

Report

CITY OF DEERFIELD BEACH

**FLORIDAN AQUIFER
TEST/PRODUCTION WELL
AND MONITOR WELL
COMPLETION REPORT**

JANUARY 1993

CDM

environmental engineers, scientists,
planners, & management consultants

CAMP DRESSER & McKEE INC.

800 Brickell Avenue, Suite 710
Miami, Florida 33131
305 372-7171, Fax: 305 372-9167

January 29, 1993

Mr. Steven D. Anderson, P.G.
Supervising Professional
Water Use Division
South Florida Water Management District
P. O. Box 24680
West Palm Beach, Florida 33416-4680

RE: Deerfield Beach Floridan Aquifer
Test/Production and Monitor Well
Completion Report (Permits SF082691G
and SF103092G)

Dear Mr. Anderson:

We are pleased to submit this Well Completion Report for the above-referenced project.

If you have any questions or comments regarding this project, please contact this office at your convenience.

Very truly yours,

CAMP DRESSER & McKEE INC.

Wesley A. Curtis 1/29/93

Wesley A. Curtis, P.G.

WAC/sek

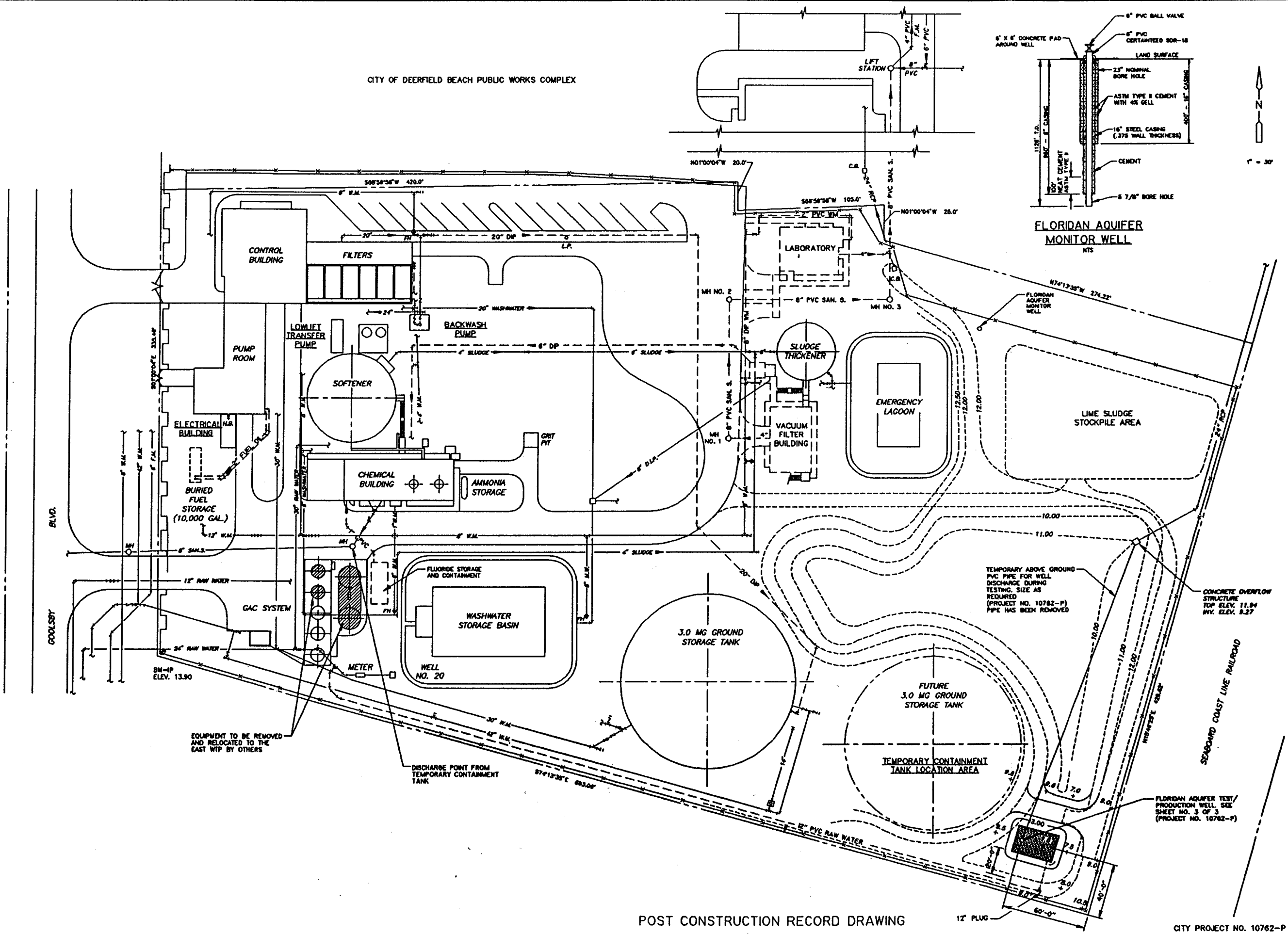
File No. 6410-07-PA2-4-9

cc: Anthony Viola, P.E., Deerfield Beach
Monte Essen, Deerfield Beach
John Lukasiewicz, P.G., SFWMD
Thomas Mueller, BCPHU
Pam Smith, FDER

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CITY OF DEERFIELD BEACH PUBLIC WORKS COMPLEX



POST CONSTRUCTION RECORD DRAWING

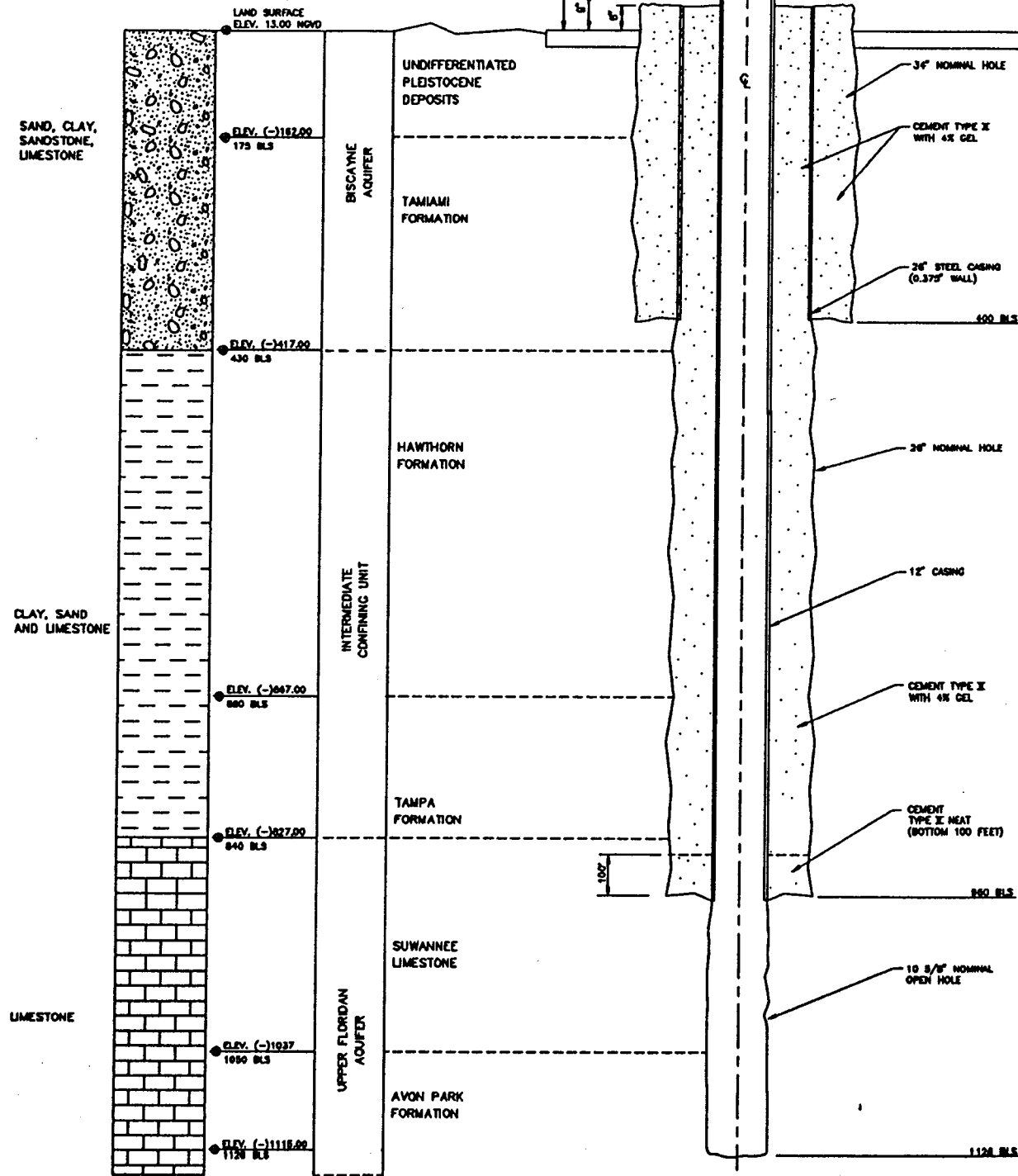
CITY PROJECT NO. 10762-P

6410-07\GSTPLD23 K.J.H 01/28/93

DESIGNED BY: JMS	DATE: 1/93	CHKD: []	REVISIONS:
DRAWN BY: ALN	DATE: 1/93	DATE: []	POST CONSTRUCTION RECORD DRAWING
CHECKED BY: []	DATE: []	DATE: []	
APPROVED BY: []	DATE: DEC. 1991	DATE: []	
CAMP DRESSER & MCKEE INC.			CDM
FOR CITY OF DEERFIELD BEACH, FLORIDA			
WATER SUPPLY IMPROVEMENTS PLOT/PIPING PLAN			
PROJECT NO.	6410-07		
SHEET NO.	2 OF 3		

6410-007/CWMPRO33 K.J.H 01/29/93

GENERALIZED HYDROGEOLOGY

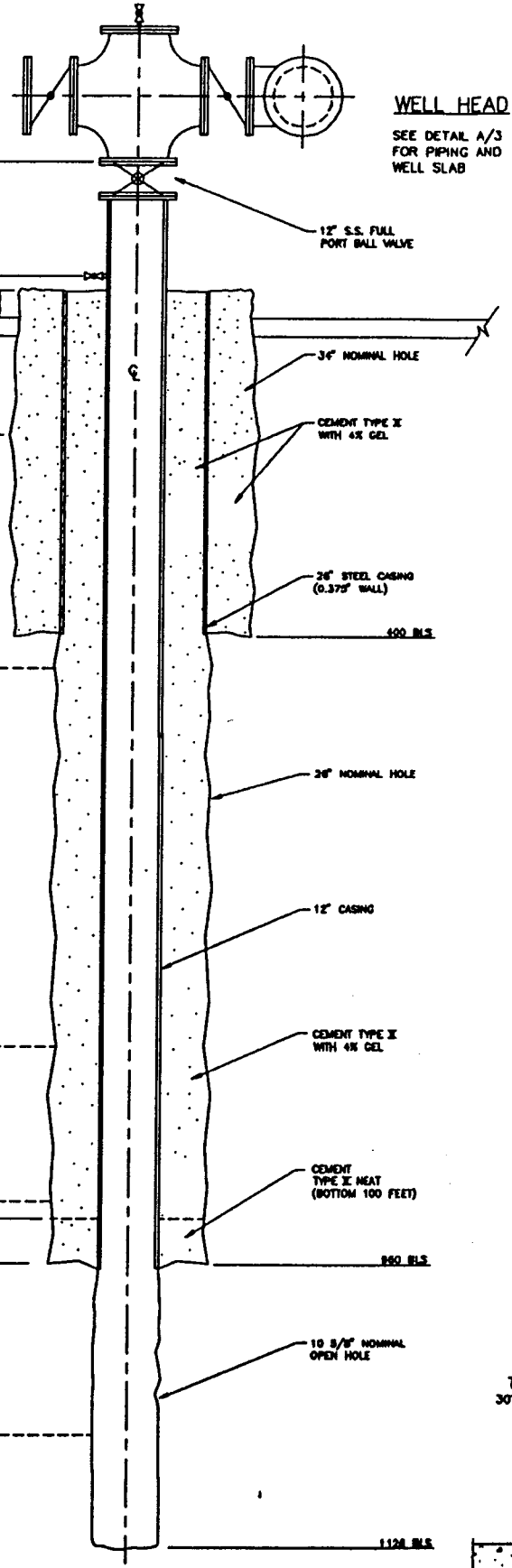


• BLS BELOW LAND SURFACE

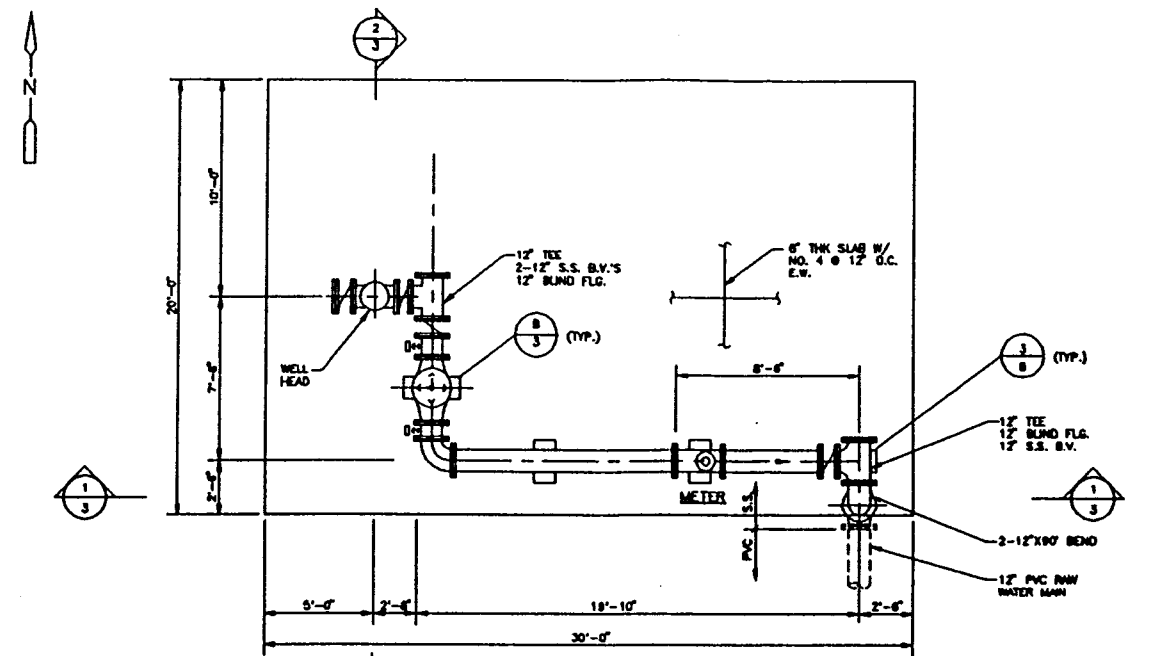
NOTE:
FORMATION CONTACTS ARE ESTIMATED SOLELY ON THE BASIS OF THE GEOPHYSICAL LOGGING PERFORMED ON THIS WELL.

FLORIDAN AQUIFER TEST/PRODUCTION WELL

N.T.S.

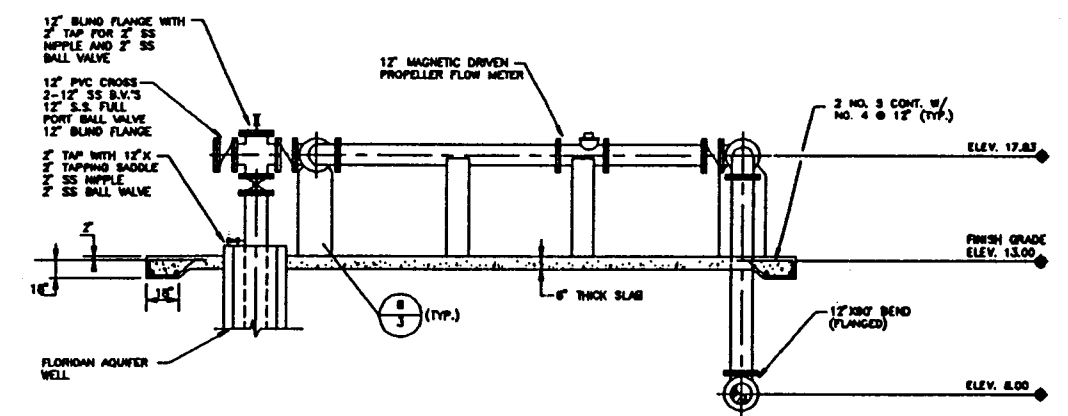


WELL HEAD
SEE DETAIL A/3 FOR PIPING AND WELL SLAB

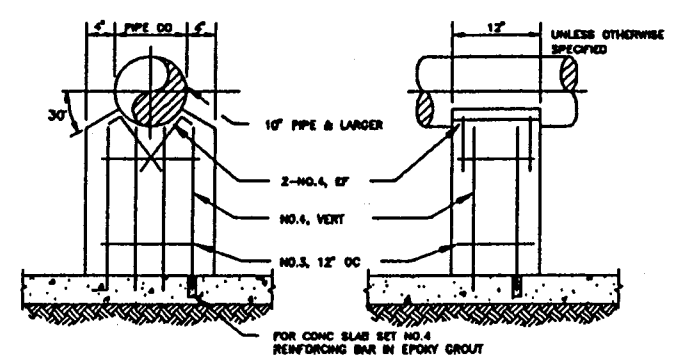


DETAIL A
1/4" = 1'-0"

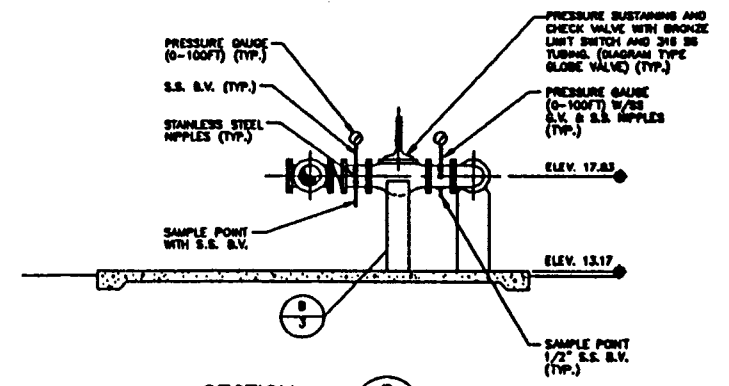
NOTE:
ALL NON-PVC PIPING AND APPURTENANCES SHALL BE STAINLESS STEEL.



SECTION 1
1/4" = 1'-0"



DETAIL B
N.T.S.



SECTION 2
1/4" = 1'-0"

POST CONSTRUCTION RECORD DRAWING

DESIGNED BY: J.M.E.	DATE: 1/93	REV. NO.	DATE	BY	CHKD	REMARKS
DRAWN BY: J.M.E.	1/93					POST CONSTRUCTION RECORD DRAWING
CHECKED BY:						
APPROVED BY:						
						DATE: DEC. 1991

CAMP DRESSER & MCKEE INC.

WATER SUPPLY IMPROVEMENTS FOR CITY OF DEERFIELD BEACH, FLORIDA

FLORIDAN AQUIFER TEST/PRODUCTION WELL

PROJECT NO. 6410-07

SHEET NO. 3 OF 3

CITY PROJECT NO. 10762-P

170 TP

CITY OF DEERFIELD BEACH, FLORIDA
LITHOLOGIC LOG
TEST/PRODUCTION WELL

W-17014

<i>Depth (ft)</i>	<i>Geologic Description</i>
0-40	No samples.
40-50	Sand, quartz, clear, medium grain, subangular to subround, with shell fragments and occasional organic material.
50-60	Sandstone, yellowish gray (5Y 7/2), medium grain, subangular to subround, occasional shell fragments and fg-mg phosphatic grains, with fg-mg clear to buff quartz sand.
60-90	As above with higher sand content.
90-100	As above, with decreasing sand content.
100-110	Limestone, yellowish gray (5Y 7/2), with sandstone, fg-mg, subround to subangular, occasional fg phosphatic grains.
110-120	Sandstone, light gray (N/7), fg-mg, subangular to subround, with occasional fg phosphatic grains (40%); sandstone, yellowish gray (5Y 7/2), mg, occasional phosphatic grains (40%); limestone, very pale orange (10 YR 5/2), with detrital shell and phosphatic grains (20%).
120-130	Sandstone, light gray (N/7), fg-mg, subangular to subround, well indurated, occasional shell and shell fragments, phosphatic grains, minor coquina.
130-190	As above.
190-210	As above, with decreasing shell fragments.
210-230	As above, with increasing amount of shell fragments.
230-310	As above, with minor amount of shell fragments.
310-320	Sandstone, light gray (N/7), fg-mg, subangular to subround, occasional fg phosphatic grains and shell fragments, well indurated, with limestone, yellowish gray (5Y 7/2), fg-mg, moderately cemented, with shell fragments.

**CITY OF DEERFIELD BEACH, FLORIDA
LITHOLOGIC LOG
TEST/PRODUCTION WELL
(Continued)**

<i>Depth (ft)</i>	<i>Geologic Description</i>
320-360	Limestone, yellowish gray (5Y 7/2), fg-mg, moderately cemented, with detrital shell.
360-400	As above, well cemented.
400-410	Limestone, yellowish gray (5Y 7/2), fg-mg, well cemented, with fine to medium grained detrital shell fragments.
410-420	As above, with minor quartz and sparry calcite.
420-430	As above, 410-420, with silty clay, grayish yellow (5Y 7/2).
430-440	As above, 420-430, with trace very coarse sand size subangular phosphate.
440-450	As in 410-420.
450-470	As in 420-430, with white micrite.
470-480	As in 420-430, with minor fine grained phosphate.
480-500	As in 470-480, with minor grayish olive (10Y 4/2) clay.
500-510	Limestone, yellowish brown (5Y 7/2), fg-mg, well cemented, with some grayish olive (10Y 4/2) clay.
510-540	As in 500-510, with increasing grayish olive (10Y 4/2) plastic clay.
540-600	Clay, grayish olive (10Y 4/2) with some yellowish gray (5Y 4/2) fg-mg well indurated limestone.
600-700	Clay, grayish olive (10Y 4/2) with occasional yellowish gray (5Y 7/2) fg-mg well indurated limestone.

**CITY OF DEERFIELD BEACH, FLORIDA
LITHOLOGIC LOG
TEST/PRODUCTION WELL
(Continued)**

<i>Depth (ft)</i>	<i>Geologic Description</i>
700-820	As in 600-700, with minor limestone and fg phosphatic grains and occasional well rounded phosphate nodules.
820-900	As in 700-820, with minor angular chert.
900-930	Clay, grayish olive (10Y 4/2), with yellowish gray (5Y 7/2) limestone, fg-mg, well indurated, with shell fragments, well rounded phosphate nodules, occasional angular chert.
930-950	Limestone, yellowish gray (5Y 7/2), fg-mg, with fg phosphatic grains, detrital shell fragments, minor grayish olive (10Y 4/2), subangular phosphate nodules.
950-960	As above, with some very light gray (N/8) fg limestone, minor grayish oliver (10Y 4/2) clay.
960-970	Limestone, very light gray (N/8), fg, with minor shell fragments, dusky yellowish brown (10YR 2/2) chert.
970-990	As above, with minor grayish oliver (10Y 4/2) clay.
990-1,000	Limestone, very pale orange (10YR 8/2), fg, fossiliferous, with worm tubes, occasional light gray (N/7) fg-mg sandy limestone, fg phosphatic grains, minor shell fragments and <u>Dictyoconus</u> sp.
1,000-1,040	Limestone, very pale orange, (10YR 8/2), fossiliferous, well indurated, with light gray (N/8) fg-mg sandy limestone minor <u>Dictyoconus</u> sp., shell fragments, fg phosphatic grains.
1,040-1,050	Limestone, very pale orange (10YR 8/2), fossiferous, minor <u>Dictyoconus</u> sp.

**CITY OF DEERFIELD BEACH, FLORIDA
LITHOLOGIC LOG
TEST/PRODUCTION WELL
(Continued)**

<i>Depth (ft)</i>	<i>Geologic Description</i>
1,050-1,060	As above, with minor small echnoid shell fragments, with pinkish gray (5YR 8/1) fg fossiliferous, well indurated limestone.
1,060-1,110	As above, with minor white clay.
1,110-1,120	Limestone, very pale orange (10YR 8/2), fossiliferous, well indurated, with minor <u>Dictyoconus</u> sp.
1,120-1,128	No sample.
1,128	TD

Described By: Maura E. Maloney
Checked By: Wesley A. Curtis, P.G.

**TEST/PRODUCTION WELL
PRESSURE TEST -
12-INCH DIAMETER PVC CASING**

On August 4, 1992, the entire length of the 12-inch diameter Certainfeed SDR 18 PVC casing was pressure-tested in order to demonstrate the mechanical integrity of the casing. The casing was pressurized with water to 65 psi and was monitored for pressure loss over a period of one hour using a new, calibrated pressure gage. The pressure after one hour was 59.5 psi for a change of less than 5 percent, which is an acceptable limit. The test was performed by Mr. Herschel Scott of Meridith Drilling, Inc. and was witnessed by Mr. Wesley Curtis, P.G. of Camp Dresser & McKee Inc.

**SUMMARY OF STEP DRAWDOWN TEST
TEST/PRODUCTION WELL**

Performed: 9/25/92

<i>Step</i>	<i>Discharge (gpm)</i>	<i>Water Level Elevation (feet NGVD)*</i>	<i>Drawdown (feet)</i>	<i>Specific Capacity (gpm/ft)</i>	<i>Specific Conductivity (umhos/cm)</i>
0	Static	42.55	0	0	---
1	950	20.25	22.3	42.6	7,000
2	1,375	9.62	32.93	41.76	6,500
3	2,100	-22.88	65.43	32.0	6,000

*Based on approximate pad elevation of 13 feet NGVD.

SUMMARY OF AQUIFER PERFORMANCE TEST (BF-6)
DATA COLLECTION

An aquifer performance test (APT) was conducted on December 10, 1992. Pressure transducers linked to a digital data logger were installed in both the test/production well and in the monitor well. Input 1 corresponds to the test/production well and Input 2 corresponds to the monitor well. The data files are provided on a diskette which is included with the geophysical logs. All water level measurements are in units of pressure (psi), referenced to an arbitrary datum. The monitor well is located 367 feet northeast of the test/production well. The aquifer transmissivity is estimated at 180,000 gpd/ft (24,064 ft²/day) with a storage coefficient of ~~1.33 x 10⁻⁶~~, based on the Hantush method of analysis (as per discussion with Mr. John Lukasiewicz, P.G., SFWMD).

The APT was conducted as follows:

<i>Date</i>	<i>Time (hours)</i>	<i>Activity</i>
12/10/92	15:52	Cease monitor well development and shut-in monitor well.
12/10/92	17:43	Collect pre-test background data (file DFB2WT0)
12/10/92	19:49	Begin withdrawal portion of test, discharge 1,200 gpm (file DFB2WT1)
12/11/92	01:33	Begin recovery portion of test (file DFB2WT2)
12/11/92 through 12/14/92	14:05 10:48	Collect post-test background data at test/production well using slightly different datum for measurements (file DFB2WT3)

BAROMETRIC PRESSURE
(inches of mercury)

12/10/92

0656	29.96
0750	29.97
0848	29.98
0950	29.99
1050	29.98
1147	27.97
1250	29.94
1347	29.88
1447	29.85
1547	29.85
1647	29.86
1747	29.86
1847	29.88
1947	29.89
2047	29.91

12/11/92

0648	29.92
0748	29.94
0848	29.97
0948	29.98
1047	29.99
1150	29.96
1250	29.93
1350	29.91
1452	29.90
1550	29.90
1647	29.90
1747	29.91
1847	29.93
1950	29.96
2047	29.97

12/12/92

0650	29.98
0747	30.00
0847	30.02
0947	30.04
1047	30.03
1147	30.01
1247	29.98
1347	29.96
1447	29.95
1554	29.95
1650	29.96
1750	29.99
1847	30.00
1947	30.02
2047	30.03

12/13/92

0647	30.07
0747	30.08
0847	30.09
0947	30.10
1047	30.11
1150	30.09
1250	30.06
1347	30.04
1447	30.04
1547	30.04
1650	30.04
1747	30.05
1847	30.06
1947	30.08
2047	30.09

12/14/92

0647	30.09
0750	30.10
0847	30.12
0947	30.14
1047	30.15
1147	30.14
1247	30.11
1347	30.09
1447	30.07
1547	30.08
1650	30.07
1747	30.08
1847	30.08
1947	30.08
2048	30.09

WATER QUALITY DATA

**OPEN CIRCULATION DRILLING
WATER QUALITY DATA
TEST/PRODUCTION WELL**

<i>Date</i>	<i>Depth (ft bls)</i>	<i>Conductivity (umhos/cm)</i>	<i>Chloride (mg/l)</i>	<i>Chloride/ Conductivity Ratio</i>
8-27-92	981	5,840	1,805	0.309
8-27-92	1,007	5,810	1,840	0.316
8-28-92	1,038	6,290	2,000	0.318
8-28-92	1,069	5,700	1,850	0.325
9-1-92	1,099	5,620	1,700	0.302
9-1-92	1,128	5,690	1,750	0.307

CITY OF DEERFIELD BEACH WATER TEST RESULTS WORKSHEET

SAMPLE POINT RO-1

DATE 9-3-92

TIME 3:00 PM

REASON 1120 ft. b/s - WELL FLOWING @ ~400 gpm

TECH Ron Rogers

TYPE: DISTRIBUTION RAW PERMEATE REJECT

~~CL2~~

—

~~COLOR~~

—

CHLORIDE

1850 mg/L

PH

7.69 PH units

~~TURBIDITY~~

—

~~P ALKALINITY~~

—

TOTAL ALKALINITY

190 mg/L

~~ALKALINITY CALCULATION~~

—

TOTAL HARDNESS

900 mg/L

~~CALCIUM HARDNESS~~

—

~~MAGNESIUM HARDNESS~~

—

IRON

<0.02 mg/L (FILTERED)

NOTES : TEMP 22.7°C (73°F)
CONDUCTIVITY 5430 umhos/cm

TDS 3800 mg/L
Bacti

**CITY OF DEERFIELD BEACH
DRINKING WATER BACTERIOLOGICAL ANALYSIS**

CITY OF DEERFIELD BEACH
WEST WATER PLANT
290 GOOLSBY BLVD.
DEERFIELD BEACH, FL. 33442
Phone: 305-480-4370
Lab Cert. ID #56045

TYPE OF SAMPLE: ROUTINE _____
REPEAT _____
OTHER Brackish water well
COLLECTOR: Ron Di Ramio 1170ft in dept
DATE COLLECTED: 9-3-92
M.F. TECHNICIAN: Ron Di Ramio

SAMPLE NUMBER	TIME TAKEN	SAMPLE POINT	CL2 RES.	PH	*TOTAL COLIFORM	NON COLIFORM	CONFIRM TOTAL	CONFIRM FECAL
R/0-1	3:10 PM	DFB FLORIDIAN well	0%	7.69	A	Lt.		

*Results in this column are preliminary. Total and Fecal Coliform Confirmation will follow in 24-48 hours.

Total Coliforms

- P - Present
- A - Absent

Non-Coliform

- Lt - Light growth
- Md - Moderate growth
- C - Confluent
- Tntc - Too numerous to count
- TA - Turbid, absence of ga

ANALYZED BY: Ron Di Ramio DATE TESTED (IN) 9-3-92 TIME (IN) 3:30 PM
signature
 PRINTED NAME, TITLE: Ron Di Ramio, M.S. Laboratory Supervisor
 SUPERVISOR _____ DATE READ (OUT) 9-4-92 TIME (OUT) 3:30 PM
initials

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

414 SW 12th Avenue • Deerfield Beach, Florida 33442 • (305) 421-7400 • Fax (305) 421-2584

LOG NO: D2-22897

Received: 09 SEP 92

Mr. Wesley Curtis
Camp Dresser & McKee Inc.
1500 N.W. 49th Street, Suite 300
Ft. Lauderdale, FL 33310

Project: #6410-07-RE (DFB RO-1)
Sampled By: M. Maloney

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
22897-1	RO-1 9/9/92	09-09-92
PARAMETER	22897-1	
Chloride, mg/l	1600	
Nitrogen, Ammonia, mg/l	<0.030	
Nitrate-N, mg/l	<0.050	
Nitrite-N, mg/l	<0.050	
Nitrogen, Total Kjeldahl, mg/l	2.1	
Sulfate as SO ₄ , mg/l	400	
Solids, Total Dissolved, mg/l	3400	
Specific Conductance , umhos/cm	6000	

well flowing @ ~ 600 gpm

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

414 SW 12th Avenue • Deerfield Beach, Florida 33442 • (305) 421-7400 • Fax (305) 421-2584

LOG NO: D2-23152

Received: 30 SEP 92

Mr. Hershel Scott
Meridith Corporation
2911 W. Washington Street
Orlando, Florida 32805

Purchase Order: #33777

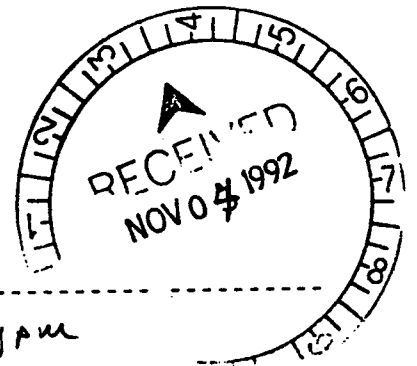
Project: DFB RO-1
Sampled By: M. Maloney

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23152-1	RO-1	09-30-92
PARAMETER	23152-1	
Purgeables (601/602)		
Bromodichloromethane, ug/l		<1.0
Bromoform, ug/l		<5.0
Bromomethane, ug/l		<1.0
Carbon Tetrachloride, ug/l		<1.0
Chlorobenzene, ug/l		<1.0
Chloroethane, ug/l		<1.0
2-Chloroethylvinyl Ether, ug/l		<10J
Chloroform, ug/l		<1.0
Chloromethane, ug/l		<1.0
Dibromochloromethane, ug/l		<1.0
1,2-Dichlorobenzene, ug/l		<1.0
1,3-Dichlorobenzene, ug/l		<1.0
1,4-Dichlorobenzene, ug/l		<1.0
Dichlorodifluoromethane, ug/l		<1.0
1,1-Dichloroethane, ug/l		<1.0
1,2-Dichloroethane, ug/l		<1.0
1,1-Dichloroethene, ug/l		<1.0
Cis/trans-1,2-dichloroethylene, ug/l		<1.0
1,2-Dichloropropane, ug/l		<1.0
Cis-1,3-Dichloropropene, ug/l		<1.0
Trans-1,3-Dichloropropene, ug/l		<1.0
Methylene Chloride, ug/l		<1.0
1,1,2,2-Tetrachloroethane, ug/l		<1.0
Tetrachloroethene, ug/l		<1.0
1,1,1-Trichloroethane, ug/l		<1.0
1,1,2-Trichloroethane, ug/l		<1.0
Trichloroethene, ug/l		<1.0

Well Pumped @ ~ 1400 gpm



Mr. Hershel Scott
 Meridith Corporation
 2911 W. Washington Street
 Orlando, Florida 32805

Received: 30 SEP 92

Purchase Order: #33777

Project: DFB RO-1
 Sampled By: M.Maloney

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23152-1	RO-1	09-30-92
PARAMETER	23152-1	
Trichlorofluoromethane, ug/l	<1.0	
Vinyl Chloride, ug/l	<1.0	
Benzene, ug/l	<1.0	
Ethylbenzene, ug/l	<1.0	
Toluene, ug/l	<1.0	
Xylenes, ug/l	<1.0	
Methyl-tert-butyl ether (MTBE), ug/l	<10	
Date Analyzed	10.09.92	
Method Number	601/602	
Dilution factor	1	
Trihalomethane Forming Potential, ug/l as CHCl3	56	
Chlorinated Hydrocarbon Pesticides (508)		
Endrin, ug/l	<0.020	
Gamma-BHC, ug/l	<0.010	
Methoxychlor, ug/l	<0.50	
Toxaphene, ug/l	<1.0	
Date Extracted	10.03.92	
Date Analyzed	10.09.92	
Method Number	EPA 508	
Dilution factor	1	
Chlorophenoxy Acid Herbicides (515.1)		
2,4-D, ug/l	<0.50	
2,4,5-TP Silvex, ug/l	<0.50	
Date Extracted	10.02.92	
Date Analyzed	10.08.92	
Method Number	EPA 515.1	
Dilution factor	1	
1,2-Dibromoethane (EDB), ug/l	<0.020	
Arsenic, mg/l	<0.010	
Barium, mg/l	0.013	

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

414 SW 12th Avenue • Deerfield Beach, Florida 33442 • (305) 421-7400 • Fax (305) 421-2584

LOG NO: D2-23152

Received: 30 SEP 92

Mr. Hershel Scott
Meridith Corporation
2911 W. Washington Street
Orlando, Florida 32805

Purchase Order: #33777

Project: DFB RO-1
Sampled By: M.Maloney

REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23152-1	RO-1	09-30-92
PARAMETER	23152-1	
Cadmium, mg/l	<0.0050	
Chromium, mg/l	0.039	
Lead, mg/l	0.0050	
Mercury, mg/l	0.00033	
Selenium, mg/l	<0.010	
Silver, mg/l	<0.010	
Sodium, mg/l	1000	
Fluoride, mg/l	3.5	
Nitrate-N, mg/l	0.060	
Copper, mg/l	0.033	
Iron, mg/l	2.1	
Manganese, mg/l	0.010	
Zinc, mg/l	0.94	
Chloride, mg/l	2000	
Color, c.u.	<5.0	
Corrosivity (Saturation Index), mg/l	+0.34	
Odor, t.o.n.	32	
pH , units	7.4	
Solids, Total Dissolved, mg/l	3800	
Sulfate as SO ₄ , mg/l	400	
Surfactants (MBAS), mg/l	<0.10	
Calcium, mg/l	210	
Magnesium, mg/l	160	
Potassium, mg/l	32	
Silicon, mg/l	24	
Strontium, mg/l	8.0	
Alkalinity (to pH 4.5) as CaCO ₃ , mg/l	180	
Alkalinity (to pH 8.2), as CaCO ₃ , mg/l	<1.0	
Alkalinity, Hydroxide, as CaCO ₃ , mg/l	<1.0	
Biochemical Oxygen Demand (5 Day), mg/l	50	

8.0 *OK*

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Received: 30 SEP 92

Purchase Order: #33777

Project: DFB RO-1
Sampled By: M.Maloney

REPORT OF RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23152-1	RO-1	09-30-92
PARAMETER	23152-1	
Bicarbonate, mg/l as CaCO ₃	180	
Carbonate, mg/l as CaCO ₃	<1.0	
Carbon Dioxide, mg/l	160	
Carbon, Total Organic, mg/l	4.3	
Chemical Oxygen Demand, mg/l	480	
Coliform (MF), Fecal, col/100ml	<1	
Coliform (MF), Total, col/100ml	<1	
Hardness, Total by calculation		
Hardness as CaCO ₃ , mg/l	1200	
Gross Alpha, pCi/l	6+/-5*	
Sulfide, mg/l	<0.10	
pH (Field), units	8.27	
Temperature at Sampling Time, Degrees C	25	
Specific Conductance (Field), umhos/cm	5400	

*High statistics due to large amount of solids.

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

414 SW 12th Avenue • Deerfield Beach, Florida 33442 • (305) 421-7400 • Fax (305) 421-2584

LOG NO: D2-24014

Received: 11 DEC 92

Purchase Order: #33777

Mr. Hershel Scott
Meridith Corporation
2911 W. Washington Street
Orlando, FL 32805

Project: Deerfield Bch. RO Well 1
Sampled By: S. Magenheimer

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
24014-1	DFB RO-1	12-11-92
PARAMETER	24014-1	
Iron, mg/l	0.52	
Bicarbonate, mg/l as CaCO ₃	150	
Carbonate, mg/l as CaCO ₃	<1.0	
Chloride, mg/l	1800	
Sodium, mg/l	890	
Solids, Total Dissolved, mg/l	3700	



SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

414 SW 12th Avenue • Deerfield Beach, Florida 33442 • (305) 421-7400 • Fax (305) 421-2584

LOG NO: D2-23152A

Received: 30 SEP 92

Purchase Order: #33777

Mr. Hershel Scott
Meridith Corporation
2911 W. Washington Street
Orlando, FL 32805

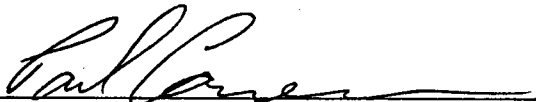
Project: DFB RO-1
Sampled By: M. Maloney

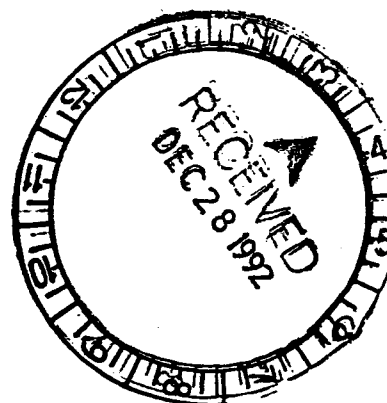
REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23152A-1	RO-1	09-30-92
PARAMETER	23152A-1	
Total Radium, pCi/l	3+/-1	

Method Reference: EPA 903.0.


Paul Canevaro





South Florida Water Management District

5501 Gun Club Road • P.O. Box 24680 • West Palm Beach, FL 33416-4680 • (407) 686-8800 • FL WATS 1-800-452-2045

CON 24-06

32 APR 14 1992

March 12, 1992

WATER WELL CONSTRUCTION PERMIT # SF082691G

PERMITTEE

City of Deerfield Beach
150 NE 2nd Avenue
Deerfield Beach, FL 33441

CONTRACTOR

Larry Meridith-Meridith Corp.
2911 West Washington Street
Orlando, FL 32805
(License Number 2144)

PROJECT: Deerfield Beach Floridan Test/Production Well

TYPE OF USE: Public Water Supply / Test
Test Well

COUNTY: Broward

SEC: 2 TWP: 47S RGE: 42E

WELL CONSTRUCTION SPECIFICATIONS

CASING DIAMETER: 12.00" (inner) 26.00" (outer)
CASING DEPTH: 950.00' (inner) 375.00' (outer)
SCREENED INTERVAL: N/A
OPEN HOLE INTERVAL: 950.00' - 1400.00'
TOTAL DEPTH OF WELL: 1400.00'
GROUT REQUIREMENT (INNER):
CASING SHALL BE GROUTED BOTTOM TO TOP.
GROUT REQUIREMENT (OUTER):
CASING SHALL BE GROUTED BOTTOM TO TOP.

EXPIRATION DATE: September 12, 1992

See additional conditions of permit on attached page.

We appreciate your assistance and cooperation in better managing the water resources of the District. If you have any questions on this matter, please call Ann Marie Superchi at extension 6929.

Sincerely,

Steven D. Anderson, P.G., Supervising Professional
Water Use Division

ATTACHMENT: ADDITIONAL CONDITIONS OF PERMIT

- c: Mr. Ellis Donsky
- Ms. Pam Smith
- Mr. Thomas Mueller
- Mr. Victor Pujals-Camp Dresser & McKee Inc.

Governing Board:

Allan Milledge, Chairman - Miami
Valerie Boyd, Vice Chairman - Naples
Ken Adams - West Palm Beach

James E. Nall - Fort Lauderdale
Annie Betancourt - Miami
Franklin B. Mann - Fort Myers

Leah G. Schad - West Palm Beach
Frank Williamson, Jr. - Okeechobee
Eugene K. Pettis - Fort Lauderdale

Tilford C. Creel, Executive Director
Thomas K. MacVicar, Deputy Executive Director

ADDITIONAL CONDITIONS OF PERMIT

This well is presently approved for testing purposes only. Water usage for public water supply shall not commence until an application to modify Water Use Permit No. 06-00082-W has been received and approved by the District.

Test results shall be submitted to the district within 30 days of completion of testing.

COMPLETION REPORT REQUIRED

A Water Well Completion Report (Form 0124) must be filed with the District within 30 days of completion of work.

GROUT CARD REQUIRED

A grouting card (Form 0196) must be supplied to the District prior to beginning construction.

BACTERIOLOGICAL CLEARANCE REQUIRED

The well must be cleaned, disinfected and bacteriologically cleared in accordance with Chapter 17-555, F.A.C. The bacteriological clearance data shall be submitted to the County Health Unit or appropriate office of the Department of Environmental Regulation and release for use must be obtained therefrom prior to placing the well in service.



South Florida Water Management District

3301 Gun Club Road • P.O. Box 24680 • West Palm Beach, FL 33416-4680 • (407) 686-8800 • FL WATS 1-800-452-2045

CON 24-06

November 2, 1992

WATER WELL CONSTRUCTION PERMIT # SF103092G

PERMITTEE

City of Deerfield Beach
150 NW Second Avenue
Deerfield Beach, FL 33441

cc: Monte Esson
Victor Bajala

CONTRACTOR

→ Larry Meridith-Meridith Corp.
2911 W. Washington Street
Orlando, FL 32805
(License Number 2144)
File: 10762-P, SFWMR
P.H.J. 11-5-92

PROJECT: City of Daerfield Beach MW-1
TYPE OF USE: Monitor Well
COUNTY: Broward
SEC: 2 TWP: 47S RGE: 42E

WELL CONSTRUCTION SPECIFICATIONS

CASING DIAMETER: 16.00" (inner) 6.00" (outer)
CASING DEPTH: 400.00' (inner) 965.00' (outer)
SCREENED INTERVAL: N/A
OPEN HOLE INTERVAL: 956.00' - 1128.00'
TOTAL DEPTH OF WELL: 1128.00'
GROUT REQUIREMENT (INNER):
CASING SHALL BE GROUTED BOTTOM TO TOP.
GROUT REQUIREMENT (INNER):
CASING SHALL BE GROUTED BOTTOM TO TOP.

EXPIRATION DATE: May 2, 1993

See additional conditions of permit on attached page.

We appreciate your assistance and cooperation in better managing the water resources of the District. If you have any questions on this matter, please call Ann Marie Superchi at extension 6929.

Sincerely,

Steven D. Anderson, P.G., Supervising Professional
Water Use Division

ATTACHMENT: ADDITIONAL CONDITIONS OF PERMIT

c: Ms. Mary R. Halstead
Camp Dresser & McKee, Inc.

RECEIVED
92 NOV 9 P 9: 26
CAMP DRESSER & MCKEE, INC.
FT. LAUDERDALE, FL

CDM/SFAO CONST. W

1	NGT	ACTION
2		COMMENTS
3		APPROVAL
CORR.	✓	CALL ME
FIELD	✓	SEE ME
C.O.		F.Y.I.
P.E.		ATENC.
S.D.		Expire

P.H.

DOC. NO. 110
JOB NO. 6410-07

ADDITIONAL CONDITIONS OF PERMIT

COMPLETION REPORT REQUIRED

A Water Well Completion Report (Form 0124) must be filed with the District within 30 days of completion of work.

WELL CUTTINGS REQUIRED

Please note that well cuttings are required. Sample bags will be provided upon request. Please send the cuttings to the Hydrogeology Division of the District located in West Palm Beach.

WELL COMPLETION REPORT

FORM 0124
Rev. 11/90

WELL PERMIT NO. SF0826916

SFWMD WATER USE PERMIT NO. _____

CITY OF DEERFIELD BEACH 150 NW SECOND AVENUE, DEERFIELD BEACH, FL X33441

Owner [Signature] Address 2956 City 960122 State 1128 Zip 1
Contractor's Signature _____ License No. _____ Completion Date _____ Casing Depth _____ Total Depth _____ Well # _____

TYPE OF WORK: Construct (X) Repair () Abandon ()
WELL USE: Domestic Well () Public () Monitor () Test ()
Irrigation () Fire Well () Other _____
METHOD: Rotary with MUD (X) or Air (), Cable Tool (), Jet ()
Casing Driven (), Other _____
STATIC WATER LEVEL +29 Ft. ABOVE LAND SURFACE
PUMPING WATER LEVEL _____ Ft. after _____ Hrs. at _____ GPM
~~PUMP SIZE~~ FLOW XR CAPACITY 600 GPM
PUMP TYPE N/A INTAKE DEPTH N/A
From top of ground

LOCATION

Located Near _____

290 GOOLSBY ROAD

County BROWARD

SE NE 2 47 42
1/4 1/4 Section Township Range

Latitude-Longitude _____

Cuttings sent to District? (X) Yes
() No

			X

LOCATE IN SECTION

Note: PWS Wells attach a site map if well location is different from site location on permit application.

Grout	Casing & Screen	Depth (ft)		DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes Give color, grain size, and type of material Note cavities, depth to producing zones.
		From	To	
	XX			
Thickness & Depth	Diameter & Depth			
	26"	375'		
	12"	960'		
		0	40	NO SAMPLES TAKEN
		40	100	SAND QTZ
		100	110	LIMESTONE, YELLOWISH GRAY
		110	320	LIMESTONE, LIGHT GRAY
		320	500	LIME STONE YELLOWISH GRAY
		500	540	LIMESTONE YELLOWISH BROWN
		540	930	CLAY GRAYISH OLIVE GRAY
		930	990	limestone yellowish gray
Number of bags		990	1050	LIMESTONE VERY PALE ORANGE
2513				

Casing: Black Steel () Galv. () PVC (X) Fiberglass ()
Screen: Type OPEN HOLE Slot size _____
Screened from 960 (ft.) to 1128 (ft.)
Type of grout with 1/2 additives ASTM TYPE II W/4% GEL
Water: Clear (X) Colored () Sulphur () Salty () Iron ()
Conductivity 6,000 Chlorides 1,600 mg/l

WELL COMPLETION REPORT

FORM 0124
Rev. 11/90

WELL PERMIT NO. SF103092G
SFWMD WATER USE PERMIT NO. _____

CITY OF DEERFIELD BEACH 150 NW 2nd AVENUE DEERFIELD BEACH, FL 33441
 Owner [Signature] Address 2956 City 960 State 1128 Zip M
 Contractor's Signature License No. Completion Date Casing Depth Total Depth Well #

TYPE OF WORK: Construct () Repair () Abandon ()
 WELL USE: Domestic Well () Public () Monitor () Test ()
 Irrigation () Fire Well () Other _____
 METHOD: Rotary with MUD (X) or Air (), Cable Tool (), Jet ()
 Casing Driven (), Other _____
 STATIC WATER LEVEL _____ Ft. below top of casing
 PUMPING WATER LEVEL _____ Ft. after _____ Hrs. at _____ GPM
 PUMP SIZE _____ H.P. CAPACITY _____ GPM
 PUMP TYPE _____ INTAKE DEPTH _____
From top of ground

Grout	Casing & Screen	Depth (ft)		DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes Give color, grain size, and type of material Note cavities, depth to producing zones.
		From	To	
	XXX	XXX		
	24"	42'		
	16"	402'		
	6"	960'		
				SEE ATTACHED
Number of bags				
602				

LOCATION
 Located Near GOOLSBY & HILLSBOROUGH BLVD
 County BROWARD CO
 Section 2 Township 47S Range 42E
Latitude-Longitude

Cuttings sent to District? () Yes (X) No
 LOCATE IN SECTION
 Note: PWS Wells attach a site map if well location is different from site location on permit application.

Casing: Black Steel () Galv. () PVC (X) Fiberglass ()
 Screen: Type N/A Slot size _____
 Screened from _____ (ft.) to _____ (ft.)
 Type of grout with % additives 4%
 Water: Clear (X) Colored () Sulphur () Salty () Iron ()
 Conductivity _____ Chlorides _____ mg/l

DEERFIELD BEACH

PERMIT NUMBER: SF103092G

OWNER: CITY OF DEERFIELD BEACH

6" WELL

<u>FORMATION</u>	<u>FROM</u>	<u>TO</u>
SAND	0	10
SAND AND SHELL	20	50
SHELL AND SANDSTONE	50	60
SANDSTONE	60	370
SANDSTONE AND GREEN CLAY	370	440
CLAY GREEN	440	650
GREEN CLAY AND TAN LIME CLAY	650	680
TAN LIME AND TRACE OF CLAY	680	710
CLAY GREEN	710	830
CLAY WITH LIME LAYERS	830	900
TOP OF FLORIDAN	PHOSPHATE, CLAY AND SHELL FRAGMENTS	900
TAN LIME	930	950
MEDIUM HARD TAN LIME (957')	950	960
MEDIUM SOFT TAN LIME	960	1128

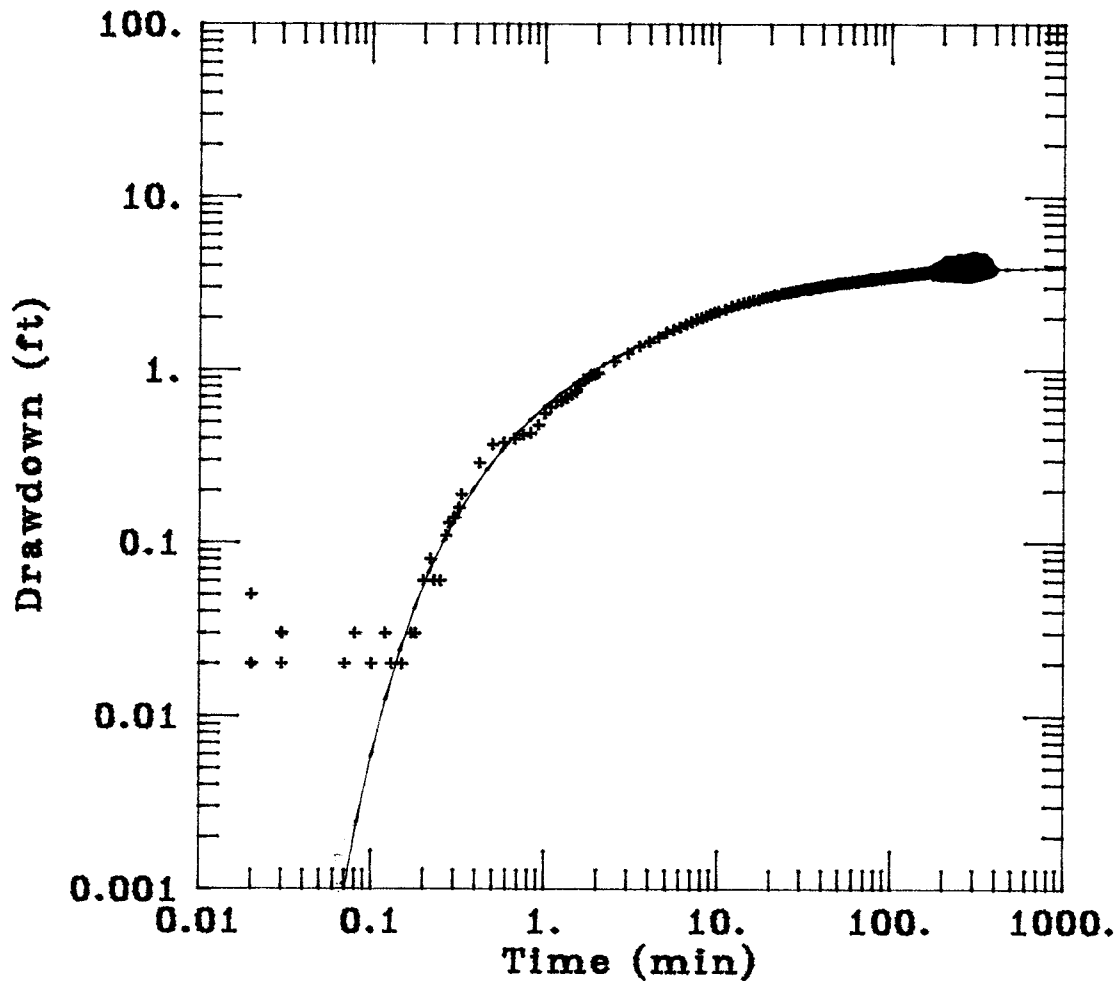
DRILLER: H. BLAIR
DATE STARTED: 12-04-92
DATE FINISHED: 12-20-92
TOTAL DEPTH: 1128'
CASING: 42' 24"
402' 16"
960' 6"

GEOPHYSICAL LOGS

<i>Date</i>	<i>Interval (feet bls)</i>	<i>Log</i>
6/12/92	0 - 400	Caliper
6/12/92	0 - 400	Standard electric, gamma ray, SP
7/8/92	0 - 1,042	Caliper
7/8/92	0 - 1,042	Standard electric, gamma ray, SP
9/4/92	800 - 1,128	Caliper
9/4/92	800 - 1,128	Standard electric, gamma ray, SP
9/4/92	800 - 1,128	Temperature, fluid resistivity
9/4/92	800 - 1,128	Flowmeter

12/10/92 Aquifer performance test data diskette.

Deerfield Beach FAS Drawdown Data



DATA SET:

mond.d.aqt

08/12/93

AQUIFER TYPE:

Leaky

SOLUTION METHOD:

Hantush

ESTIMATED PARAMETERS:

$T = 16.78 \text{ ft}^2/\text{min}$

$S = 0.0001701$

$r/B = 0.08834$

TEST DATA:

$Q = 160.4 \text{ ft}^3/\text{min}$

$r = 367. \text{ ft}$

$rc = 0.5 \text{ ft}$

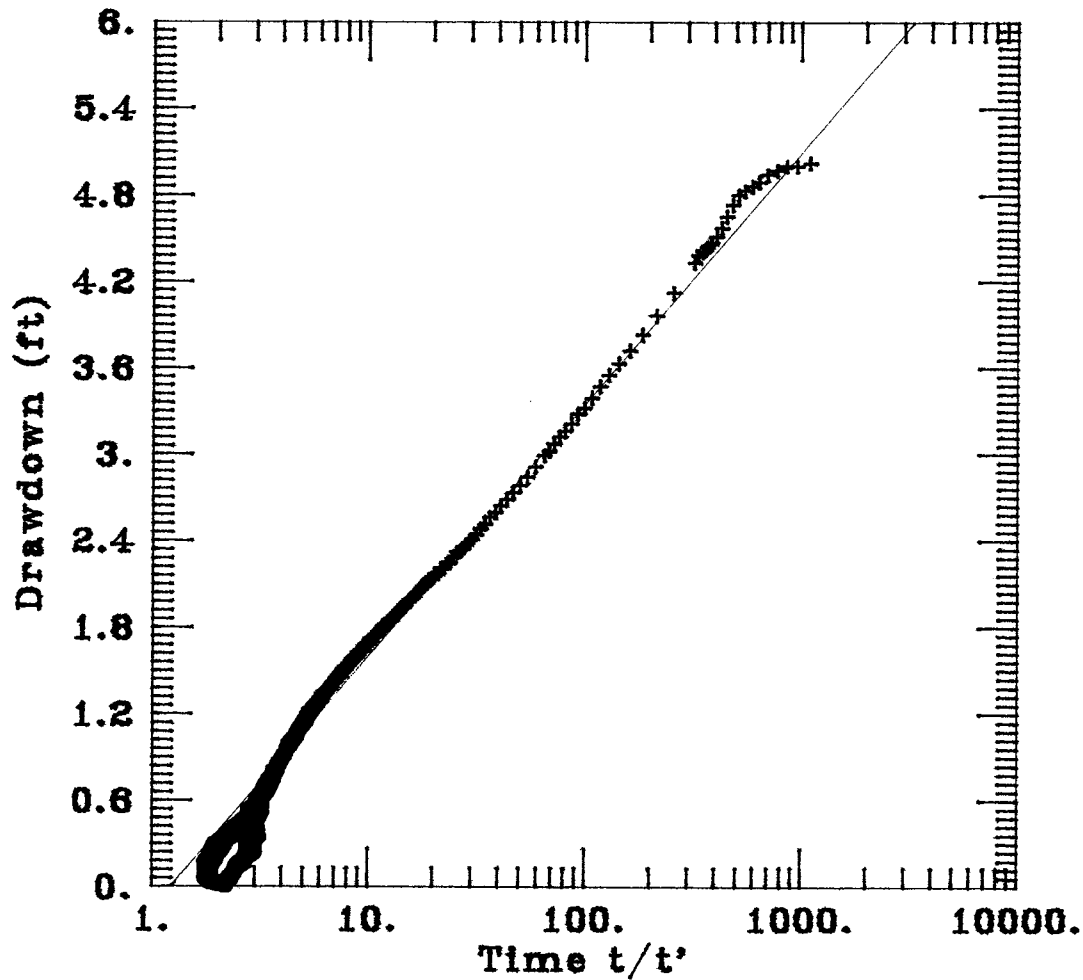
$rw = 0.5 \text{ ft}$

$$T = 24,163 \frac{\text{ft}^2}{\text{d}} = 180,764 \frac{\text{GPD}}{\text{ft}^2}$$

$$S = 1.7 \times 10^{-4}$$

$$\frac{K'}{b'} = 5.6 \times 10^{-3} \frac{1}{\text{day}}$$

Deerfield Beach FAS Recovery Data



DATA SET:

monrec.aqt

08/12/99

AQUIFER TYPE:

Confined

SOLUTION METHOD:

Theis Recovery

ESTIMATED PARAMETERS:

$T = 16.79 \text{ ft}^2/\text{min}$

$S' = 1.226$

TEST DATA:

$Q = 160.4 \text{ ft}^3/\text{min}$

$t \text{ pumping} = 636. \text{ min}$

$$T = 24,178 \frac{\text{ft}^2}{\text{d}}$$