURFACE OF THE SANDSTONE AQUIFER

APPENDIX C-1

INTRODUCTION

Introduction

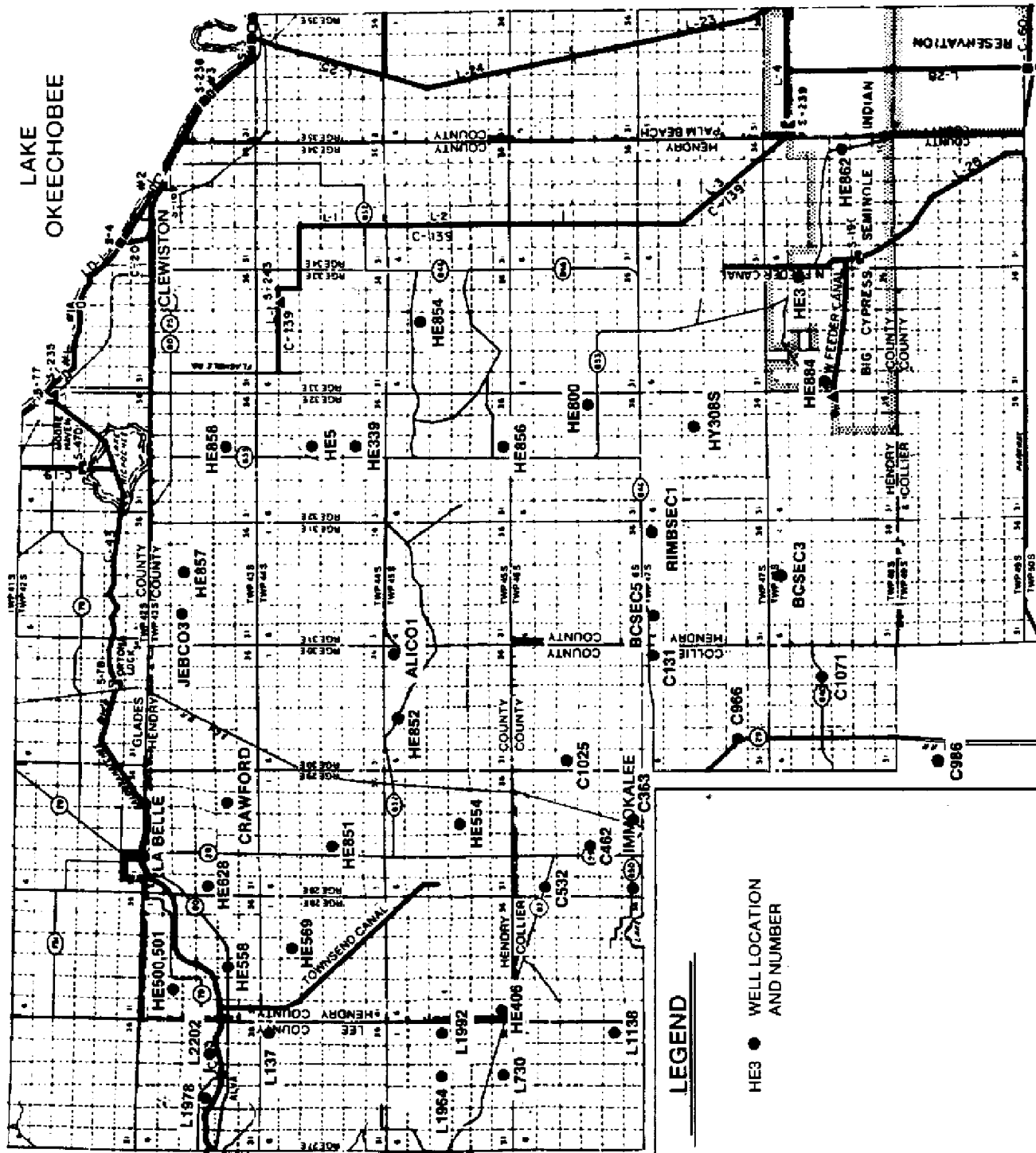
The data used to describe the ground water quality of the study area is contained in this appendix. The data is presented in three parts. Appendix C-2 contains location maps of the water quality wells for each aquifer. Appendix C-3 contains complete analyses for selected wells. The data in 1986 and 1987 was supplied by the District's water chemistry laboratory. Data in prior years was provided by the USGS. Appendix C-4 presents the data used to construct the chloride and conductivity maps. In addition to the fall 1986 and spring 1987 values, known historical maximums and minimums are included, along with the number of records present and mean values for each well. There is little data available prior to 1982 and in most cases the wells were not regularly sampled until 1986.

The data presented in this appendix may not represent all the available data for each well. However, all the data available at SFWMD and the USGS office in Ft. Myers is included here. Earlier data may be available from the USGS's archive files in Reston, Virginia.

APPENDIX C-2

LOCATIONS OF WATER QUALITY WELLS

LAKE
OKEECHOBEE



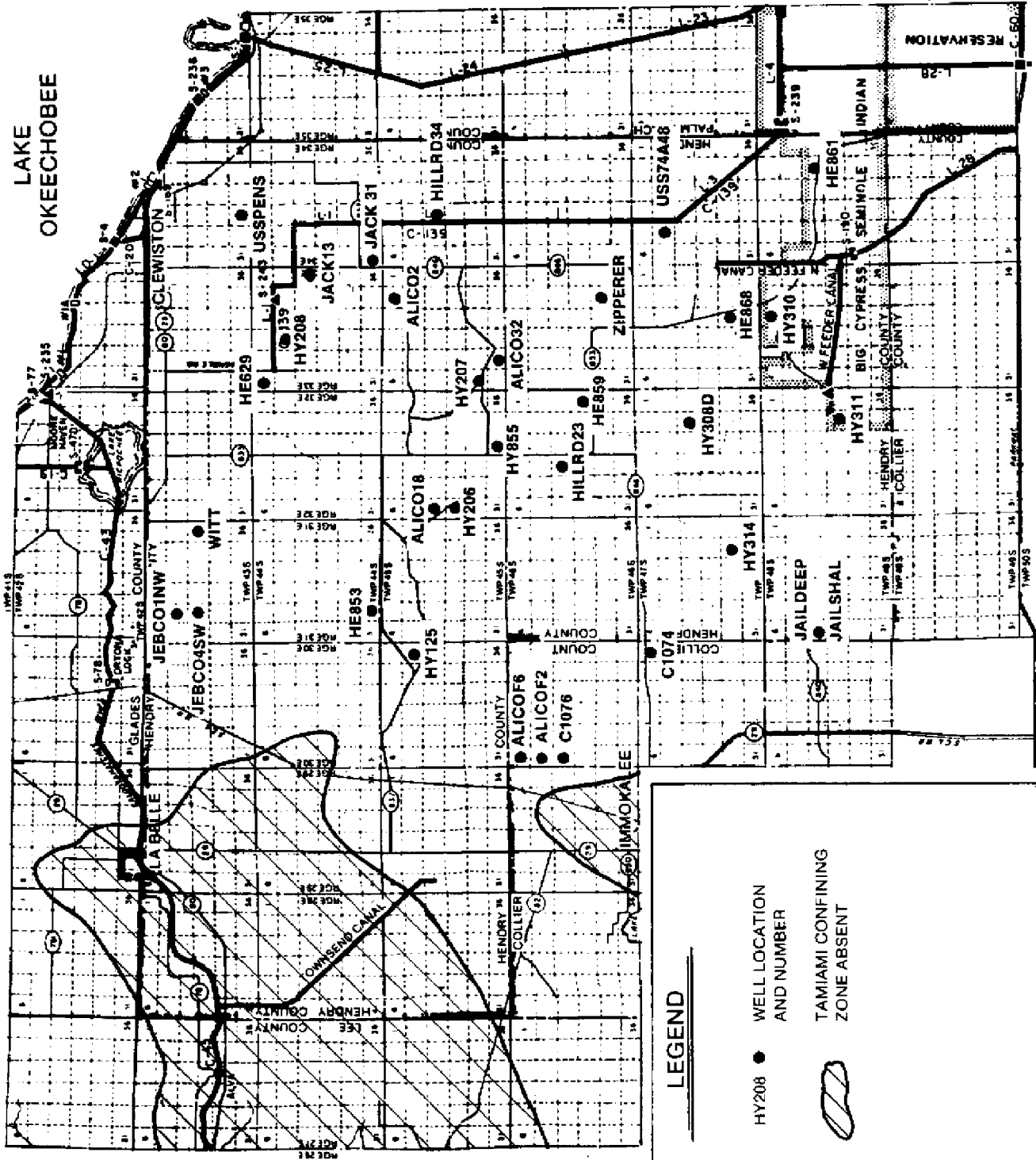
LEGEND

HE3 ● WELL LOCATION AND NUMBER



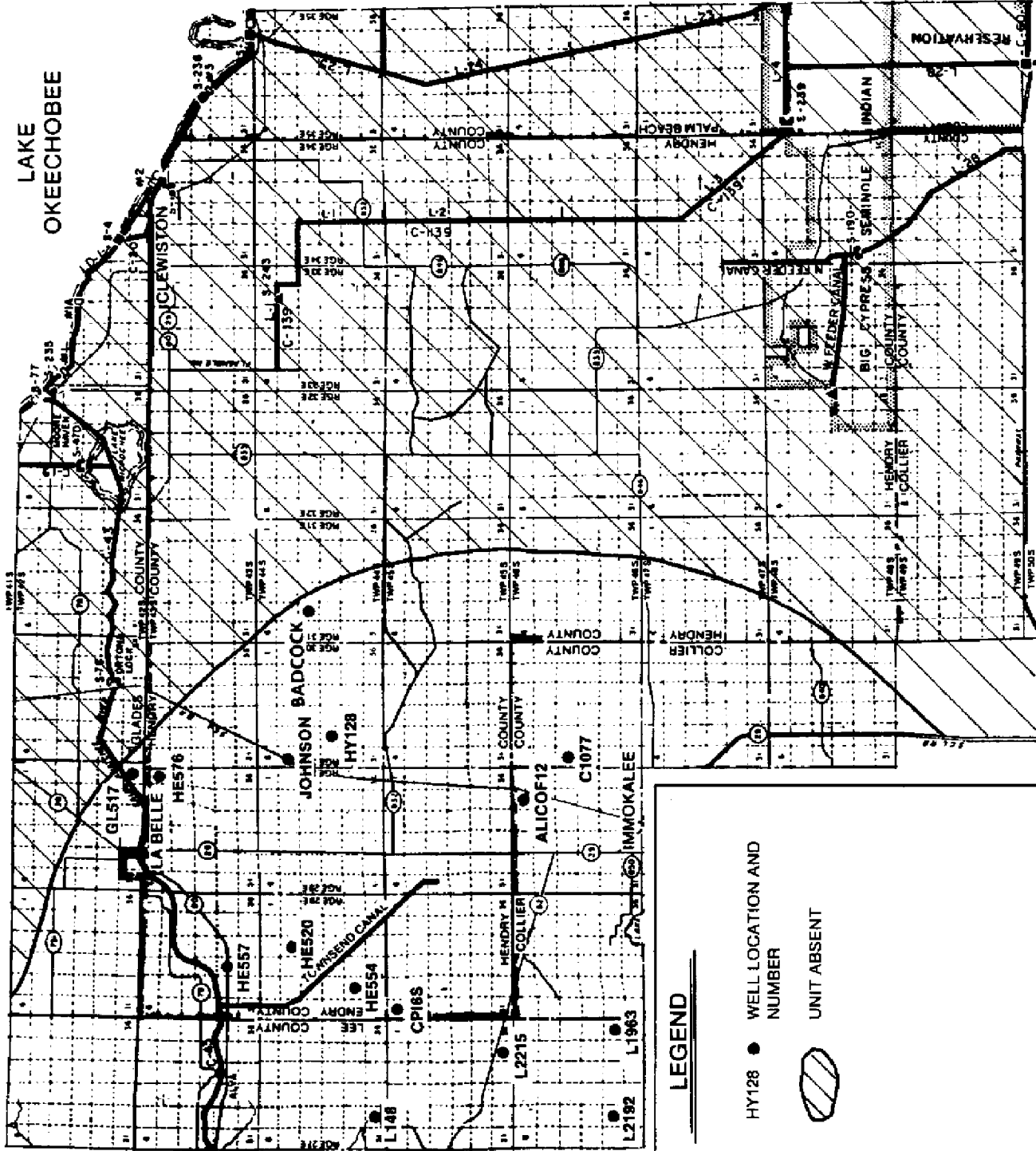
LOCATIONS OF WATER QUALITY WELLS MONITORING THE WATER TABLE AQUIFER

LAKE
OKEECHOBEE



LOCATION OF WATER QUALITY WELLS MONITORING THE LOWER TAMAMIAMI AQUIFER

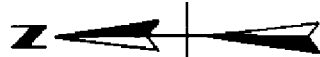
LAKE
OKEECHOBEE



LEGEND

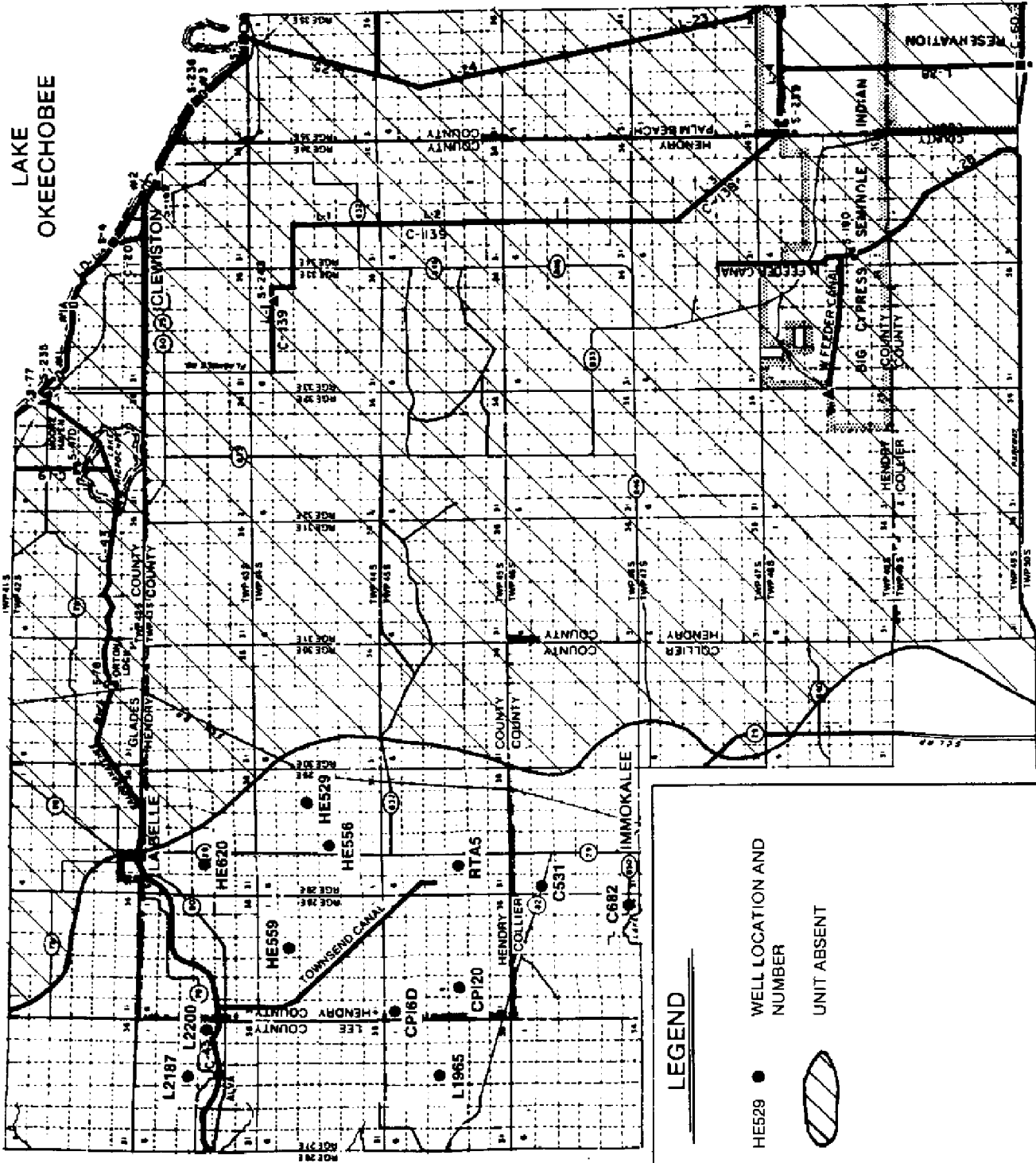
● WELL LOCATION AND NUMBER

▨ UNIT ABSENT




LOCATIONS OF WATER QUALITY WELLS MONITORING THE CLASTIC ZONE OF THE SANDSTONE AQUIFER

LAKE
OKEECHOBEE



LEGEND

- HE529 ● WELL LOCATION AND NUMBER
-  UNIT ABSENT



LOCATIONS OF WATER QUALITY WELLS MONITORING THE CARBONATE ZONE OF THE SANDSTONE AQUIFER

APPENDIX C-3

**WATER QUALITY ANALYSES
FOR SELECTED WELLS**

WATER TABLE ARJIFER

| well name | location S/T/R | location lat | location long | date sampled | Na mg/l | K mg/l | Ca mg/l | Mg mg/l | Cl- mg/l | SO4 mg/l | HCO3 mg/l | tot.alk mg/l | FI mg/l | SI02 mg/l | Sr mg/l | tot.Fe mg/l | Tdis Fe mg/l | TDS mg/l | Color units | sp.cond. usahas/cm | pH | I error |
|-----------|----------------|--------------|---------------|--------------|---------|--------|---------|---------|----------|----------|-----------|--------------|---------|-----------|---------|-------------|--------------|----------|-------------|--------------------|------|---------|
| HE 3 | 12 48 33 | 261839 | 803854 | DEC 5 75 | 14 | 6.8 | 120 | 23 | 180 | 60 | 440 | 361 | 0.3 | 20 | 0.65 | 768 | 50 | 1360 | 7.9 | 21.96 | | |
| | | | | MAY10 76 | 14 | 6.7 | 100 | 21 | 180 | 57 | 429 | 352 | 0.4 | 17 | 0.95 | 734 | 50 | 1440 | 7.8 | 27.88 | | |
| | | | | OCT30 86 | 10.9 | 3.78 | 43 | 0.17 | 10.2 | 2.7 | 207 | 207 | <.1 | 4.4 | 0.34 | 16.24 | <.05 | 420 | 7.24 | 2.97 | | |
| | | | | APR23 87 | 26.1 | 4.37 | 79.8 | 8.79 | 14.8 | 5.9 | 222.3 | 222.3 | 0.11 | 4.4 | <.5 | 4.18 | 0.07 | 251 | 26 | 481 | 7.49 | 8.86 |
| HE 5 | 22 44 32 | 263750 | 810740 | FEB22 78 | 12 | 30 | 21 | 5.6 | 9.6 | 1.6 | 153 | 120 | | 1.5 | 0.6 | 171 | 20 | 247 | 7.5 | 0.25 | | |
| | | | | OCT31 86 | 11.3 | 10.7 | 24.6 | 5.04 | 4.8 | 2.9 | 113.4 | 113.4 | | 1 | 0.18 | 82.1 | 0.04 | 139 | 19 | 249 | 7.41 | 1.93 |
| | | | | APR23 87 | 15.3 | 7.81 | 38.8 | 7.71 | 10 | 5.5 | 86.3 | 86.3 | <.1 | <.1 | <.3 | 23.7 | 0.09 | 93.1 | 31 | 231 | 7.69 | 35.29 |
| HE 554 | 22 43 29 | 263310 | 812509 | FEB22 78 | 36 | 17 | 45 | 70 | | | 230 | 190 | | 1.5 | 1.5 | 209 | 100 | 289 | 7 | | | |
| | | | | OCT31 86 | 28.8 | 2.21 | 44.2 | 7.27 | 48.3 | 10.8 | 165.7 | 165.7 | 1.06 | 20.2 | 1.04 | 2.04 | 1.86 | 312 | 188 | 476 | 6.76 | 2.11 |
| | | | | APR21 87 | 34.9 | 1.58 | 46.2 | 7.14 | 37.4 | 12.4 | 100.6 | 100.6 | 0.28 | 11.1 | 0.97 | 2.04 | 1.44 | 242 | 196 | 407 | 7.8 | 12.54 |
| HE 558 | 28 43 28 | 264235 | 813104 | OCT31 86 | 584.5 | 17.7 | 177 | 112.3 | 1190.9 | 349.8 | 127.4 | 127.4 | 0.37 | 21.7 | 23.6 | 4.1 | 0.29 | 2533 | 62 | 4440 | 6.95 | 1.39 |
| | | | | APR24 87 | 540.5 | 17.75 | 219 | 126.2 | 1118 | 290.9 | 123.1 | 123.1 | 0.82 | 17.07 | 22.3 | 4.25 | 0.8 | 2267 | 49 | 4370 | 7.49 | 7.06 |
| HE 564 | 10 44 28 | 263930 | 813013 | DEC 8 75 | 54 | 1.7 | 86 | 8.6 | 53 | 56 | 279 | 229 | 0.4 | 10 | 0.44 | 419 | 25 | 750 | 7.3 | 1.08 | | |
| | | | | JAN 9 76 | 36 | 1.6 | 87 | 9.5 | 54 | 40 | 263 | 216 | 0.3 | 9.7 | 0.5 | 369 | 40 | 635 | 7.2 | 0.47 | | |
| | | | | OCT31 86 | 31.1 | 3.34 | 104.1 | 9.45 | 72.1 | 72.6 | 288.8 | 288.8 | 0.27 | 10.9 | 0.63 | 1.79 | <.05 | 461 | 13 | 715 | 7.09 | 2.03 |
| | | | | APR24 87 | 39.4 | 3.4 | 99.3 | 11.98 | 98.4 | 58.8 | 186 | 186 | 0.32 | 11.23 | 0.65 | 1.98 | <.05 | 467.1 | 29 | 801 | 7.85 | 5.48 |
| HE 851 | 21 44 29 | 263843 | 812407 | FEB27 78 | 120 | 4.1 | 210 | 13 | 200 | 91 | 600 | 490 | 0.6 | 12 | 0.13 | 916 | 280 | 1590 | 6.9 | 1.00 | | |
| | | | | OCT31 86 | 41.5 | 9.09 | 200 | 13.8 | 93 | 8.3 | 519.7 | 519.7 | 0.64 | 22.8 | 1.22 | 16.63 | 0.06 | 632.9 | 55 | 1123 | 7.03 | 3.71 |
| | | | | MAY 4 87 | 21.9 | 3.15 | 118.5 | 9.34 | 36.7 | 63 | 349.6 | 349.6 | 0.8 | 14.9 | 0.81 | 6.68 | 0.81 | 370.9 | 83 | | 7.1 | 2.60 |
| HE 852 | 4 45 30 | 263348 | 812006 | FEB23 78 | 61 | 0.8 | 180 | 4.4 | 60 | 11 | 360 | 300 | 0.1 | 10 | 0.11 | 630 | 400 | 739 | 6.4 | 2.09 | | |
| | | | | OCT31 86 | 27.5 | 0.37 | 95.3 | 3.45 | 26.4 | 26.3 | 223.7 | 223.7 | 0.97 | 12.3 | 0.12 | 26.82 | <.05 | 395.1 | 750 | 585 | 7.17 | 4.01 |
| | | | | APR21 87 | 46.7 | 0.58 | 99.5 | 3.84 | 26 | 63 | 248.9 | 248.9 | 0.43 | 11.7 | <.5 | 24.7 | 10.35 | 431.1 | 1010 | 592 | 7.61 | 11.54 |
| HE 854 | 10 45 33 | 263315 | 810120 | FEB25 78 | 15 | 0.7 | 160 | 8 | 22 | 4.7 | 510 | 420 | 0.3 | 6.8 | 0.31 | 470 | 40 | 810 | 7.3 | 1.28 | | |
| | | | | OCT31 86 | 4.8 | 0.86 | 84.4 | 3.73 | 12.5 | 4.4 | 223.5 | 223.5 | 0.26 | 11.4 | 0.35 | 17.99 | 0.15 | 265 | 45 | 434 | 7.34 | 2.41 |
| | | | | APR23 87 | 19.3 | 0.75 | 103.9 | 5.01 | 13.8 | 63 | 232.2 | 232.2 | 0.6 | 8.5 | 0.61 | 2.17 | 0.17 | 283.1 | 41 | 535 | 7.55 | 7.68 |
| HE 856 | 34 45 32 | 263135 | 810735 | FEB23 78 | 9.1 | 1 | 57 | 3.8 | 21 | 12 | 150 | 120 | 0.1 | 3.7 | 0.1 | 183 | 90 | 332 | 6.4 | 3.85 | | |
| | | | | OCT31 86 | <1.8 | 0.52 | 68.9 | 2.04 | 3.2 | 5.7 | 184.1 | 184.1 | <.1 | 13 | 0.25 | 0.5 | 0.1 | 206 | 42 | 353 | 7.07 | 2.32 |
| | | | | APR23 87 | 15.1 | 0.4 | 75 | 2.22 | 4.2 | 4.8 | 158.4 | 158.4 | 0.21 | 5.3 | <.5 | 0.49 | 0.23 | 208 | 50 | 367 | 7.49 | 14.19 |
| HE 857 | 10 43 31 | 264335 | 811307 | OCT31 86 | <1.8 | 2.97 | 72.6 | 3.67 | 12.2 | 3.3 | 199.6 | 199.6 | <.1 | 12.3 | 0.49 | 2.94 | <.05 | 246.9 | 59 | 412 | 7.19 | 3.76 |
| | | | | APR22 87 | 12.4 | 3.03 | 72.9 | 4.16 | 13.1 | 63 | 174.8 | 174.8 | 0.24 | 7.5 | 0.59 | 2.36 | 2.05 | 264 | 80 | 436 | 7.53 | 6.95 |
| HE 858 | 27 43 32 | 264235 | 810744 | FEB22 78 | 52 | 4.5 | 84 | 12 | 96 | 45 | 250 | 210 | 0.2 | 6.7 | 0.73 | 423 | 110 | 753 | 7.2 | 1.22 | | |
| | | | | OCT31 86 | 43.8 | 4.76 | 63.8 | 8.72 | 36.4 | 6.4 | 207.5 | 207.5 | 0.32 | 1 | 0.7 | 0.76 | 0.08 | 336.9 | 80 | 569 | 7.26 | 0.48 |
| | | | | APR22 87 | 17.8 | 3.42 | 64 | 9.11 | 20.7 | 43 | 168.4 | 168.4 | 0.33 | 4.9 | 0.63 | 0.27 | 0.16 | 231 | 90 | 438 | 7.35 | 8.47 |
| HE 860 | 24 46 32 | 262735 | 810426 | FEB23 78 | 15 | 0.9 | 120 | 7.9 | 32 | 9.5 | 350 | 290 | 0.4 | 9.3 | 0.53 | 368 | 25 | 457 | 7.2 | 3.37 | | |
| | | | | OCT30 86 | 2.5 | 1.48 | 117 | 5.22 | 14.4 | 3.4 | 297.5 | 297.5 | 0.47 | 13.6 | 0.5 | 0.93 | <.05 | 358.1 | 19 | 612 | 6.5 | 0.07 |
| | | | | APR27 87 | 20.9 | 0.74 | 105.9 | 9.16 | 11 | 63 | 278.3 | 278.3 | 0.46 | 7.4 | <.5 | 0.85 | 0.1 | 307 | 28 | 589 | 7.4 | 5.20 |

WATER TABLE ADJUFER

| well name | location S/T/R | location lat | location long | date sampled | Na | K | Ca | Mg | Cl- | SO4 | HCO3 | tot.alk | F1 | S102 | Sr | tot Fe | Tris Fe | TDS | Color sp. cond. units | pH | ± error | |
|-----------|----------------|--------------|---------------|--------------|-------|------|-------|-------|-------|------|------|---------|------|------|-------|--------|---------|-------|-----------------------|------|---------|-------|
| ME 862 | 24 48 34 | 261735 | 805340 | FEB25 78 | 20 | 1.4 | 100 | 5.2 | 27 | 5.2 | 340 | 280 | 0.2 | 11 | 0.47 | 2.95 | <.05 | 338 | 25 | 609 | 7.4 | 0.93 |
| | | | | OCT30 86 | 2.2 | 1.02 | 80.1 | 1.82 | 11.7 | 3.1 | | 211.3 | 0.33 | 4.8 | 0.35 | 2.95 | <.05 | 242 | 33 | 419 | 7.57 | 3.94 |
| | | | | APR27 87 | 18.6 | 0.98 | 87.4 | 2.54 | 9 | 0.5 | | 240 | 0.32 | 6.3 | <.5 | 2.4 | 0.46 | 203 | 46 | 513 | 7.45 | 2.36 |
| ME 884 | 18 48 33 | 261801 | 810425 | FEB24 78 | 52 | 4.5 | 54 | 21 | 42 | 4.6 | 280 | 230 | 0.2 | 3.3 | 0.55 | 30.05 | 0.21 | 342 | 25 | 649 | 7.6 | 2.76 |
| | | | | OCT30 86 | 30.3 | 3.1 | 133.9 | 17.68 | 35.9 | 3.5 | | 394.5 | 0.32 | 23.3 | 0.98 | 2.8 | 0.08 | 532.1 | 29 | 846 | 7.14 | 3.04 |
| | | | | APR27 87 | 33.3 | 3.04 | 131.5 | 18.42 | 33 | 0.5 | | 372 | 0.35 | 18.9 | 0.96 | 2.8 | 0.08 | 532.1 | 45 | 879 | 7.31 | 6.26 |
| C 131 | 1 47 30 | 262521 | 811619 | OCT27 86 | 64.3 | 2.82 | 113 | 17.3 | 79.6 | 7.6 | | 633.2 | 0.37 | 23.5 | 0.46 | 4.31 | 0.1 | 520 | 36 | 878 | 7.03 | 20.32 |
| | | | | MAY 4 87 | 55.2 | 0.09 | 111.9 | 17.36 | 71.7 | 6.6 | | 373.7 | 0.31 | 16.6 | 0.46 | 3.66 | 0.1 | 532.1 | 46 | 819 | 7.14 | 1.06 |
| C 363 | 34 46 29 | 262555 | 812428 | APR30 87 | 20.5 | 1.92 | 53.7 | 7.11 | 16.2 | 15.5 | | 186.1 | 0.22 | 45.2 | 0.32 | 1.81 | 0.07 | 235.9 | 8 | 361 | 7.2 | 3.39 |
| C 462 | 20 46 29 | 262746 | 812612 | OCT27 86 | 17.1 | 5.43 | 104.4 | 6.94 | 23.4 | 16.2 | | 473 | 0.36 | 14.2 | | 17.75 | 3.33 | 391.1 | 167 | 568 | 7.28 | 22.40 |
| | | | | APR29 87 | 21.4 | 13.1 | 84.8 | 6.01 | 31.1 | 7.5 | | 228 | 0.32 | 5.1 | 0.41 | 7.34 | 3.33 | 354.9 | 172 | 495 | 7.26 | 3.96 |
| C 532 | 7 46 29 | 262928 | 812729 | OCT27 86 | 96.1 | 10.8 | 38.9 | 20.82 | 64.6 | 31 | | 493.7 | 0.95 | 42.1 | 0.33 | 0.65 | 0.39 | 441 | 10 | 753 | 7.48 | 20.65 |
| | | | | APR29 87 | 18.9 | 1.31 | 47 | 8.88 | 20.8 | 6.1 | | 126.9 | 0.72 | 15.4 | 0.33 | 0.56 | 0.39 | 235 | 212 | 307 | 6.78 | 8.64 |
| L 1137 | 1 44 27 | 263950 | 813354 | OCT31 86 | 0.8 | 0.44 | 83.6 | 8.38 | 9.6 | 22.5 | | 229.4 | 0.28 | 10.6 | 0.54 | 6.07 | 0.25 | 317.1 | 50 | 541 | 7.38 | 3.65 |
| | | | | APR24 87 | 21.1 | 0.39 | 89.4 | 9.92 | 13.2 | 20.4 | | 203.7 | <.1 | 7.18 | 0.63 | 51.93 | 0.09 | 304.1 | 36 | 363 | 7.24 | 12.11 |
| L 1138 | 25 46 27 | 262703 | 813420 | OCT28 86 | 17.2 | 3.22 | 27.3 | 4 | 22.2 | 4.9 | | 100.7 | 0.1 | <.1 | 0.39 | 4.82 | 0.39 | 143 | 8 | 287 | 7.71 | 4.16 |
| | | | | APR27 87 | 25.4 | 0.72 | 60.5 | 3.24 | 20.7 | 5.9 | | 192.7 | 0.1 | 4.8 | 0.5 | 4.2 | 0.05 | 233.1 | 15 | 576 | 7.36 | 7.96 |
| L 1944 | 15 45 27 | 263344 | 813617 | OCT31 86 | 14.9 | 1.89 | 88.1 | 11.8 | 13.5 | 10.6 | | 247.6 | 0.39 | 11.3 | 0.81 | 6.53 | 0.23 | 344.1 | 137 | 531 | 7.45 | 4.35 |
| | | | | APR21 86 | 31.8 | 0.97 | 33.4 | 10.64 | 22.6 | 9.4 | | 240.5 | 0.36 | 7.9 | 0.5 | 1.79 | 1.8 | 385.9 | 199 | 613 | 7.26 | 18.97 |
| L 1978 | 21 43 27 | 264320 | 813657 | OCT31 86 | 21.5 | 0.64 | 49.6 | 6.22 | 23.3 | 18.2 | | 137.1 | 0.19 | 8 | 2.01 | 1.06 | 0.38 | 244.9 | 122 | 318 | 7.16 | 2.10 |
| | | | | MAY 6 87 | 35.8 | 0.73 | 73.4 | 5.3 | 18.1 | 7.9 | | 212.2 | 0.22 | 5.4 | 0.27 | 0.92 | 0.87 | 284.1 | 97 | 400 | 7.07 | 0.04 |
| L 1992 | 13 43 27 | 263353 | 813358 | OCT31 86 | 52.4 | 0.21 | 136.6 | 12.58 | 187.5 | 60.1 | | 241.9 | 0.31 | 9.6 | 0.34 | 2.1 | 0.05 | 860 | 13 | 1206 | 6.93 | 6.01 |
| | | | | APR21 87 | 144.1 | 0.49 | 176.7 | 16.26 | 247.9 | 57.7 | | 230.8 | 0.31 | 0.6 | 0.01 | 5.32 | 0.83 | 938 | 19 | 1580 | 7.1 | 8.32 |
| L 2202 | 23 43 27 | 264329 | 813404 | OCT31 86 | 44 | 2.14 | 108.4 | 13.76 | 40.2 | 13.3 | | 291.4 | 0.36 | 19.8 | 1.66 | 4.38 | 0.22 | 433.9 | 131 | 708 | 7.22 | 4.34 |
| | | | | MAY 4 87 | 40 | 2 | 115.5 | 12.92 | 34.8 | 0.5 | | 337.8 | 0.36 | 14.7 | 1.37 | 2.21 | 0.35 | 472.1 | 151 | 692 | 7.26 | 1.26 |
| WCSac5 | 5 47 31 | 262530 | 811436 | OCT23 86 | 26.5 | 0.97 | 110.4 | 6.97 | 32.4 | 5.3 | | 233.9 | 0.34 | 16.2 | 0.5 | 7.73 | 0.1 | 388 | 158 | 647 | 7.09 | 10.22 |
| | | | | APR28 87 | 30.4 | 0.86 | 103.9 | 7.02 | 31.7 | 0.5 | | 233.9 | 0.28 | 11.8 | 0.5 | 9.31 | 0.1 | 388.9 | 34 | 709 | 6.38 | 10.22 |
| RiesSac1 | 1 47 31 | 262534 | 811112 | OCT23 86 | 37.5 | 1.53 | 91.2 | 6.61 | 40.8 | 5.8 | | 287.6 | 0.25 | 19.7 | 11.99 | 11.99 | 376.9 | 40 | 621 | 7.29 | 3.53 | |
| | | | | APR28 86 | 44.8 | 1.4 | 79.3 | 6.37 | 39.5 | 0.5 | | 287.6 | 0.17 | 14.9 | 0.36 | 6.03 | 0.31 | 345.1 | 46 | 480 | 6.83 | 3.53 |
| JobCo3 | 8 43 31 | | | OCT28 86 | 27.9 | 1.15 | 114.8 | 13.82 | 42.4 | 6.4 | | 573.1 | 0.21 | 29.4 | 1.66 | 0.07 | 0.05 | 426.9 | 13 | 713 | 7.22 | 14.20 |
| | | | | APR27 87 | 49.3 | 2.68 | 117.5 | 13.81 | 75.5 | 17.6 | | 308 | 0.31 | 30.2 | 1.66 | 0.05 | 0.05 | 482 | 22 | 827 | 7.12 | 5.13 |

WATER TABLE ANQUIFER

| well name | location S/T/R | location lat | location long | date sampled | Na | K | Ca | Mg | Cl- | SO4 | HCO3 | tot.alk | FI | Si(O2) | Br | tot Fe | Tds Fe | TDS | Color units | sp.cond. uohms/cm | pH | % error |
|-----------|----------------|--------------|---------------|--------------|------|------|-------|-------|------|------|-------|---------|------|--------|------|--------|--------|-------|-------------|-------------------|------|---------|
| W308S | 14 47 32 | 262335 | 810554 | OCT 4 86 | 27.4 | 1.01 | 120 | 9.02 | 44.4 | 4.6 | 399.5 | 399.5 | 0.34 | 26.2 | 0.4 | 2.06 | <.05 | 442.1 | 40 | 728 | 6.93 | 8.00 |
| | | | | OCT 23 86 | 31.1 | 1.09 | 121.4 | 9.18 | 48 | 6.6 | 278.3 | 278.3 | 0.31 | 17.9 | 1.9 | 1.9 | 0.06 | 441 | 43 | 744 | 7.2 | 8.02 |
| | | | | APR 28 87 | 43 | 0.99 | 123.7 | 9.16 | 46.3 | 7.3 | 278.3 | 278.3 | 0.31 | 15.2 | 0.55 | 7.1 | 0.06 | 445.9 | 44 | 786 | 7.92 | 11.37 |
| Alicol | 1 45 30 | 263606 | 811706 | NOV 5 86 | 45.7 | 1.44 | 77.9 | 16.44 | 52.1 | 2.7 | 268.4 | 268.4 | 0.67 | 23.6 | 0.25 | 2.04 | 0.06 | 387.1 | 29 | 671 | 6.72 | 2.80 |
| | | | | APR 28 87 | 67.6 | 1.81 | 82.3 | 18.75 | 69.4 | 5.5 | 230.4 | 230.4 | 0.21 | 18.6 | 0.59 | 2.36 | <.05 | 421 | 28 | 788 | 7.42 | 9.96 |
| W3Sec3 | 3 48 31 | 262000 | 811224 | OCT 23 86 | 13.7 | 0.87 | 179.8 | 8.52 | 20.5 | 10.9 | 291.7 | 291.7 | 0.43 | 13.6 | 2.27 | 2.27 | 0.15 | 414 | 41 | 705 | 7.62 | 11.78 |
| | | | | APR 28 87 | 18.5 | 0.89 | 139.5 | 10.47 | 23.1 | 16.6 | 291.7 | 291.7 | 0.37 | 8.6 | <.5 | 2.79 | 0.15 | 343 | 25 | 786 | 6.91 | 11.78 |
| Crawford | 26 43 29 | | | NOV 4 86 | 57.6 | 0.92 | 110 | 5.99 | 57.4 | 4.5 | 288.6 | 288.6 | 0.29 | 16 | 0.62 | 3.98 | 0.96 | 423.9 | 80 | 691 | 7.5 | 6.43 |
| | | | | APR 27 87 | 34.6 | 0.93 | 110.2 | 5.45 | 53.9 | 52.3 | 231.6 | 231.6 | 0.37 | 11.9 | 2.2 | 3.77 | 1.95 | 414 | 112 | 675 | 7.29 | 2.24 |

LOWER TAMIARI AQUIFER

| well name | location S/T/R | lat | long | location | date sampled | Na | K | Ca | Mg | Cl- | SO4 | HCO3 | tot.alk | FI | SiO2 | Sr | tot Fe | Tds Fe | TDS | Color | sp.cond. | pH | Z error |
|-----------|----------------|--------|--------|----------|-----------------------------------|----------------------|---------------------|-----------------------|----------------------|---------------------|-------------------|------|-----------------------|---------------------|---------------------|----------------------|----------------------|-----------------------|-----------------|---------------------|----------|---------------------|-----------------------|
| | | | | | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | units | umhos/cm | | |
| HE 629 | 6 44 33 | 284137 | 810407 | 810407 | OCT31 86 APR22 87 | 136 163.5 | 5.74 6.62 | 62.4 83 | 15.71 16.64 | 150.6 150.9 | 49 44.4 | | 263.3 272.2 | 0.306 0.32 | 27.5 25.26 | 0.11 0.05 | 0.05 0.05 | 611 588.1 | 18 23 | 1069 1114 | | 7.72 7.8 | 1.20 9.26 |
| HE 861 | 23 48 34 | 261735 | 805340 | 805340 | FEB25 78 OCT30 86 APR27 87 | 58 60.3 60.4 | 2 2.2 2.81 | 110 114.8 115.7 | 12 11.22 11.59 | 65 63.5 58.7 | 5.9 3.1 5 | 430 | 350 237.3 303.2 | 0.2 0.17 0.22 | 29 28.9 18.6 | 0.7 0.79 0.61 | 0.05 0.05 0.09 | 489 486 490 | 20 27 36 | 854 830 852 | | 7.2 7.24 7.42 | 0.49 17.20 9.82 |
| HE 853 | 32 44 31 | 263518 | 811430 | 811430 | FEB23 78 OCT31 86 APR21 87 | 40 40.1 40.8 | 0.6 0.58 0.79 | 150 135 146.5 | 14 11.96 12.4 | 78 67.6 50.1 | 13 6.6 5 | 440 | 360 369.7 346.3 | 0.2 0.32 0.41 | 16 23.3 17.8 | 0.44 0.44 0.54 | 0.06 0.2 0.28 | 542 528.9 477.9 | 430 73 56 | 894 833 846 | | 6.8 6.93 7.36 | 3.33 0.43 9.11 |
| HE 855 | 34 45 32 | 263135 | 810735 | 810735 | FEB23 78 OCT31 86 APR23 87 | 62 51.6 69.6 | 2.1 1.74 2.19 | 100 89.9 199.3 | 17 14.11 17.73 | 100 73.8 90.6 | 4.4 4.5 9.2 | 380 | 310 235.2 290.1 | 0.3 0.18 0.48 | 24 1 26.9 | 0.42 0.38 0.5 | 0.06 0.07 0.06 | 498 394 446 | 40 40 41 | 907 742 889 | | 7.2 7.16 7.49 | 0.01 6.25 25.78 |
| HE 859 | 24 46 32 | 262735 | 810446 | 810446 | FEB23 78 OCT30 86 APR27 87 | 70 55.2 55.6 | 23 3.01 1.97 | 34 5.9 97.1 | 0.5 0.56 14.87 | 6.3 45.6 54.9 | 90 3.2 5 | 91 | 48.5 322.7 | 0.2 0.24 0.1 | 20 18.7 25.1 | 0.37 0.48 0.3 | 0.07 0.07 0.07 | 361 355.9 446 | 30 14 35 | 726 300 804 | | 11 10.82 7.4 | 11.08 9.73 2.57 |
| HE 868 | 27 47 33 | | | | FEB 23 78 OCT31 86 APR27 87 | 94 126.7 130.6 | 4 4.29 4.41 | 10 13.15 13.85 | 10 14.11 17.73 | 100 73.8 90.6 | 5.9 2.9 5 | 140 | 110 334.6 333.2 | 0.1 0.26 0.51 | 0.5 18.5 19.3 | 0.1 0.83 0.71 | 0.05 0.05 0.08 | 294 553 448 | 20 28 56 | 592 1043 1149 | | 8.6 7.45 7.38 | 2.56 3.17 7.36 |
| C 1074 | 1 47 30 | | | | OCT27 86 APR29 87 | 112.5 106.6 | 22.15 21.5 | 43.7 44.9 | 31.7 34.03 | 97.4 95.8 | 14.2 18.5 | 91 | 574.5 371.1 | 0.39 0.4 | 33.6 27.1 | 0.14 0.58 | 0.05 0.05 | 518 502.9 | 4 8 | 939 905 | | 7.48 7.65 | 17.29 1.38 |
| Jacobson | 17 43 31 | | | | OCT28 86 APR27 87 | 13.9 14.4 | 1.02 1.11 | 96 94.6 | 26.1 2.33 | 24 22.2 | 9.9 5.8 | | 238.5 231.1 | 0.26 0.22 | 19.6 6.9 | 2.16 2.34 | 0.05 1.89 | 334.9 316 | 13.7 147 | 505 496 | | 7.26 7.24 | 14.49 1.81 |
| Allico18 | 18 45 32 | 263342 | 811024 | 811024 | NOV 3 86 APR28 87 | 192 117.5 | 4.61 4.62 | 91.7 88.5 | 33.84 36.88 | 99.3 101.3 | 3.5 5 | | 552.7 462.1 | 0.62 0.58 | 39.5 34.8 | 0.54 0.64 | 0.05 0.12 | 804 753 | 67 49 | 1310 1440 | | 6.98 7.52 | 6.93 1.90 |
| Allico2 | 2 45 33 | 263548 | 810012 | 810012 | NOV 3 86 APR28 87 | 91.1 83.8 | 3.01 2.93 | 111.1 103.7 | 12.85 13.28 | 94.6 87.3 | 3.8 5 | | 398 433.7 | 0.23 0.13 | 29 20.7 | 0.63 0.66 | 0.05 0.14 | 562 432 | 38 30 | 940 936 | | 7.05 7.28 | 3.56 5.60 |
| Mill | 24 43 31 | | | | NOV 4 86 APR27 87 | 38.6 24.1 | 0.4 0.43 | 129.2 131.8 | 2.95 2.89 | 52.4 42.1 | 12.5 7.1 | | 305.3 316.2 | 0.51 0.35 | 11.3 10.8 | 0.52 1.16 | 5.84 4 | 499 462 | 362 287 | 707 486 | | 6.97 7.12 | 3.35 1.36 |
| Allico7 | 7 46 30 | | | | NOV 4 86 APR27 87 | 35.9 30.2 | 1.3 1.44 | 95.8 88.6 | 18.91 18.86 | 52.3 41.8 | 4.1 5 | | 271.7 263.1 | 0.31 0.31 | 37.4 32.1 | 0.37 2.35 | 0.05 0.05 | 408.9 378.9 | 11 9 | 699 690 | | 7.36 7.38 | 6.34 5.36 |
| Allico6 | 6 46 30 | | | | NOV 4 86 | 85.7 | 2.19 | 103.4 | 23.7 | 54 | 3.3 | | 378.7 | 0.33 | 45.5 | 0.61 | 0.05 | 511 | 16 | 848 | | 7.26 | 8.62 |
| Hillred16 | 16 46 32 | | | | NOV 5 86 MAY 4 87 | 86.1 120 | 3.13 3.85 | 106.7 111.8 | 7.76 7.99 | 76 72.8 | 3.5 5 | | 340.3 360.3 | 0.21 0.22 | 31.1 29.8 | 0.68 0.58 | 0.07 0.08 | 526 513 | 31 28 | 891 753 | | 7.16 7.65 | 4.09 10.33 |
| Hillred23 | 23 46 31 | | | | NOV 5 86 MAY 4 87 | 72.4 118.4 | 5.41 6.05 | 78.9 86.2 | 27.51 27.85 | 63.8 66.8 | 3.1 5 | | 362.9 396.4 | 0.48 0.43 | 33 30.5 | 0.44 0.5 | 0.08 0.37 | 504.9 468 | 30 29 | 846 1032 | | 7.22 7.45 | 1.95 9.04 |
| Hillred34 | 16 45 34 | | | | NOV 5 86 MAY 4 87 | 101.6 120.3 | 3.13 3.74 | 124.9 1.35 | 9.74 9.47 | 132.9 123.2 | 5.7 13.5 | | 374.2 391.9 | 0.2 0.2 | 27.1 24.5 | 0.83 0.7 | 0.46 0.44 | 639.1 612 | 53 54 | 1090 1236 | | 7.07 7.24 | 0.54 30.71 |

LOWER TAMHAMI AQUIFER

| well name | location S/T/R | location lat long | date sampled | Na mg/l | K mg/l | Ca mg/l | Mg mg/l | Cl- mg/l | SO4 mg/l | HCOS mg/l | tot.alk mg/l | FI mg/l | SiO2 mg/l | Sr mg/l | tot Fe mg/l | TdIs Fe mg/l | TDS mg/l | Color units | sp.cond. u/mhos/cm | pH | % error |
|-----------|----------------|-------------------|---|---------------------------------------|---------------------------------------|---|---|--|---------------------------------------|--------------|--|--|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|----------------------------|--------------------------------------|--------------------------------------|---|
| Jact13 | 13 44 33 | 263942 805948 | NOV 5 86 APR28 87 | 104.6 74.3 | 1.54 1.22 | 130.8 109.8 | 6.29 5.11 | 115.3 99 | 4.5 C5 | | 332.4 342.1 | 0.19 0.13 | 21.2 14.9 | 0.72 1.15 | 2 23.28 | 0.09 0.09 | 395.1 942 | 47 30 | 1044 990 | 7 7.16 | 5.63 16.21 |
| Jact31 | 31 44 34 | 263736 805824 | NOV 5 86 APR28 87 | 37.1 23 | 1.61 1.44 | 118 113 | 3.7 2.44 | 64 32.1 | 2.9 C5 | | 282.6 230.6 | 0.13 C.1 | 23.4 11.1 | 0.82 0.5 | 22.32 12.74 | <.05 0.1 | 475 400.1 | 33 45 | 758 655 | 7.03 7.04 | 2.13 10.09 |
| USSPans | 33 43 34 | 264248 805700 | DEC123 86 APR28 87 | 34.8 45.2 | 1.83 1.05 | 133.5 3.2 | 4.82 5.3 | 46 42.9 | 14.4 C5 | | 325 | 0.21 C.1 | 21.3 13.5 | C.5 | 3.34 2.82 | 0.38 | 488 302 | 185 98 | 783 847 | 7.12 7.12 | 49.95 |
| Allico32 | 32 45 33 | 263200 810248 | DEC128 86 APR28 87 | 138.5 122.6 | 6.07 4.98 | 103.6 98.2 | 20.15 19.89 | 188.6 113 | 11.4 5.9 | | 788.4 486.7 | 0.26 0.3 | 31.4 23.5 | 4.45 1.07 | 4.45 10.95 | 0.19 | 712 652 | 70 79 | 1191 1149 | 7.17 7.25 | 17.67 2.13 |
| Jebco1NW | 8 43 31 | | DEC128 86 APR27 87 | 47.3 43.8 | 2.54 2.34 | 119.2 122 | 17.38 15.99 | 56.6 53.7 | 10.5 8.5 | | 617.6 286.6 | 0.34 0.27 | 40.4 34.3 | 1.64 | 0.07 0.53 | 0.68 | 514.1 475.9 | 13 21 | 809 824 | 7.19 7.1 | 19.71 58.80 |
| HY308B | 14 47 32 | 262336 810354 | DEC 4 86 DEC123 86 FEB23 87 FEB27 87 APR28 87 | 63.1 61.7 67.1 62.6 99.4 | 3.1 3.16 3.44 3.28 3.83 | 147.3 188.2 147.1 145.1 136.8 | 14.75 14.44 15.44 15.24 15.99 | 92.5 91 98.6 95.5 102.6 | 9.4 8 9.6 8 14.9 | | 498.6 361 393 353.1 | 0.38 0.32 0.33 0.11 | 32.7 23.9 21 21.8 19.5 | 0.77 1.03 1.16 1.01 | 0.12 0.62 0.6 0.09 0.12 | 0.1 0.06 0.06 0.06 0.22 | 619 611 585.9 614 655.1 | 80 85 80 90 96 | 1060 1054 945 925 1179 | 7.17 7.05 7.26 7.33 7.29 | 5.34 7.05 7.65 2.48 9.89 |
| HY310 | 3 48 33 | 262042 810118 | DEC 6 86 DEC123 86 FEB 9 87 FEB11 87 APR28 87 | 119.4 94 133.3 128.7 81.5 | 4.47 4.51 4.83 4.1 3.2 | 136.4 134.6 136 131.7 134.2 | 14.65 12.79 16.07 14.59 12.41 | 158.2 128.3 113.2 129.9 82.8 | 40.2 19 39.7 24.2 12.5 | | 420.8 0.41 328.3 314 322.4 | 0.41 0.43 0.42 0.32 | 35 25.4 22.7 23.2 19.9 | 0.71 0.9 0.81 1.19 | 0.06 0.1 0.06 0.05 0.11 | <.05 | 721 694 776.1 486 97.01 | 59 9 53 46 71 | 1253 1126 1238 1119 1037 | 7.2 7.39 6.88 7.07 11.32 | 1.44 7.39 13.78 12.67 11.32 |
| HY311 | 23 48 32 | 261806 810424 | DEC 6 86 DEC123 86 MAR16 87 MAR29 87 APR28 87 | 402.5 388 185.5 208 188.5 | 15.15 17.99 8.8 9.44 8.83 | 107.4 49.2 77.6 108.9 88.2 | 55.45 37.21 27.52 32.79 25.87 | 606.5 533.1 101.7 273 194.3 | 99.9 122.3 93.2 89.2 45.4 | | 362.4 0.54 149.3 331.2 342.9 | 0.45 0.54 0.544 0.395 0.47 | 45 25.6 19.6 25.5 29.1 | 1.65 0.38 0.1 C.05 1.08 | 0.02 0.38 0.1 C.05 C.05 | <.05 | 1545.9 1188.1 813 980.1 813.9 | 18 13 29 27 32 | 2760 2240 1450 1670 2160 | 7.39 9.35 7.35 7.33 7.4 | 5.58 9.35 26.67 3.69 2.91 |
| HY314 | 26 47 31 | | MAY22 87 MAY25 87 | 24.8 25.3 | 2.11 2.05 | 123 128.4 | 14.35 14.99 | 21.9 20.3 | 21 C5 | | 421 405 | 0.35 0.3 | 23.2 22.2 | 0.69 0.74 | 0.21 0.37 | 0.88 0.13 | 425.9 427.1 | 26 25 | 709 708 | 7.85 7.47 | 5.59 0.12 |
| USS7484B | 8 47 34 | | DEC123 86 APR27 87 | 24.4 27.4 | 1.85 1.94 | 95.5 93.2 | 3.62 4.19 | 25.9 26.6 | 5.6 C5 | | 298.6 | 0.27 0.18 | 26.6 20.4 | C.5 | 0.15 0.07 | 0.08 | 336 343 | 38 34 | 588 560 | 7.32 7.33 | 2.53 |
| Zipperer | 26 46 33 | 262794 805936 | DEC123 86 APR28 87 | 23.8 34.3 | 1.78 2.11 | 68 59.6 | 3.31 3.81 | 31.9 31.8 | 5.8 C5 | | 167.6 | 0.31 0.2 | 23.7 12.5 | C.5 | 5.74 4.97 | 0.89 | 267.9 280 | 60 54 | 635 493 | 7.32 7.47 | 5.25 |
| Jaildeep | 18 48 31 | | DEC127 86 APR27 87 | 50.9 55.2 | 3.06 3.07 | 96.4 95.2 | 23.26 23.58 | 37.1 32.7 | 6 C5 | | 690.5 316.9 | 0.44 0.42 | 31.2 24.6 | 2.56 | 0.35 C.05 | C.05 | 434.1 441.9 | 13 18 | 769 775 | 7.29 7.4 | 22.20 10.94 |
| Jailshel | 18 48 31 | | DEC127 86 APR27 87 | 43.5 46.3 | 1.76 2.55 | 93.5 98.6 | 20.55 23.54 | 32.3 34 | 8.7 C5 | | 614.6 382.2 | 0.32 0.42 | 33.8 24.3 | 0.53 | 0.18 0.18 | 0.08 | 415 430.9 | 8 19 | 720 750 | 7.45 7.36 | 23.46 1.52 |
| HY129 | 12 43 30 | 263513 811707 | JAN23 88 JAN28 88 | 47.7 42.6 | 2.24 1.95 | 104.2 100.3 | 22.98 20.9 | 51 55.2 | 6.5 5.1 | | 451.3 433 | 0.203 0.214 | 26.9 26.8 | 0.33 0.31 | 0.17 C.05 | C.05 | 515.9 515 | 17 15 | 663 334 | 7.11 7.37 | 7.11 8.92 |

LOWER TAMIAMI AQUIFER

| well name | location S/T/R | location lat | location long | date sampled | Na mg/l | K mg/l | Ca mg/l | Mg mg/l | Cl- mg/l | SO4 mg/l | HCO3 mg/l | tot.alk mg/l | F1 mg/l | SiO2 mg/l | Sr mg/l | tot Fe mg/l | Fe mg/l | TDS mg/l | Color units | sp.cond. us/cm/cm | pH | Z error |
|-----------|----------------|--------------|---------------|--------------|---------|--------|---------|---------|----------|----------|-----------|--------------|---------|-----------|---------|-------------|---------|----------|-------------|-------------------|------|---------|
| HY206 | 19 45 32 | 263341 | 810006 | AUG31 87 | 179.2 | 5.91 | 123.5 | 40.8 | 78.5 | <5 | <5 | 574.8 | 0.82 | 42.8 | 1.92 | 0.21 | 0.13 | 784 | 80 | 1226 | 7.09 | 5.09 |
| | | | | SEP03 87 | 142.3 | 5.16 | 126.7 | 41.8 | 82.7 | <5 | 620.4 | 0.54 | 39.5 | 2.82 | 0.11 | 0.07 | 839.1 | 70 | 1250 | 7.09 | 4.11 | |
| HY207 | 30 45 33 | 263213 | 810409 | AUG17 87 | 75.4 | 2.54 | 116.5 | 15.25 | 83.4 | 28 | 28 | 249.1 | 0.45 | 28 | 1.19 | 0.14 | 0.11 | 591.1 | 99 | 971 | 7.47 | 13.62 |
| | | | | AUG20 87 | 78.6 | 2.66 | 114.3 | 15.4 | 82.3 | 26.5 | 363.5 | 0.46 | 26.5 | 1.26 | 0.12 | 0.08 | 547 | 94 | 865 | 7.3 | 1.55 | |
| HY208 | 9 44 33 | 264045 | 810230 | OCT19 87 | 97.3 | 13.95 | 79.1 | 36.62 | 112 | 16.9 | 1 | 372.9 | 0.167 | 30.9 | 1 | 0.00 | <.05 | 1230.2 | 23 | 955 | 7.31 | 2.59 |
| | | | | OCT22 87 | 93.5 | 13.94 | 74.1 | 38.33 | 112 | 11.1 | 608.2 | 0.24 | 30.2 | 0.9 | <.05 | 1139.8 | 26 | 929 | 7.39 | 1.33 | | |

SANDSTONE AQUIFER

| well number | location S/T/R | location lat | location long | date sampled | Na mg/l | K mg/l | Ca mg/l | Mg mg/l | Cl- mg/l | SO4 mg/l | HCO3 mg/l | tot.alk mg/l | FI mg/l | SiO2 mg/l | Sr mg/l | tot Fe mg/l | Fe mg/l | 105 mg/l | Color units | sp.cond. umhos/cm | pH | error(%) |
|-------------|----------------|--------------|---------------|---|----------------------------|----------------------------|------------------------------|--------------------------------|----------------------------------|------------------------------|--------------|------------------------------|----------------------------|---------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| HE 516 | clastic | 1 43 29 | | DEC 1 86 APR 22 86 | 62.4 68.4 | 9.76 7.57 | 24.5 145.8 | 11.36 17.91 | 58.3 67 | 2.7 22.4 | | 173.5 198.9 | 0.34 0.48 | 3.6 32.2 | 0.5 0.5 | 1.1 0.07 | <.05 <.05 | 298.9 438.1 | 6 23 | 508 866 | 8.07 8.21 | 0.47 30.60 |
| HE 529 | carb. | 22 45 29 | 263310 | DEC 4 75 APR 19 76 OCT 31 86 APR 21 87 | 40 41 40.7 41 | 2 2 1.8 1.87 | 82 85 86.6 91.4 | 15 14 13.75 14.62 | 37 42 38 39.6 | 12 18 7.7 15.5 | 347 351 | 285 288 293.2 269.4 | 0.4 0.4 0.65 0.44 | 27 28 36 30.3 | 0.26 0.58 0.42 0.5 | 0.07 0.07 0.07 0.05 | <.05 <.05 <.05 <.05 | 390 400 388 394 | 15 10 23 16 | 740 660 671 723 | 7.5 7 7.33 8.09 | 0.76 0.38 1.22 3.55 |
| HE 556 | carb. | 21 44 29 | 263845 | APR 16 76 OCT 31 86 MAY 4 87 | 120 137.5 115.6 | 12 10.3 10.15 | 56 58.2 55.9 | 44 37.8 36.3 | 180 173.1 171.4 | 65 42.1 42.3 | 310 | 254 244.9 231.2 | 1.7 0.87 0.94 | 42 43.8 38.9 | 1 1.61 1.19 | 0.08 0.05 0.05 | <.05 <.05 <.05 | 670 565 537 | 10 15 8 | 1300 1090 1012 | 7.4 7.26 7.36 | 1.83 7.00 1.59 |
| HE 557 | clastic | 28 43 28 | 264235 | DEC 8 75 APR 15 76 OCT 31 86 APR 24 87 | 589 590 557 658.5 | 20 21 19.45 19.35 | 170 170 175 187 | 110 120 106.75 119.75 | 1200 1200 1121.8 1131.9 | 370 370 405 346.5 | 150 152 | 123 125 128.5 146.5 | 3.8 1 0.94 1.07 | 31 30 43.4 34.44 | 8.8 13 14.19 13.65 | <.05 <.05 <.05 <.05 | 2600 2600 2286 2182 | 5 10 8 19 | 4900 4600 4360 4870 | 7.4 7.1 7.22 7.5 | 0.35 0.58 0.48 6.82 | |
| HE 559 | carb. | 10 44 28 | 263930 | DEC 8 75 APR 16 76 OCT 31 86 APR 24 87 | 470 480 464 519.5 | 17 17 15.5 16.6 | 130 160 127.6 143.5 | 87 110 83.35 95.1 | 880 980 696.9 553.7 | 360 400 338.8 256.1 | 160 157 | 132 129 122.4 92.6 | 1.4 0.7 0.88 0.82 | 20 20 27.1 20.64 | 8.6 11 11.58 11.49 | 2.67 46 0.22 0.09 | <.05 <.05 <.05 <.05 | 2100 2300 2034 2137 | 5 10 13 23 | 3900 3500 3650 4600 | 7.5 7.4 7.28 7.66 | 0.26 0.60 3.06 8.13 |
| HE 560 | clastic | 10 44 28 | 263930 | JUN 14 76 OCT 31 86 APR 24 87 | 240 332 306.5 | 7.1 6.68 6.41 | 160 174.5 186 | 56 54.9 52.5 | 490 696.9 553.7 | 280 338.8 256.1 | 240 | 214 187.8 172.1 | 1.3 0.72 0.87 | 60 46.5 50.59 | 2.3 2.3 2.48 | 0.22 0.22 0.22 | <.05 <.05 <.05 | 1420 1651.9 1577 | 5 12 13 | 2300 2820 3959 | 7.1 6.86 7.76 | 1.49 4.51 5.25 |
| HE 620 | carb. | 19 43 29 | 264353 | OCT 31 86 APR 24 87 | 198 208 | 19.2 20.4 | 62.8 14.8 | 59.15 48.85 | 315 84.7 | 140.5 113.4 | | 258.1 253 | 0.97 0.91 | 57.1 50.23 | 1.52 1.54 | 2.67 0.07 | <.05 0.08 | 923 906.1 | 14 14 | 1670 1690 | 7.17 7.76 | 0.39 18.73 |
| GL 517 | clastic | 36 42 29 | 264612 | OCT 31 86 APR 22 87 | 20.9 20 | 1.32 1.57 | 98.2 98.2 | 6.11 6.96 | 23.8 21.2 | 2.7 43 | | 257.7 258.4 | 0.33 0.29 | 26.2 17.8 | 0.68 0.55 | 20.79 9.17 | <.05 <.05 | 334.9 347 | 17 23 | 567 624 | 7.47 8.21 | 3.82 4.21 |
| L 731 | both | 25 46 27 | 263344 | OCT 28 86 APR 27 87 | 9.4 37.5 | 1 3.53 | 20.5 36.3 | 0.81 5.85 | 13 36.3 | 2.9 6.7 | | 57.8 79.4 | <.1 0.2 | 2.7 4.04 | 0.2 0.5 | 10.55 21.35 | 0.06 <.05 | 88 168.9 | 7 17 | 153 362 | 7.64 7.42 | 2.32 18.69 |
| L 1963 | clastic | 25 46 27 | 263344 | DEC 31 86 APR 21 87 | 102.3 114.9 | 4.17 3.54 | 84.6 87.1 | 26.39 26.47 | 75.4 133.3 | 71.9 51.2 | | 241.4 203.2 | 0.59 0.59 | 32.5 27.7 | 3.13 1.52 | 0.76 0.15 | 0.1 0.12 | 675 646.1 | 19 22 | 1147 1214 | 7.5 7.26 | 1.45 13.29 |
| L 1965 | both | 13 45 27 | 263353 | OCT 31 86 APR 21 87 | 48.6 67.7 | 1.71 2.45 | 94.5 98.1 | 21.87 24.86 | 96.3 118.3 | 15.8 27.2 | | 242.3 251.6 | 0.37 0.47 | 26.5 27.3 | 0.76 0.51 | 0.57 0.55 | <.05 <.05 | 495 478.1 | 11 17 | 869 1001 | 7.34 7.19 | 4.73 5.38 |
| L 1977 | both | 21 43 27 | 264320 | DEC 31 86 MAY 4 87 | 215 498 | 9.73 15.65 | 105.3 131.8 | 49.15 87.95 | 596 929.7 | 147.9 260.4 | | 178.3 129 | 0.84 0.87 | 65.6 33.3 | 18.05 | 0.13 <.05 | <.05 <.05 | 1354.11 1844 | 8 8 | 2350 3459 | 7.16 7.41 | 10.76 2.35 |
| L 2187 | carb. | 11 24 27 | 263950 | OCT 31 86 APR 24 87 | 171.5 203.5 | 9.61 9.7 | 99 97 | 39.78 49.15 | 344.6 324.7 | 133.7 139 | | 226.1 229.4 | 0.68 0.68 | 36.1 32.8 | 3.27 2.07 | 0.07 0.06 | <.05 <.05 | 1017.9 898.1 | 7 19 | 1750 1900 | 7.22 7.31 | 4.56 4.13 |
| L 2215 | clastic | 35 45 27 | 263127 | OCT 31 86 APR 21 87 | 14.8 53.5 | 1.3 3.7 | 73.1 110.8 | 7.45 22.35 | 23 45.8 | 8.9 75.9 | | 215.2 268.1 | 0.5 0.5 | 25.8 73.7 | 0.41 0.5 | 3.22 0.11 | <.05 <.05 | 311.9 459.1 | 18 25 | 554 832 | 7.69 7.36 | 1.96 8.65 |

SANDSTONE AQUIFER

| well number | location zone | location S/T/R | location lat | location long | date sampled | Na mg/l | K mg/l | Ca mg/l | Mg mg/l | Cl- mg/l | SO4 mg/l | HCO3 mg/l | tot. alk mg/l | FI mg/l | SiO2 mg/l | Sr mg/l | tot Fe mg/l | Fe mg/l | TDS mg/l | Color units | sp. cond. uahos/cu | pH | error(%) |
|-------------|---------------|----------------|--------------|---------------|-----------------------|----------------|---------------|----------------|----------------|-----------------|----------------|-----------|----------------|----------------|--------------|--------------|--------------|-------------|------------------|-------------|--------------------|--------------|---------------|
| CP165 | clastic | 6 45 28 | | | DEC127 86 APR27 87 | 105.3 96.9 | 4.03 3.92 | 106.1 107.3 | 33.33 34.15 | 165.8 130.7 | 93.8 92.3 | | 255.7 226.2 | 0.59 0.57 | 30.1 32.4 | 3.85 | 1.87 2.97 | 0.05 | 717.9 663 | 7 11 | 1262 1140 | 7.41 7.38 | 4.00 10.37 |
| CP120 | carb. | 20 45 28 | | | DEC127 86 APR27 87 | 437 443.5 | 21.7 22.6 | 101 99 | 97.96 92.9 | 663.7 718.8 | 816.5 374.5 | | 119 133.2 | 1.21 1.25 | 21.3 29.6 | | 0.05 0.06 | 0.05 | 1757 1794 | 0 6 | 3080 3110 | 7.4 7.34 | 3.21 2.72 |
| CP160 | carb. | 6 45 28 | | | DEC127 86 APR27 87 | 138.5 137.1 | 14.4 14 | 31.5 32.6 | 27.48 27.98 | 193.7 172.3 | 39.3 23 | | 206.9 199.8 | 1.18 1.19 | 29.8 22.4 | 2.96 | 0.05 0.05 | 0.05 | 545 542.1 | 2 8 | 1828 1832 | 7.06 7.6 | 0.43 4.32 |
| Johnson | clastic | 7 44 30 | | | NOV 4 86 APR28 87 | 313 351.5 | 33.8 29.85 | 34 63.5 | 27.81 33.26 | 316 339.2 | 71.1 83.2 | | 335.2 612.2 | 0.73 0.62 | 62.1 40.1 | 0.48 1.58 | 0.14 0.05 | 0.05 | 1094.9 813.9 | 18 32 | 1830 2040 | 8.07 7.4 | 3.80 2.08 |
| Badcock | clastic | 18 44 31 | 263906 | 811600 | NOV 4 86 APR28 87 | 322 306.5 | 18.65 19.8 | 8.4 10.2 | 17.26 20.09 | 485.1 397.3 | 31.3 49.4 | | 166.8 121 | 1.01 0.57 | 0 1.3 | 0.47 0.76 | 12.2 0.36 | 0.05 | 863 893.1 | 9 11 | 1730 1900 | 9.19 9.06 | 0.67 8.15 |
| Roberts2 | both | 2 45 29 | 263954 | 812374 | NOV 4 86 APR28 87 | 108.2 117.4 | 4.6 3.43 | 93.9 93.3 | 31.06 27.25 | 167.9 161.7 | 7.6 3.8 | | 289 321.9 | 0.72 0.67 | 30.2 24.2 | 0.67 0.81 | 2.22 3.81 | 2.23 2.1 | 607 683 | 126 138 | 1133 1212 | 7.16 7.32 | 6.13 6.20 |
| Allico#12 | clastic | 2 46 29 | | | NOV 4 86 APR27 87 | 188.5 27.2 | 6.69 1.74 | 101.6 81.6 | 33.3 10.69 | 312 12.2 | 97.2 0 | | 237.2 379.8 | 0.44 0.25 | 4.8 29.6 | 1.83 2.47 | 1.39 0.92 | 0.06 | 884.1 399.9 | 18 16 | 1620 543 | 7.24 7.4 | 1.93 13.09 |
| RTAS | carb. | 20 45 29 | | | DEC127 86 APR27 87 | 50.4 46.3 | 2.09 2.16 | 95 96.2 | 14.42 12.59 | 60 59.3 | 9.1 6.1 | | 506.2 306.5 | 0.23 0.29 | 38.1 31.2 | 1.96 | 0.05 0.07 | 0.07 | 430.9 630.9 | 14 22 | 749 755 | 7.33 7.31 | 18.93 0.13 |
| HY128 | clastic | 20 30 44 | 263813 | 812038 | JAN11 88 JAN14 88 | 720 741 | 41.45 41.2 | 61.7 60.4 | 63.65 65.85 | 873.6 1031.7 | 356 371 | | 319.2 491.4 | 0.847 0.797 | 41.4 41.8 | 1.27 1.75 | 1.06 0.05 | 0.05 | 2423.9 2496.9 | 22 9 | 4050 4180 | 7.26 7.39 | 2.1 3.5 |

MID-HAMPSHIRE AQUIFER

| well number | location S/T/R | location lat long | date sampled | Na | K | Ca | Mg | Cl- | SO4 | HCO3 | tot.alk | F1 | SI02 | Sr | tot Fe | Tds Fe | TDS | Color units | sp.cond. uohms/cm | pH | error(1) |
|-------------|----------------|-------------------|----------------------|--------------|---------------|--------------|----------------|----------------|---------------|------|----------------|--------------|--------------|--------------|--------------|--------------|---------------|-------------|-------------------|--------------|--------------|
| BL 319 | 18 42 29 | | OCT31 86 MAY 4 87 | 198 131.6 | 8.39 10.02 | 26.4 28.7 | 21.48 23.18 | 106.4 107.3 | 91.2 88.9 | | 186.2 194 | 2.77 2.4 | 27.6 21.8 | 4.9 | 0.07 0.09 | 0.05 0.05 | 476.1 4886 | 6 6 | 851 832 | 7.55 7.57 | 3.03 3.99 |
| BL 321 | 18 42 29 | | OCT31 86 MAY 4 87 | 149 135.4 | 9.38 10.52 | 26.6 27.4 | 23.95 25.89 | 106 107.8 | 89 90.8 | | 187.6 191.1 | 2.65 2.8 | 26.8 20.8 | 9.16 6.75 | 1.08 0.05 | 0.08 0.05 | 501.1 499 | 4 7 | 885 841 | 7.57 7.53 | 7.46 4.92 |
| BCMAW | 26 47 31 | | MAY22 87 | 783 | 32.7 | 22.9 | 26.85 | 532 | 532.5 | | 541.9 | 3.75 | 35.9 | 1.01 | 0.11 | 0.08 | 2314.9 | 12 | 3630 | 8.08 | 1.76 |
| HE 555 | 21 44 29 | 263845 | 812607 | 230 | 16 | 40 | 33 | 210 | 110 | 345 | 283 | 10 | 31 | 1 | | | 892 | 0 | 1420 | 7.2 | 4.33 |
| | | | OCT31 86 MAY 4 87 | 193 333 | 17.1 19.95 | 40.1 40.7 | 33.28 37.3 | 227.2 370.8 | 99.9 200.5 | | 240.4 326.4 | 0.94 1.27 | 37.4 36.4 | 1.59 1.53 | 0.06 0.05 | 0.05 0.05 | 723 1093.9 | 13 11 | 1410 1940 | 7.22 7.36 | 1.01 2.54 |

UNNAMED WHITE LIMESTONE AQUIFER

| well number | location S/T/R | location lat long | date sampled | Na | K | Ca | Mg | Cl- | SO4 | HCO3 | tot.alk | F1 | SI02 | Sr | tot Fe | Tds Fe | TDS | Color units | sp.cond. uohms/cm | pH | error(1) |
|-------------|----------------|-------------------|----------------------|------------|-------------|--------------|----------------|----------------|---------------|------|----------------|---------------|--------------|------|--------------|--------------|----------------|-------------|-------------------|--------------|--------------|
| BL 320 | 18 42 29 | | OCT31 86 MAY 4 87 | 81.9 96 | 3.1 3.64 | 101.9 104 | 33.7 36.79 | 133.7 132.8 | 100.3 99.3 | | 295.5 318.6 | 0.775 0.67 | 84.4 71.5 | 1.11 | 0.14 0.18 | 0.05 0.16 | 741 685 | 20 12 | 1129 1078 | 7.72 7.26 | 1.12 1.19 |
| Heirs | 11 43 28 | | OCT27 86 APR27 87 | 60 53.4 | 7.1 6.98 | 61.6 65.1 | 25.19 22.64 | 63.1 58.5 | 26.6 27.5 | | 251 265.5 | 0.7 0.69 | 35 49 | 2.37 | 0.18 0.12 | 0.09 | 393.1 401.9 | 6 16 | 715 715 | 7.48 7.43 | 3.83 0.32 |

APPENDIX C-4

HISTORICAL WATER QUALITY

WATER TABLE ADJUFER

| well number | location S/T/R | location lat | location long | beg. of record | Chloride(mg/l) | | | Conductivity(umhos/cm) | | | fall86 | spring87 | fall86 | spring87 | | |
|-------------|----------------|--------------|---------------|----------------|----------------|-------------|-------------|------------------------|-----------|-----------|--------|-------------|-------------|----------|------|------|
| | | | | | # samples | min(date) | max(date) | mean | min(date) | max(date) | | | | | mean | |
| WE 3 | 12 48 33 | 261859 | 805854 | 1982 | 8 | 815/86 | 18015/76 | 55 | 10.2 | 14.8 | 8 | 355(11/85) | 1440(10/76) | 698 | 420 | 481 |
| WE 5 | 12 44 32 | 263730 | 810740 | 1978 | 6 | 4(11/85) | 26(3/82) | 11 | 4.8 | 10 | 6 | 249(10/86) | 300(3/86) | 274 | 249 | 251 |
| WE 339 | 27 44 32 | 263747 | 805510 | 1982 | 10 | 616/82 | 76(5/86) | 39 | 74 | 34 | 11 | 390(4/87) | 1030(3/82) | 776 | 780 | 390 |
| WE 406 | 31 45 28 | 263137 | 813328 | 1976 | 1 | 9(10/76) | 9(10/76) | 9 | | | 1 | 381(10/76) | 381(10/76) | 381 | | |
| WE 500 | 8 43 29 | 264927 | 812621 | 1982 | 7 | 816/82 | 1614/84 | 10 | | | 7 | 255(6/84) | 420(1/82) | 339 | | |
| WE 501 | 8 43 29 | | | 1984 | 1 | 18(4/84) | 16(4/84) | 16 | | | 1 | 630(4/84) | 630(4/84) | 630 | 476 | 407 |
| WE 534 | 22 45 29 | 263310 | 812509 | 1978 | 4 | 37.4(4/87) | 72(3/86) | 50 | 48.3 | 37.4 | 5 | 289(2/78) | 476(10/86) | 421 | | |
| WE 538 | 28 43 28 | 264235 | 813106 | 1975 | 5 | 180(10/75) | 1300(5/86) | 874 | 1190.9 | 1118 | 5 | 1120(10/75) | 880(5/86) | 3496 | 4440 | 4750 |
| WE 549 | 10 44 28 | 263930 | 813015 | 1975 | 6 | 53(12/75) | 98(4/87) | 68 | 72.1 | 98.4 | 6 | 635(11/76) | 801(4/87) | 712 | 715 | 801 |
| WE 628 | 18 43 29 | 264426 | 812749 | 1976 | 2 | 27(10/76) | 36(12/76) | 32 | | | 1 | 500(12/76) | 500(12/76) | 500 | | |
| WE 851 | 21 44 29 | 263885 | 812607 | 1978 | 5 | 30(5/86) | 200(2/78) | 85 | 55 | 36.7 | 5 | 675(4/87) | 1590(2/78) | 1012 | 1123 | 675 |
| WE 852 | 4 45 30 | 263528 | 812006 | 1977 | 4 | 26(4/87) | 60(8/77) | 43 | 26.4 | 26 | 4 | 983(10/86) | 739(2/78) | 656 | 385 | 592 |
| WE 854 | 10 45 33 | 263515 | 810120 | 1978 | 4 | 12.5(10/86) | 22(2/78) | 17 | 12.5 | 13.8 | 4 | 454(10/86) | 810(2/78) | 387 | 454 | 535 |
| WE 856 | 34 45 32 | 263135 | 810735 | 1978 | 5 | 3.2(10/86) | 21(2/78) | 8 | 3.2 | 4.2 | 5 | 325(5/86) | 367(4/87) | 347 | 353 | 367 |
| WE 857 | 10 43 31 | 264535 | 811307 | 1985 | 4 | 32(10/85) | 24(5/86) | 15 | 12.2 | 13.1 | 4 | 410(10/85) | 450(5/86) | 427 | 412 | 434 |
| WE 858 | 27 43 32 | 264235 | 810744 | 1978 | 3 | 20.7(4/87) | 96(2/78) | 58 | 56.4 | 20.7 | 3 | 438(4/87) | 735(2/78) | 387 | 369 | 438 |
| WE 860 | 24 46 32 | 262735 | 810446 | 1978 | 5 | 11(4/87) | 32(2/78) | 18 | 14.4 | 11 | 5 | 560(11/85) | 657(2/78) | 614 | 612 | 589 |
| WE 862 | 23 40 34 | 261735 | 805340 | 1978 | 7 | 9(4/87) | 27(2/78) | 16 | 11.7 | 9 | 7 | 419(10/86) | 609(2/78) | 521 | 419 | 515 |
| WE 884 | 18 48 33 | 261801 | 810425 | 1978 | 3 | 33(4/87) | 62(2/78) | 44 | 35.9 | 33 | 3 | 648(2/78) | 879(4/87) | 791 | 846 | 879 |
| C 131 | 1 47 30 | 262521 | 811619 | 1952 | 37 | 40(10/85) | 92(12/86) | 71 | 79.6 | 71.9 | 36 | 630(10/85) | 960(12/86) | 813 | 878 | 819 |
| C 363 | 34 46 29 | 262555 | 812428 | 1966 | 9 | 6(10/84) | 23(3/86) | 16 | 20 | 16.2 | 8 | 130(10/84) | 445(10/85) | 334 | 390 | 361 |
| C 462 | 20 46 29 | 262724 | 812612 | 1980 | 8 | 8(10/84) | 32(10/85) | 22 | 25.4 | 15.1 | 8 | 290(10/84) | 580(10/85) | 478 | 560 | 493 |
| C 532 | 7 46 29 | 262928 | 812729 | 1981 | 7 | 8(10/84) | 64.4(10/86) | 34 | 64.6 | 29.8 | 7 | 307(4/87) | 753(10/86) | 596 | 753 | 307 |
| C 966 | 29 47 30 | 262137 | 812043 | 1984 | 5 | 12(10/85) | 20(4/86) | 17 | 20 | 18 | 5 | 420(10/84) | 530(4/86) | 482 | 530 | 490 |
| C 986 | 18 49 30 | 261200 | 812049 | 1984 | 6 | 32(4/87) | 62(10/84) | 40 | 38 | 32 | 6 | 630(4/85) | 710(5/86) | 678 | 700 | 650 |
| C 1071 | 14 48 30 | 261823 | 811719 | 1986 | 2 | 8(5/87) | 10(4/86) | 9 | 10 | 8 | 2 | 455(10/86) | 520(5/87) | 488 | 455 | 520 |
| C 1075 | 18 46 30 | 262822 | 812132 | 1986 | 3 | 70(4/86) | 76(10/86) | 73 | 74 | 74 | 3 | 725(4/87) | 770(9/86) | 748 | 750 | 725 |
| C 1078 | 31 46 29 | 262558 | 812705 | 1986 | 2 | 10(5/87) | 10(5/87) | 10 | 10 | 10 | 2 | 295(10/86) | 435(4/87) | 365 | 295 | 435 |
| L 730 | 34 45 27 | 263127 | 813316 | 1946 | 24 | 4(4/87) | 500(4/46) | 27 | 6 | 4 | 24 | 270(7/86) | 2290(4/46) | 387 | 360 | 328 |
| L 1138 | 25 46 27 | 262703 | 813402 | 1975 | 10 | 21(5/81) | 30(4/85) | 33 | 26 | 34 | 9 | 220(5/81) | 430(11/85) | 333 | 280 | 348 |
| L 1964 | 15 45 27 | 263344 | 813617 | 1975 | 16 | 12(5/86) | 44(4/84) | 29 | 20 | 22 | 10 | 340(3/86) | 640(11/75) | 576 | 550 | 475 |
| L 1978 | 21 43 27 | 264320 | 813657 | 1974 | 16 | 8(5/75) | 1000(5/81) | 27 | 18 | 38 | 16 | 420(4/87) | 3800(5/81) | 633 | 320 | 420 |
| L 1992 | 13 45 27 | 263353 | 813358 | 1983 | 9 | 22(4/84) | 260(4/87) | 102 | 190 | 260 | 9 | 530(4/84) | 1480(4/87) | 899 | 1230 | 1480 |
| L 2202 | 24 44 27 | 264329 | 813404 | 1979 | 19 | 22(10/86) | 65(4/79) | 43 | 22 | 44 | 12 | 470(10/86) | 780(6/79) | 683 | 470 | 710 |
| L 3669 | 34 46 26 | 262514 | 813934 | 1983 | 8 | 28(4/86) | 32(4/85) | 30 | 32 | 30 | 8 | 320(4/84) | 600(4/83) | 570 | 580 | 600 |

LOWER TARRANT AQUIFER

| well number | location S/T/R | location lat | location long | beg. of record | Chloride(mg/l) | | | Conductivity(umhos/cm) | | | | | | | | |
|-------------|----------------|--------------|---------------|----------------|----------------|-------------|-------------|------------------------|--------|----------|------|-------------|------------|------|------|------|
| | | | | | # samples | min(date) | max(date) | mean | fall86 | spring87 | mean | fall86 | spring87 | | | |
| HE 629 | 6 44 33 | 264137 | 810407 | 1985 | 4 | 148(5/86) | 150.9(4/87) | 149 | 150.6 | 150.9 | 4 | 1069(10/86) | 1114(4/87) | 1091 | 1069 | 1114 |
| HE 853 | 52 44 31 | 263618 | 811430 | 1977 | 4 | 504(8/77) | 78(2/78) | 61 | 67.1 | 50.1 | 4 | 760(8/77) | 894(2/78) | 839 | 839 | 864 |
| HE 853 | 34 45 32 | 263135 | 810735 | 1977 | 6 | 73.8(10/86) | 110(8/77) | 92 | 73.8 | 90.6 | 6 | 742(10/86) | 940(8/77) | 862 | 742 | 885 |
| HE 859 | 26 44 32 | 262735 | 810446 | 1978 | 6 | 6.3(2/78) | 80(5/86) | 50 | 48.6 | 54.9 | 6 | 300(10/86) | 4700(5/86) | 1343 | 300 | 804 |
| HE 841 | 26 40 34 | 261735 | 809340 | 1978 | 3 | 55.7(4/87) | 65(2/78) | 60 | 63.5 | 55.7 | 3 | 735(11/85) | 854(2/78) | 824 | 824 | 832 |
| HE 848 | 27 47 33 | 262118 | 810029 | 1978 | 3 | 100(2/78) | 105(11/85) | 127 | 134.7 | 122.3 | 3 | 392(2/78) | 1149(4/87) | 997 | 1043 | 1149 |
| C 1074 | 1 47 30 | 262519 | 811621 | 1986 | 2 | 95.8(4/87) | 97.4(10/86) | 97 | 97.4 | 95.8 | 2 | 905(4/87) | 939(10/86) | 922 | 939 | 905 |
| C 1076 | 18 46 30 | 262822 | 812132 | 1986 | 2 | 78(4/87) | 80(10/86) | 79 | 80 | 78 | 2 | 750(4/87) | 900(10/86) | 825 | 900 | 750 |

UNNAMED WHITE LIMESTONE AQUIFER

| well number | location S/T/R | location lat | location long | beg. of record | Chloride(mg/l) | | | Conductivity(umhos/cm) | | | | | | | | |
|-------------|----------------|--------------|---------------|----------------|----------------|------------|--------------|------------------------|--------|----------|------|------------|-------------|------|------|------|
| | | | | | # samples | min(date) | max(date) | mean | fall86 | spring87 | mean | fall86 | spring87 | | | |
| BL 320 | 18 42 29 | 264910 | 822801 | 1985 | 4 | 104(10/85) | 133.7(10/86) | 122 | 133.7 | 132.8 | 4 | 890(10/85) | 1129(10/86) | 1016 | 1129 | 1076 |

SANDSTONE AQUIFER

| well number | location zone | location S/T/R | location lat | location long | beg. of record | Chloride(mg/l) | | | Conductivity(umhos/cm) | | | | | | | | |
|-------------|---------------|----------------|--------------|---------------|----------------|----------------|-------------|--------------|------------------------|--------|----------|------|-------------|-------------|------|------|------|
| | | | | | | # samples | min(date) | max(date) | mean | fall86 | spring87 | mean | fall86 | spring87 | | | |
| HE 516 | clastic | 1 43 29 | 264461 | 812131 | 1986 | 2 | 38.3(10/86) | 67(4/87) | 42 | 38.3 | 67 | 2 | 508(10/86) | 844(4/87) | 687 | 508 | 864 |
| HE 529 | carb. | 21 43 29 | 263310 | 812509 | 1975 | 6 | 37(12/75) | 42(4/76) | 39 | 38 | 39.6 | 6 | 675(11/85) | 740(12/75) | 692 | 671 | 723 |
| HE 556 | clastic | 21 44 29 | 263845 | 812607 | 1975 | 6 | 120(10/75) | 180(4/76) | 163 | 42.1 | 42.3 | 6 | 1021(5/87) | 1300(4/76) | 1139 | 1139 | 1090 |
| H3 557 | clastic | 28 43 28 | 264235 | 813106 | 1975 | 7 | 1120(6/86) | 1200(4/76) | 1158 | 1121.8 | 1131.9 | 7 | 4250(6/86) | 4900(8/75) | 4518 | 4360 | 4870 |
| HE 539 | carb. | 10 44 28 | 262930 | 813001 | 1975 | 6 | 824.3(4/87) | 980(4/76) | 899 | 932.9 | 826.3 | 6 | 3500(4/76) | 4600(4/87) | 3880 | 3650 | 4600 |
| HE 540 | clastic | 10 44 28 | 263930 | 813015 | 1976 | 5 | 490(6/76) | 696.9(10/76) | 592 | 696.9 | 553.7 | 5 | 2300(6/76) | 3939(4/87) | 2907 | 2820 | 3959 |
| HE 620 | carb. | 19 43 29 | 264353 | 812811 | 1976 | 6 | 84.7(4/87) | 315(10/86) | 199 | 315 | 84.7 | 6 | 883(3/86) | 1490(4/87) | 1404 | 1490 | 1690 |
| BL 517 | clastic | 36 42 29 | 264612 | 812136 | 1985 | 4 | 6(11/85) | 28(5/85) | 20 | 23.8 | 21.2 | 4 | 130(11/85) | 624(4/87) | 484 | 567 | 1076 |
| C 531 | carb. | 7 46 29 | 262859 | 812838 | 1975 | 8 | 22(10/86) | 74(4/87) | 40 | 22 | 74 | 8 | 540(9/86) | 840(4/87) | 656 | 600 | 624 |
| C 887 | carb. | 34 46 28 | 262584 | 812838 | 1981 | 8 | 54(10/84) | 110(12/86) | 82 | 110 | 58 | 8 | 605(10/84) | 850(12/86) | 714 | 850 | 840 |
| C 1072 | both? | 14 48 30 | 261823 | 811719 | 1986 | 2 | 128(10/86) | 130(10/86) | 129 | 130 | 128 | 2 | 1190(4/87) | 1200(10/86) | 1195 | 1200 | 470 |
| C 1077 | clastic | 18 46 30 | 262822 | 812132 | 1986 | 2 | 290(10/86) | 420(4/87) | 355 | 290 | 420 | 2 | 1650(10/86) | 2050(4/87) | 1850 | 1450 | 1190 |
| L 731 | both | 25 46 27 | 262703 | 813402 | 1968 | 13 | 12(10/86) | 110(10/81) | 33 | 12 | 36.3 | 12 | 130(10/86) | 600(4/76) | 660 | 130 | 362 |
| L 1418 | clastic | 32 44 27 | 263638 | 813753 | 1976 | 18 | 150(4/86) | 300(4/76) | 179 | 170 | 162 | 18 | 810(11/83) | 1310(4/76) | 900 | 900 | 920 |
| L 1963 | clastic | 15 42 27 | 263324 | 813617 | 1974 | 11 | 68(3/75) | 450(8/74) | 160 | 210 | 133.3 | 11 | 850(4/76) | 2080(8/74) | 1180 | 1300 | 1214 |
| L 1965 | both | 13 42 27 | 263358 | 813358 | 1975 | 11 | 80(10/84) | 320(3/75) | 186 | 100 | 118.3 | 11 | 760(10/84) | 1550(3/75) | 1127 | 908 | 1001 |
| L 1977 | both | 21 43 27 | 264320 | 813637 | 1975 | 9 | 500(10/84) | 1000(4/76) | 751 | 540 | 929.7 | 9 | 2400(10/86) | 3850(4/76) | 3091 | 2400 | 3450 |
| L 2186 | carb. | 15 43 27 | 263344 | 813617 | 1976 | 8 | 140(6/76) | 480(10/86) | 403 | 480 | 480 | 8 | 950(6/76) | 2250(10/86) | 1974 | 1800 | 2350 |
| L 2187 | carb. | 31 44 27 | 263950 | 813554 | 1977 | 8 | 320(4/85) | 380(10/85) | 341 | 330 | 324.7 | 8 | 1330(4/85) | 1800(10/86) | 1679 | 1800 | 1900 |
| L 2192 | clastic | 29 46 27 | 262859 | 813825 | 1976 | 11 | 34(4/87) | 150(2/81) | 73 | 52 | 34 | 11 | 590(4/87) | 1600(5/81) | 766 | 700 | 590 |
| L 2200 | carb. | 28 43 27 | 264329 | 813404 | 1976 | 10 | 800(10/86) | 970(6/76) | 843 | 800 | 885 | 10 | 2990(5/83) | 3600(6/76) | 3239 | 3200 | 3200 |
| L 2215 | clastic | 35 45 27 | 263127 | 813516 | 1976 | 10 | 321(5/86) | 461(10/84) | 40 | 34 | 45.8 | 10 | 380(4/85) | 632(4/86) | 686 | 450 | 832 |
| L 5664 | both | 36 46 26 | 262514 | 813934 | 1983 | 8 | 32(4/87) | 46(4/83) | 39 | 36 | 32 | 8 | 610(4/83) | 700(4/83) | 646 | 645 | 625 |

APPENDIX D-1

INTRODUCTION

Introduction

The SFWMD performed pump tests at 13 sites throughout Hendry County as part of this study. Locations and well construction details for the pump tests can be found in the Ground Water Potential section of the text.

The drawdown data were analyzed using a modification of the Hantush-Jacob equation for nonsteady radial flow in an infinite leaky confined aquifer. Hilton H. Cooper, Jr. prepared two families of type curves from the Hantush-Jacob equation (Cooper, 1963) and modified the equation to include a determination of leakance through the confining bed. Cooper warns that the leakance values assume that most of the water is derived from storage in the confining bed rather than from leakage across the confining bed.

All the match points needed for the drawdown analysis are listed on the plots along with calculation results. The match point value for time was divided by 1440 min/day prior to use in the equation. The transmissivity value obtained from the equation was multiplied by 7.48 to convert the transmissivity to gpd/ft.

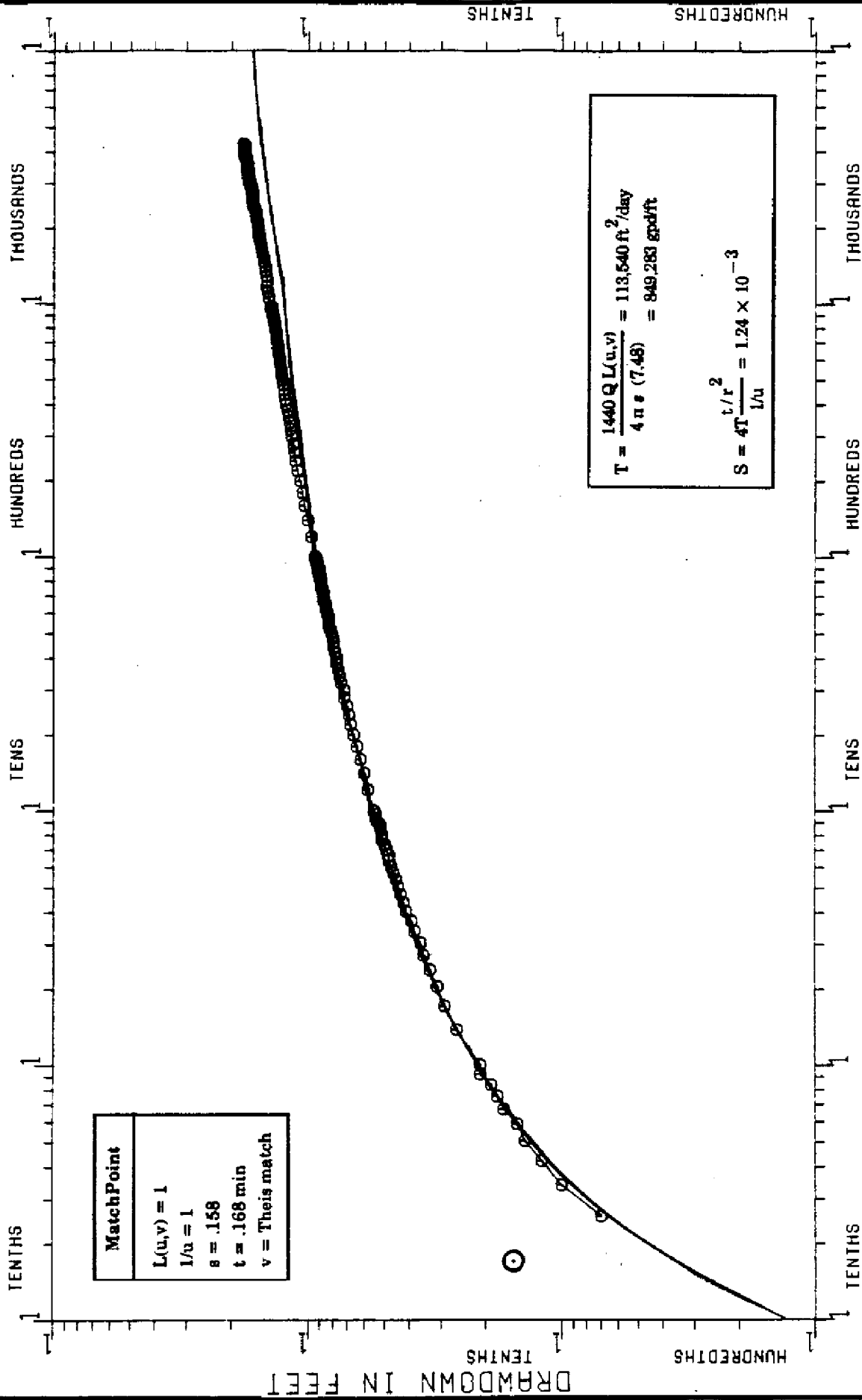
Recovery data was taken at all the sites and analyzed using the Jacob straight-line method for a fully confined aquifer. The input variables and equation results are listed on the plots.

APPENDIX D-2

ANALYSES OF AQUIFER TEST DATA

OBSERVATION WELL: 11

R=200.8 Q= 1171



| MatchPoint | |
|------------|-----------------|
| $L(u,v)$ | = 1 |
| $1/u$ | = 1 |
| s | = .158 |
| t | = .168 min |
| v | = This is match |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 113,540 \text{ ft}^2/\text{day}$$

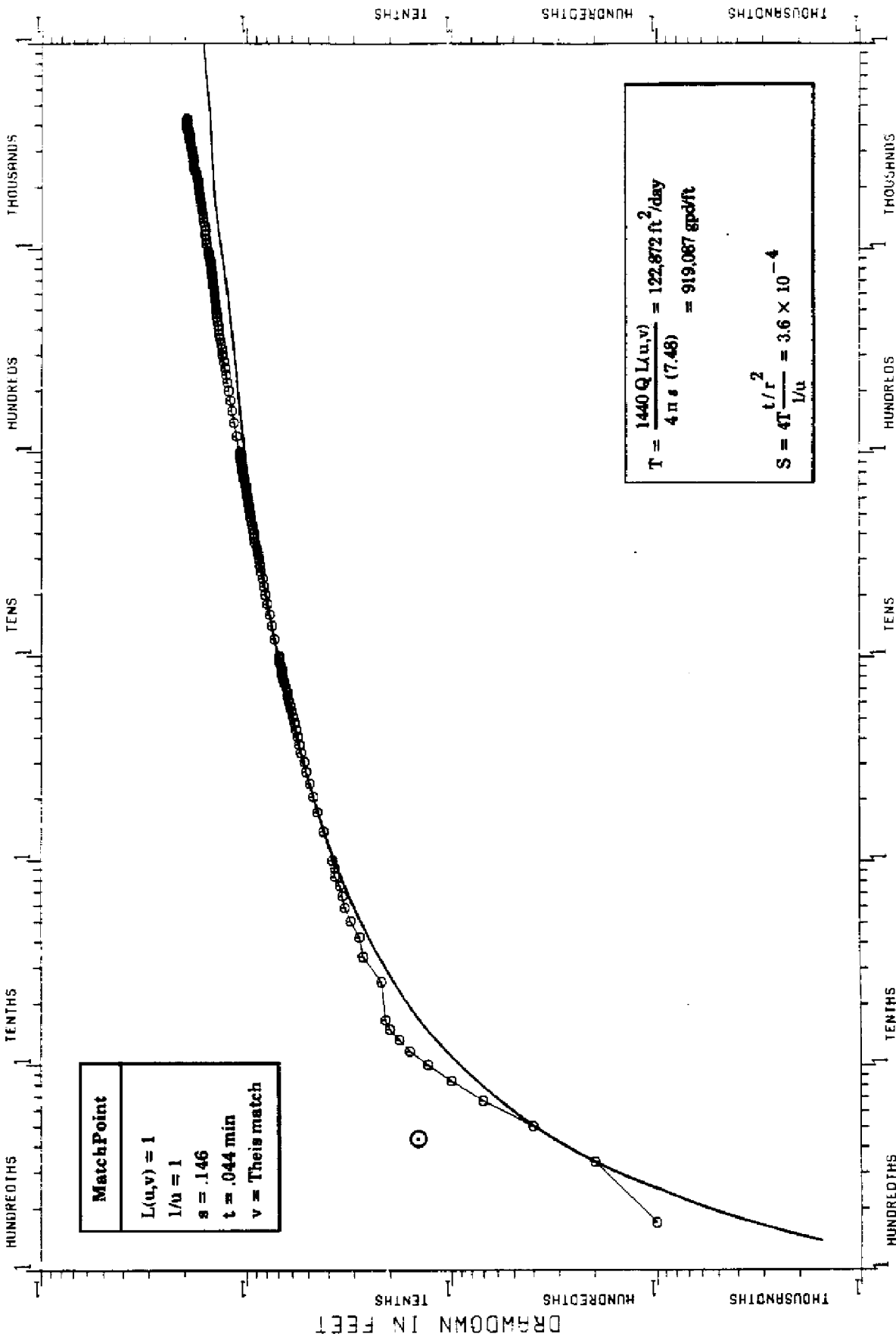
$$= 849,283 \text{ gpd/ft}$$

$$S = 4T \frac{t/r^2}{1/u} = 1.24 \times 10^{-3}$$

ALICO SITE A DRAWDOWN

OBSERVATION WELL: 1D

R = 202.6 O = 11.71



| Match Point | |
|--------------------------|--|
| $L(u,v) = 1$ | |
| $1/u = 1$ | |
| $s = .146$ | |
| $t = .044 \text{ min}$ | |
| $v = \text{Theis match}$ | |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 122,872 \text{ ft}^2/\text{day}$$

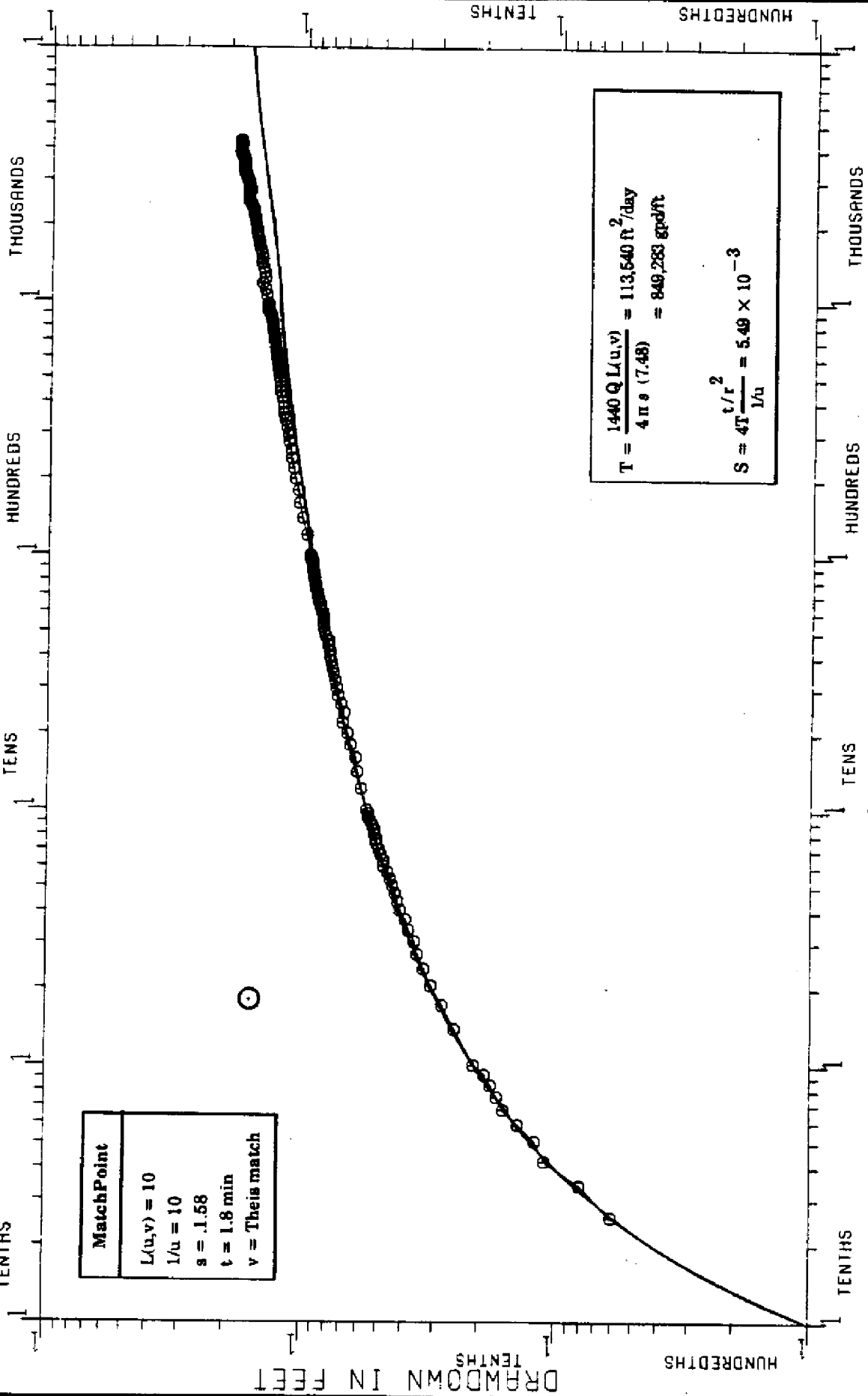
$$= 919,087 \text{ gpd/ft}$$

$$S = 4T \frac{t/r^2}{1/u} = 3.6 \times 10^{-4}$$

ALICO SITE A DRAWDOWN

OBSERVATION WELL: 21

R=101.7 Q= 1171



| MatchPoint | |
|------------|-----------------|
| L(u,v) | = 10 |
| 1/u | = 10 |
| s | = .1.58 |
| t | = 1.8 min |
| v | = This is match |

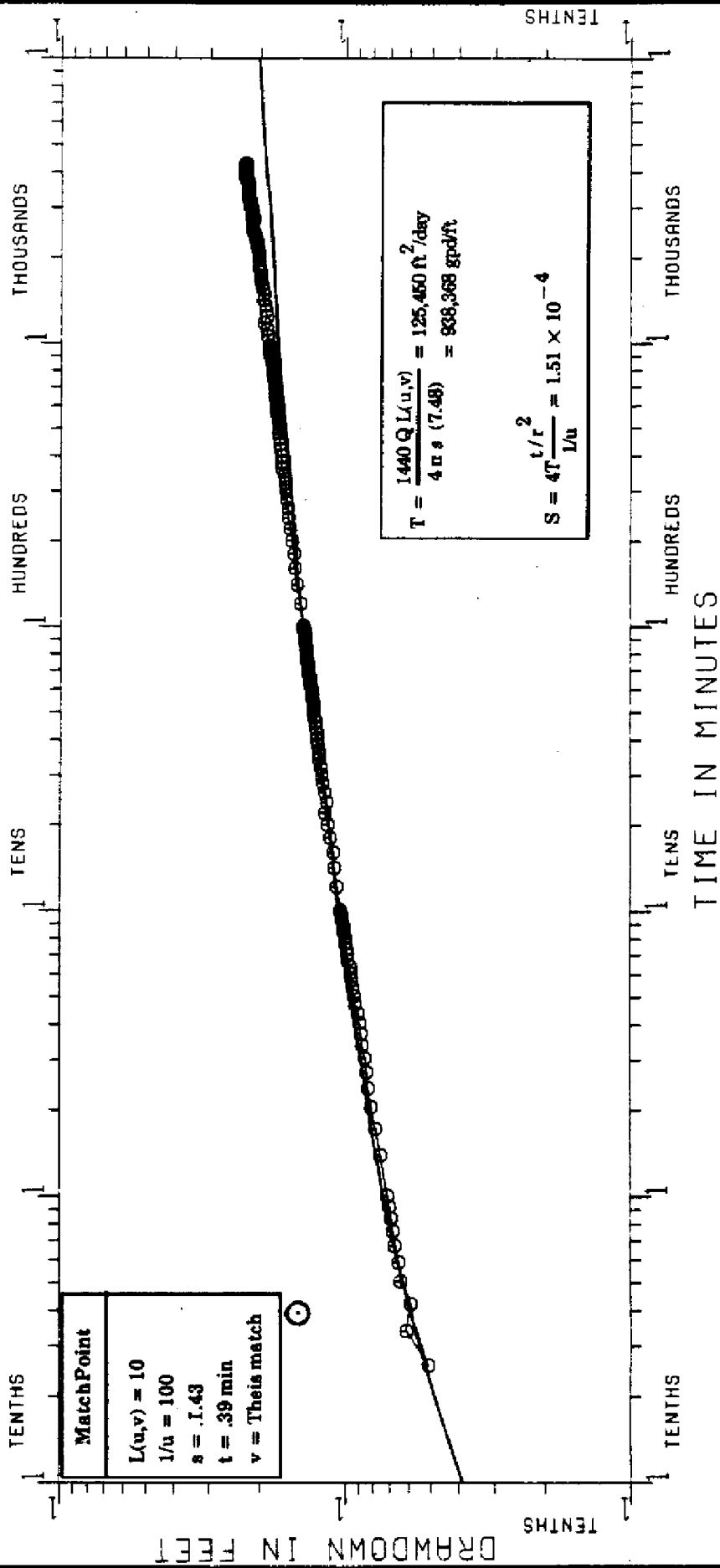
$$T = \frac{1440 Q L(u,v)}{4 \pi s} = 113,540 \frac{\text{ft}^2/\text{day}}{7.48} = 849,283 \text{ gpd/ft}$$

$$S = 4T \frac{t/r^2}{1/u} = 5.49 \times 10^{-3}$$

ALICO SITE A DRAWDOWN

OBSERVATION WELL: 2D

R = 99.8 Q = 1171



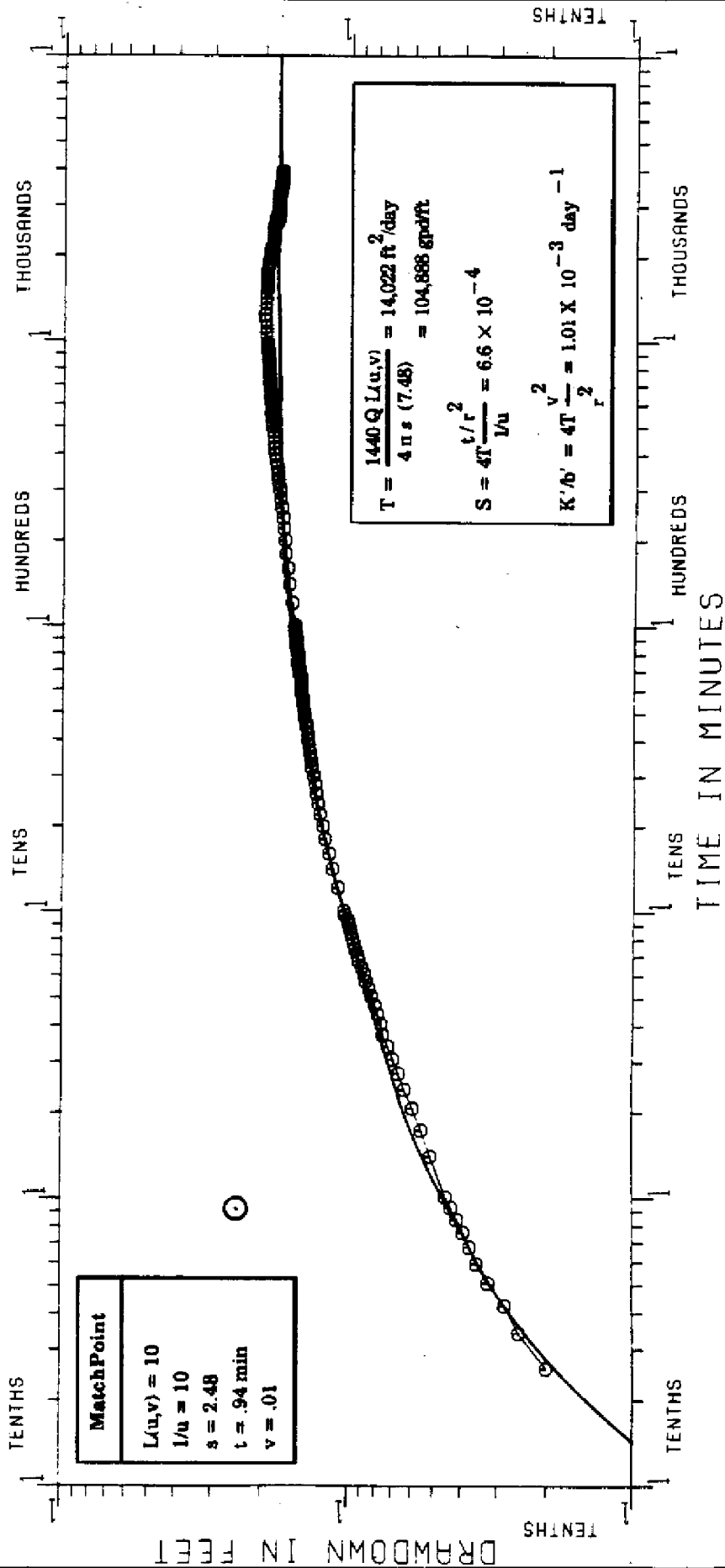
| |
|-------------------|
| MatchPoint |
| L(u,v) = 10 |
| 1/u = 100 |
| s = 1.43 |
| t = .39 min |
| v = This is match |

| |
|---|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 125,450 \text{ ft}^2/\text{day}$ $S = 4T \frac{t/r^2}{L/u} = 1.51 \times 10^{-4}$ |
|---|

ALICO SITE A DRAWDOWN

OBSERVATION WELL: D-1

R = 74.5 Q = 227.0



| MatchPoint | |
|------------|---------------------------|
| $L(u,v)$ | ≈ 10 |
| l/u | ≈ 10 |
| s | ≈ 2.48 |
| t | $\approx .94 \text{ min}$ |
| v | $\approx .01$ |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 14,022 \text{ ft}^2/\text{day}$$

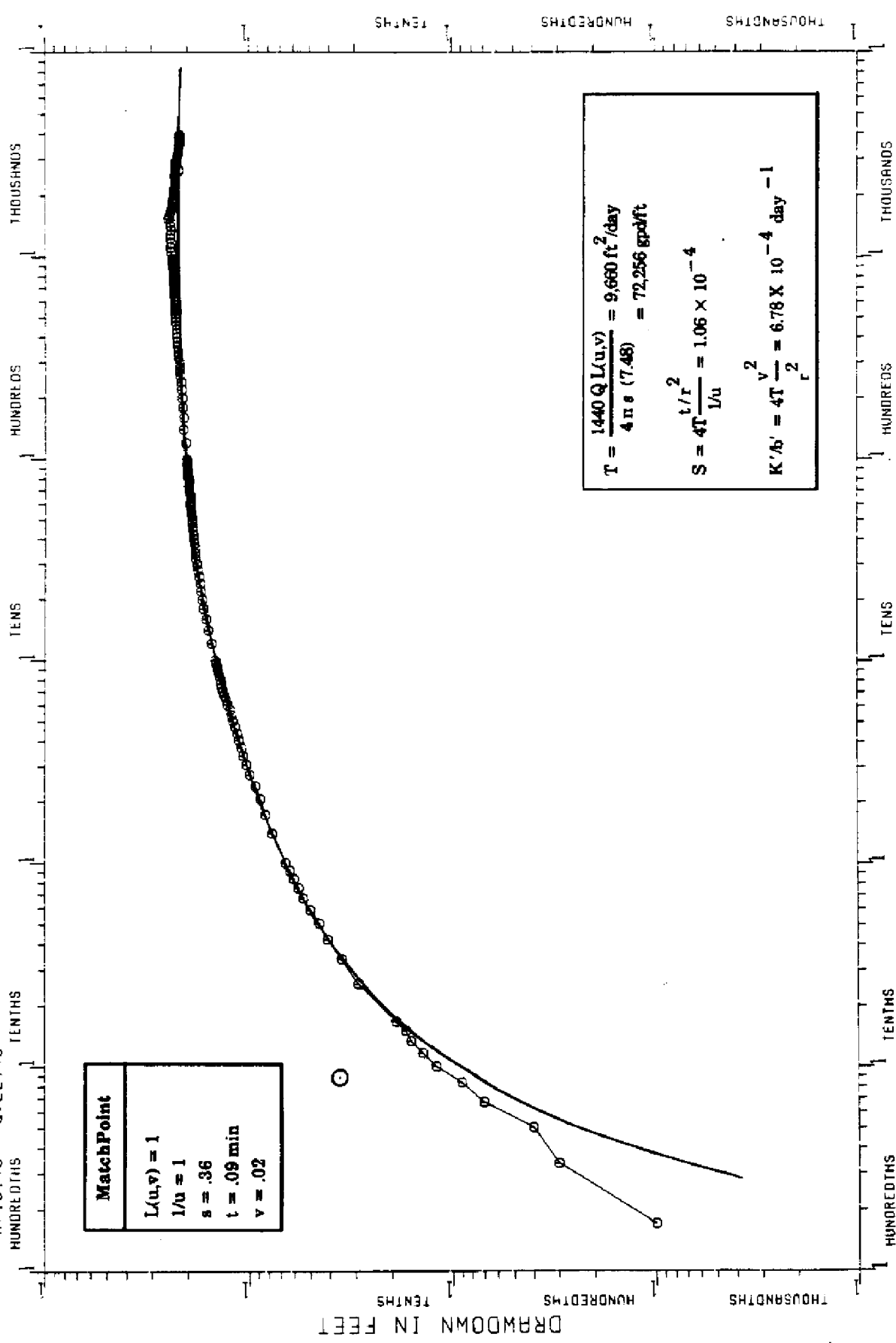
$$S = 4T \frac{t/r^2}{v} = 6.6 \times 10^{-4}$$

$$K'/b' = 4T \frac{v^2}{r^2} = 1.01 \times 10^{-3} \text{ day}^{-1}$$

ALICO SITE B DRAWDOWN

OBSERVATION WELL: D-2A

R=151.0 Q=227.0



| MatchPoint | |
|-----------------------|--|
| $L(u,v) = 1$ | |
| $1/u = 1$ | |
| $s = .36$ | |
| $t = .09 \text{ min}$ | |
| $v = .02$ | |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 9,660 \text{ ft}^2/\text{day}$$

$$= 72,256 \text{ gpd/ft}$$

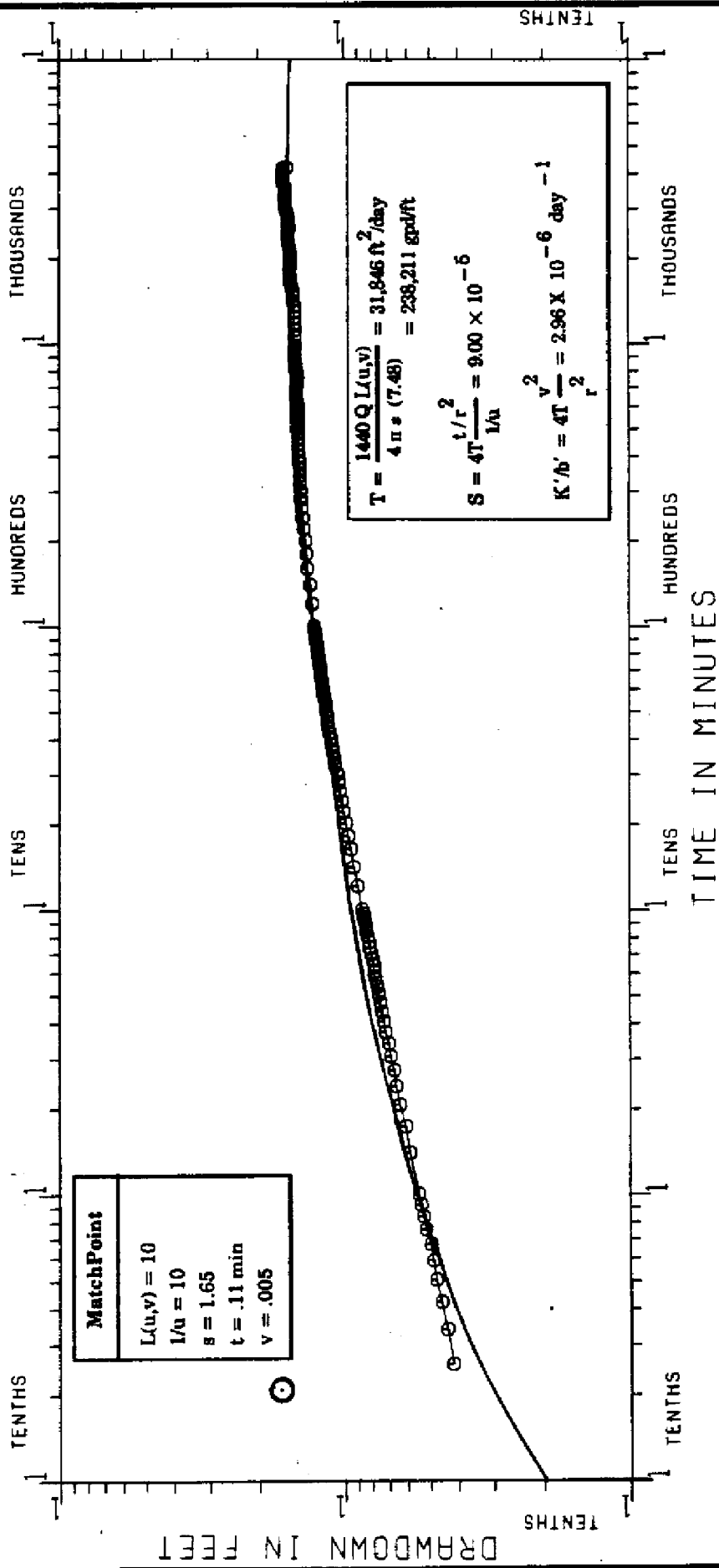
$$S = 4T \frac{t/r^2}{1/u} = 1.06 \times 10^{-4}$$

$$K'/b' = 4T \frac{v^2}{r^2} = 6.78 \times 10^{-4} \text{ day}^{-1}$$

ALICO SITE B DRAWDOWN

OBSERVATION WELL: 1D

R=104.3 Q=343.0



Match Point

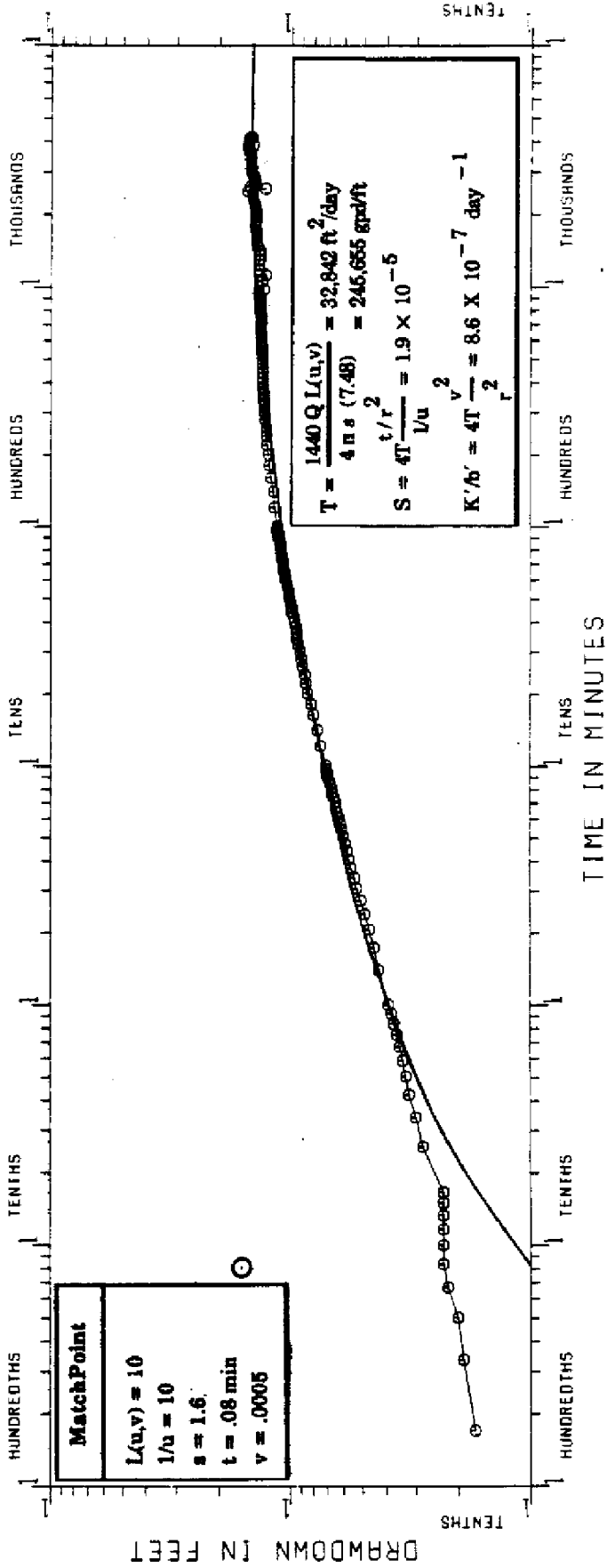
$L(u,v) = 10$
 $1/u = 10$
 $s = 1.65$
 $t = .11 \text{ min}$
 $v = .005$

$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 31,846 \text{ ft}^2/\text{day}$
 $ = 238,211 \text{ gal/ft}$
 $S = 4T \frac{t/\tau^2}{1/u} = 9.00 \times 10^{-6}$
 $K'/b' = 4T \frac{v^2}{r^2} = 2.96 \times 10^{-6} \text{ day}^{-1}$

ALICO SITE C DRAWDOWN

OBSERVATION WELL: 2D

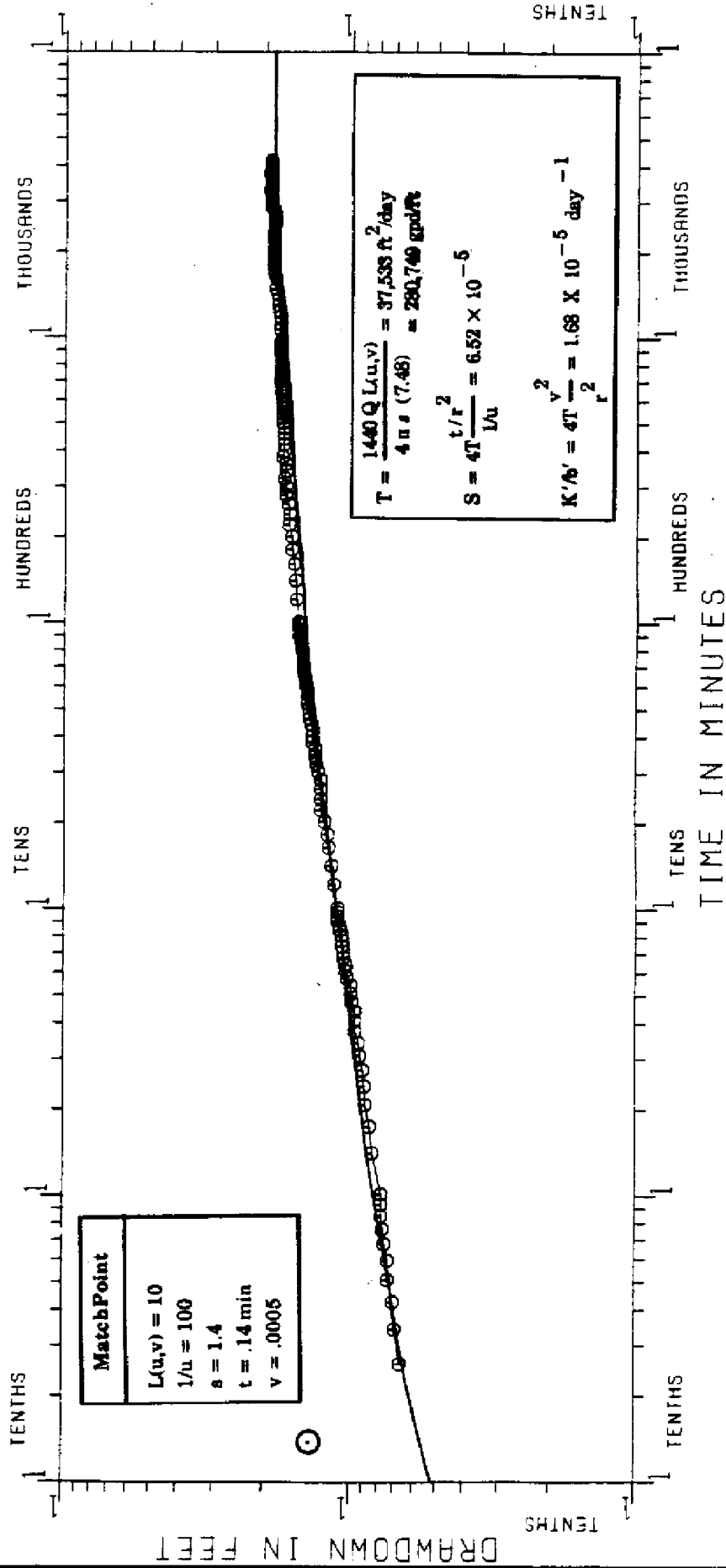
R = 195.0 O = 343.0



ALICO SITE C DRAWDOWN

OBSERVATION WELL: 3-D

R = 47.3 Q = 343.0



| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 10 |
| $1/u$ | = 100 |
| s | = 1.4 |
| t | = .14 min |
| v | = .0005 |

| | |
|--|---|
| $T = \frac{1440 Q L(u,v)}{4 u s (7.48)}$ | = 37,533 ft ² /day |
| | = 280,740 gpd/ft |
| $S = 4T \frac{t/r^2}{Lu}$ | = 6.52×10^{-5} |
| $K'/h' = 4T \frac{v}{r^2}$ | = 1.68×10^{-5} day ⁻¹ |

ALICO SITE C DRAWDOWN

OBSERVATION WELL: 1D

R= 73.0 0-115.0

HUNDRETHS TENTHS

TENS

HUNDREDS

THOUSANDS

| MatchPoint | |
|------------------------|--|
| $L(u,v) = 1$ | |
| $1/u = 1$ | |
| $s = .22$ | |
| $t = .021 \text{ min}$ | |
| $v = .015$ | |

DRAWDOWN IN FEET

TENTHS

HUNDRETHS

THOUSANDTHS

TENTHS

HUNDRETHS

THOUSANDTHS

| |
|--|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 8,006 \text{ ft}^2/\text{day}$ |
| $= 59,900 \text{ gpd/ft}$ |
| $S = 4T \frac{t/r^2}{1/u} = 8.8 \times 10^{-5}$ |
| $K/b' = 4T \frac{v}{r^2} = 1.4 \times 10^{-3} \text{ day}^{-1}$ |

HUNDRETHS

TENS

TIME IN MINUTES

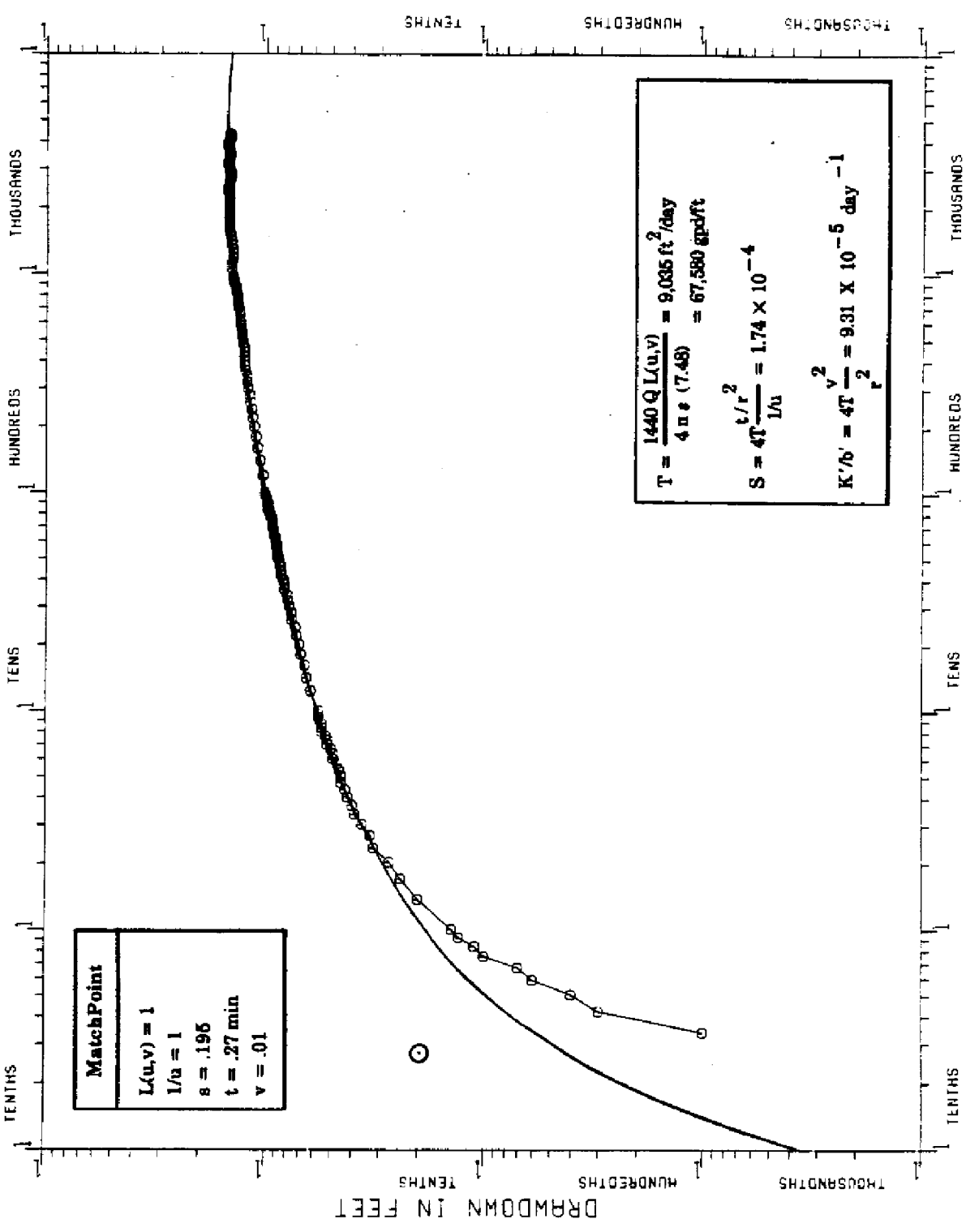
HUNDREDS

THOUSANDS

ALICO SITED DRAWDOWN

OBSERVATION WELL: 2D

R=197.0 Q=115.0



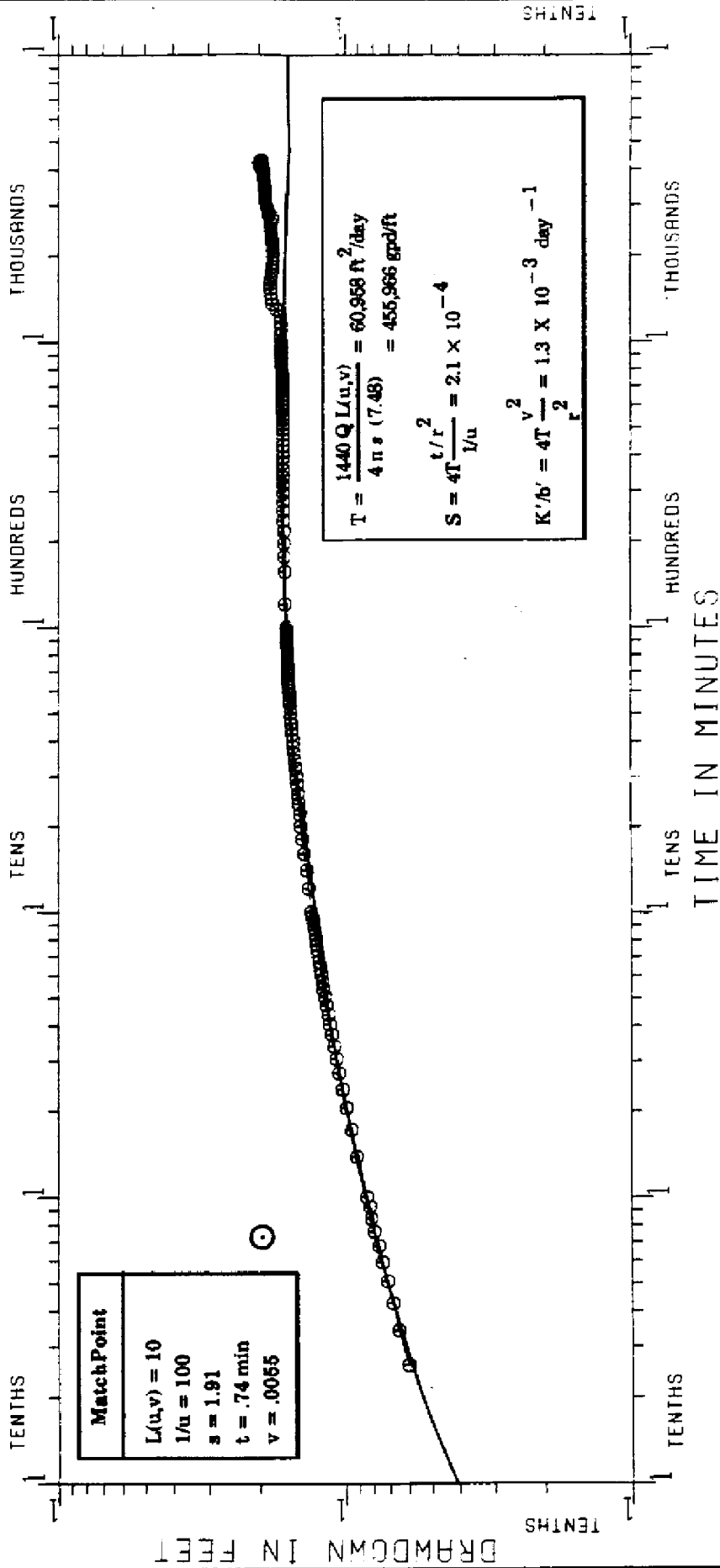
| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 1 |
| $1/u$ | = 1 |
| s | = .196 |
| t | = .27 min |
| v | = .01 |

| | |
|--|--|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)}$ | = 9,036 ft ² /day |
| | = 67,580 gpd/ft |
| $S = 4T \frac{t/r^2}{1/u}$ | = 1.74×10^{-4} |
| $K'/b' = 4T \frac{v^2}{r^2}$ | = $9.31 \times 10^{-5} \text{ day}^{-1}$ |

ALICO SITED DRAWDOWN

OBSERVATION WELL: 1-D DRAWDOWN

R = 76.6 Q = 760



| Match Point | |
|-------------|-----------|
| $L(u,v)$ | = 10 |
| $1/u$ | = 100 |
| s | = 1.91 |
| t | = .74 min |
| v | = .0055 |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 60,968 \text{ ft}^2/\text{day}$$

$$= 455,966 \text{ gpd/ft}$$

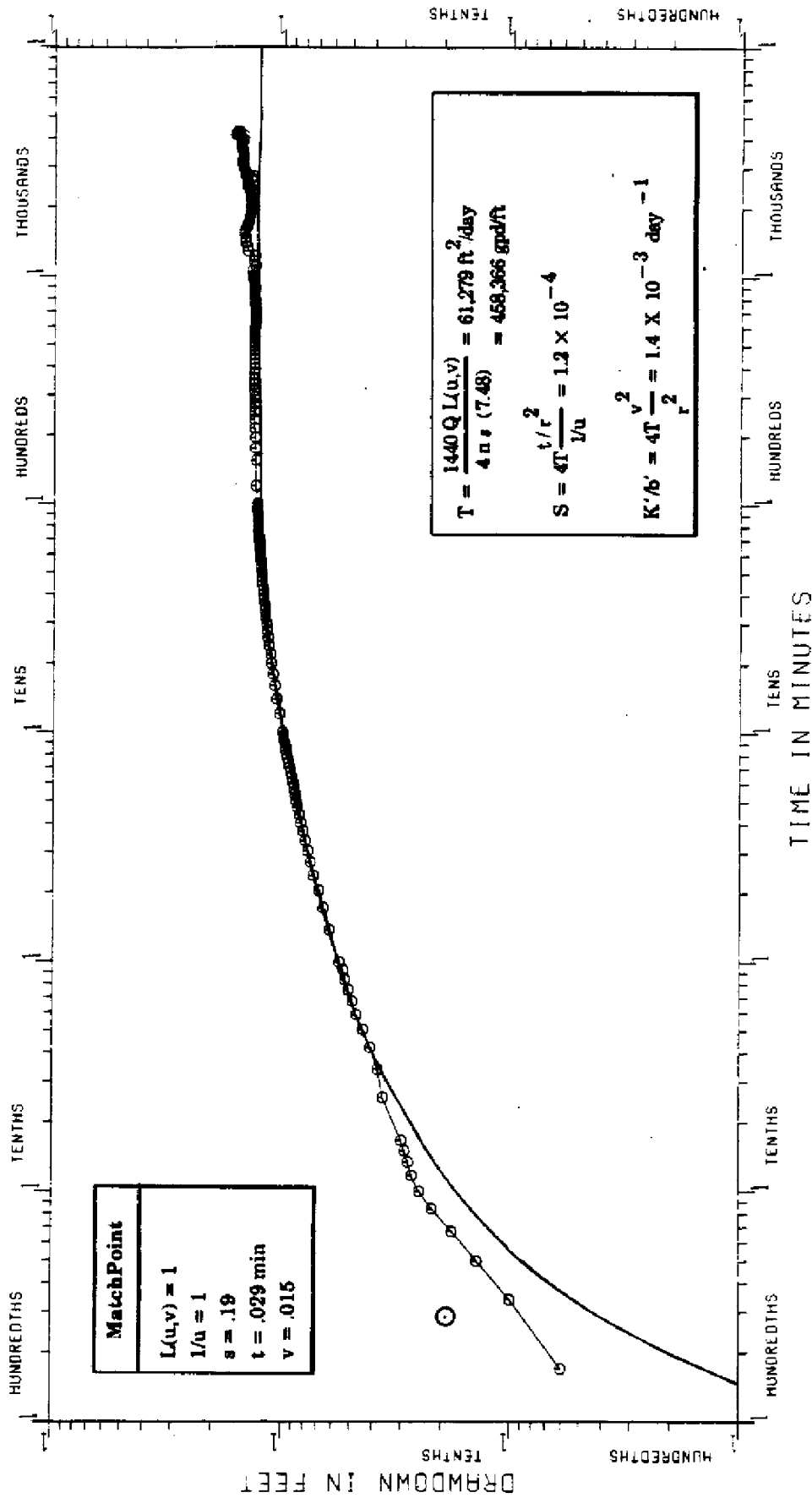
$$S = 4T \frac{t/r^2}{1/u} = 2.1 \times 10^{-4}$$

$$K'/b' = 4T \frac{v^2}{r^2} = 1.3 \times 10^{-3} \text{ day}^{-1}$$

BARRON COLLIER APT SITE

OBSERVATION WELL: 2-D DRAWDOWN

R = 200.8 Q = 760



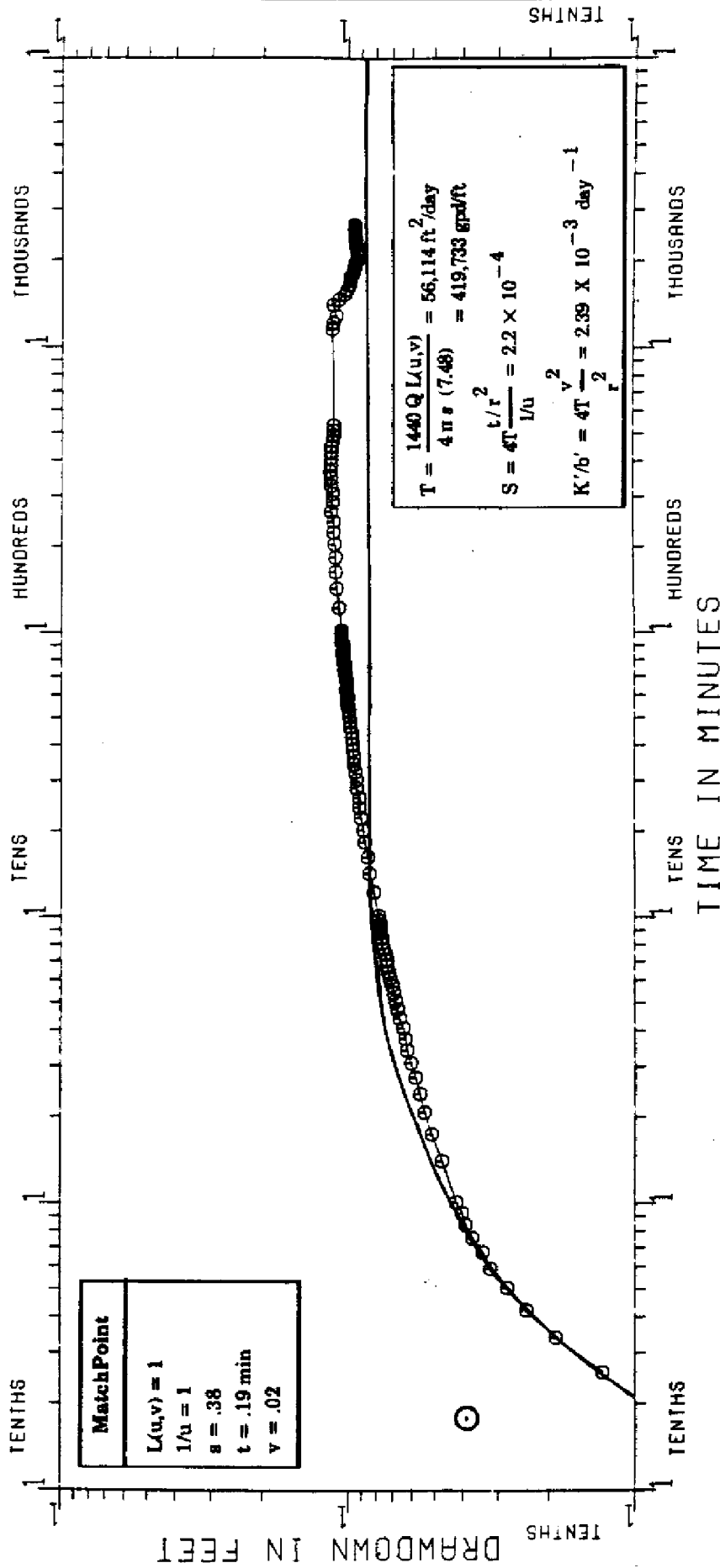
| MatchPoint | |
|------------|------------|
| $L(u,v)$ | = 1 |
| $1/u$ | = 1 |
| s | = .19 |
| t | = .029 min |
| v | = .015 |

| | |
|--|---|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)}$ | = 61,279 ft ² /day |
| | = 458,366 gpd/ft |
| $S = 4T \frac{t/r^2}{1/u}$ | = 1.2×10^{-4} |
| $K'/b' = 4T \frac{v^2}{r^2}$ | = $1.4 \times 10^{-3} \text{ day}^{-1}$ |

BARRON COLLIER APT SITE

OBSERVATION WELL: 1D PASTURE SITE

R= 194 Q= 641



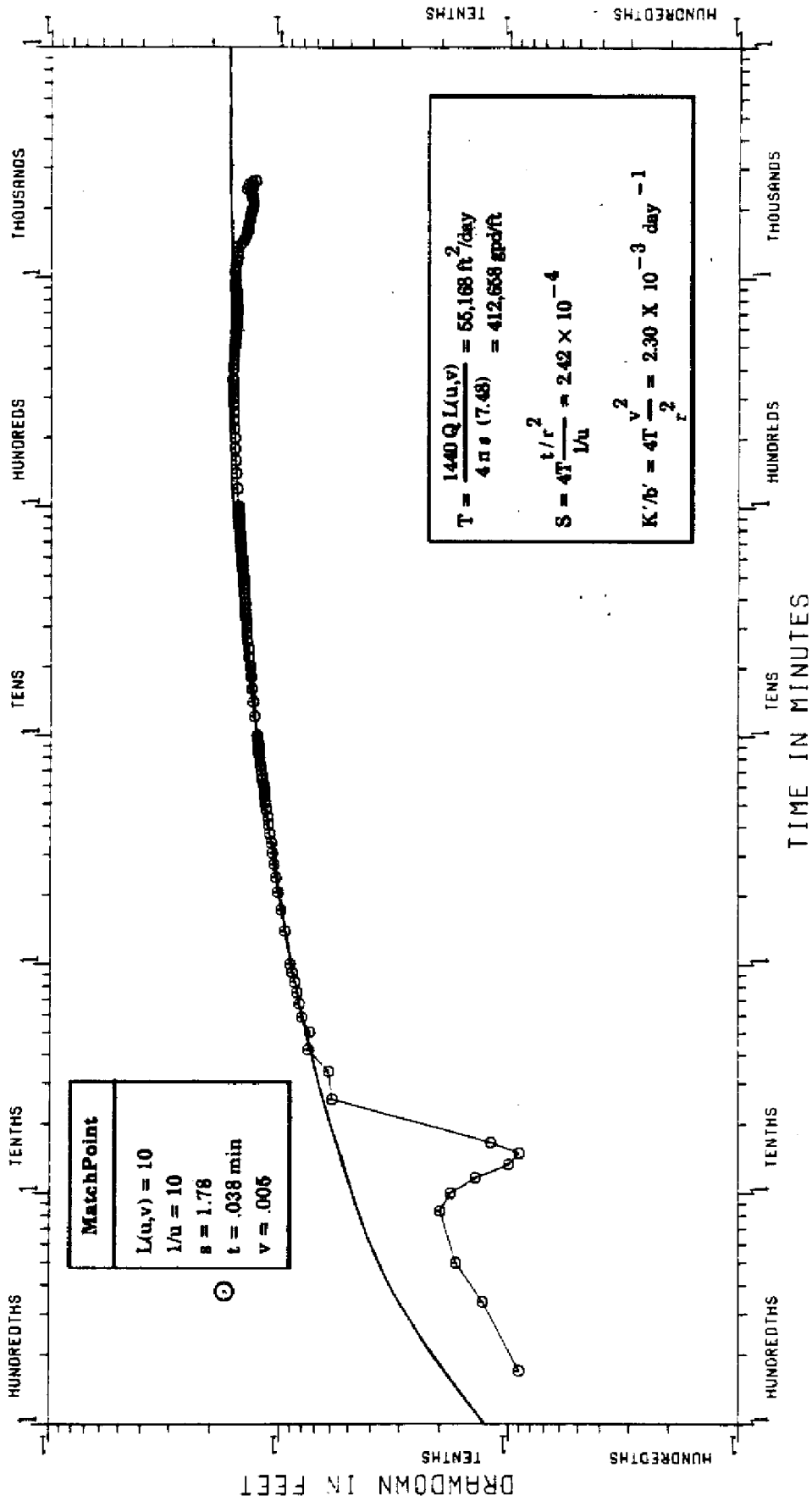
| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 1 |
| $1/u$ | = 1 |
| s | = .38 |
| t | = .19 min |
| v | = .02 |

| | |
|--|---|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)}$ | = 56,114 ft ² /day |
| | = 419,733 gal/ft |
| $S = 4T \frac{t/r^2}{1/u}$ | = 2.2×10^{-4} |
| $K'/b' = 4T \frac{v}{r^2}$ | = 2.39×10^{-3} day ⁻¹ |

BIG CYPRESS INDIAN RESERVATION

OBSERVATION WELL: 2D PASTURE SITE

R = 49 Q = 641



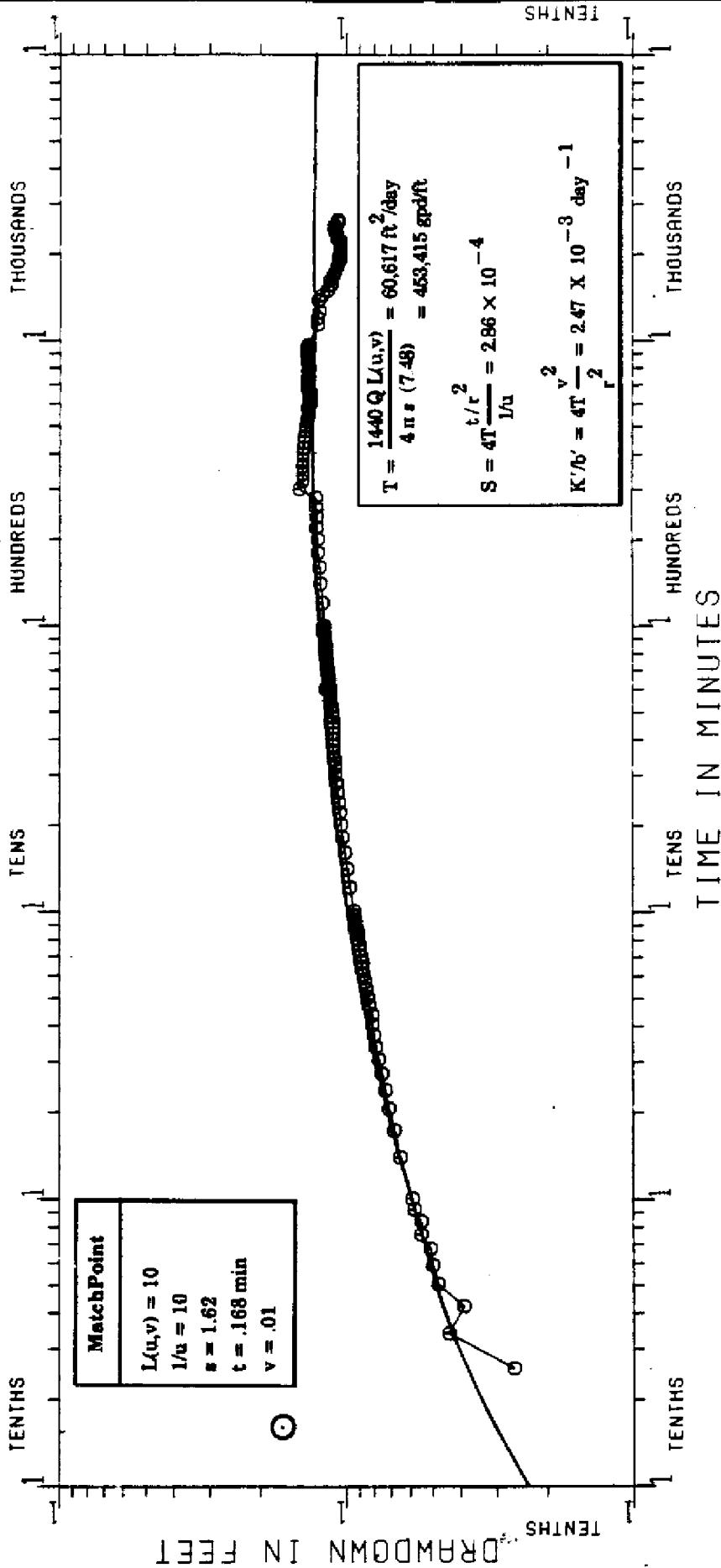
MatchPoint
 $L(u,v) = 10$
 $1/u = 10$
 $s = 1.78$
 $t = .038 \text{ min}$
 $v = .006$

$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 55,168 \text{ ft}^2/\text{day}$
 $ = 412,658 \text{ gpd/ft}$
 $S = 4T \frac{t/r^2}{1/u} = 2.42 \times 10^{-4}$
 $K'/b' = 4T \frac{v^2}{r^2} = 2.30 \times 10^{-3} \text{ day}^{-1}$

BIG CYPRESS INDIAN RESERVATION

OBSERVATION WELL: 3D PASTURE SITE

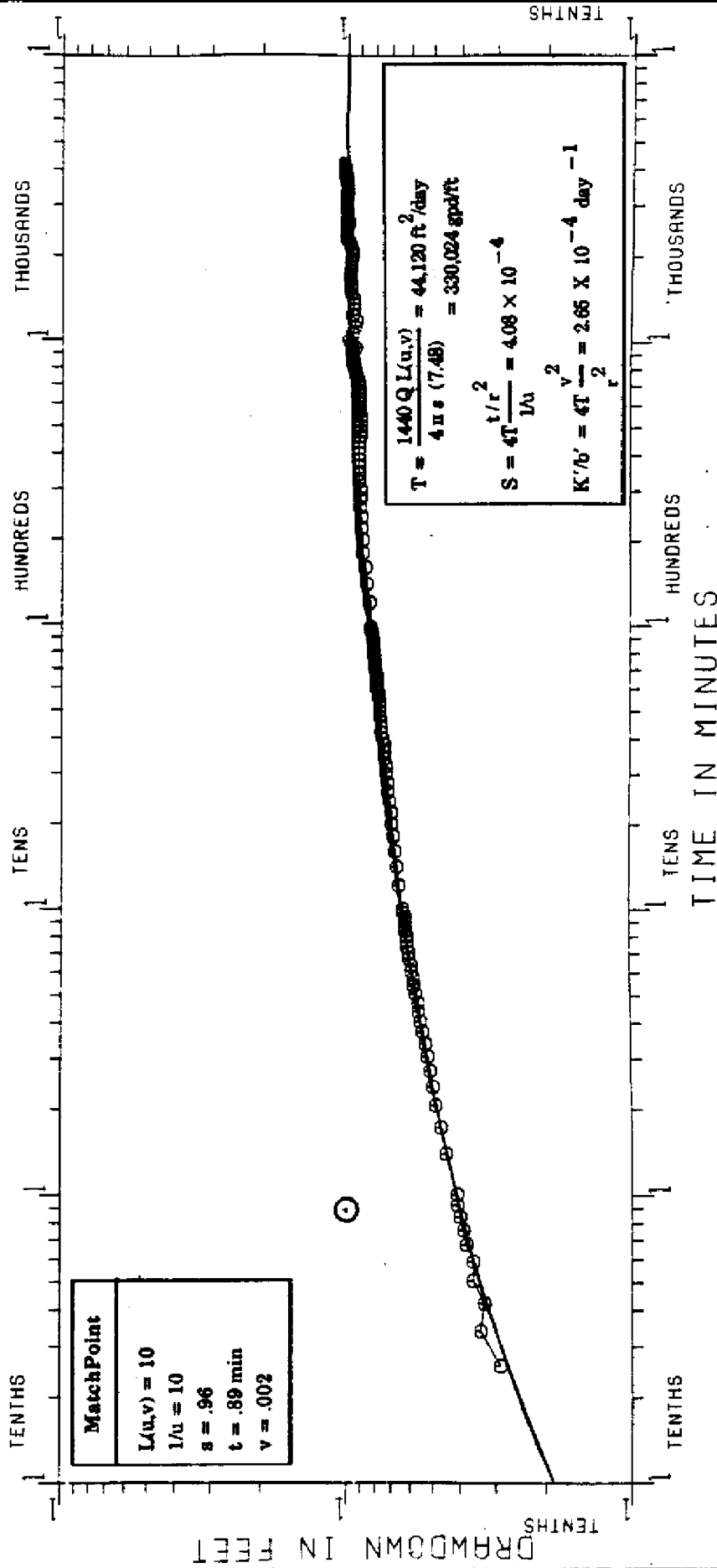
R= 99 Q= 641



BIG CYPRESS INDIAN RESERVATION

OBSERVATION WELL: 1D ROAD SITE

R=51.65 Q= 300



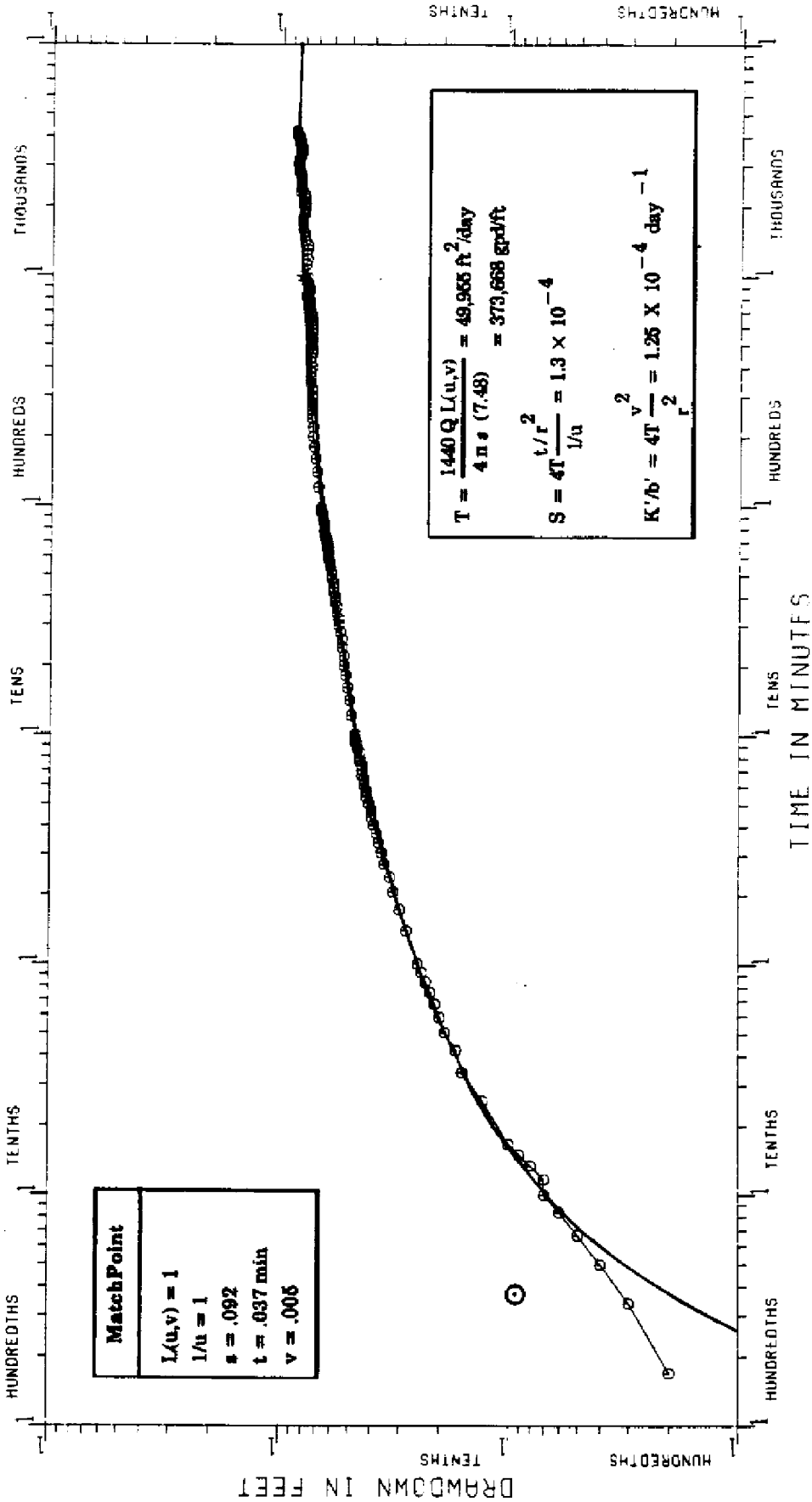
| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 10 |
| $1/u$ | = 10 |
| s | = .96 |
| t | = .89 min |
| v | = .002 |

| | |
|--|---|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)}$ | = 44,120 ft ² /day |
| | = 330,024 gpd/ft |
| $S = 4T \frac{t/r^2}{1/u}$ | = 4.08×10^{-4} |
| $K'/b' = 4T \frac{v^2}{r^2}$ | = 2.65×10^{-4} day ⁻¹ |

BIG CYPRESS INDIAN RESERVATION

OBSERVATION WELL: 2D ROAD SITE

R = 200.2 U = 300



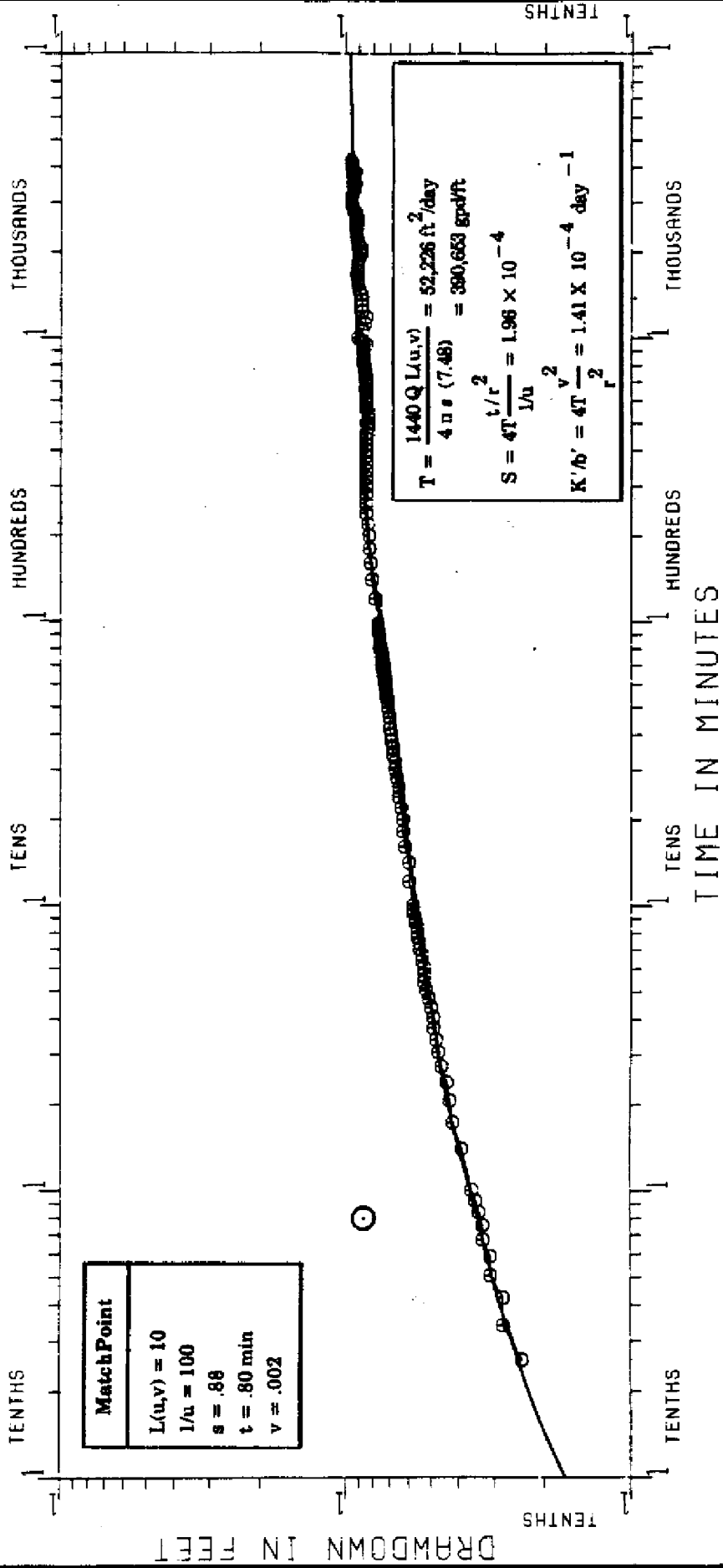
Match Point
 $I(u,v) = 1$
 $1/u = 1$
 $s = .092$
 $t = .037 \text{ min}$
 $v = .006$

$T = \frac{1440 Q I(u,v)}{4 \pi s (7.48)} = 49,955 \text{ ft}^2/\text{day}$
 $\quad \quad \quad = 373,668 \text{ gpd/ft}$
 $S = 4T \frac{t/r^2}{1/u} = 1.3 \times 10^{-4}$
 $K'/b' = 4T \frac{v}{r^2} = 1.25 \times 10^{-4} \text{ day}^{-1}$

BIG CYPRESS INDIAN RESERVATION

OBSERVATION WELL: 3D ROAD SITE

R = 77 Q = 300



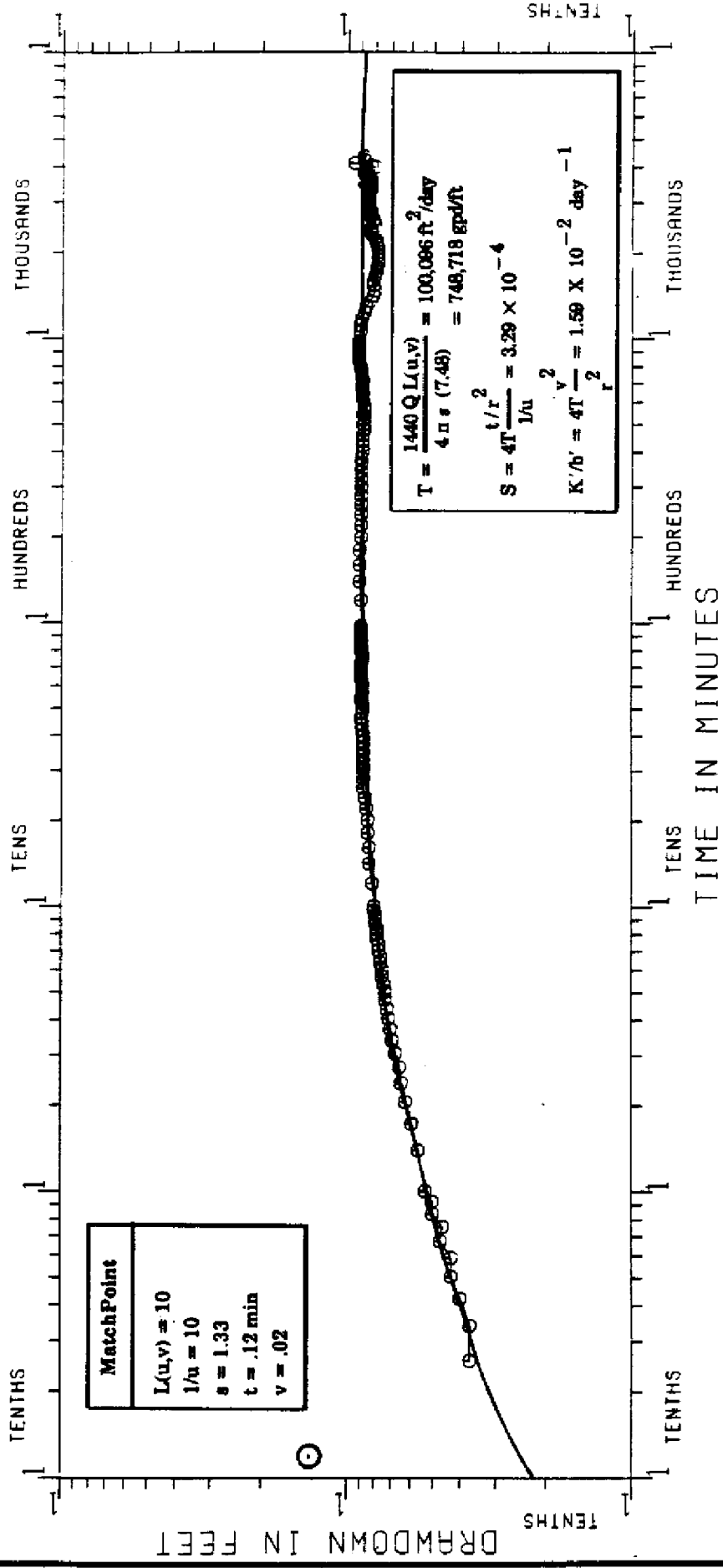
MatchPoint
 $L(u,v) = 10$
 $1/u = 100$
 $s = .88$
 $t = .80 \text{ min}$
 $v = .002$

$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 52,226 \text{ ft}^2/\text{day}$
 $= 390,653 \text{ gal/ft}$
 $S = 4T \frac{t/r^2}{1/u} = 1.96 \times 10^{-4}$
 $K'/b' = 4T \frac{v}{r^2} = 1.41 \times 10^{-4} \text{ day}^{-1}$

BIG CYPRESS INDIAN RESERVATION

OBSERVATION WELL: 1-D

R=100.5 Q= 869



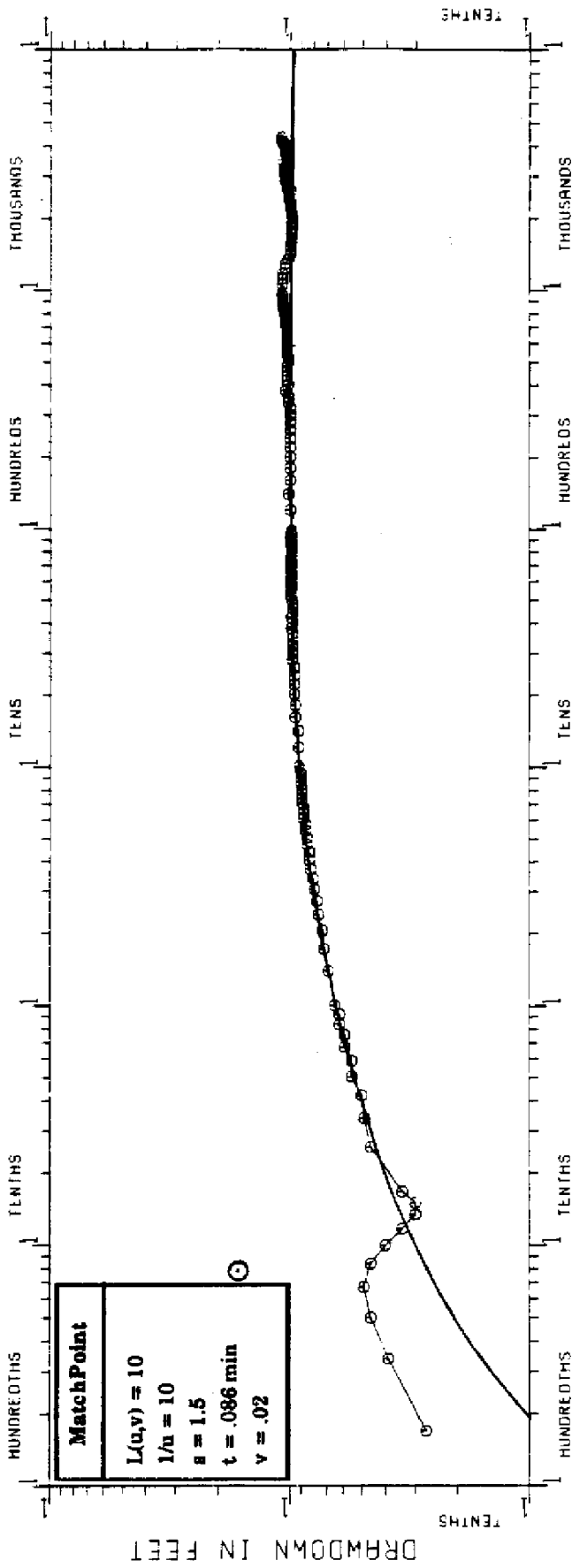
| MatchPoint | |
|------------|---------------------------|
| $L(u,v)$ | ≈ 10 |
| $1/u$ | ≈ 10 |
| s | ≈ 1.33 |
| t | $\approx .12 \text{ min}$ |
| v | $\approx .02$ |

| | |
|--|--|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)}$ | $= 100,096 \text{ ft}^2/\text{day}$ |
| | $= 748,718 \text{ gpd/ft}$ |
| $S = 4T \frac{t/r^2}{1/u}$ | $= 3.29 \times 10^{-4}$ |
| $K/b' = 4T \frac{v^2}{r^2}$ | $= 1.59 \times 10^{-2} \text{ day}^{-1}$ |

GALLAGHER PROPERTY DRAWDOWN

OBSERVATION WELL: 2D

R = 54.5 Q = 869



| MatchPoint | |
|------------|----------------------------|
| $L(u,v)$ | ≈ 10 |
| $1/u$ | ≈ 10 |
| s | ≈ 1.5 |
| t | $\approx .086 \text{ min}$ |
| v | $\approx .02$ |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 88,762 \frac{\text{ft}^2}{\text{day}}$$

$$= 663,867 \text{ gpd/ft}$$

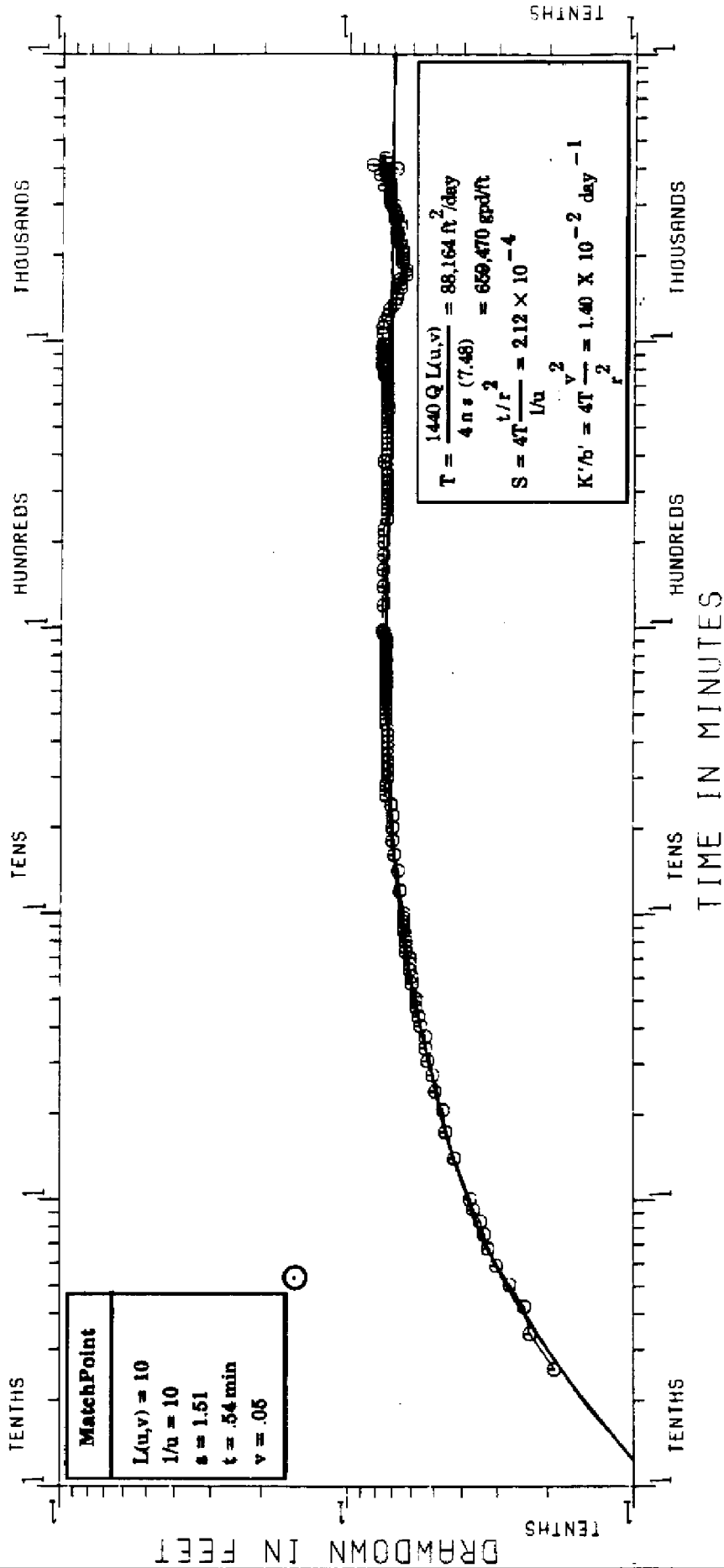
$$S = 4T \frac{t/r^2}{L(u,v)} = 7.13 \times 10^{-4}$$

$$K'/b' = 4T \frac{v^2}{r^2} = 4.78 \times 10^{-2} \text{ day}^{-1}$$

GALLAGHER PROPERTY DRAWDOWN

OBSERVATION WELL: 3D

R=250.9 Q= 869



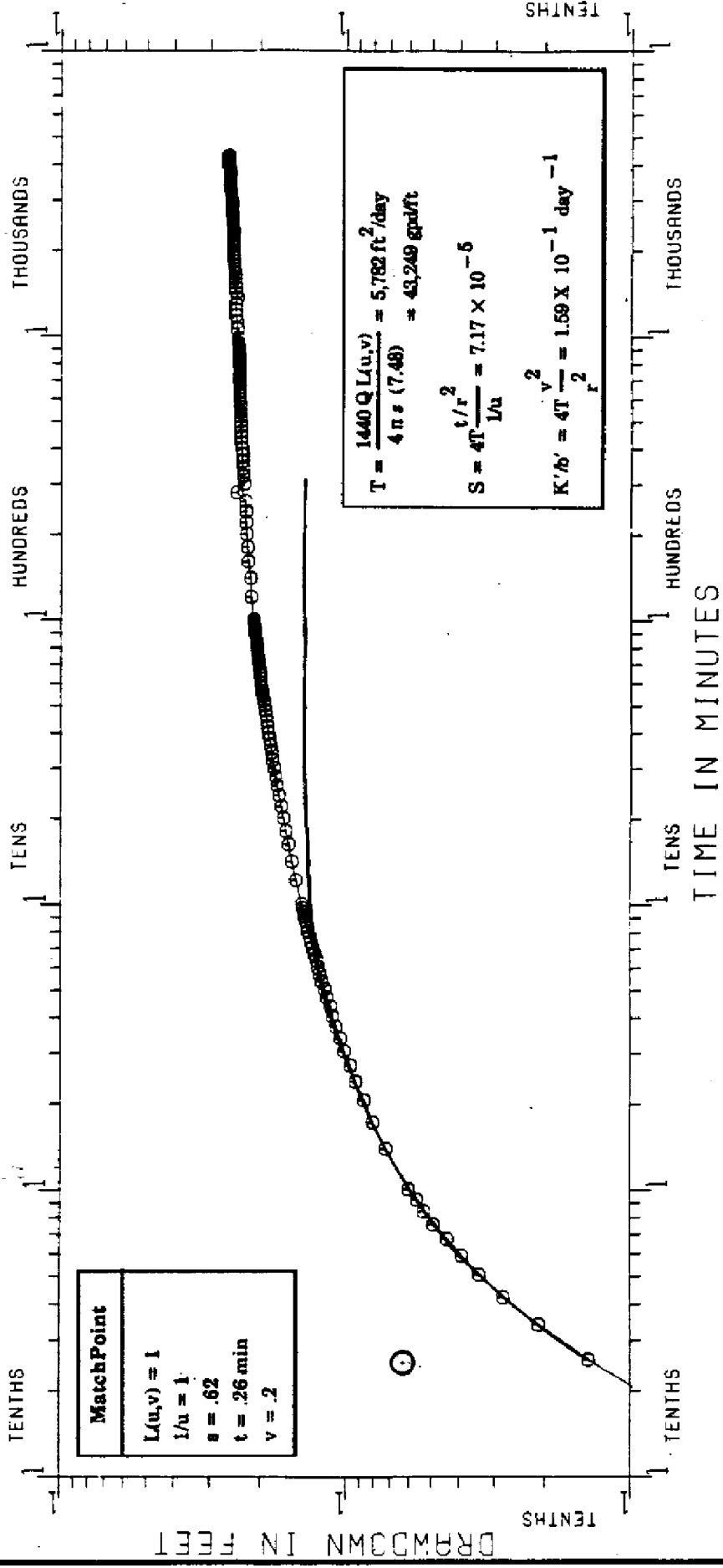
| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 10 |
| $1/u$ | = 10 |
| s | = 1.51 |
| t | = .54 min |
| v | = .05 |

| | |
|---------------------------------|---|
| $T = \frac{1.40 Q L(u,v)}{4ns}$ | = 88,164 ft ² /day |
| $S = 4T \frac{t/r^2}{L/u}$ | = 2.12 x 10 ⁻⁴ |
| $K'/b' = 4T \frac{v}{r^2}$ | = 1.40 x 10 ⁻² day ⁻¹ |

GALLAGHER PROPERTY DRAWDOWN

OBSERVATION WELL: 1D

R= 76.3 · Q=234.0



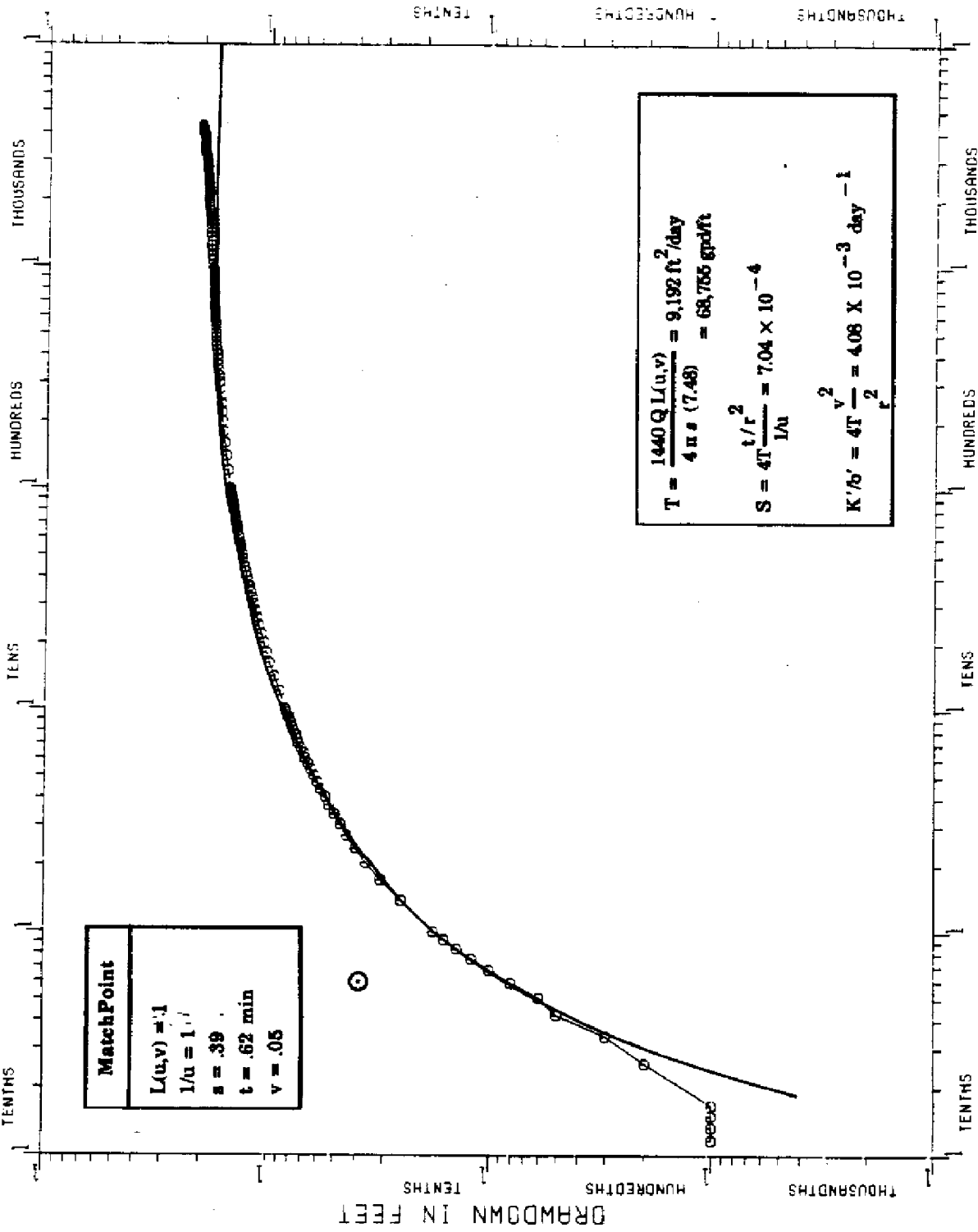
| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 1 |
| l/u | = 1 |
| s | = .62 |
| t | = .26 min |
| v | = .2 |

| | |
|--|---|
| $T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)}$ | = 5,782 ft ² /day |
| | = 43,249 gal/ft |
| $S = 4T \frac{t/r^2}{l/u}$ | = 7.17 × 10 ⁻⁵ |
| $K/b' = 4T \frac{v^2}{r^2}$ | = 1.59 × 10 ⁻¹ day ⁻¹ |

MILLS RANCH DRAWDOWN

OBSERVATION WELL: 2D

R=150.0 Q=234.0
TENTHS



| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = .1 |
| $1/u$ | = 1.1 |
| s | = .39 |
| t | = .62 min |
| v | = .05 |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 9,192 \text{ ft}^2/\text{day}$$

$$= 68,755 \text{ gpd/ft}$$

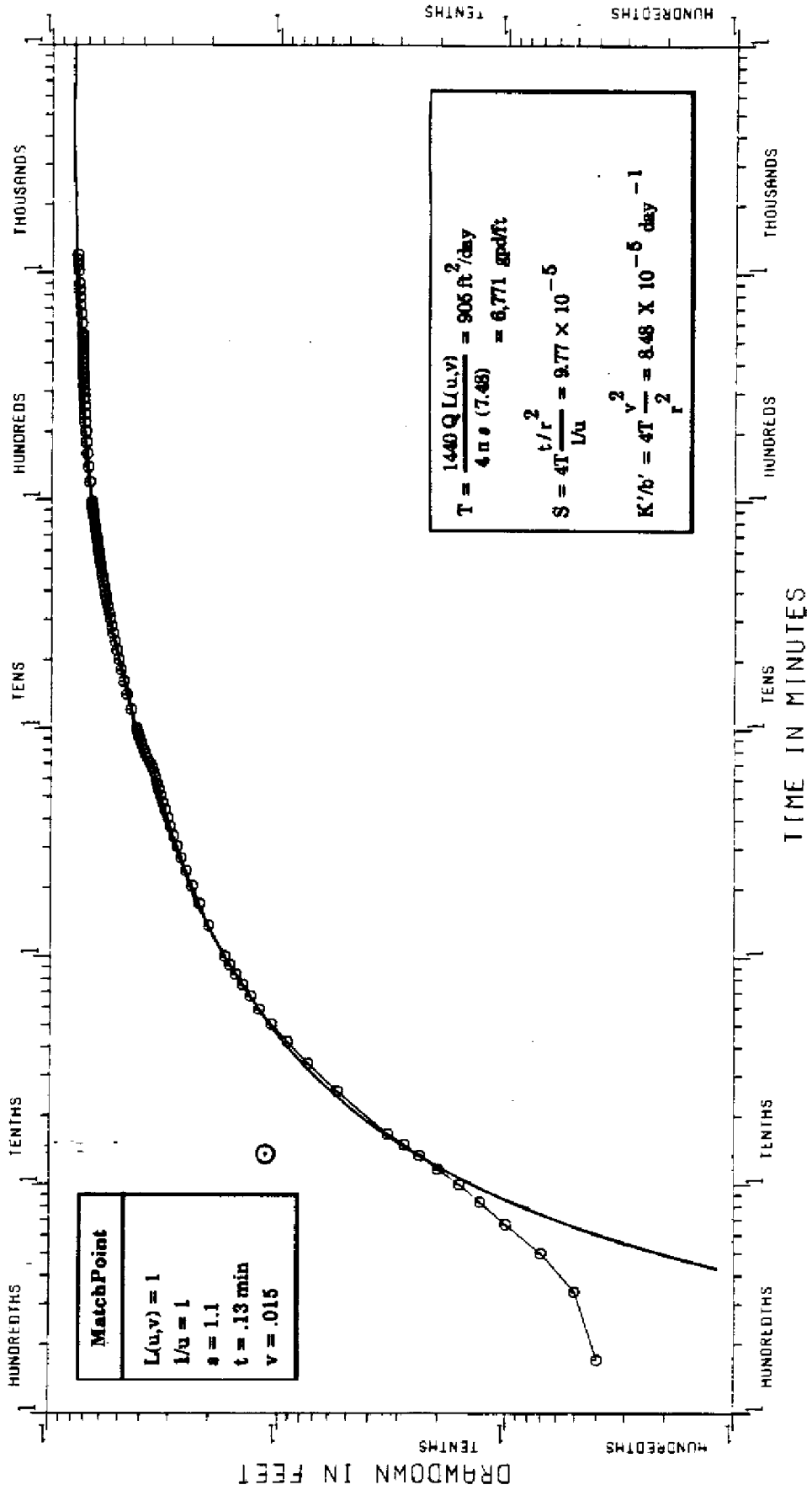
$$S = 4T \frac{t/r^2}{1/u} = 7.04 \times 10^{-4}$$

$$K/b' = 4T \frac{v^2}{r^2} = 4.08 \times 10^{-3} \text{ day}^{-1}$$

MILLS RANCH DRAWDOWN

OBSERVATION WELL: OB 1

R= 98 0= 65



| MatchPoint | |
|------------|-----------|
| $L(u,v)$ | = 1 |
| $1/v$ | = 1 |
| s | = 1.1 |
| t | = .13 min |
| v | = .015 |

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 906 \text{ ft}^2/\text{day} = 6,771 \text{ gpd/ft}$$

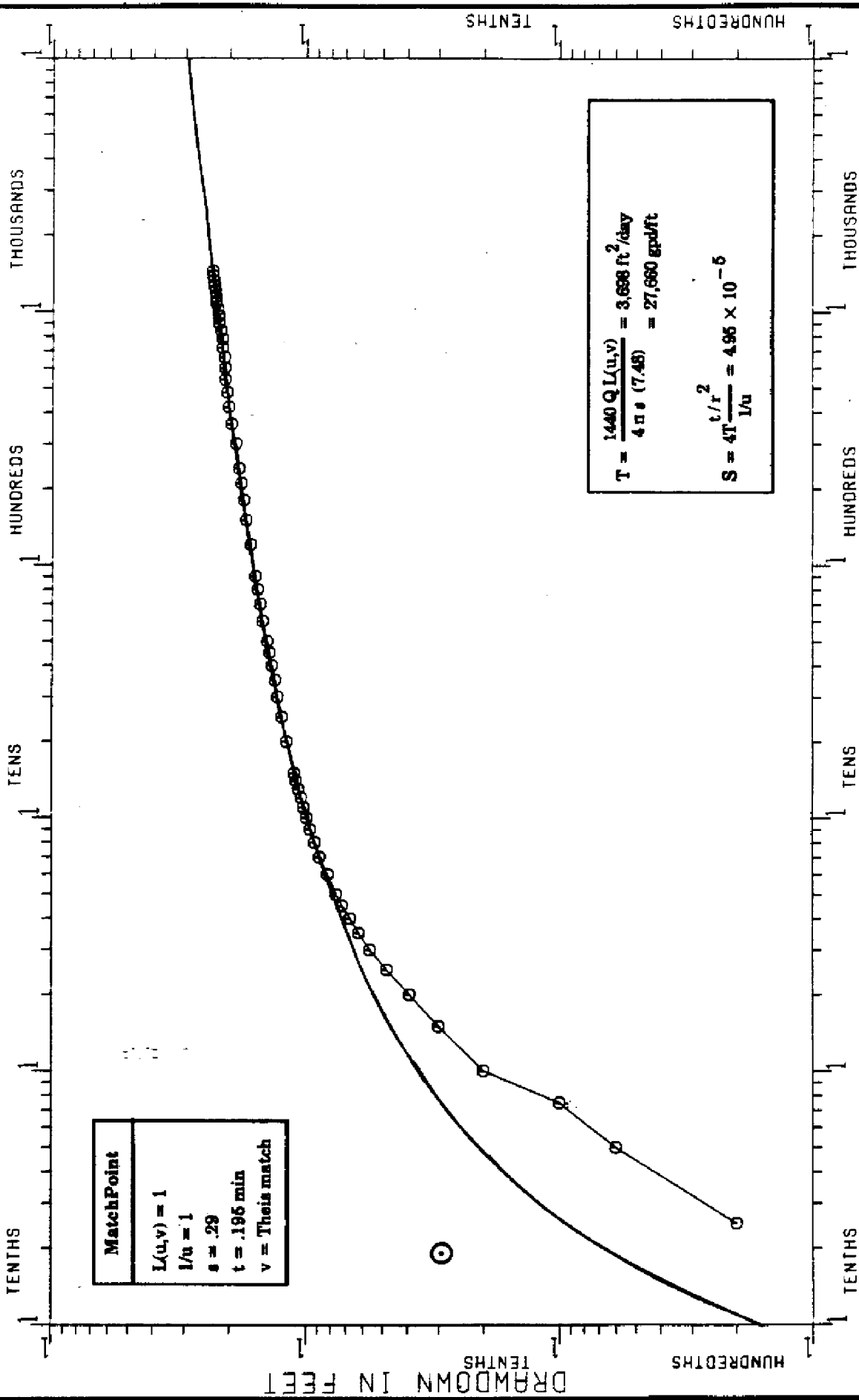
$$S = 4T \frac{t/r^2}{Lu} = 9.77 \times 10^{-5}$$

$$K'/b' = 4T \frac{v^2}{r^2} = 8.48 \times 10^{-5} \text{ day}^{-1}$$

RTA 5 SANDSTONE APT

OBSERVATION WELL: HE-556

R = 201 Q = 70



| Match Point | |
|-------------|-----------------|
| $L(u,v)$ | = 1 |
| $1/u$ | = 1 |
| s | = .29 |
| t | = .195 min |
| v | = This is match |

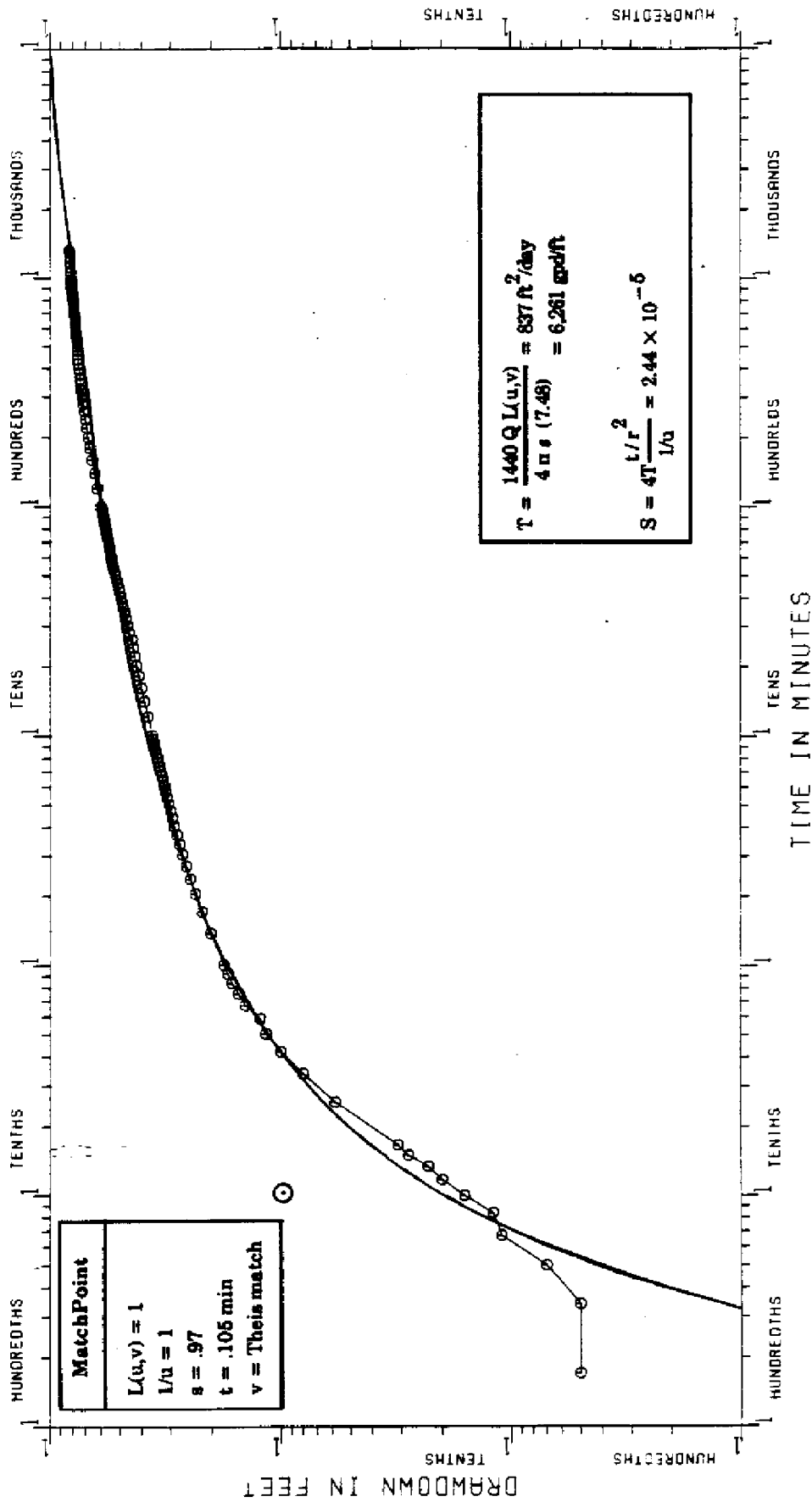
$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 3,698 \text{ ft}^2/\text{day} = 27,680 \text{ gpd/ft}$$

$$S = 4T \frac{t/r^2}{1/u} = 4.95 \times 10^{-5}$$

RTA 6 PUMP TEST

OBSERVATION WELL: OBS 1

R = 100 Q = 53



RTA 7S PUMP TEST

OBSERVATION WELL: OBS 1

R = 70.5 Q = 90

HUNDRETHS

TENTHS

TENS

HUNDREDS

| MatchPoint | |
|-------------------------|--|
| $L(u,v) = 1$ | |
| $1/u = 1$ | |
| $s = .73$ | |
| $t = .176 \text{ min}$ | |
| $v = \text{This match}$ | |

DRAWDOWN IN FEET

TENTHS

HUNDRETHS

TENTHS

HUNDRETHS

$$T = \frac{1440 Q L(u,v)}{4 \pi s (7.48)} = 1,869 \text{ ft}^2/\text{day} = 14,129 \text{ gpdft}$$

$$S = 4T \frac{t/r^2}{L/u} = 1.82 \times 10^{-4}$$

HUNDRETHS

TENTHS

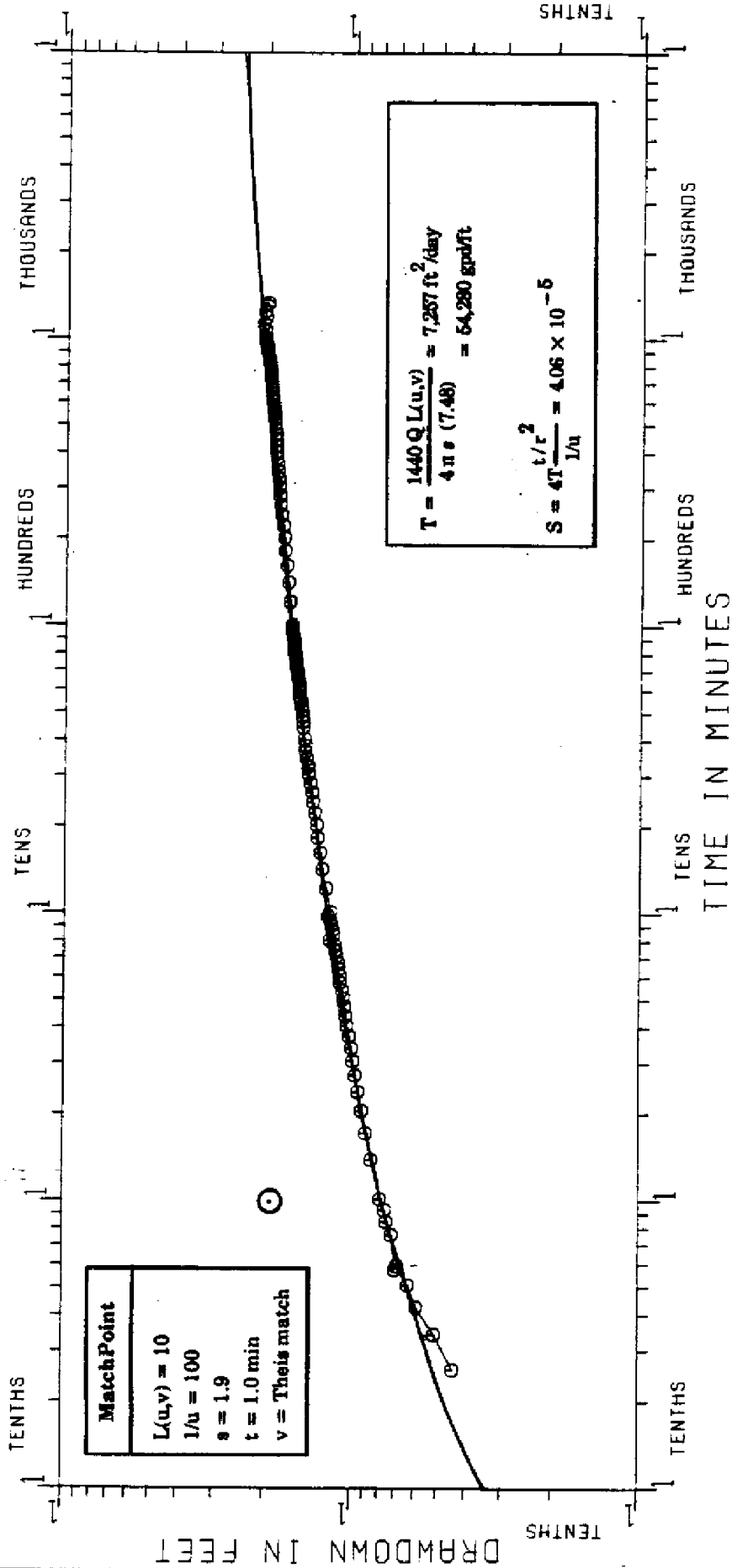
TENS

HUNDREDS

TIME IN MINUTES
RTA 91 PUMP TEST

OBSERVATION WELL: OBS 1

R = 70.5' 0 = 90'



| Match Point | |
|-------------|-----------------|
| $L(u,v)$ | = 10 |
| $1/u$ | = 100 |
| s | = 1.9 |
| t | = 1.0 min |
| v | = This is match |

$$T = \frac{1440 Q L(u,v)}{4 \pi s} = 7,287 \text{ ft}^2/\text{day}$$

$$= 54,280 \text{ gal/ft}$$

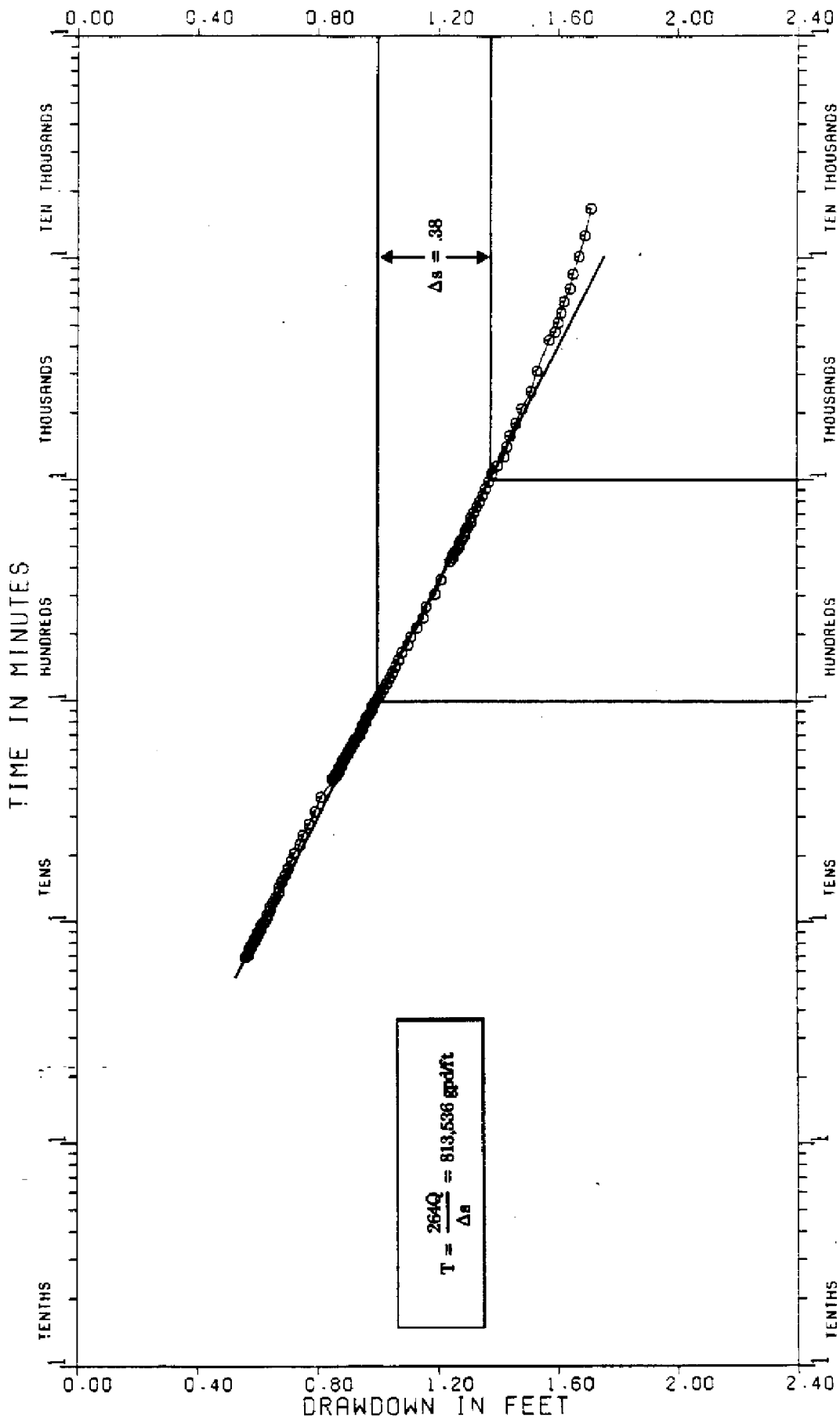
$$S = 4T \frac{t/r^2}{1/u} = 4.06 \times 10^{-6}$$

RTA 9S DRAWDOWN

ALICO SITE A RECOVERY

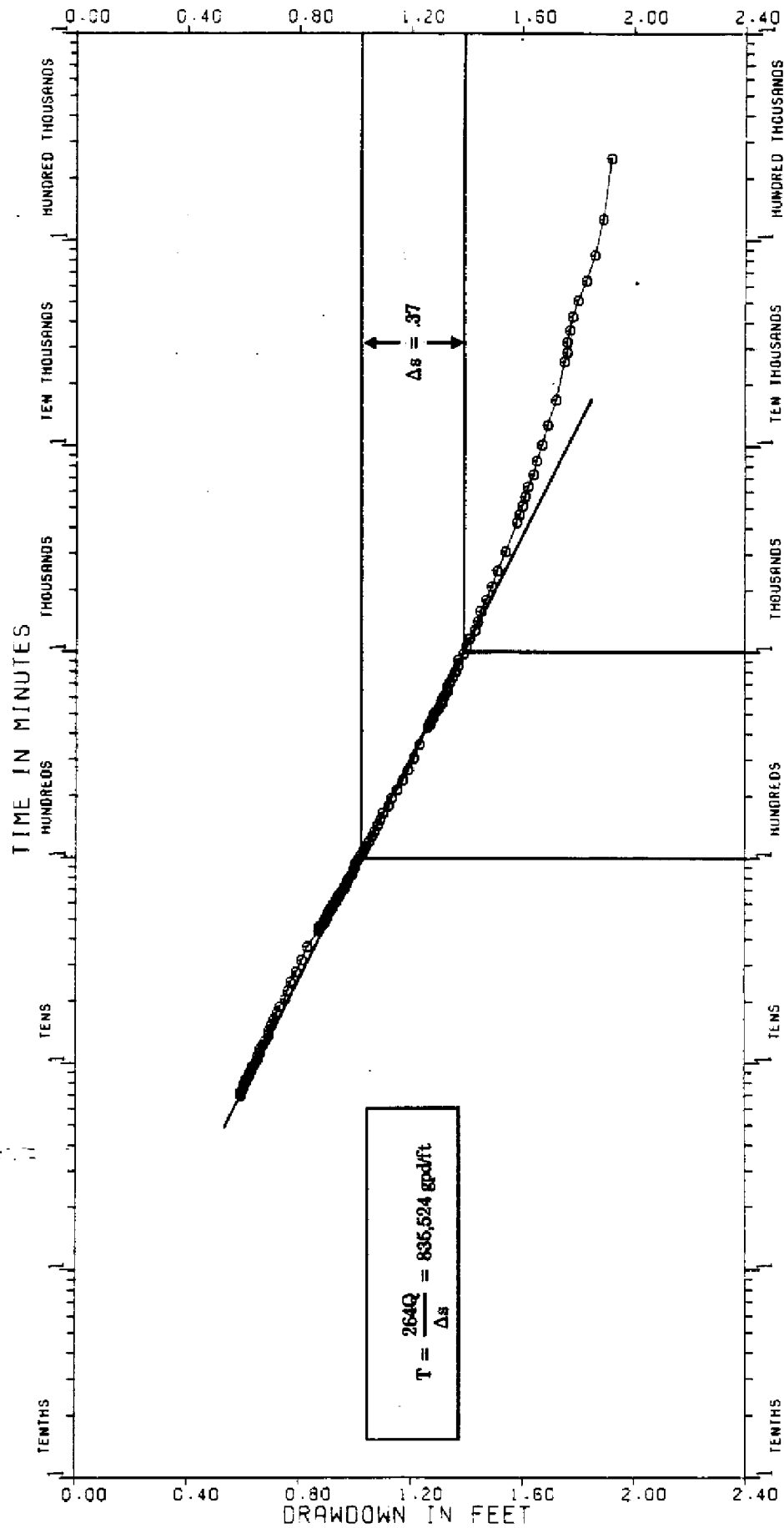
OBSERVATION WELL: 11

R=200.8 Q= 1171



**ALICO SITE A RECOVERY
OBSERVATION WELL: 1D**

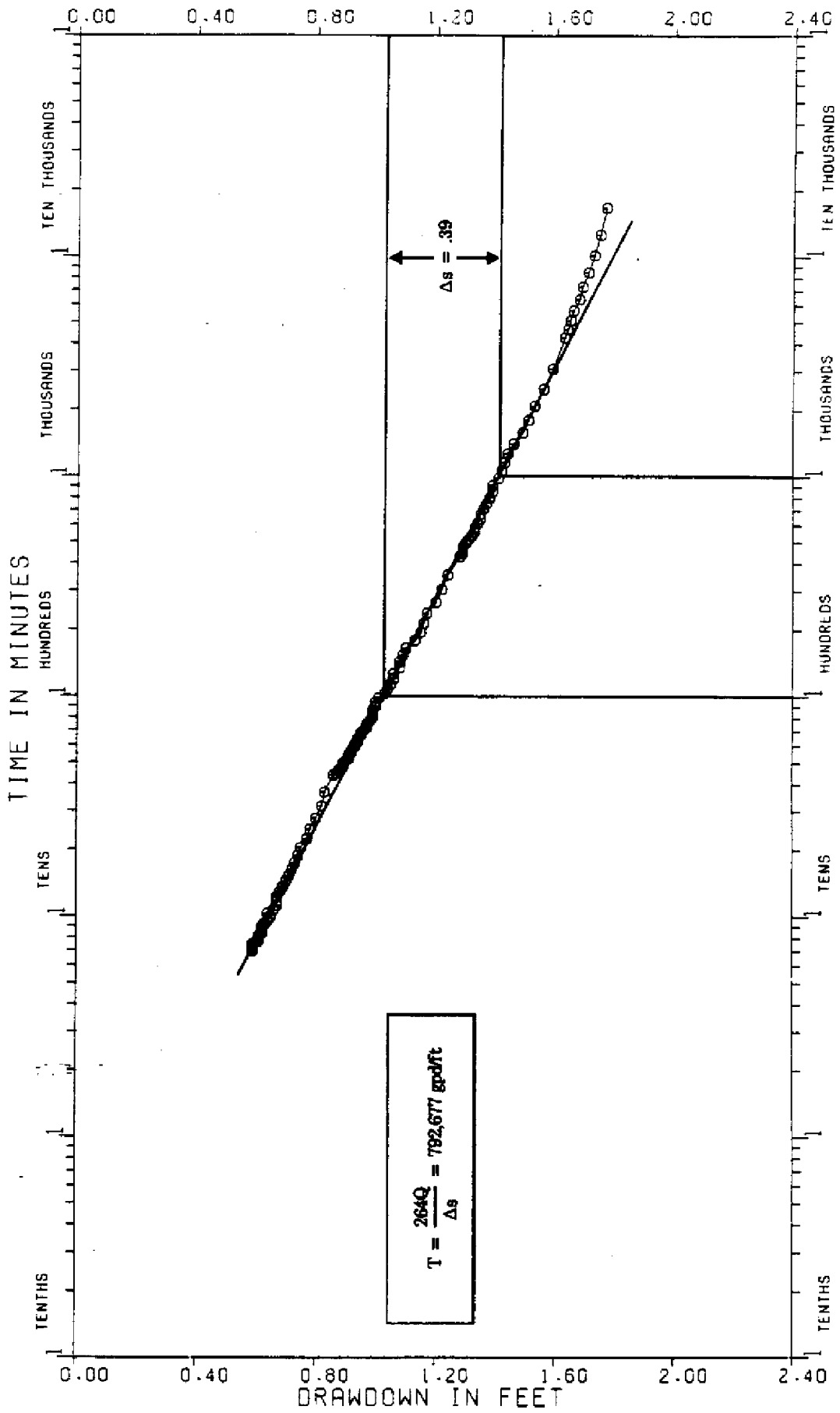
R-202-6 Q = 1171



ALICO SITE A RECOVERY

OBSERVATION WELL: 21

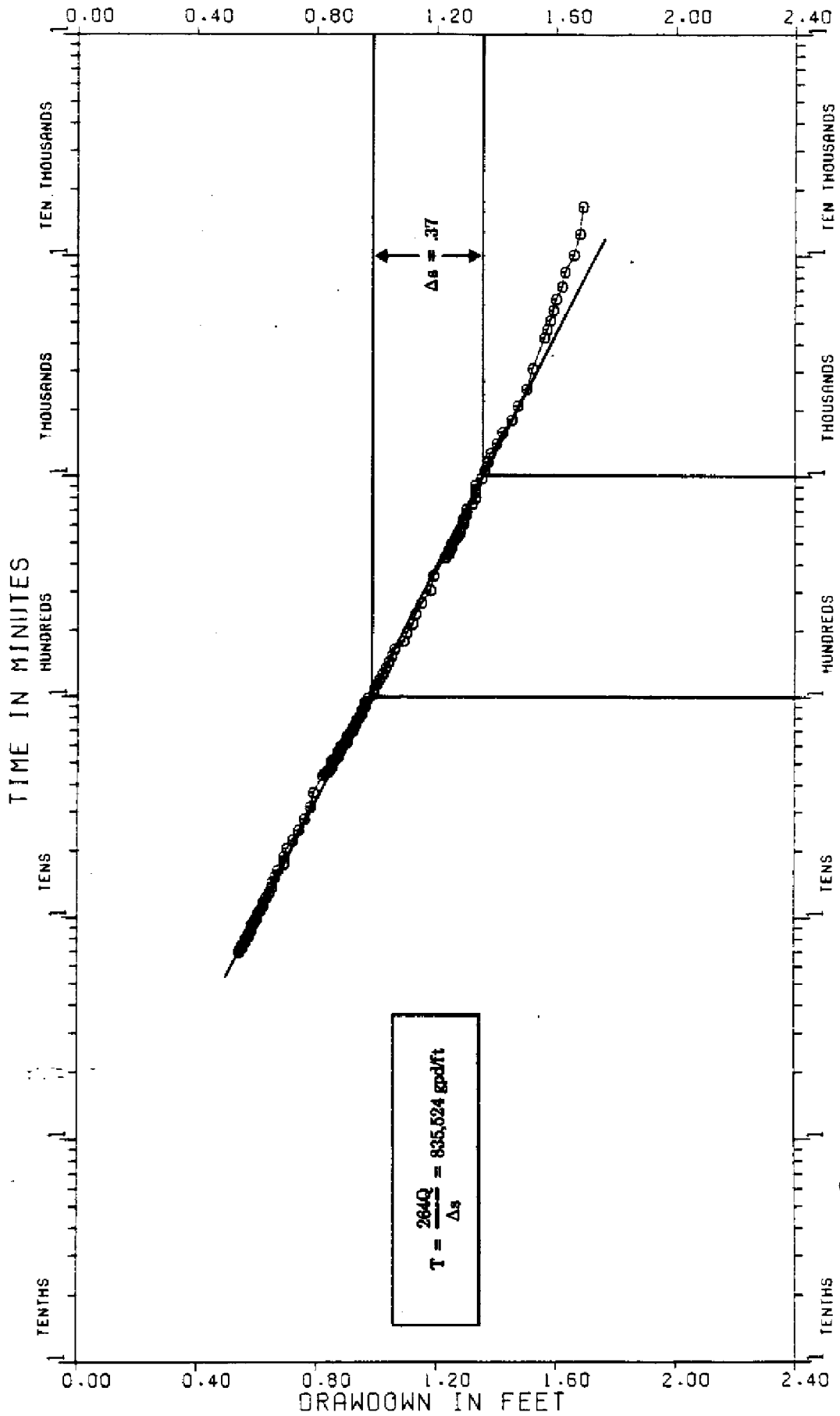
R=101.7 0 = 1171



ALICO SITE A RECOVERY

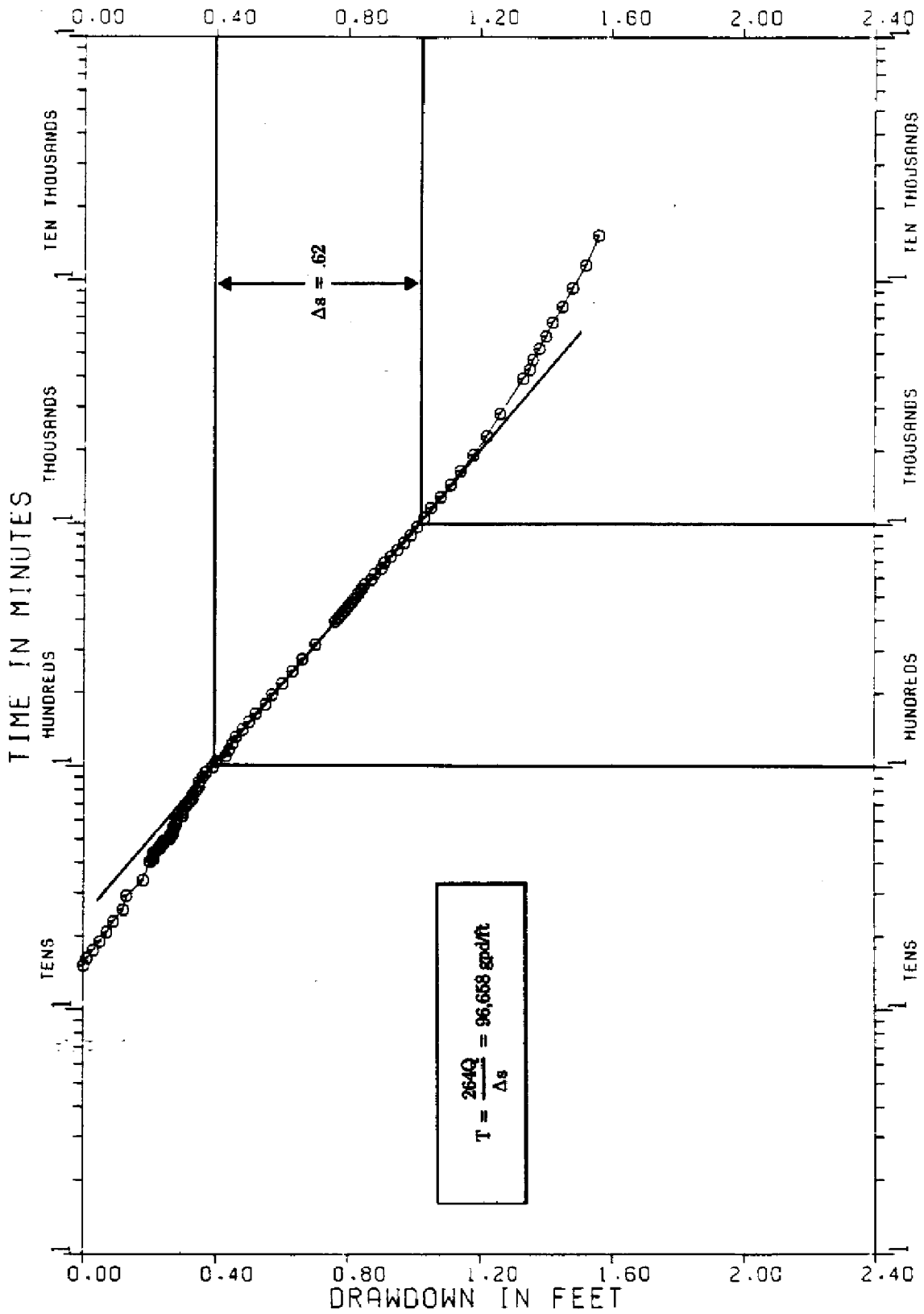
OBSERVATION WELL: 2D

R = 99.8 Q = 1171



ALICO SITE B RECOVERY
OBSERVATION WELL: D 1

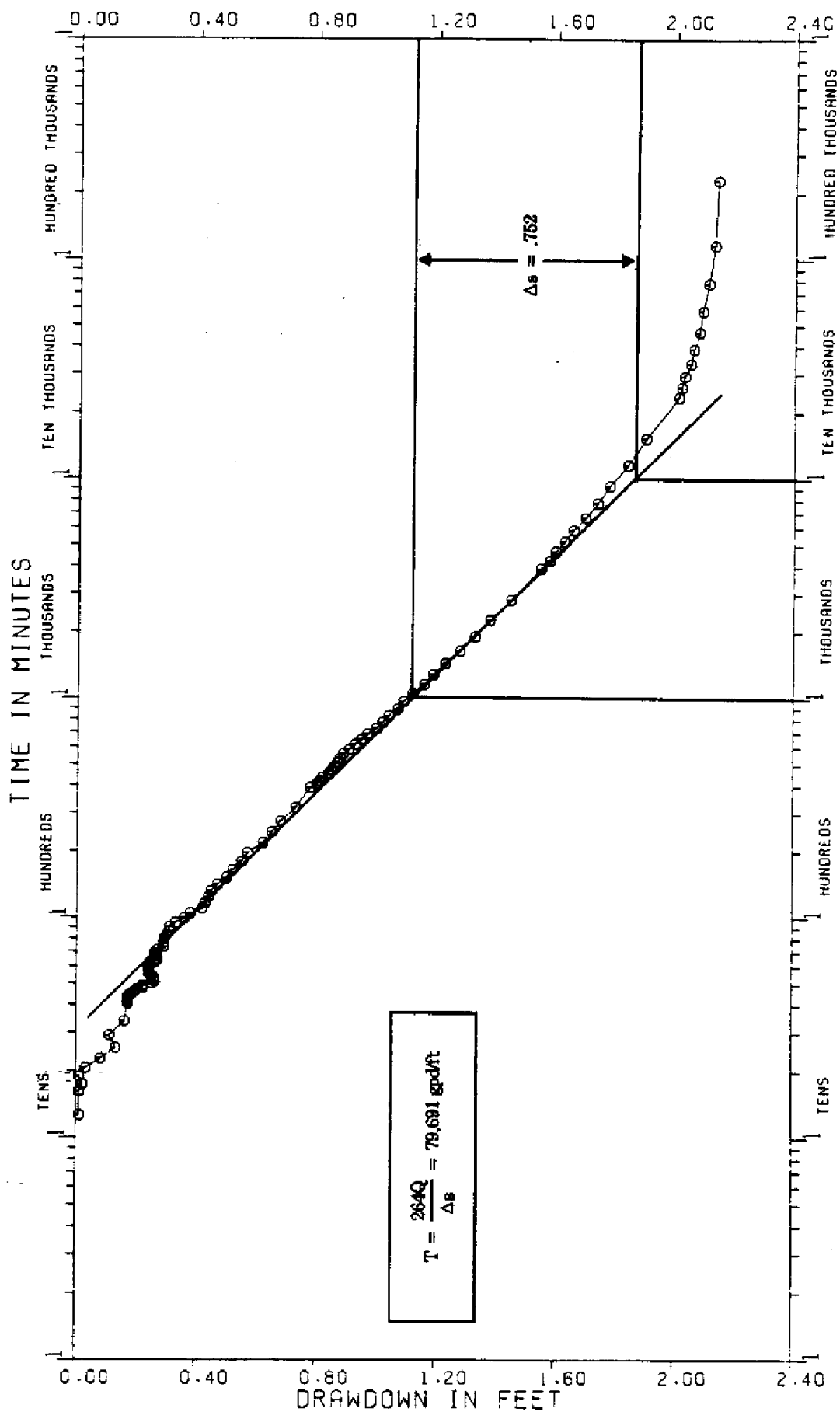
R= 74.5 0=227.0



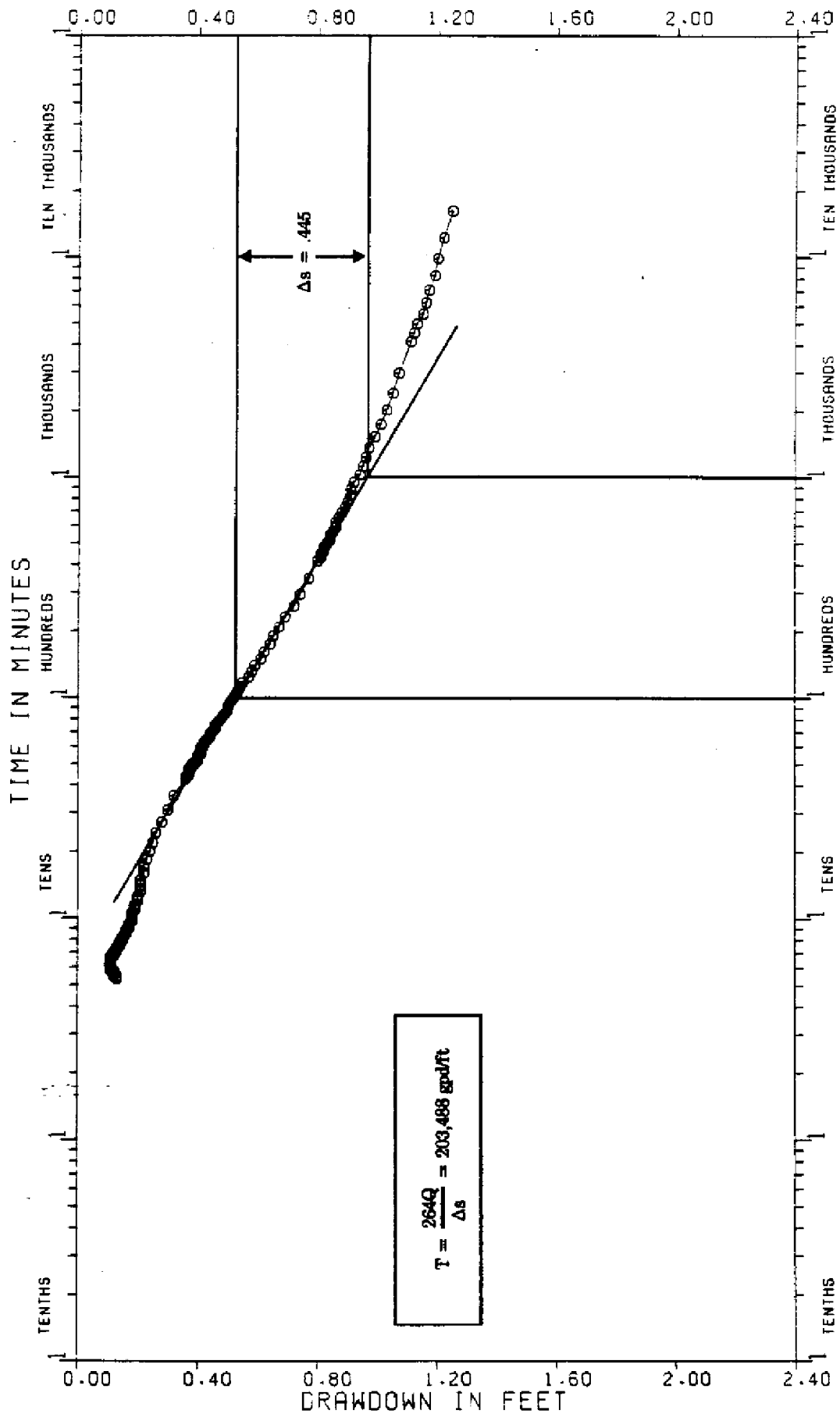
ALICO SITE B RECOVERY

OBSERVATION WELL: D-2A

R=151.0 Q=227.0

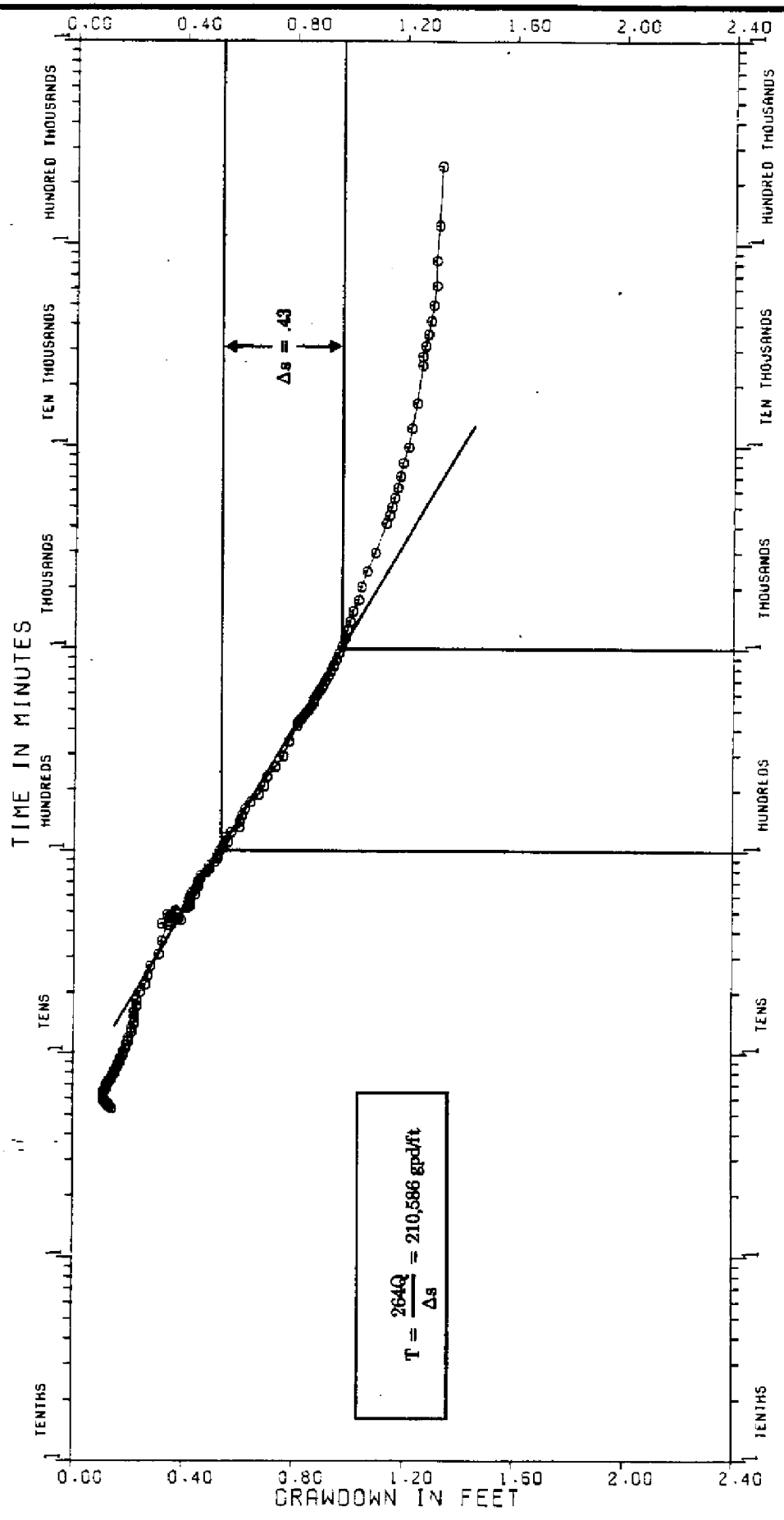


ALICO SITE C RECOVERY
OBSERVATION WELL: 1D
 R=104.0 Q=343.0

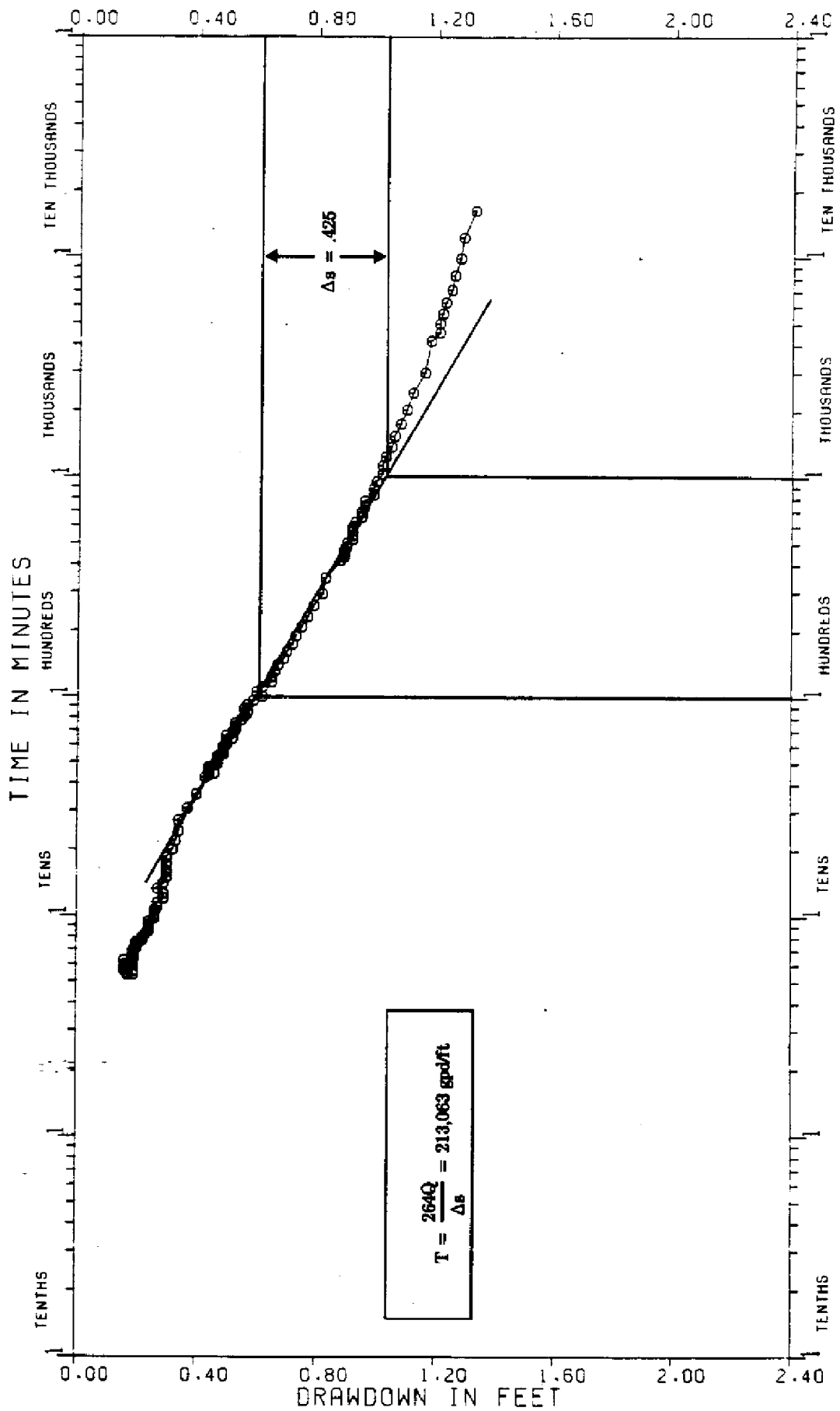


ALICO SITE C RECOVERY
OBSERVATION WELL: 2D

R=195.0 Q=343.0



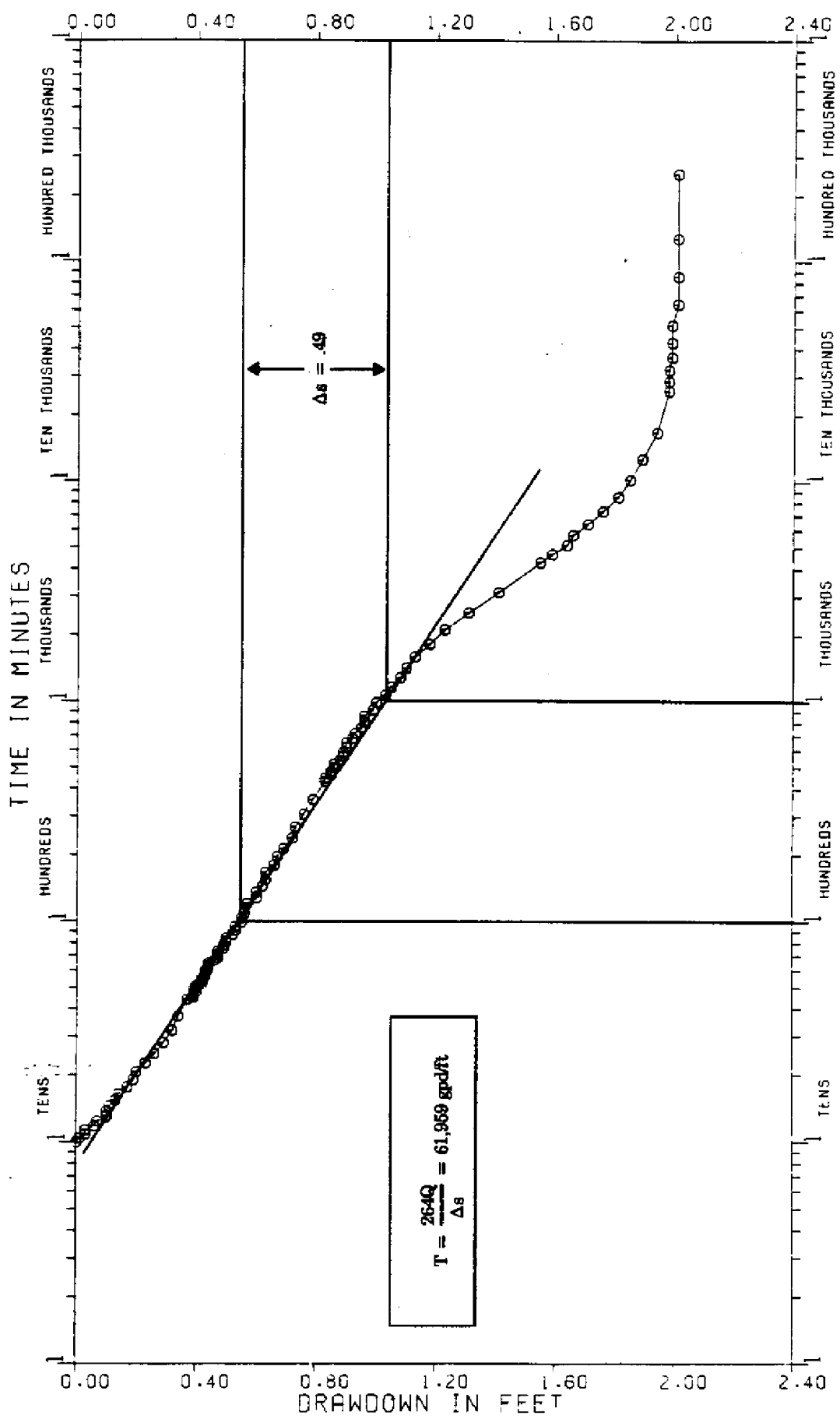
ALICO SITE C RECOVERY
OBSERVATION WELL: 3D
 R= 47.0 Q=343.0



ALICO SITE D RECOVERY

OBSERVATION WELL: 1D

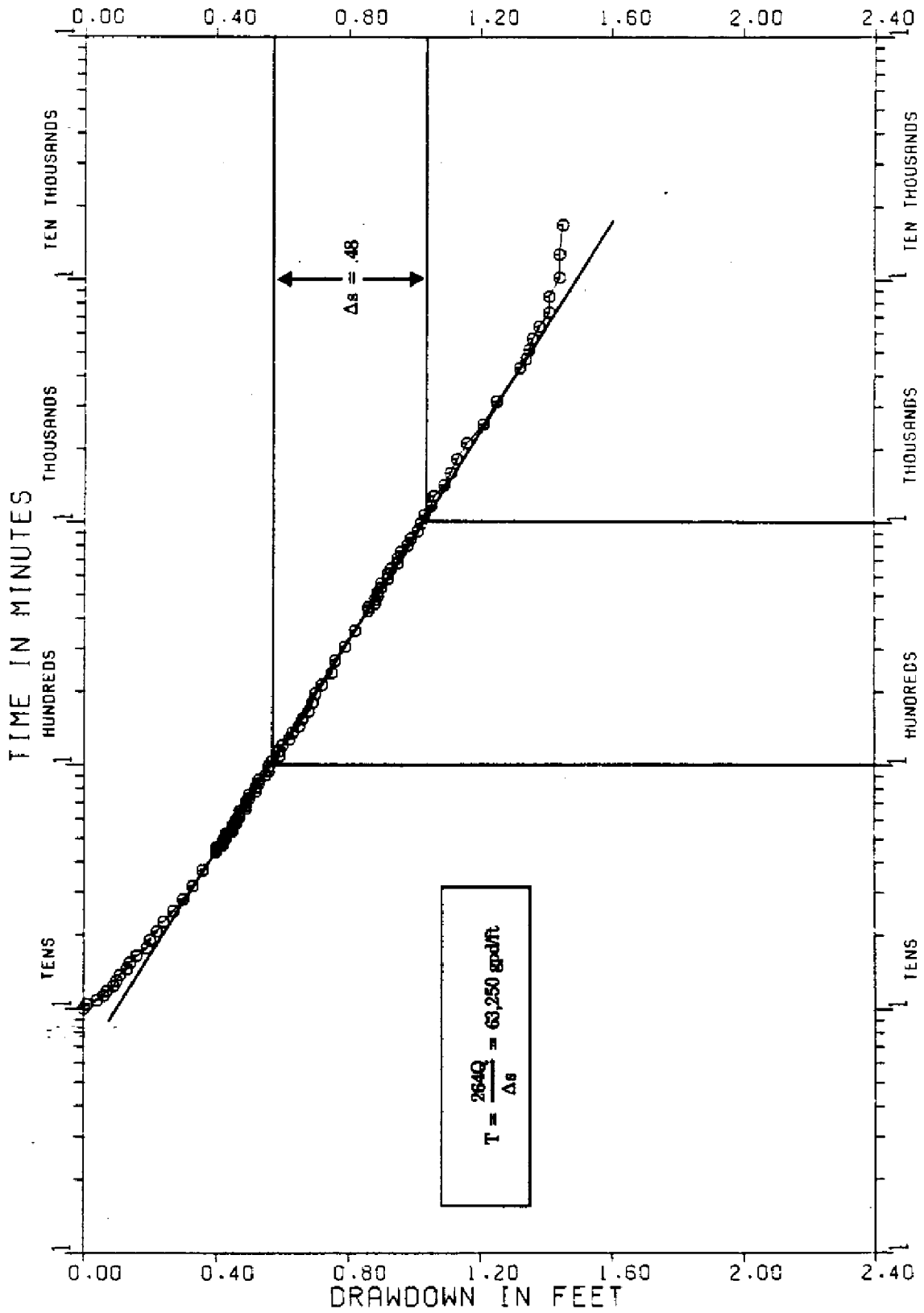
R = 73.0 Q = 115.0



ALICO SITE D RECOVERY

OBSERVATION WELL: 2D

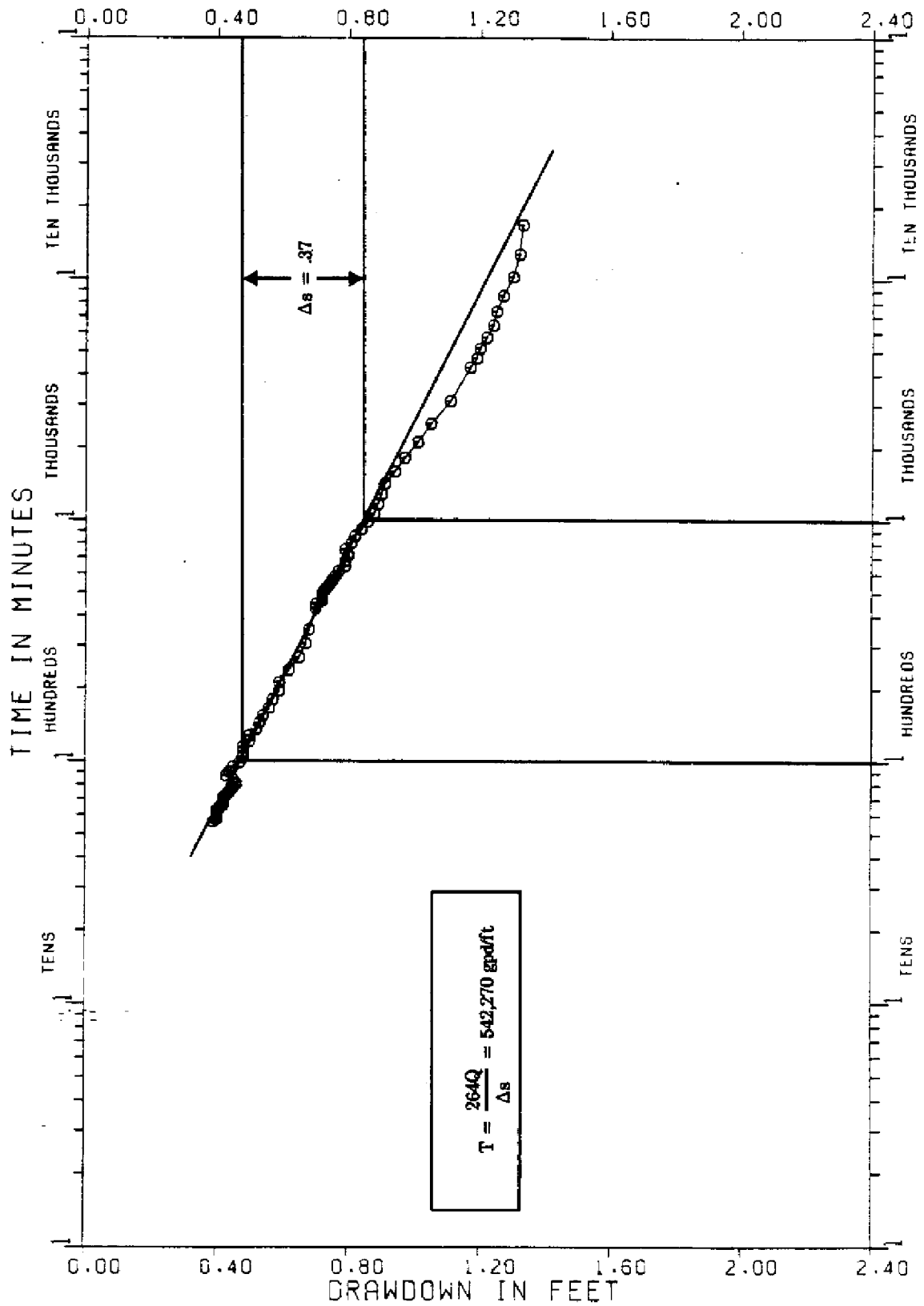
R=197.0 Q=115.0



BARRON COLLIER RECOVERY

OBSERVATION WELL: 1D

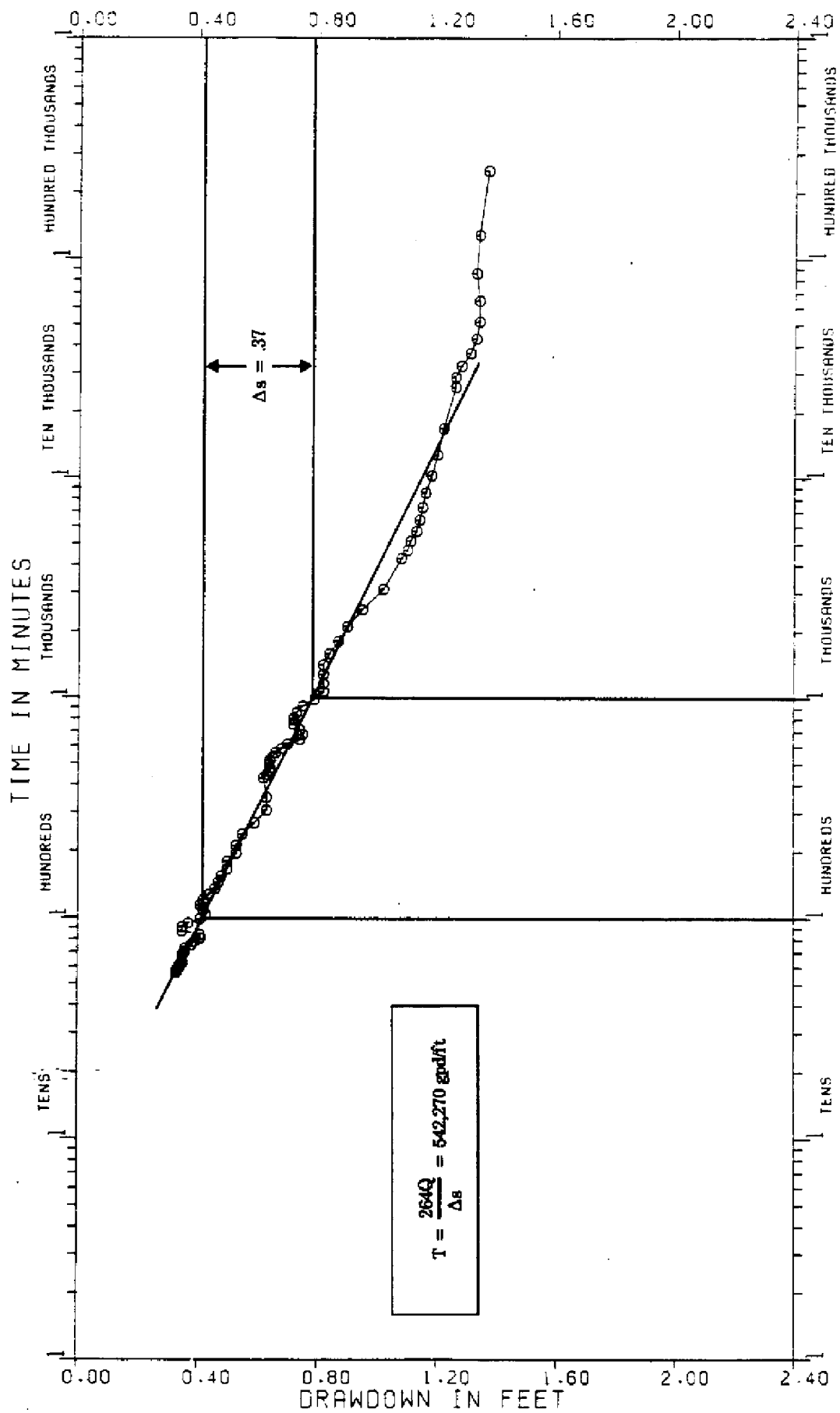
R = 76.6 Q = 760.0



BARRON COLLIER RECOVERY

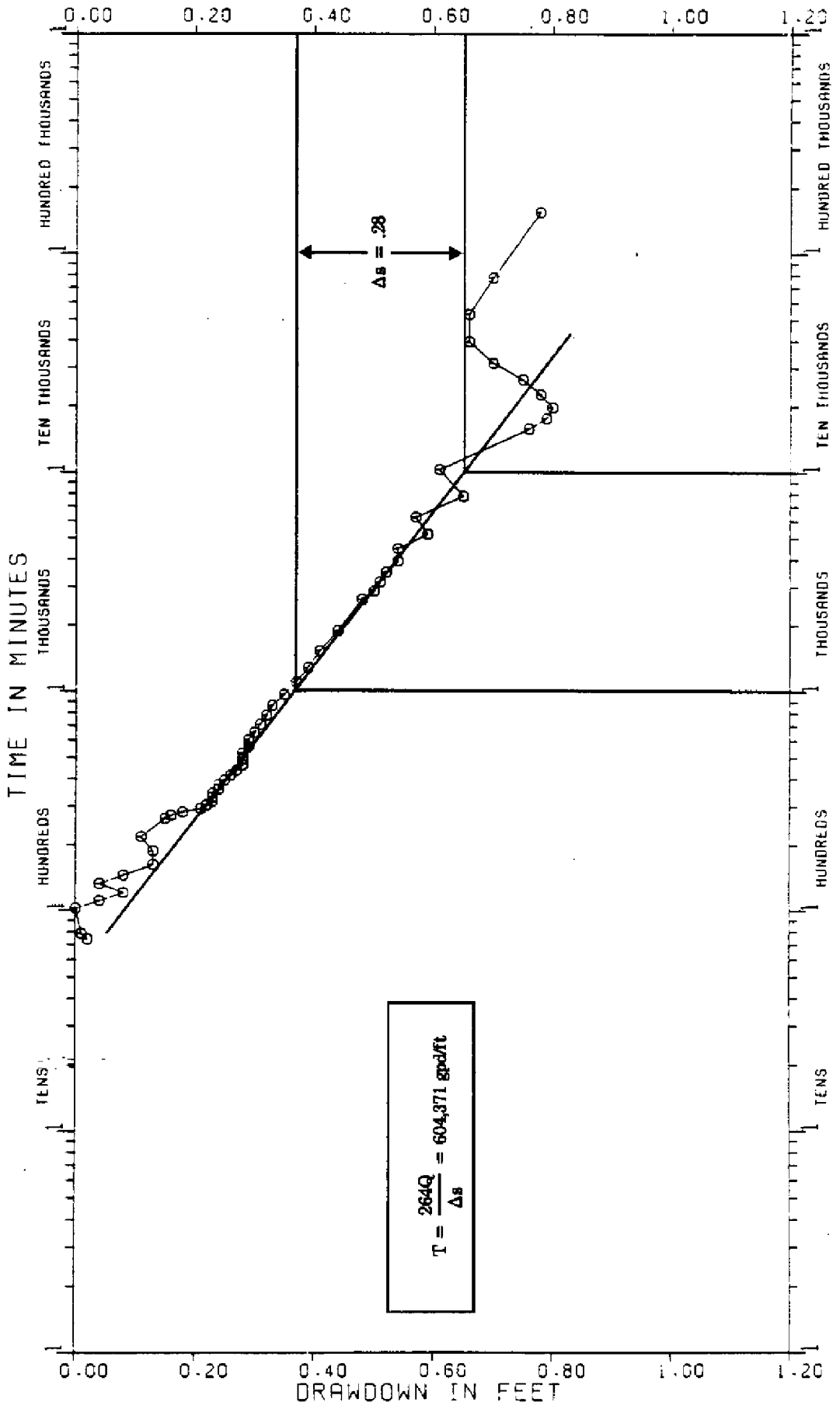
OBSERVATION WELL: 2D

R=200.8 Q=760.0



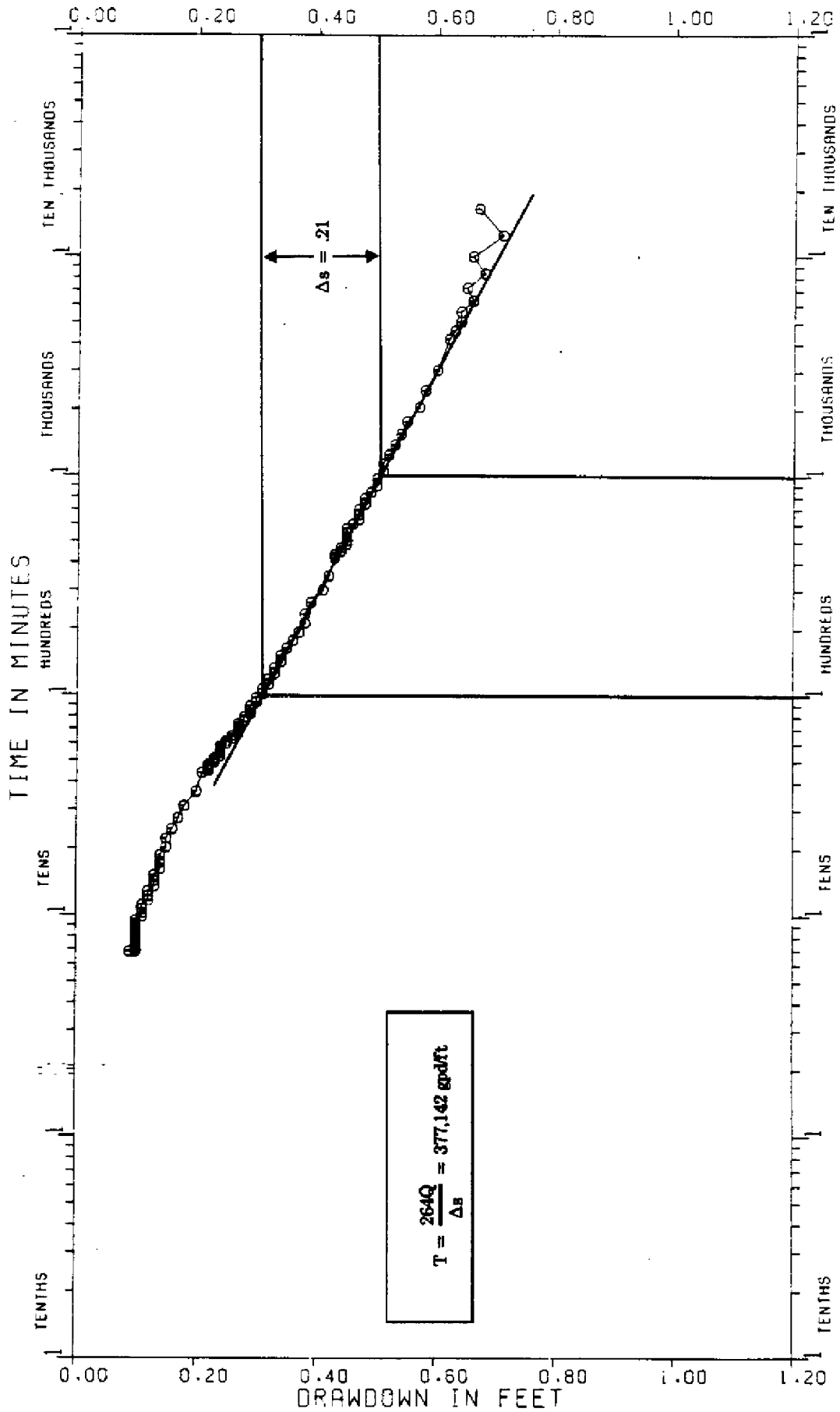
**BIG CYPRESS INDIAN RESERVATION
OBSERVATION WELL: 2D PASTURE SITE RECOVERY**

R= 49 0= 641



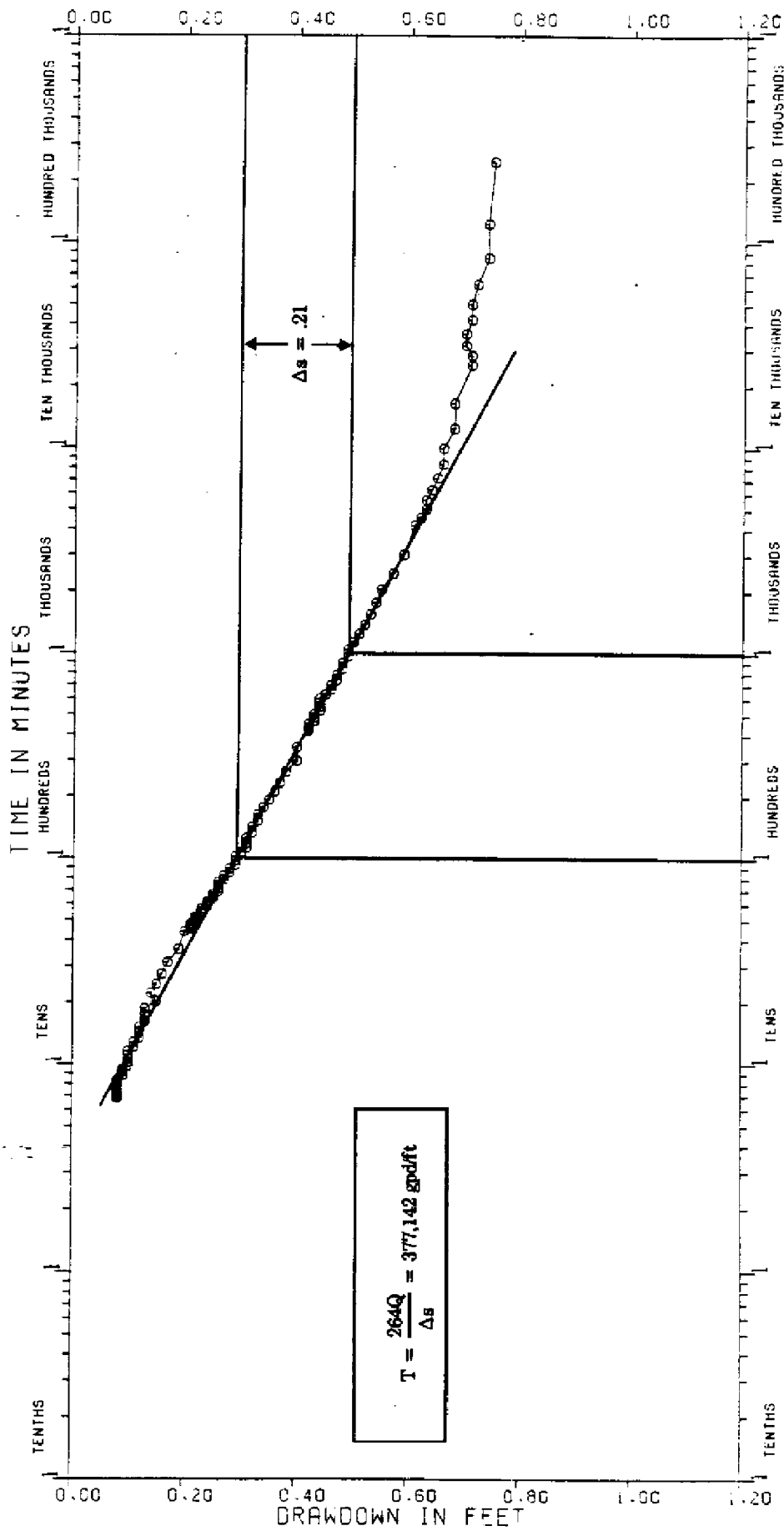
**BIG CYPRESS INDIAN RESERVATION
OBSERVATION WELL: 1D ROAD SITE RECOVERY**

R=51.65 Q= 300



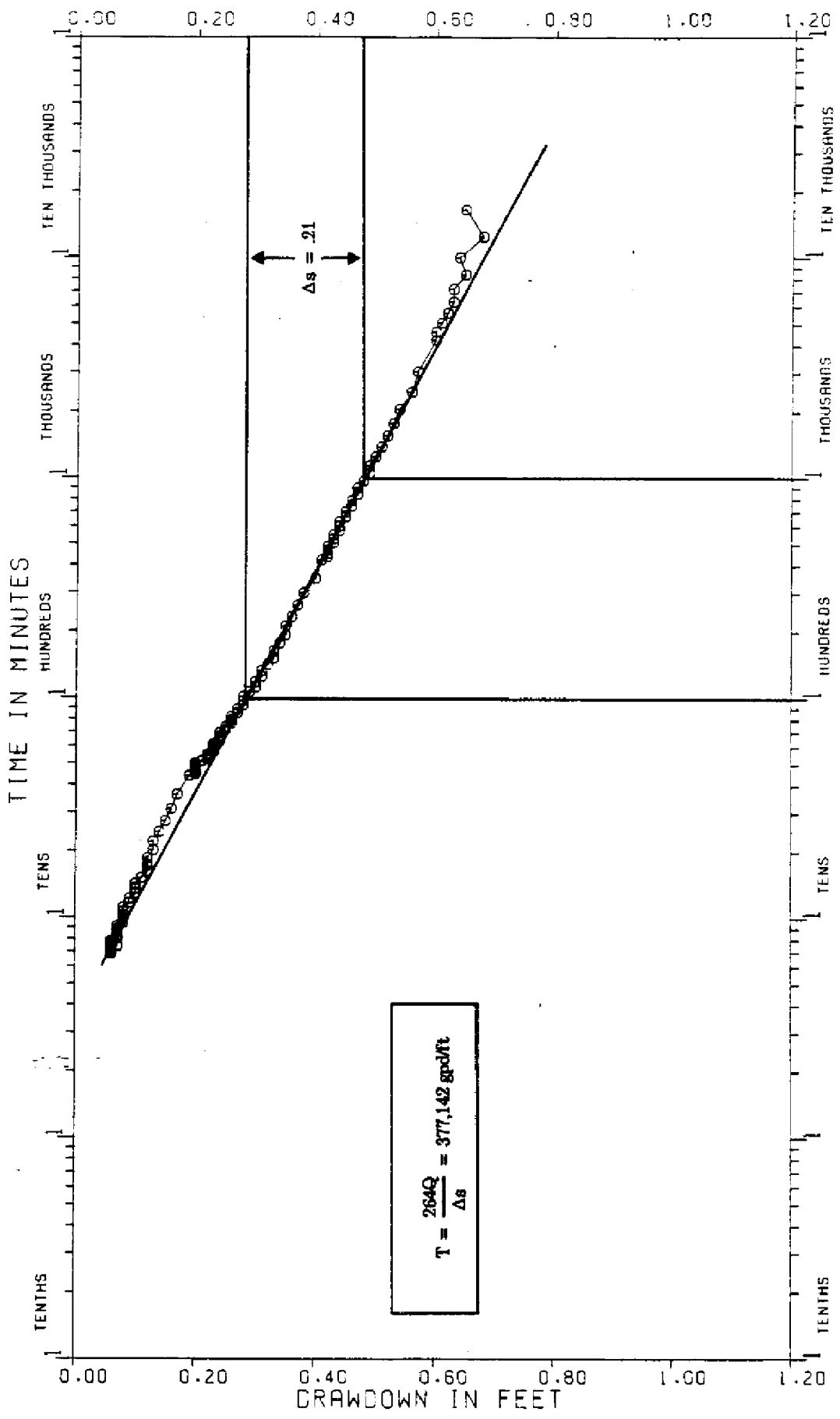
**BIG CYPRESS INDIAN RESERVATION
OBSERVATION WELL: 2D ROAD SITE RECOVERY**

R=200.2 Q= 300



**BIG CYPRESS INDIAN RESERVATION
OBSERVATION WELL: 3D ROAD SITE RECOVERY**

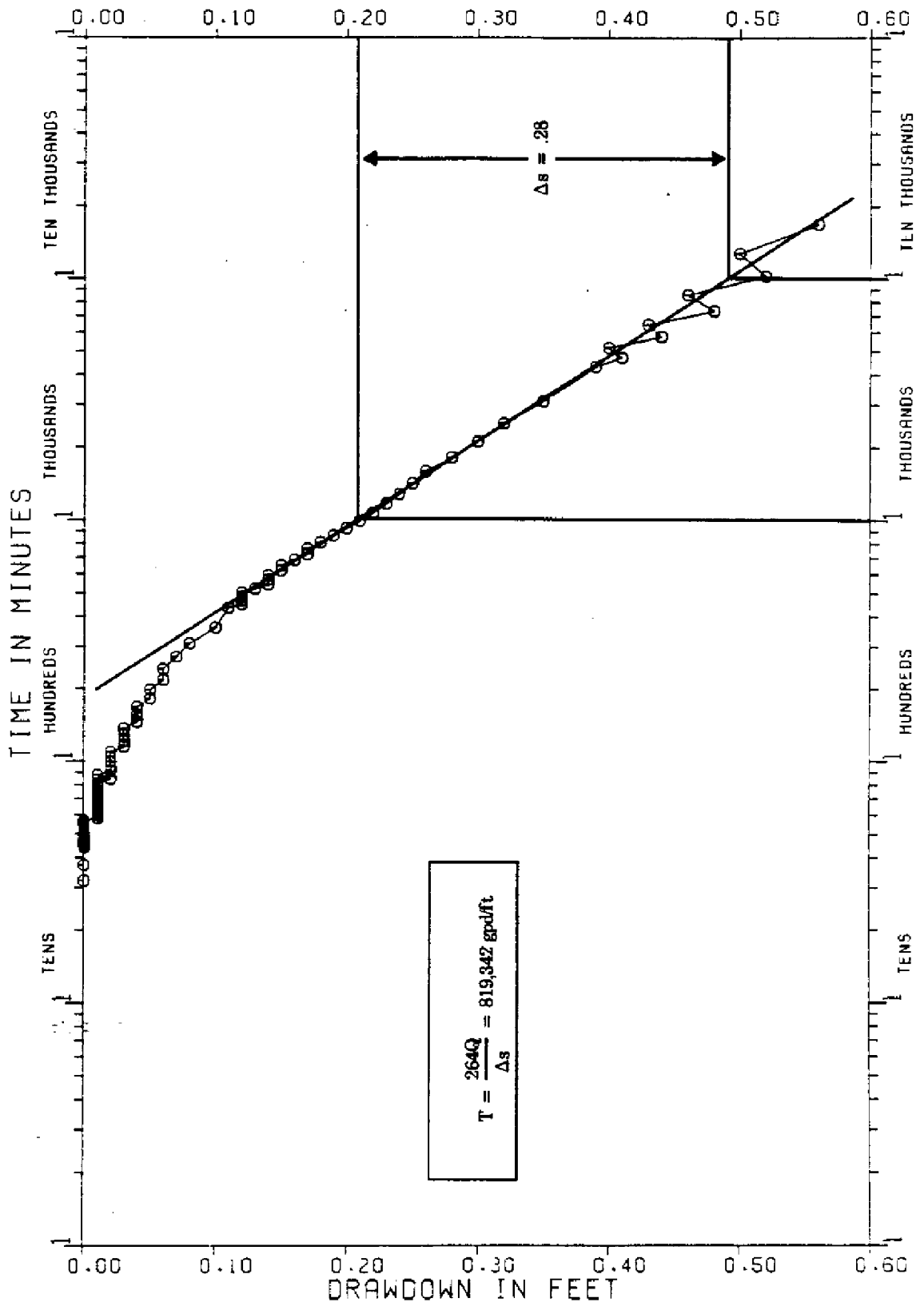
R= 77 Q= 300



GALLAGHER PROPERTY RECOVERY

OBSERVATION WELL: 1-D

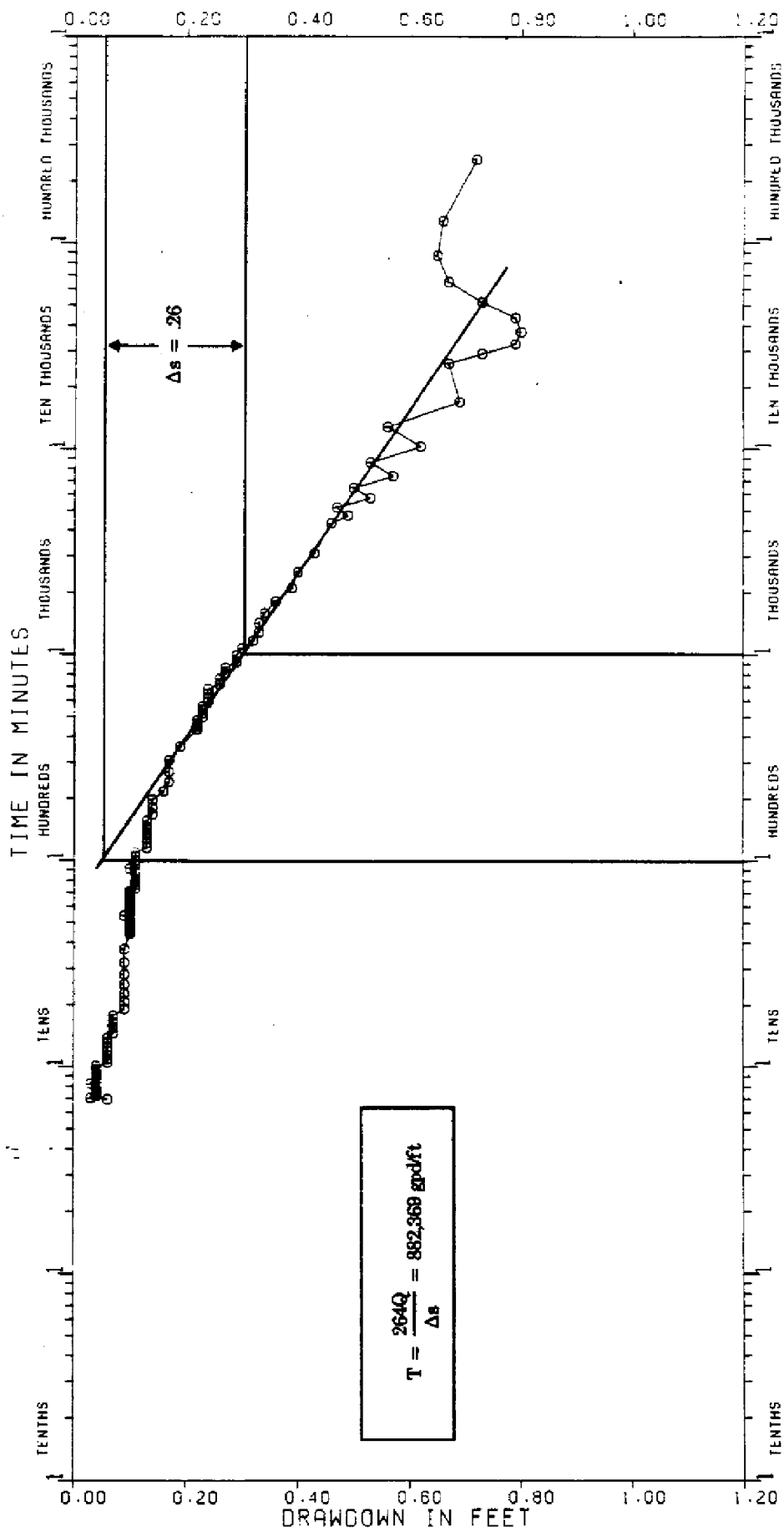
R=100.5 Q= 869



GALLAGHER PROPERTY RECOVERY

OBSERVATION WELL: 2-D

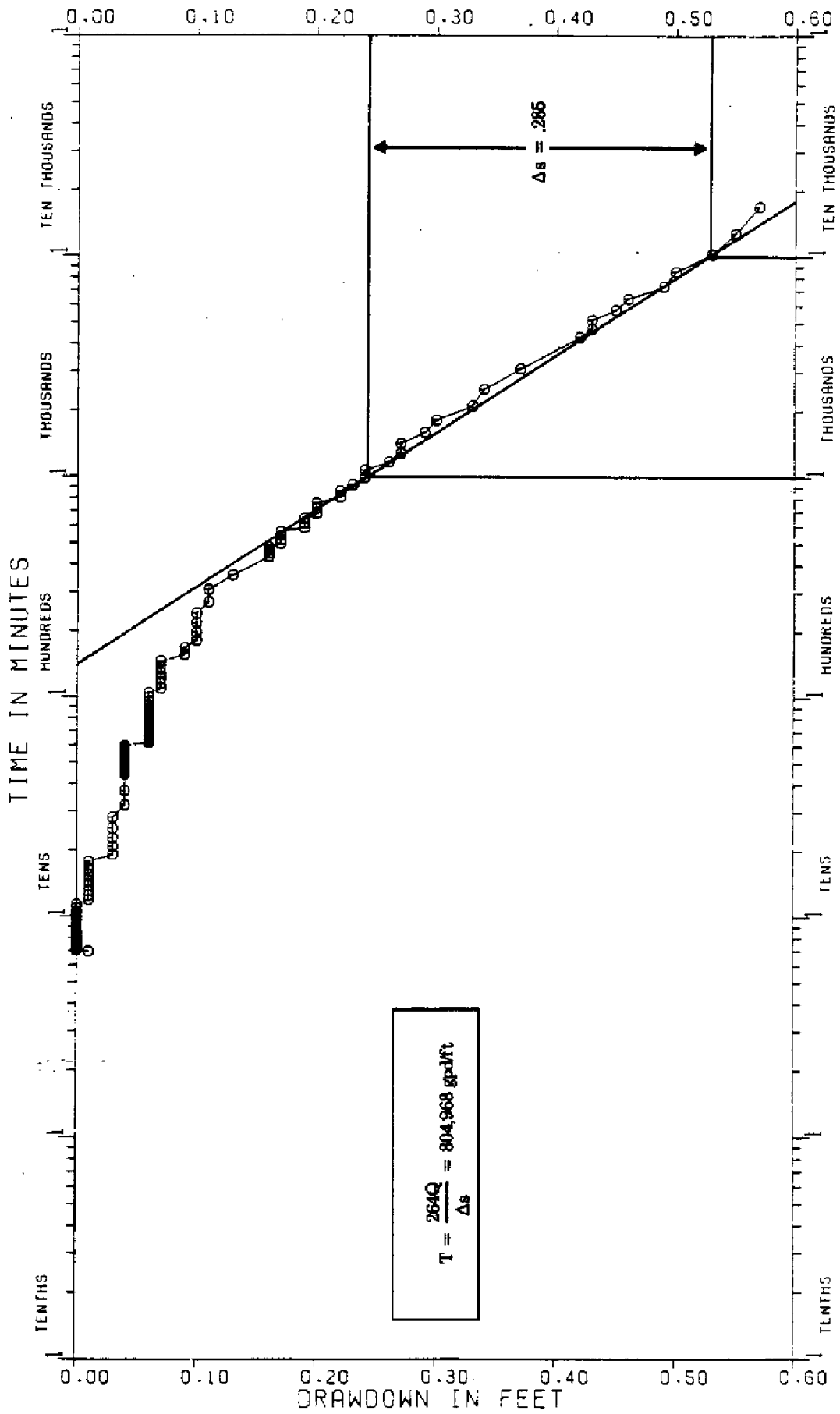
R = 54.5 Q = 869



GALLAGHER PROPERTY RECOVERY

OBSERVATION WELL: 3-D

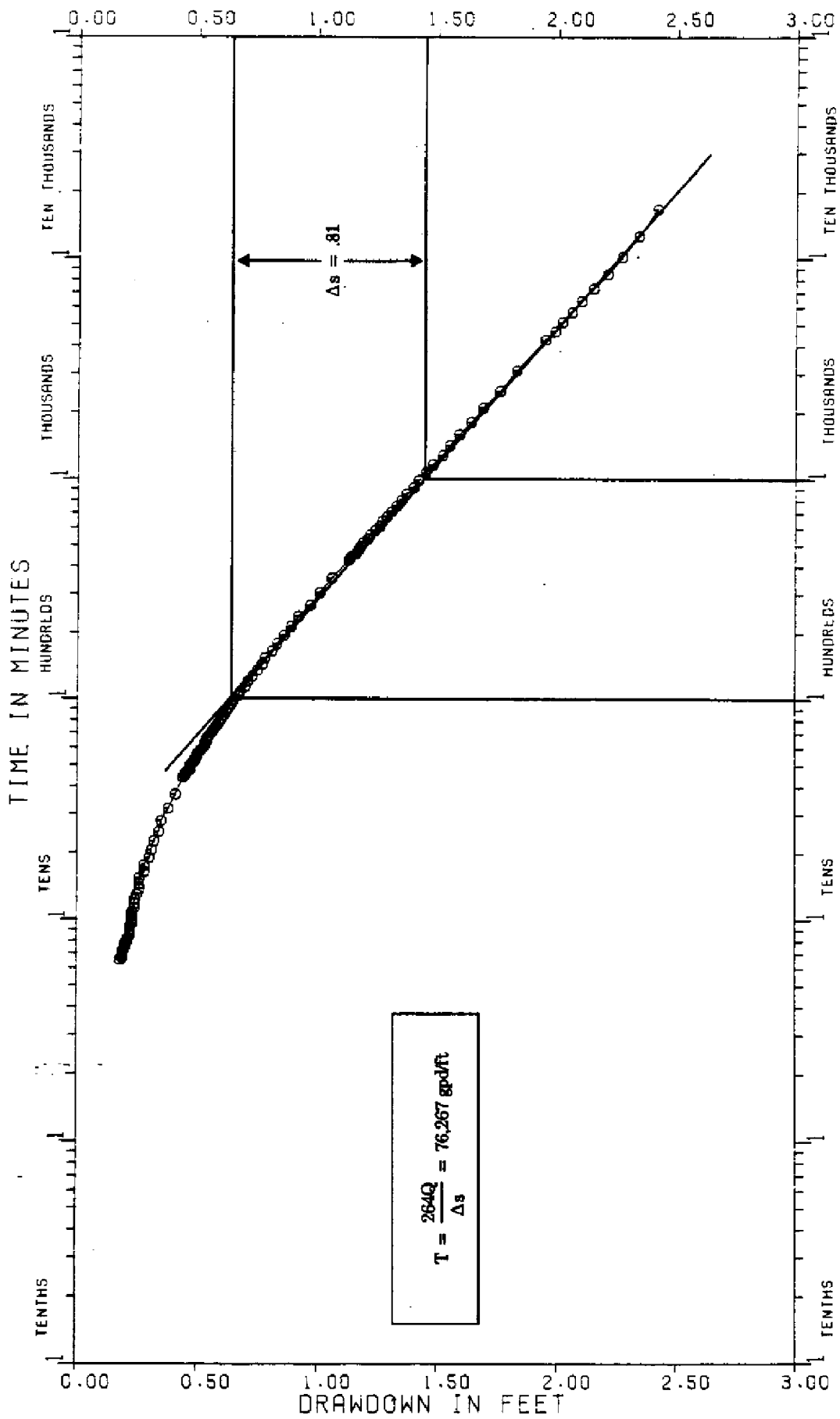
R=250.9 Q= 869



MILLS RANCH RECOVERY

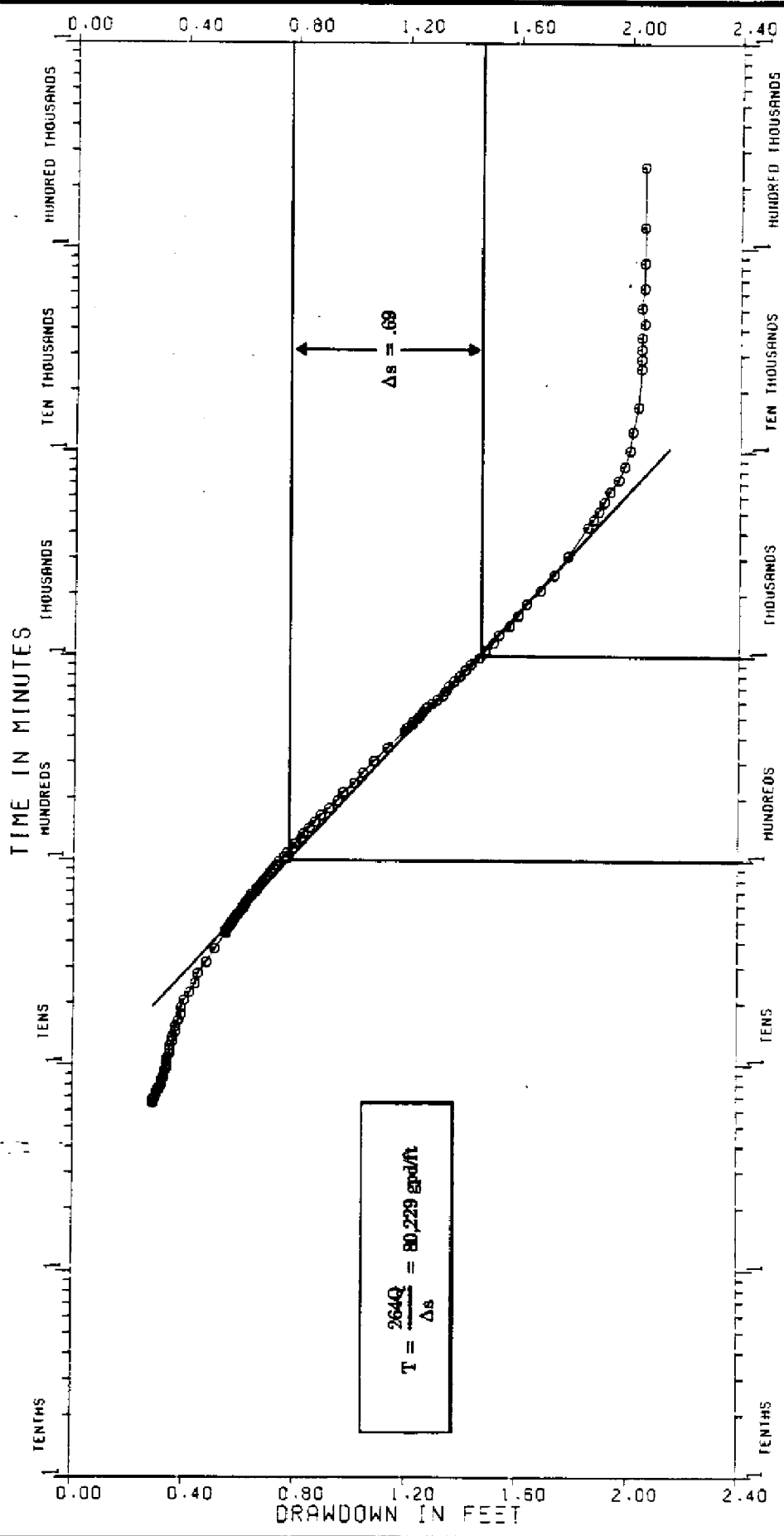
OBSERVATION WELL: 1D

R= 76.3 Q=234.0

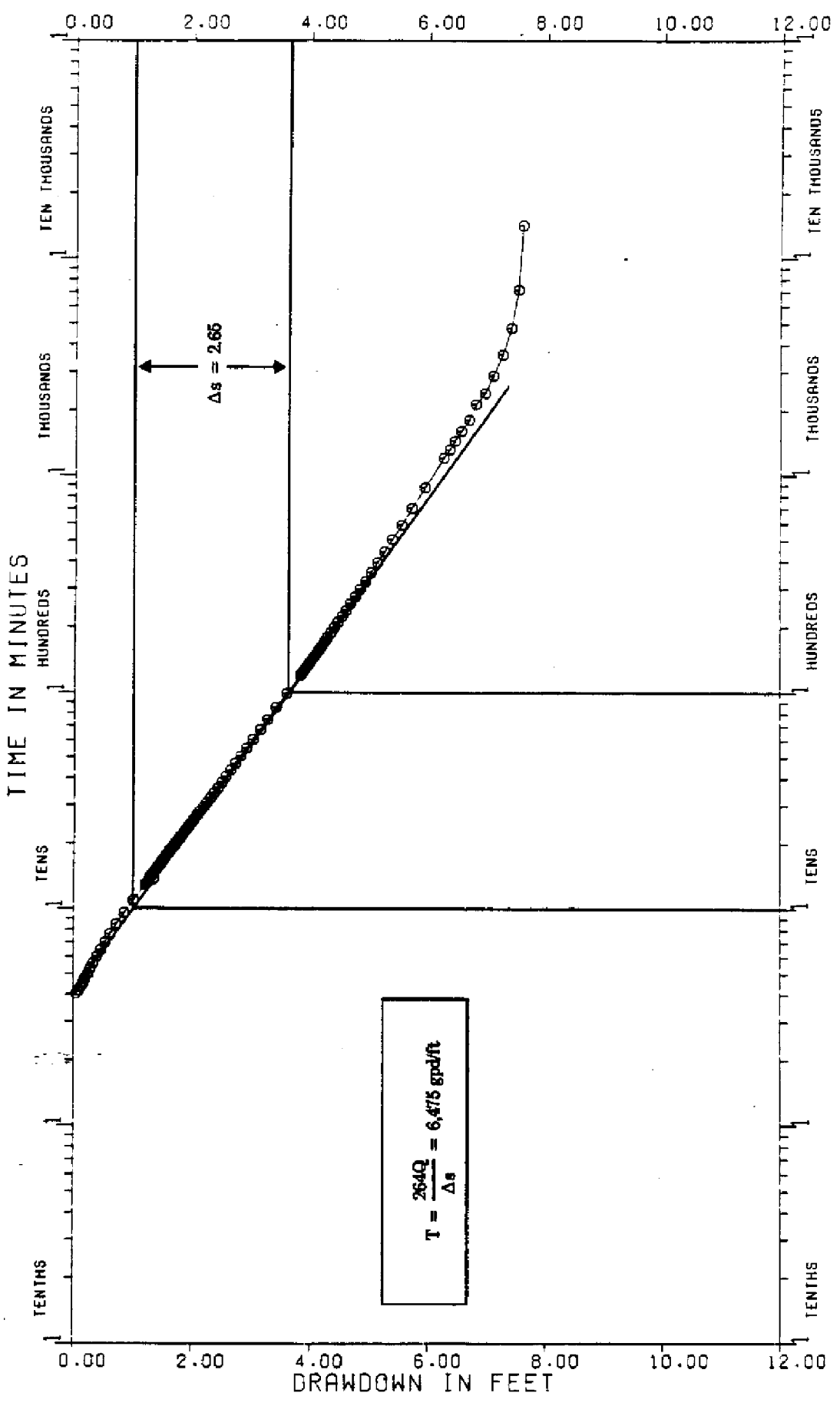


MILLS RANCH RECOVERY
OBSERVATION WELL: 2D

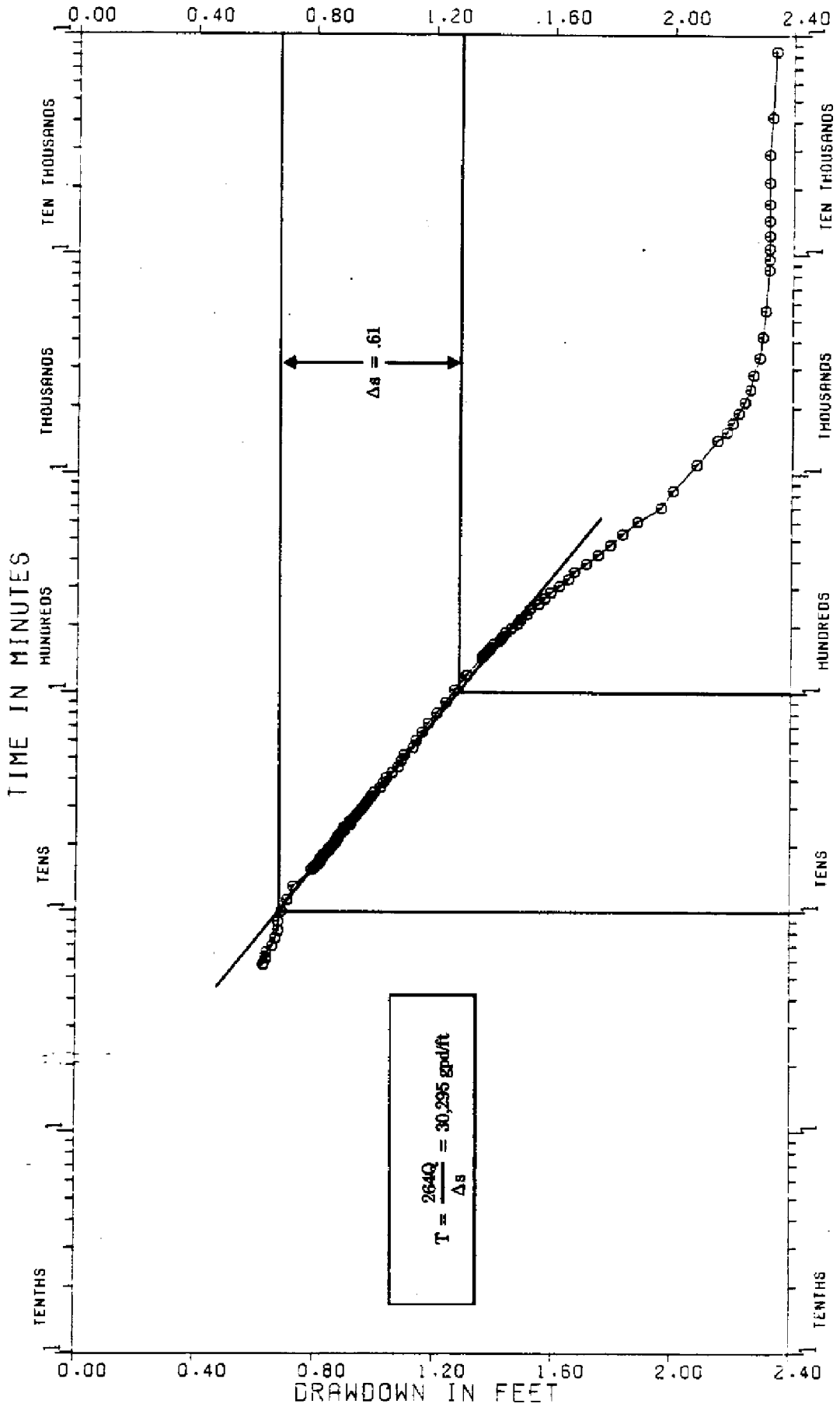
R=150.0 Q=234.0



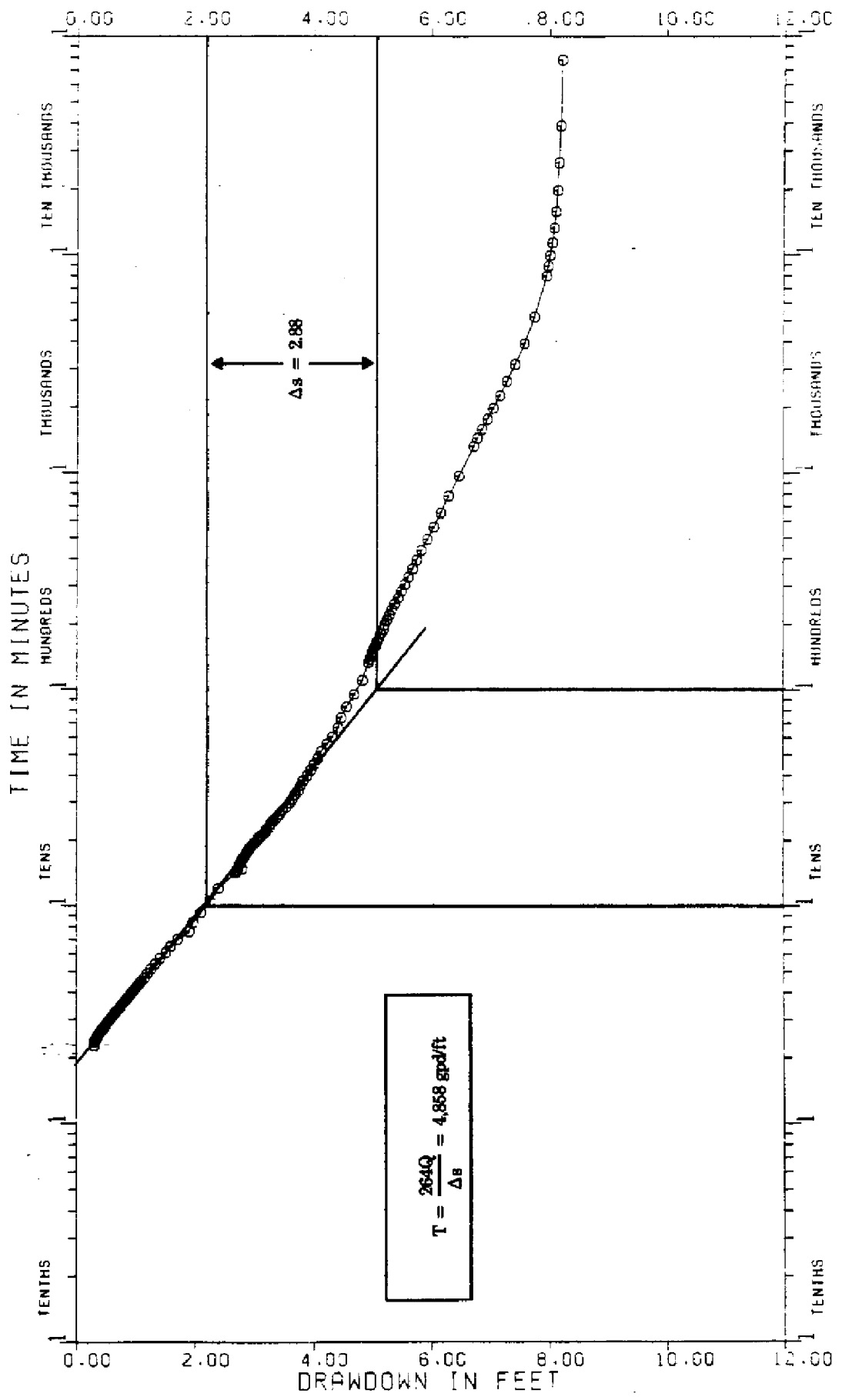
RTA 5 RECOVERY
OBSERVATION WELL: OBS 1
 R# 98 0= 65



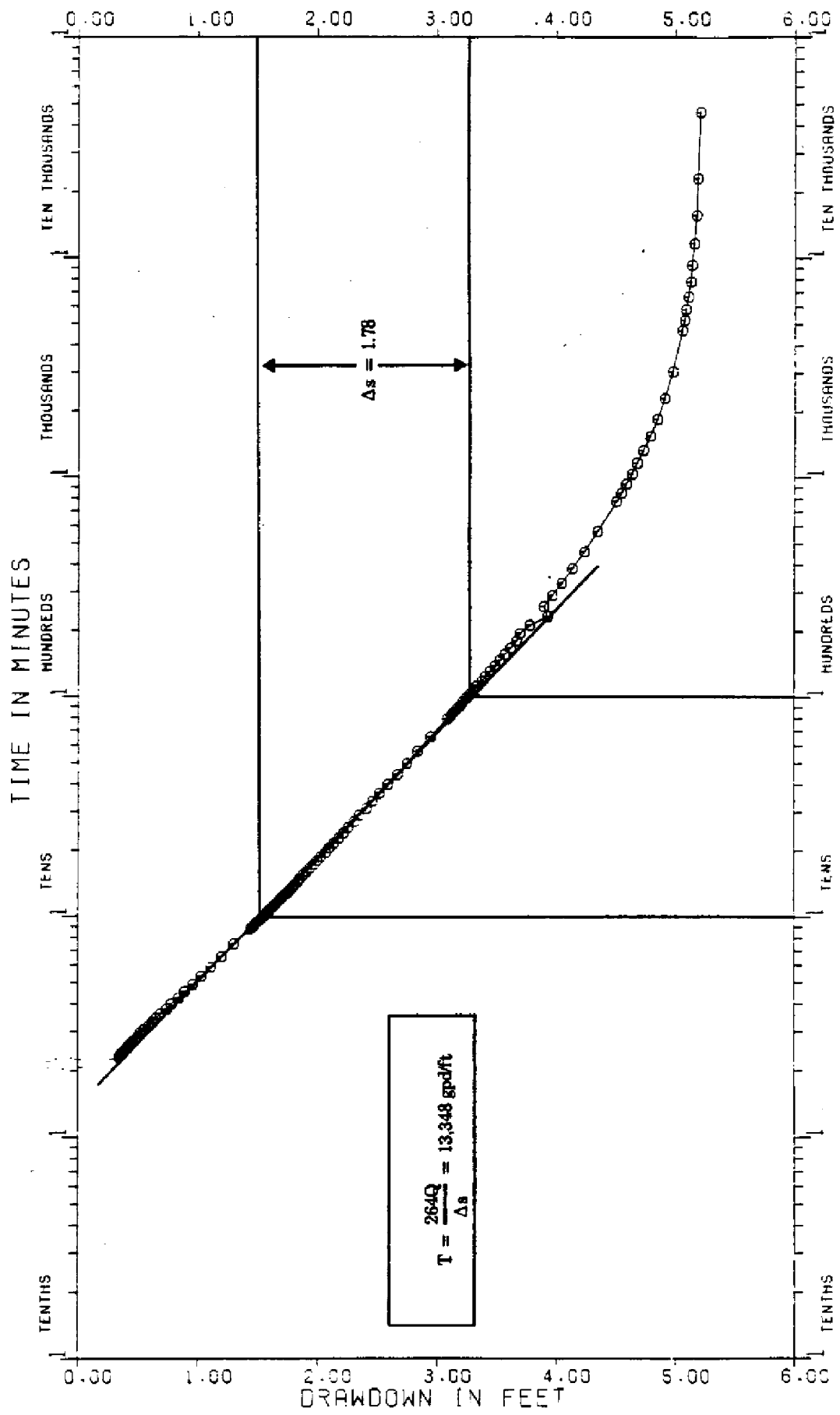
RTA 6 RECOVERY
OBSERVATION WELL: HE-556
 R = 201 Q = 70



RTA 7S RECOVERY
OBSERVATION WELL: OBS 1
 R= 100 0: 53



RTA 9I RECOVERY
OBSERVATION WELL: OBS 1
 R = 70.5 Q = 90



RTA 9S RECOVERY
OBSERVATION WELL: OBS 1

R = 70.5 0 = 90

