CORE ANALYSIS REPORT

FOR

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

VARIOUS WELLS

CORE LABORATORIES

CORE ANALYSIS REPORT

FOR

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

VARIOUS WELLS

Core Lab
PETROLEUM SERVICES

Petroleum Services
2001 Commerce
Midland, Texas 79703
P.O. Box 4337
Midland, Texas 79704-4337
Tel: (915) 694-7761
Fax: (915) 694-3191
www.corelab.com

October 17, 2000

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3301 Gun Club Road
West Palm Beach, Florida 33406

File No.: 57181-18054
Subject: Core Analysis
Various Wells
Florida

Gentlemen:

The subject well was cored using diamond coring equipment and drilled mud to obtain 2 inch to 3 1/2 inch diameter cores from surface to 25 feet from the Tertiary Limestone formation.

Core analysis data is presented in tabular and graphical form for your convenience. A porosity vs. permeability plot was prepared for statistical evaluation. Core analysis data is contained on a 3 1/2 inch computer diskette. Digital core photographs are contained on a CD.

We trust these data will be useful in the evaluation of your property and thank you for the opportunity of serving you.

Very truly yours,

CORE LABORATORIES, INC.

John Sebian
John Sebian
Laboratory Supervisor

JS/ym

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
Various Wells
File No. 57181-18054
Procedural Page

The cores were transported to Midland by South Florida Water Management District.

A Core Spectal Log was recorded for downhole E-log correlation.

Core analysis was made on selected intervals requested on full diameter samples.

Fluid removal was achieved using convection oven drying method.

Direct grain volume measurement was made using Boyle's law helium expansion. Bulk volume was measured by Archimedes Principle on samples after cleaning. Porosity was calculated using bulk volume and grain volume measurements.

$$\text{Porosity} = \frac{\text{Bulk Vol.} - \text{Grain Vol.}}{\text{Bulk Vol.}} \times 100$$

Steady State Air Permeability was measured in two horizontal directions and vertically while the core was confined in a Hassler rubber sleeve at approximately 400 psig hydrostatic stress.

The core was slabbed after analysis.

The slabs were photographed under natural light and ultraviolet light.

Thin section billets were removed from slab and shipped to Core Laboratories in Carrollton, Texas for thin section making. Thin sections are to contain blue epoxy and a carbonate stain.

The core will remain at our Midland facility (thirty days free of charge) as we await further disposition instructions.

UNSTEADY STATE-PDPK 300 PERMEAMETER

The PDPK-300 device uses unsteady-state pulse decay methodology to determine permeability. The PDPK (permeability) device is designed to provide a detailed assessment of changes in permeability over very small intervals. The PDPK measurements were made on the slabbed surface.

STEADY STATE-MICROPERMEAMETER

The micropermeameter device uses steady state air cross flow methodology to determine an air permeability. A full diameter cylinder is face from existing core fragments. The sample is placed in a rubber sleeve under 400 psig confining pressure during testing. Upstream and downstream pressure are taken from mercury, water manometers or H-C gauge. Flow rates are measured using ceramic plates.

CONVERSION PERMEABILITY TO HYDRAULIC CONDUCTIVITY - FULL DIAMETER SAMPLES AND PDPK PERMEABILITY

$k = (V*L)/(A*T*P)$

k = Hydraulic conductivity, (m/sec)
V = Incremental produced volume, (m^3)
L = Length, (m)
P = Differential pressure, (m of H_2O)
A = Cross-sectional area, (m^2)
T = Incremental time, (sec)

Volume, (V)
Ceramic plate orifice value @ 200mmH2O*orifice water/200=cc/sec
(cc/sec)/(1,000,000) = m/sec

Area, (A)
19.64 cm 2/100/100 = 0.001964 m^2

Length, (L)
length in cm/100 = m

Differential Pressure, (P)
P1 = -Pa + sqrt of (2000*0.01787*760/760)/C value of 60 + 760/760
P1 = 0.2632 atm

0.2632 atm * 1033.26 = 271.95 cmH2O
271.95 cm H2O/100 = 2.7195 mH2O

Time, (T)
sec

Conversion (m/sec) to (ft/sec)

(m/sec)*3.2808399 ft/m = ft/sec

Conversion (ft/sec) to (ft/day)

(ft/sec)*86,400 sec/day = ft/day

CONVERSION PERMEABILITY TO HYDRAULIC CONDUCTIVITY-FULL DIAMETER AND PDPK 300 PROBE TIP PERMEABILITY SAMPLES

Hydraulic Conductivity = 0.1738 times millidarcies + zero

Regression analysis was performed on existing full diameter permeability and hydraulic conductivity data using a forced zero intercept.

CORE LABORATORIES

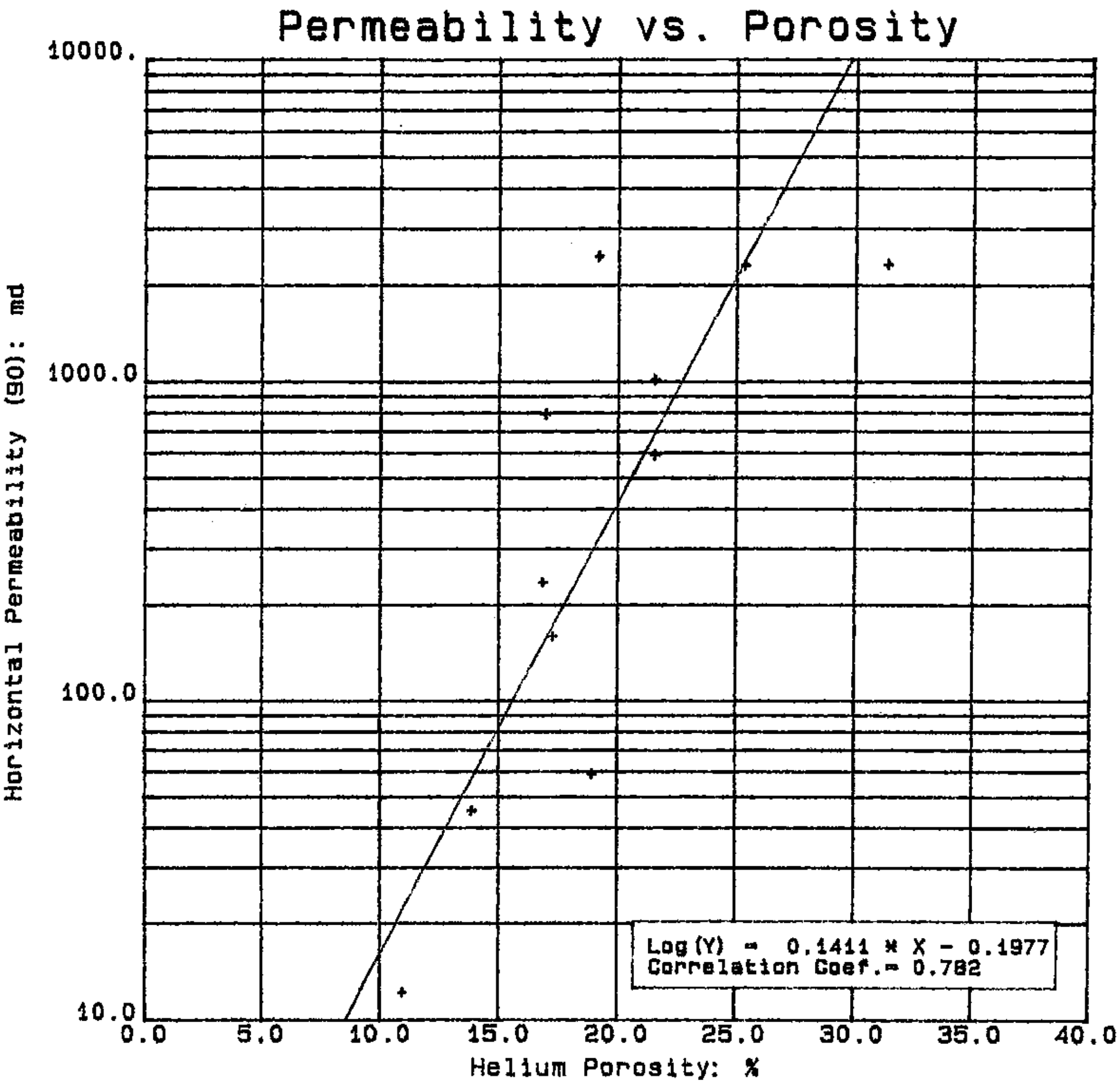
ompany : SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ell : VARIOUS WELLS
ocation :
o,State :

Field :
Formation :
Coring Fluid :
Elevation :

File No.: 57181-18054
Date : 8-28-00
API No. :
Analysts: SEBIAN

C O R E A N A L Y S I S R E S U L T S

SAMPLE NUMBER		DEPTH ft	PERMEABILITY (MAXIMUM) Kair md	PERMEABILITY (90 DEG) Kair md	PERMEABILITY (VERTICAL) Kair md	POROSITY (HELIUM) %	GRAIN DENSITY gm/cc	DESCRIPTION
S	1	0 to 5				31.3	2.73	U1GW3 WELL/TBFA, Lim, foss, qtz snd, moldic
S	2	5 to 10	470.	236.	151.	16.8	2.68	U1GW3 WELL/Lim, foss, qtz snd, moldic
S	3	15 to 20	457.	59.2	35.2	18.9	2.68	U1GW3 WELL/Sd, tn, fgr, v/lmy, sl rootlet
S	4	10 to 15	2864.	2321.	2494.	25.3	2.69	E4GW3 WELL/Lim, foss, qtz snd, sl moldic
S	5	0 to 5	175.	160.	230.	17.2	2.69	E4GW4 WELL/Lim, foss, abund qtz snd, limonite
S	6	15 to 20	40.7	12.3	92.7	10.9	2.69	E4GW3 WELL/Lim, sl qtz snd, sl frac
S	7	0 to 5	1020.	1020.	43.1	21.5	2.70	F4GW3 WELL/Lim, foss, qtz snd, limonite, sl moldic
S	8	10 to 15	3305.	2475.	515.	19.1	2.69	F4GW3 WELL/Lim, foss, qtz snd, sl pp
S	9	20 to 25	3372.	2331.	731.	31.3	2.74	U3GW3 WELL/Lim, foss, sl qtz snd
S	10	10 to 15	233.	45.4	49.0	13.8	2.68	U3GW3 WELL/Lim, foss, sl qtz snd, sl rootlet
S	11	8 to 13	735.	594.	615.	21.5	2.72	M203 WELL/Lim, foss, sl rootlet
S	12	18 to 23	894.	797.	156.	16.9	2.70	M203 WELL/Lim, foss, sl qtz snd, sl moldic
S	13	18 to 23	1592.	1433.		22.9	2.70	M204 WELL/Lim, foss, sl qtz snd, sl yel stn, moldic



SOUTH FLORIDA WATER MANAGEMENT DI VARIOUS WELLS Core Laboratories 8-28-00	- LEGEND - Not Specified

CORE LABORATORIES

ompany : SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ell : VARIOUS WELLS

Field :
Formation :

File No.: 57181-18054
Date : 8-28-00

TABLE I

SUMMARY OF CORE DATA

ZONE AND CUTOFF DATA

ZONE:

Identification ---------	NOT SPECIFIED
Top Depth ----------------	1.0 ft
Bottom Depth -------------	13.0 ft
Number of Samples --------	12

DATA TYPE:

Porosity --------------	(HELIUM)
Permeability -----------	(90 DEG) Kair

CUTOFFS:

Porosity (Minimum) -------	0.0 %
Porosity (Maximum) -------	100.0 %
Permeability (Minimum) ---	0.0100 md
Permeability (Maximum) ---	10000. md
Water Saturation (Maximum)	100.0 %
Oil Saturation (Minimum) -	0.0 %
Grain Density (Minimum) --	2.00 gm/cc
Grain Density (Maximum) --	3.00 gm/cc
Lithology Excluded -------	NONE

CHARACTERISTICS REMAINING AFTER CUTOFFS

ZONE:

Number of Samples -----	12
Thickness Represented -	12.0 ft

POROSITY:

Storage Capacity ------	244.5 ϕ-ft
Arithmetic Average ----	20.4 %
Minimum ---------------	10.9 %
Maximum ---------------	31.3 %
Median ----------------	19.0 %
Standard Deviation ----	±6.3 %

GRAIN DENSITY:

Arithmetic Average ----	2.70 gm/cc
Minimum ---------------	2.68 gm/cc
Maximum ---------------	2.74 gm/cc
Median ----------------	2.69 gm/cc
Standard Deviation ----	±0.02 gm/cc

PERMEABILITY:

Flow Capacity ---------	10051.7 md-ft
Arithmetic Average ----	914. md
Geometric Average -----	344. md
Harmonic Average ------	80.9 md
Minimum ---------------	12.3 md
Maximum ---------------	2475. md
Median ----------------	594. md
Standard Dev. (Geom) --	$K \cdot 10^{\pm 0.782}$ md

HETEROGENEITY (Permeability):

Dykstra-Parsons Var. --	0.899
Lorenz Coefficient ----	0.484

AVERAGE SATURATIONS (Pore Volume):

Oil -------------------	0.0 %
Water -----------------	0.0 %

South Florida Water Management District
Various Wells
Hydraulic Conductivity

File: 57181-18054
September 17, 2000
Tertiary Limestone

Sample Number	Well Number	Depth Top feet	Depth Bottom feet	Hydraulic Conductivity (m/sec)	Hydraulic Conductivity (ft/day)	K(air) md	K(direction)	Description
S1	U1GW3	0.0	5.0	-999.000000	-999.000	-999.000	K(vertical)	Lim, foss, qtz snd, moldic
				-999.000000	-999.000	-999.000	K(horiz,max)	
				-999.000000	-999.000	-999.000	K(horiz,min)	
				0.000035	57.892	333.000	PDPK	
S2	U1GW3	5.0	10.0	0.000016	26.251	151	K(vertical)	Lim, foss, qtz snd, moldic
				0.000050	81.710	470	K(horiz,max)	
				0.000025	41.029	236	K(horiz,min)	
				0.000108	177.327	1020	PDPK	
				0.000001	1.704	10	PDPK	
				0.000001	0.887	5	PDPK	
S3	U1GW3	15.0	20.0	0.000004	6.120	35.200	K(vertical)	Sd, tn, fgr, v/lmy, sl rootlet
				0.000048	79.449	457.000	K(horiz,max)	
				0.000006	10.292	59.200	K(horiz,min)	
				0.001506	2468.670	14200.000	PDPK	
				0.000946	1550.742	8920.000	PDPK	
S4	E4GW3	10.0	15.0	0.000264	433.582	2494.000	K(vertical)	Lim, foss, qtz snd, sl moldic
				0.000304	497.906	2864.000	K(horiz,max)	
				0.000246	403.506	2321.000	K(horiz,min)	
				0.000043	70.757	407.000	PDPK	
				0.000124	203.405	1170.000	PDPK	
				0.000001	1.158	6.660	PDPK	
				0.000051	83.100	478.000	PDPK	
				0.000050	81.710	470.000	PDPK	
S5	E4GW4	0.0	5.0	0.000024	39.986	230.000	K(vertical)	Lim, foss, abund qtz snd, limonite
				0.000019	30.424	175.000	K(horiz,max)	
				0.000017	27.816	160.000	K(horiz,min)	
				0.000000	0.031	0.180	PDPK	
				0.000484	792.756	4560.000	PDPK	
				0.000010	17.107	98.400	PDPK	
				0.000081	133.169	766.000	PDPK	

South Florida Water Management District
Various Wells
Hydraulic Conductivity

File: 57181-18054
September 17, 2000
Tertiary Limestone

Sample Number	Well Number	Depth Top feet	Depth Bottom feet	Hydraulic Conductivity (m/sec)	Hydraulic Conductivity (ft/day)	K(air) md	K(direction)	Description
				0.000007	11.596	66.700	PDPK	
S6	E4GW3	15.0	20.0	0.000010	16.116	92.700	K(vertical)	Lim, sl qtz snd, sl frac
				0.000004	7.076	40.700	K(horiz,max)	
				0.000001	2.138	12.300	K(horiz,min)	
				0.000001	2.156	12.400	PDPK	
				0.000041	67.280	387.000	PDPK	
				0.000000	0.118	0.679	PDPK	
				0.000000	0.003	0.018	PDPK	
				0.000006	9.284	53.400	PDPK	
				0.000000	0.323	1.860	PDPK	
				0.000006	10.031	57.700	PDPK	
S7	F4GW3	0.0	5.0	0.000005	7.493	43.100	K(vertical)	Lim, foss, qtz snd, limonite, sl moldic
				0.000108	177.327	1020.000	K(horiz,max)	
				0.000108	177.327	1020.000	K(horiz,min)	
				0.000000	0.002	0.009	PDPK	
				0.000000	0.007	0.041	PDPK	
				0.000829	1359.507	7820.000	PDPK	
				0.000007	10.692	61.500	PDPK	
				0.000001	1.236	7.110	PDPK	
S8	F4GW3	10.0	15.0	0.000055	89.533	515.000	K(vertical)	Lim, foss, qtz snd, sl pp
				0.000350	574.574	3305.000	K(horiz,max)	
				0.000262	430.279	2475.000	K(horiz,min)	
				0.000027	45.027	259.000	PDPK	
				0.001019	1670.699	9610.000	PDPK	
S9	U3GW3	20.0	25.0	0.000078	127.084	731.000	K(vertical)	Lim, foss, sl qtz snd
				0.000358	586.222	3372.000	K(horiz,max)	
				0.000247	405.244	2331.000	K(horiz,min)	
				0.000003	4.659	26.800	PDPK	
				0.000020	32.684	188.000	PDPK	
				0.000100	164.462	946.000	PDPK	

Sample Number	Well Number	Depth Top feet	Depth Bottom feet	Hydraulic Conductivity (m/sec)	Hydraulic Conductivity (ft/day)	K(air) md	K(direction)	Description
S10	U3GW3	10.0	15.0	0.000005	8.519	49.000	K(vertical)	Lim, foss, sl qtz snd, sl rootlet
				0.000025	40.507	233.000	K(horiz,max)	
				0.000005	7.893	45.400	K(horiz,min)	
				0.000028	45.201	260.000	PDPK	
				0.000003	4.590	26.400	PDPK	
				0.000003	5.511	31.700	PDPK	
				0.000001	1.194	6.870	PDPK	
				0.000000	0.539	3.100	PDPK	
S11	M203	8.0	13.0	0.000065	106.918	615.000	K(vertical)	Lim, foss, sl rootlet
				0.000078	127.780	735.000	K(horiz,max)	
				0.000063	103.267	594.000	K(horiz,min)	
				0.000001	1.304	7.500	PDPK	
				0.000000	0.115	0.661	PDPK	
				0.000000	0.084	0.483	PDPK	
				0.000000	0.532	3.060	PDPK	
S12	M203	18.0	23.0	0.000017	27.121	156.000	K(vertical)	Lim, foss, sl qtz snd, sl moldic
				0.000095	155.422	894.000	K(horiz,max)	
				0.000085	138.558	797.000	K(horiz,min)	
				0.000000	0.189	1.090	PDPK	
				0.000000	0.013	0.074	PDPK	
				0.000000	0.523	3.010	PDPK	
				0.000000	0.107	0.615	PDPK	
				0.000027	44.679	257.000	PDPK	
S13	M204	18.0	23.0	-999.000000	-999.000	-999.000	K(vertical)	Lim, foss, sl qtz snd, sl yel stn, moldic
				0.000169	276.769	1592.000	K(horiz,max)	
				0.000152	249.127	1433.000	K(horiz,min)	
				0.000000	0.381	2.19	PDPK	
				0.000013	21.384	123	PDPK	

Sample Identification: S1
S1, 0 ft to 5 ft., U1GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
0	0	0	0	3.5	3.5
0.25	0	0	0	3.9	3.9
0.5	0	0	0	4	4
0.75	0	0	0	4.2	4.2
1	0	0	0	5	5

Sample Identification: S2
S2, 5 ft to 10 ft., U1GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
5	0	0	0	2.4	2.4
5.13	0	0	0	2.9	2.9
5.25	0	0	0	2.8	2.8
5.38	0	0	0	3	3
5.5	0	0	0	3.3	3.3
5.63	0	0	0	3.6	3.6
5.75	0	0	0	3.2	3.2
5.88	0	0	0	3.1	3.1
6	0	0	0.43	3.3	3.3

Sample Identification: S3
S3, 15 ft to 20 ft., U1GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
15	0	0	0.69	3.3	3.3
15.25	0	0	0.21	3.5	3.5
15.5	0	0	1.68	3.4	3.4
15.75	0	0	1.54	3.1	3.1
16	0.0001	0	1.31	2.7	2.7

Sample Identification: S4
S4, 10 ft to 15 ft., E4GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
10	0.0006	0	0.48	1.5	1.5
10.25	0.0008	0	0.52	1.6	1.6
10.5	0.0019	0	0	2.2	2.2
10.75	0.0004	0	0	2.6	2.6
11	0.003	0	0	3	3

Sample Identification: S5
S5, 0 ft to 5 ft., E4GW4

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
0	0	0	0	2	2
0.25	0	0.04	0	1.9	1.2
0.5	0.0013	0	0	2.1	2.1
0.75	0.0015	0	0	2.3	2.3
1	0.0024	0	0.14	2.7	2.7

Sample Identification: S6
S6, 15 ft to 20 ft., E4GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
15	0	1.06	0	3.2	0
15.33	0	0.82	0	2.8	0
15.67	0	0	0	2.8	2.8
16	0.001	0	0	3.2	3.2

Sample Identification: S7
S7, 0 ft to 5 ft., F4GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
0	0.0027	0	0	2.7	2.7
1	0	0	0	3.9	3.9

Sample Identification: S8
S8, 10 ft to 15 ft., F4GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
10	0.0008	0.45	0	2.2	0
10.25	0.002	0.07	0	2.2	0.8
10.5	0.0014	0	0	2.6	2.6
10.75	0.0008	0	0	2.3	2.3
11	0	0	0	2.7	2.7

Sample Identification: S9
S9, 20 ft to 25 ft., U3GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
20	0.0014	0	0.26	1.8	1.8
20.25	0.0015	0	0.21	1.7	1.7
20.5	0.0012	0.02	0.26	1.7	1.5
20.75	0.0003	0.45	0.17	2	0
21	0	0.55	0.5	1.8	0

Sample Identification: S10
S10, 10 ft to 15 ft., U3GW3

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
10	0	0	0	3.1	3.1
10.25	0	0	0.26	2.9	2.9
10.5	0	0	1.22	2.9	2.9
10.75	0	0	1.45	2.9	2.9
11	0	0	1.35	2.7	2.7

Sample Identification: S11
S11, 8 ft to 13 ft., M203

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
8	0	0	0.95	3.7	3.7
8.25	0	0	0	3.4	3.4
8.5	0	1.05	0	3.1	0
8.75	0	0.59	0.46	2.7	0
9	0	0.65	0.37	2.7	0

Sample Identification: S12
S12, 18 ft to 23 ft., M203

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
18	0	0.54	0.8	3.2	0
18.25	0	0.05	1.65	3.5	2.9
18.5	0	0	1.86	3.7	3.7
18.75	0	0	1.61	3.2	3.2
19	0	0.22	1.19	3	0.7

Sample Identification: S13
S13, 18 ft to 23 ft., M204

DEPTH (ft)	POTASSIUM (%/100)	URANIUM (ppm)	THORIUM (ppm)	TOTAL (API)	TOTAL URANIUM FREE (API)
18	0	0.56	0	1.7	0
18.25	0	0.5	0	1.8	0
18.5	0	0	0	2	2
18.75	0	0	0	2.2	2.2
19	0	0	0	2.5	2.5

LITHOLOGICAL ABBREVIATIONS

Anhy, anhy	Anhydrite (-ic)
Ark, ark	arkos (-ic)
bnd	band (-ed)
brec	breccia
Calc, calc	calcite (-ic)
carb	carbonaceous
crs gr	course grained
Chk, chky	chalk (-y)
Cht, cht	chert (-y)
Cgl, cgl	conglomerate (-ic)
crs xln	coursely crystalline
dns	dense
Dol, dol	dolomite (-ic)
Frac	randomly oriented fractures
frac	slightly fractured
f gr	fine grained
foss	fossil (-iferous)
f xln	finely crystalline
Gil, gil	gilsonite
Glauc, clauc	glauconite (-itic)
Grt	granite
Gyp, gyp	gypsum (-iferous)
hor frac	perdominantly horizontally fractured
incl	inclusion (-ded)
intbd	interbedded
lam	lamina (-tions,-ated)
Lim, lim	limestone
med gr	medium grain
Mtrx	matrix
NA	interval not analyzed
Nod, nod	nodules (-ar)
Ool, ool	oolite (-itic)
Piso, piso	pisolite (-itic)
pp	pin-point (porosity)
Pyr, pyr	pyrite (-itized, itic)
Sd, sdy	sand (-y)
Shr	solid hydrocarbon residue
sli/	slightly
Sltstn, slty	siltstone, silty
styl	stylolite (-itic)
suc	sucrosic
Su, su	sulphur, sulphurous
TBFA	TOO BROKEN FOR ANALYSIS
Trip, trip	tripolitic
v/	very
vert frac	perdominantly vertically fractured
vug	vuggy
xbd	crossbedded
xln	medium crystalline
xtl	crystal

THE FIRST WORD IN THE DESCIPTION COLUMN OF THE CORE ANALYSIS REPORT DESCIBES THE ROCK TYPE. FOLLOWING ARE ROCK MODIFIERS IN DECREASING ABUNDANCE AND MISCELLANEOUS DESCRIPTIVE TERMS.

DISTRIBUTION OF FINAL REPORTS

3 COPIES	SOUTH FLORIDA WATER MANAGEMENT DISTRICT ATTN: STEVE KRUPA 3301 GUN CLUB ROAD WEST PALM BEACH FL 33406
1 COPY	SOUTH FLORIDA WATER MANAGEMENT DISTRICT ATTN: MICHAEL BENNETT 3301 GUN CLUB ROAD WEST PALM BEACH FL 33406