DOWN
Construction
Preliminary Data
Clark Bay
Volusia County, FL

Aquifer System Monitor Wells:
Floridan V-0802

SJRWMD Program No. 31-58200

Division of Ground Water Programs,
Department of Resource Management
St. Johns River Water Management District
Palatka, Florida

December 9, 2002

All data, figures, tables and information are provisional and generated for the Division of Ground Water Program's use.

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General Information

Site: Clark Bay

Service Request: Stan Williams, Ground Water Programs

Purpose: Groundwater model data for Division of Needs and Sources

Data Collection: John Sego

Report: John Sego and Laura Nelms

Work:

Floridan Monitor Well Construction
CenTech Utility Corp.
Geophysical Logs
Southern Resources
SJRWMD
Video Logs
Deep Venture

Notes:

V-0802

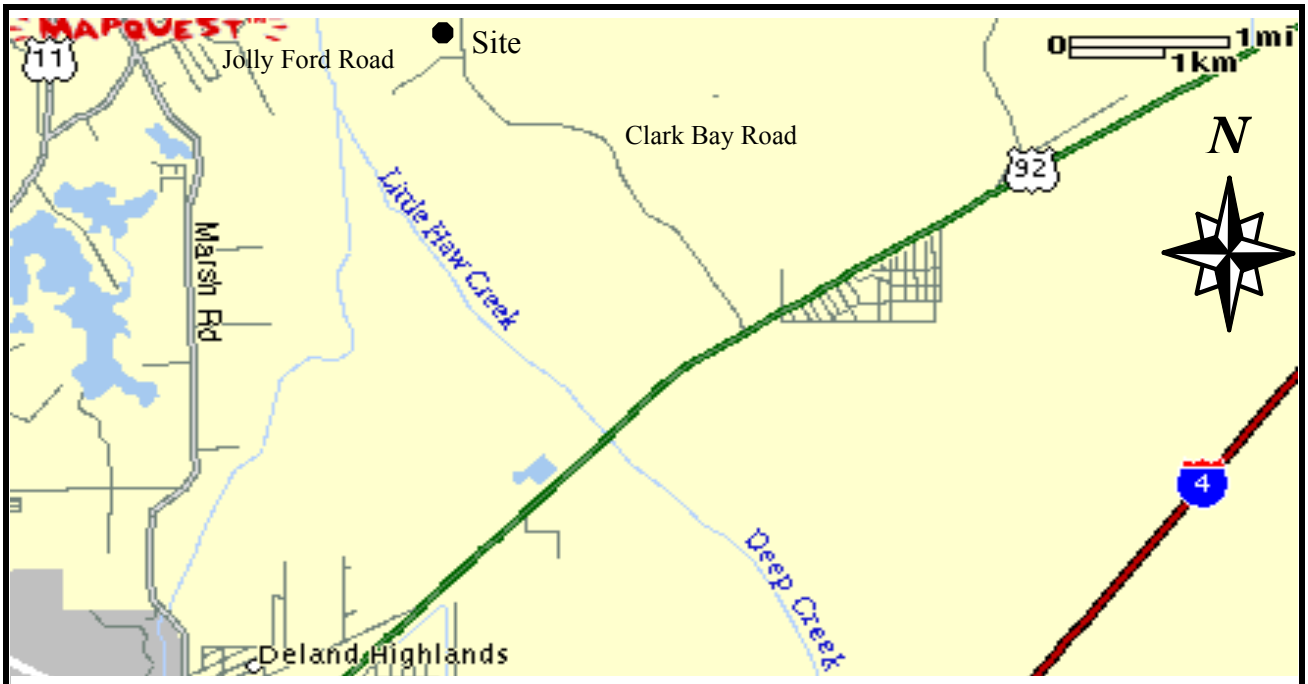
06/10/95 SJRWMD enters into license agreement with Georgia-Pacific Corp. to construct and monitor a Floridan aquifer well. This site subsequently determined to be owned by Mr. Dan McCullough.
04/29/96 Mr. McCullough calls SJRWMD regarding property access agreement for drilling.
04/30/96 Mr. McCullough verbally accepts permissive use agreement and allows drilling to resume.
05/09/96 Mr. McCullough signs permissive use agreement.
05/22/96 Tremie pipe hits obstruction in borehole at 1300 ft bls and 231 ft of tremie pipe is lost.
05/24/96 Polyprobe hung in borehole at 1230 ft bls and geophysical logging terminated. Note attached:
05/28/96 Video of V-0802

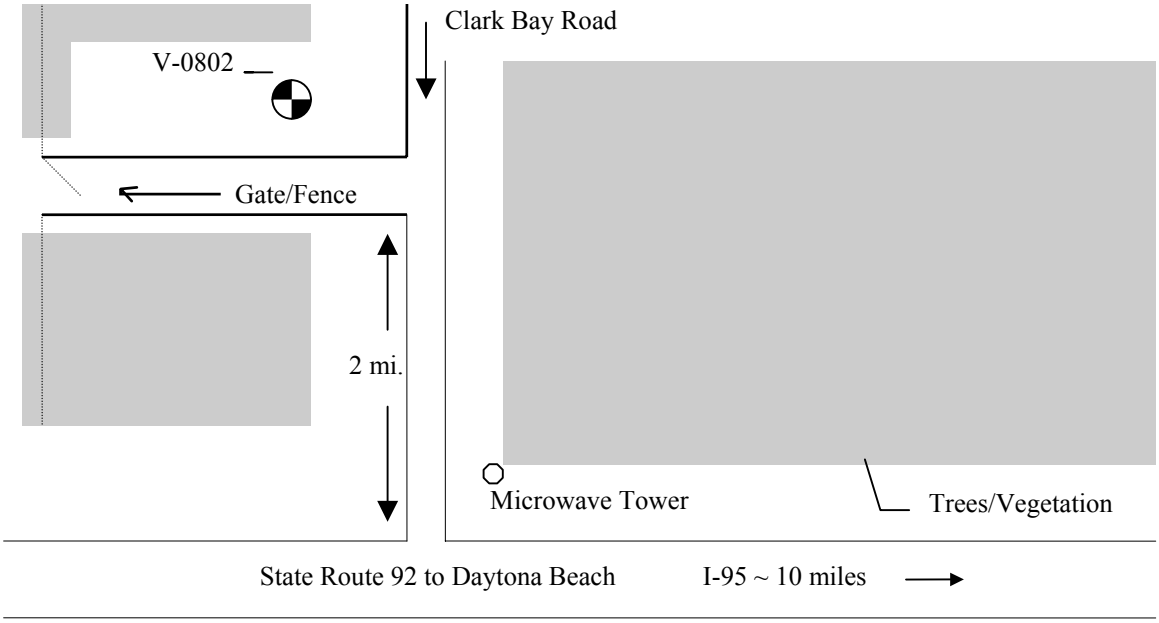
1. Geophysical logging polyprobe lodged in borehole at 1230 ft bls.
2. First 250 ft of rod visible at 996 ft bls and borehole well engaged.
3. Cavern at 1006 ft bls.
4. Boulders in borehole at 1013 ft bls, others visible further down hole, video terminated at this depth, polyprobe cable may be pinched.
5. Polyprobe free and out of well.

06/07/96 Video of V-0802

1. Water cloudy to 511 ft bls.
2. Shotgun shaped borehole 520 ft bls to 790 ft bls, oblate shotgun shaped borehole 790 ft bls to 1006 ft bls.
3. Cavern, pipe pressed into borehole wall 1003 ft bls to 1014 ft bls.
4. Tremie at 1027 ft bls in jagged formation. Borehole offset at 1028 ft bls, video terminated at this depth.

06/14/96 Centech uses bucket tool with notch to recover tremie pipe from well. Bottom sections slightly corkscrewed.
07/02/96 Well formation packers fail and 959 ft of casing is pulled from well.
07/08/96 Video shows well engaged @ 930 – 935 ft bls and decision is made to set case in this interval. Casing set @ 940 ft bls with three formation packers @ 939, 937, and 935 ft bls.





Site:	Clark Bay
Lat/Long:	290743/811436
TRS:	16s 30e sec12
Topo:	Daytona Beach NW quad
Site Elevation:	~40 NGVD
Project No:	31-58200

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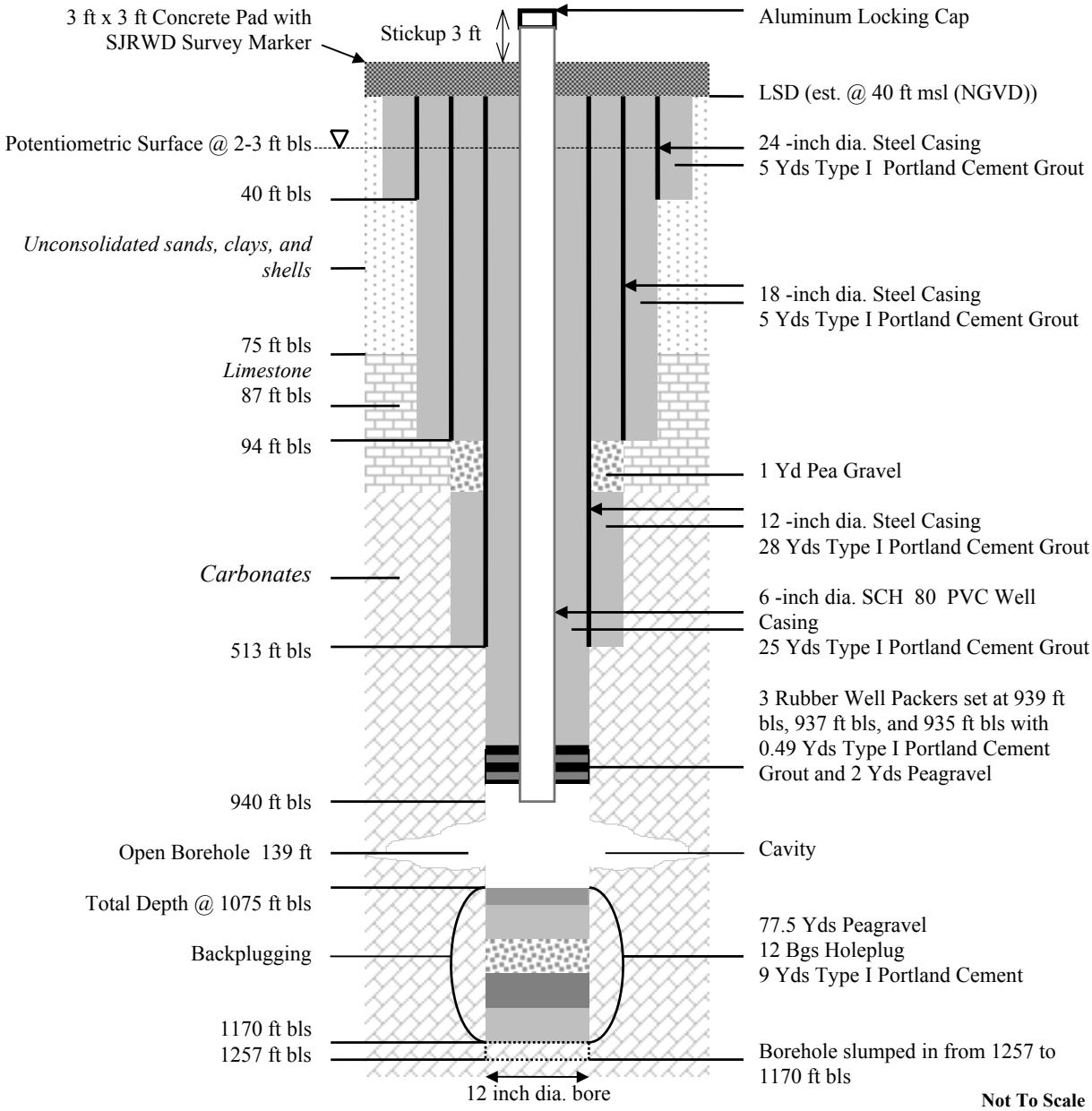
Figure 1. Site Map



Project: Clark Bay Site	**SJRWMD**
Driller: CenTech Utility Corp	**Figure 2. Floridan Monitor Well V-0802**
Completion Date: July 12, 1996	

Table 1. Ground Water Levels after Each Drill Rod

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

Water Levels			Well Borehole Characteristics	
Date/Time (yy:mm:dd/hh:mm)	Casing (ft bls)	Rod (ft bls)	Total Depth (ft bls)	Open Hole (ft)
960322-1020	1.35	1.45	114	27
960322-1210	1.29	1.43	134	47
960322-1345	1.52	1.59	154	67
960325-1340	1.78	1.68	174	87
960325-1610	1.70	1.70	194	107
960325-1740	1.75	1.75	214	127
960326-0900	1.70	1.70	234	147
960326-NR	NR	NR	254	167
960328-0950	1.54	1.53	274	187
960328-1205	1.59	1.55	294	207
960328-1315	1.52	1.57	314	227
960328-1458	1.52	1.88	334	247
960329-0740	1.33	1.35	354	267
960329-0933	1.33	1.60	374	287
960402-1542	1.02	1.55	394	307
960403-1332	1.22	1.26	414	327
960403-1550	1.25	1.15	434	347
960405-0746	1.28	1.43	454	367
960405-0952	1.34	1.20	474	387
960405-1110	1.45	1.67	494	407
960405-1232	NR	NR	514	427
960415-1326	7.07	NR	544	30
960416-1243	30.07	25.87	574	60
960416-1508	69.07	79.37	594	80
960416-1653	72.57	81.52	614	100
960416-1819	52.67	39.07	634	120
960417-0950	29.57	31.07	654	140
960417-1125	29.57	32.07	674	160
960417-1408	42.37	39.67	694	180
960417-1543	19.87	21.07	714	200
960417-1701	40.07	37.87	734	220
960417-1811	37.87	41.07	754	240
960418-0925	17.07	15.67	774	260
960418-1149	15.07	16.37	794	280
960418-1519	15.87	16.47	814	300
960418-1702	16.07	15.57	834	320
960418-1753	15.39	15.32	854	340
960418-1857	15.36	15.07	874	360
960419-0919	14.77	15.85	914	400
960419-1059	15.47	15.46	934	420
960419-1244	16.22	17.99	954	440

Table 1. (cont.) Ground Water Levels after Each Drill Rod

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

Water Levels			Well Borehole Characteristics	
Date/Time (yy:mm:dd/hh:mm)	Casing (ft bls)	Rod (ft bls)	Total Depth (ft bls)	Open Hole (ft)
960422-1203	11.00	8.95	1006	492
960424-0825	12.60	12.02	1038	524
960424-1226	12.27	9.72	1070	556
960426-1344	11.28	11.34	1101	587
960521-0710	16.8	NR	1217	703
960521-0953	12.10	14.20	1225	711

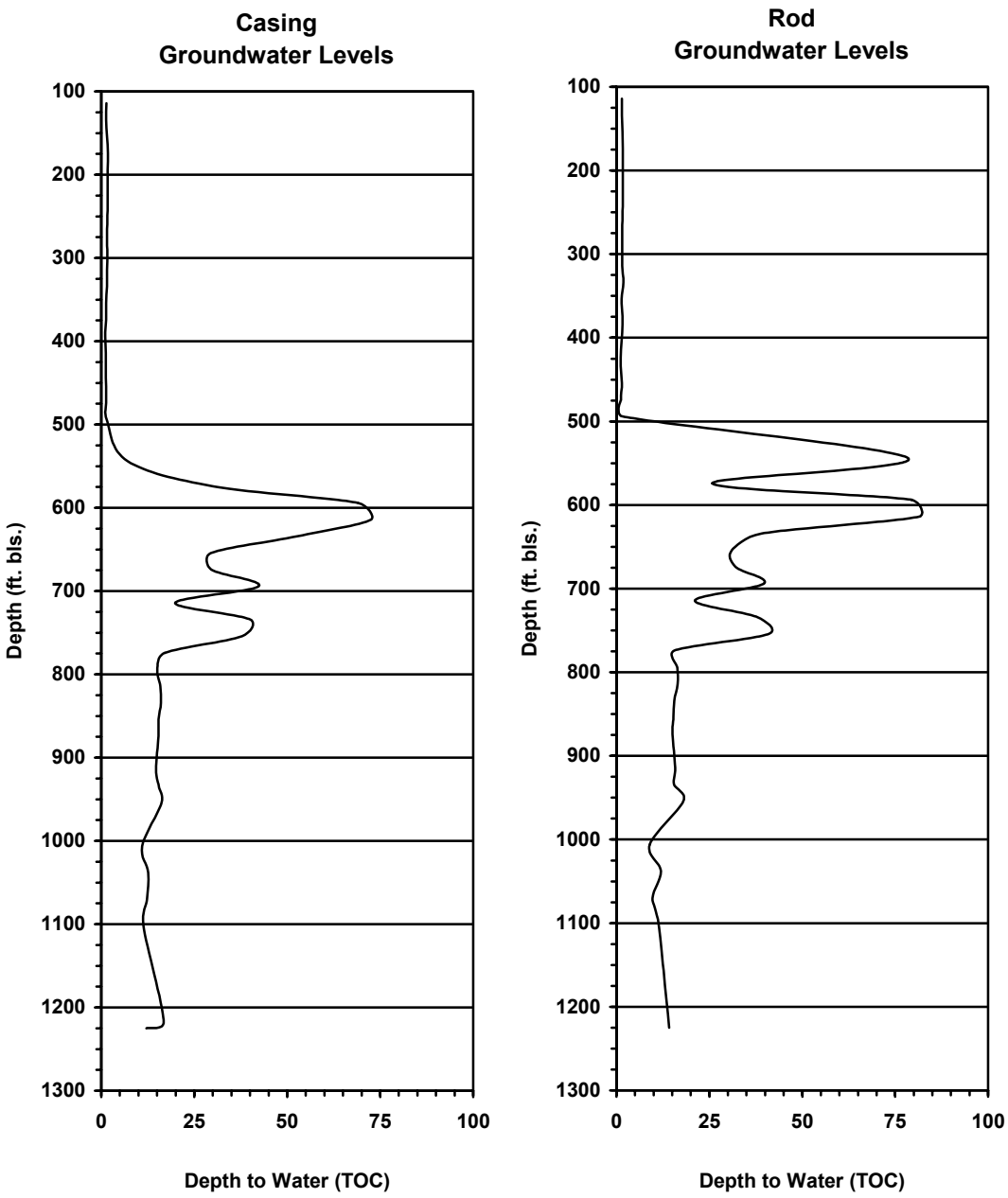


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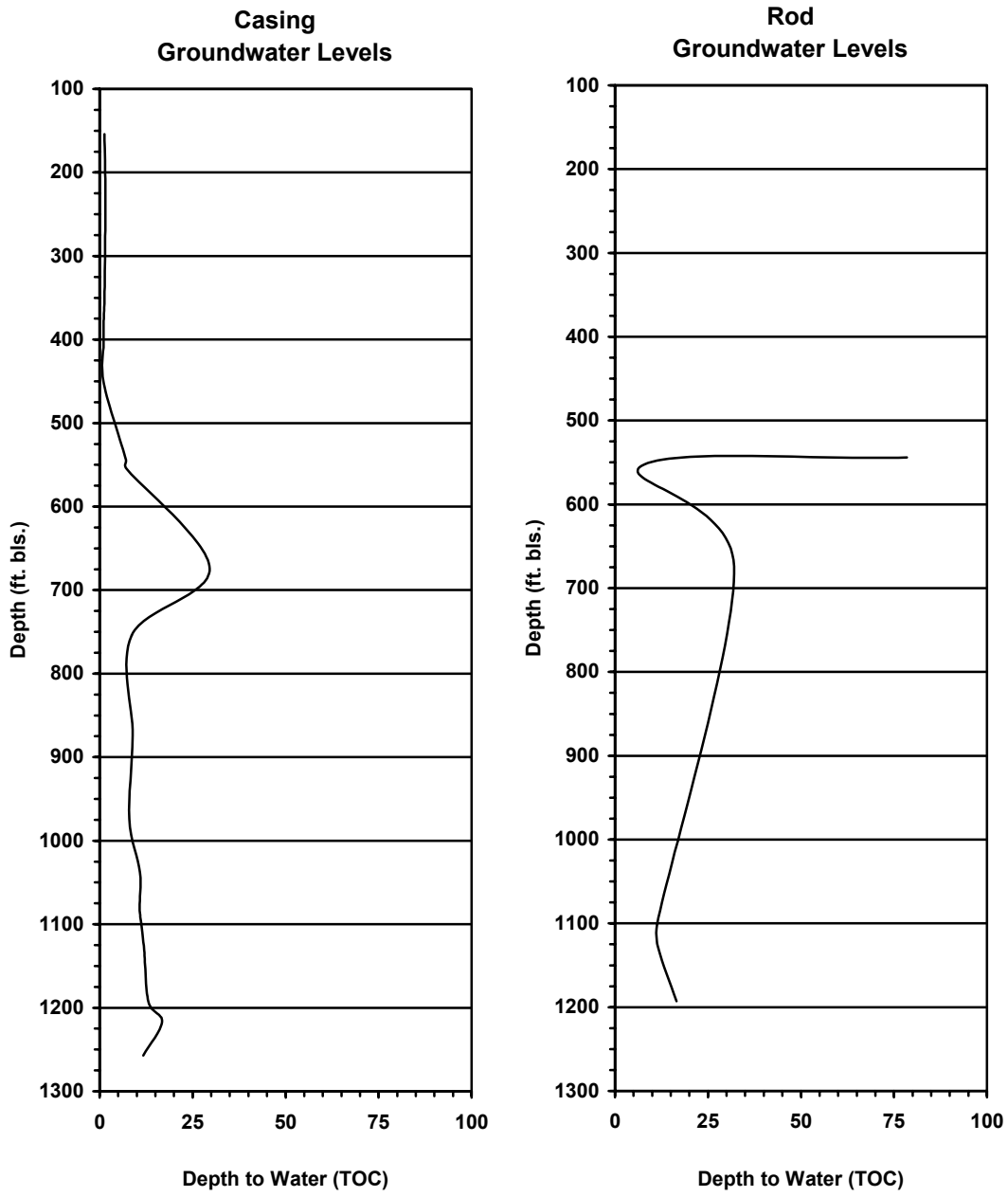
Figure 3. Ground Water Levels after Each Drill Rod: Floridan Monitor Well V-0802

Table 2. Daily Initial Ground Water Levels

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

Water Levels			Well Borehole Characteristics	
Date/Time (yy:mm:dd/hh:mm)	Casing (ft bls)	Rod (ft bls)	Total Depth (ft bls)	Open Hole (ft)
960325-0700	1.30	NR	154	67
960326-0700	1.55	NR	214	127
960327-0835	1.51	NR	254	167
960328-0600	1.50	NR	254	167
960329-0625	1.30	NR	352	265
960402-1300	1.02	NR	380	293
960403-0904	1.04	NR	405	318
960405-0650	1.14	NR	453	366
960415-1326	7.07	NR	544	30
960416-0720	7.07	7.07	554	40
960417-1125	29.57	32.07	674	160
960418-0718	8.60	NR	754	240
960419-0625	8.90	NR	874	360
960422-0830	7.98	NR	974	460
960423-0858	10.65	NR	1038	524
960424-0700	10.80	NR	1038	524
960425-0855	10.77	NR	1080	566
960426-1344	11.28	11.34	1101	587
960507-1451	11.98	11.72	1131	617
960520-1418	13.15	16.55	1193	679
960521-0710	16.8	NR	1217	703
960522-NR	11.76	NR	1257	775



Site: Clark Bay

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Figure 4. Daily Initial Ground Water Levels: Floridan Monitor Well V-0802

Table 3. Ground Water Quality Data

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

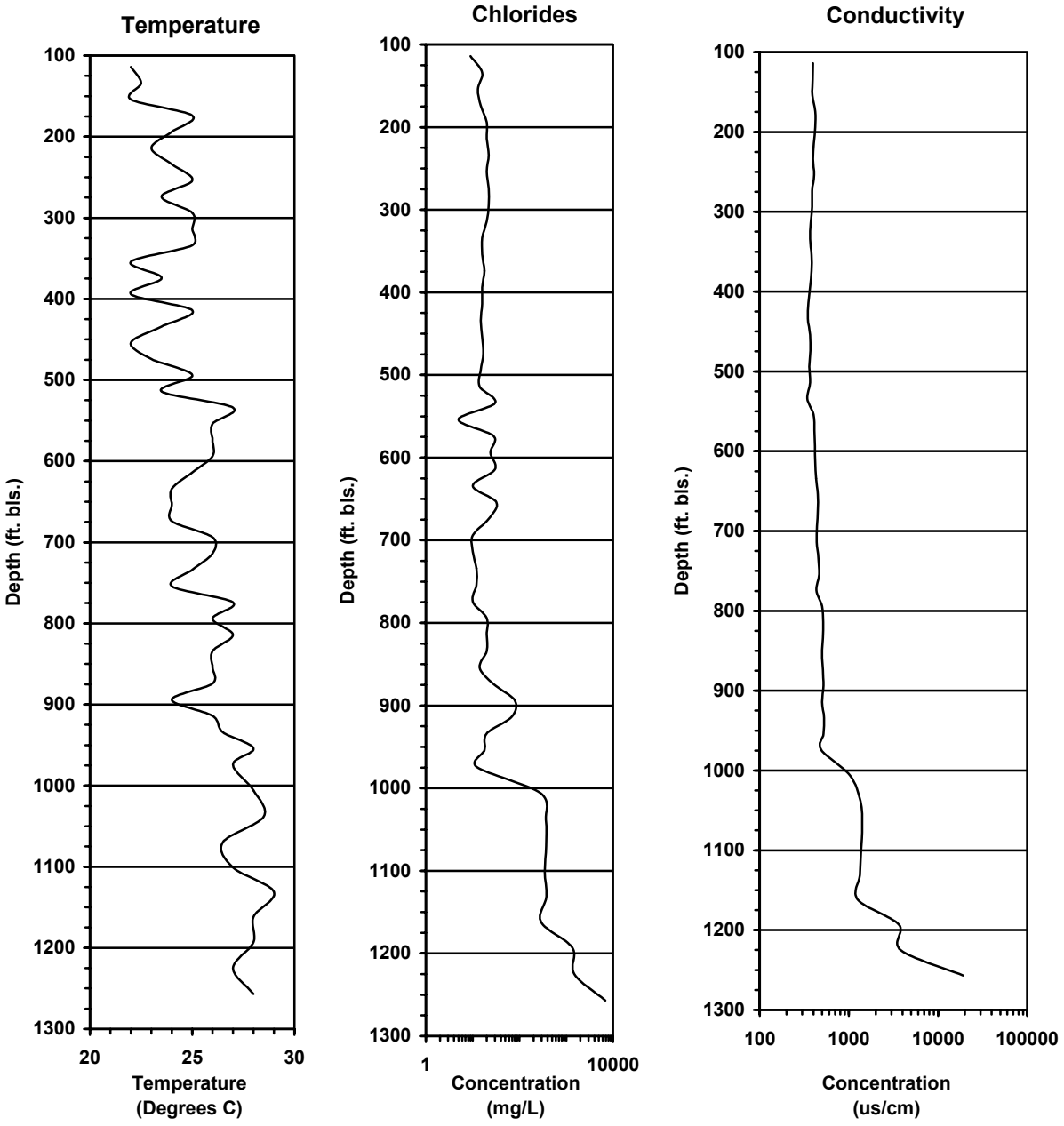
Lab Sample	Date/Time (yy:mm:dd/hh:mm)	Sample Depth (ft bls)	Open Hole (ft)	Temp (^{o}C)	Chlorides (mg/L)	Conductivity (us/cm)
√	960322-0945	114	27	22	9	396
	960322-1155	134	47	22.5	16	391
	960322-1336	154	67	22	13	390
	960325-1323	174	87	25	15	418
	960325-1555	194	107	24	20	418
	960325-1730	214	127	23	20	405
	960325-1610	234	147	24	22	396
	960326-0845	254	167	25	20	406
	960326-1046	274	187	23.5	22	386
	960328-0940	294	207	25	22	386
	960328-1155	314	227	25	20	372
	960328-1307	334	247	25	16	367
	960328-1452	354	267	22	16	382
	960329-0705	374	287	23.5	18	380
	960329-0925	394	307	22	16	368
	960404-1317	414	327	25	16	352
	960404-1451	434	347	23.5	15	347
	960405-0738	454	367	22	16	366
	960405-0940	474	387	23	17	369
	960405-1057	494	407	25	15	359
	960405-1232	514	427	23.5	14	368
	960412-1007	534	20	27	30	342
	960415-1557	554	40	26	5	400
	960416-1115	574	60	26	28	410
	960416-1451	594	80	26	24	415
	960416-1640	614	100	25	30	418
	9604161-806	634	120	24	10	427
	960417-0925	654	140	24	32	448
	960417-1111	674	160	24	22	448
	960417-1259	694	180	26	10	438
	960417-1515	714	200	26	10	435
	960417-1752	734	220	25	12	454
	960417-1806	754	240	24	12	463
	960418-0918	774	260	27	10	431
	960418-1137	794	280	26	20	500
	960418-1509	814	300	27	20	515
	960418-1652	834	320	26	20	510
	960418-1748	854	340	26	14	500
	960418-1847	874	360	26	28	510

Table 3. (cont.) Ground Water Quality Data

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

Lab Sample	Date/Time (yy:mm:dd/hh:mm)	Sample Depth (ft bls)	Open Hole (ft)	Temp (^{o}C)	Chlorides (mg/L)	Conductivity (us/cm)
	960419-0737	894	380	24	80	520
	960419-0912	914	400	26	68	500
	960419-1051	934	420	26.5	20	525
	960419-1256	954	440	28	18	518
	960419-1402	974	460	27	12	490
	960422-1134	1006	492	28	286	1028
	960422-1334	1038	524	28.5	370	1352
	960424-1215	1070	556	26.5	374	1405
	960426-1255	1101	587	27	350	1369
	960507-1410	1131	617	29	380	1333
	960426-1255	1162	648	28	288	1265
√	960520-1022	1193	679	28	1350	3643
	960521-0935	1225	711	27	1485	3819
√	960521-1407	1257	743	28	6890	19176



Site: Clark Bay

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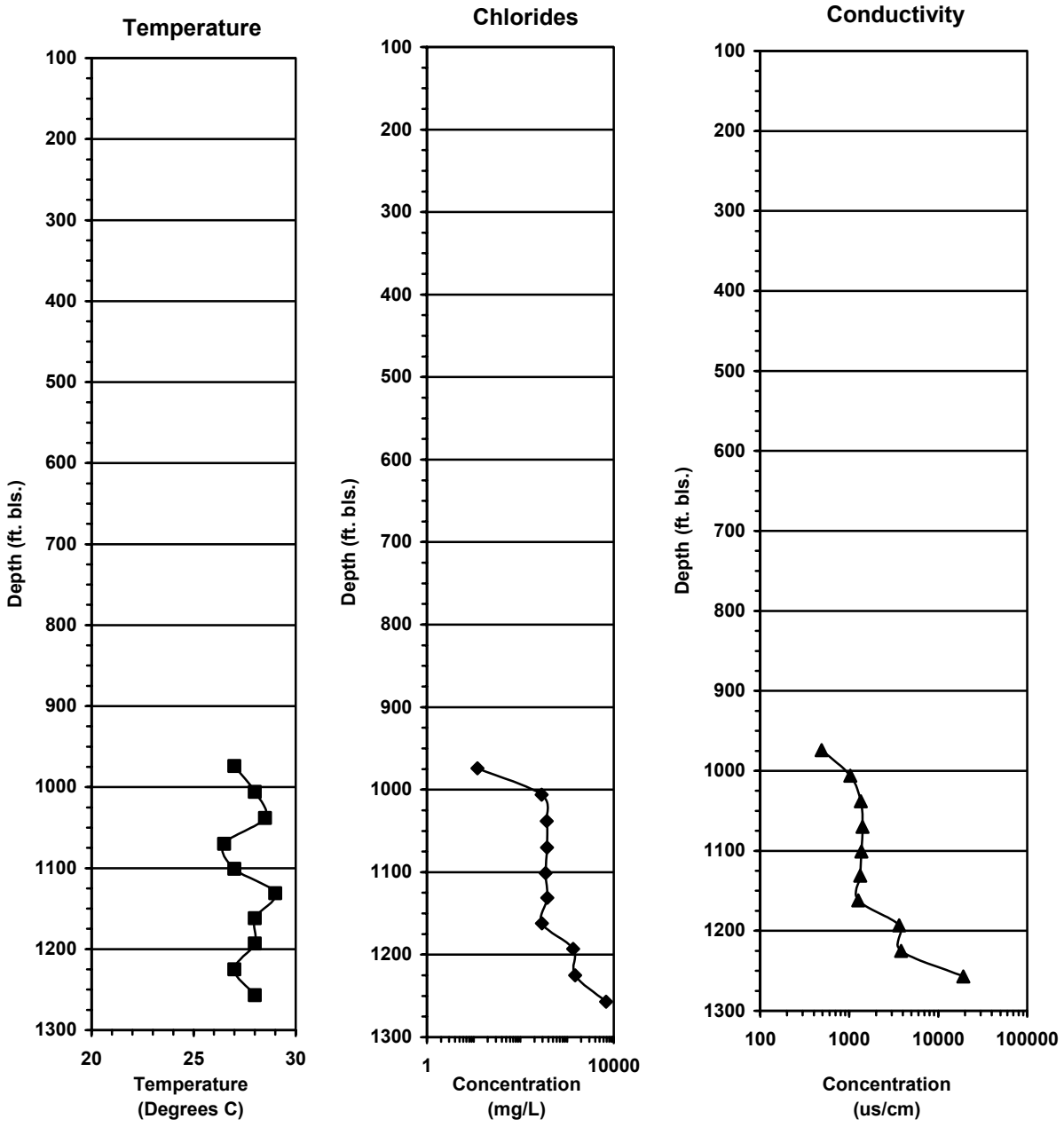
Figure 5. Ground Water Quality: Floridan Monitor Well V-0802

Table 4. Down Hole Sampler Ground Water Quality Data

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

Lab Sample	Date/Time (yy:mm:dd/hh:mm)	Sample Depth (ft bls)	Open Hole (ft)	Temp (^{o}C)	Chlorides (mg/L)	Conductivity (us/cm)
	960419-1402	974	460	27	12	490
	960422-1134	1006	492	28	286	1028
	960422-1334	1038	524	28.5	370	1352
	960424-1215	1070	556	26.5	374	1405
	960426-1255	1101	587	27	350	1369
	960507-1410	1131	617	29	380	1333
	960426-1255	1162	648	28	288	1265
√	960520-1022	1193	679	28	1350	3643
	960521-0935	1225	711	27	1485	3819
√	960521-1407	1257	743	28	6890	19176



Site: Clark Bay	**SJRWMD**
Project No: 31-58200	**Figure 6. Down Hole Sampler Ground Water Quality: Floridan Monitor Well V-0802**

Table 5. Drilling Rate: Floridan Monitor Well V-0802

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

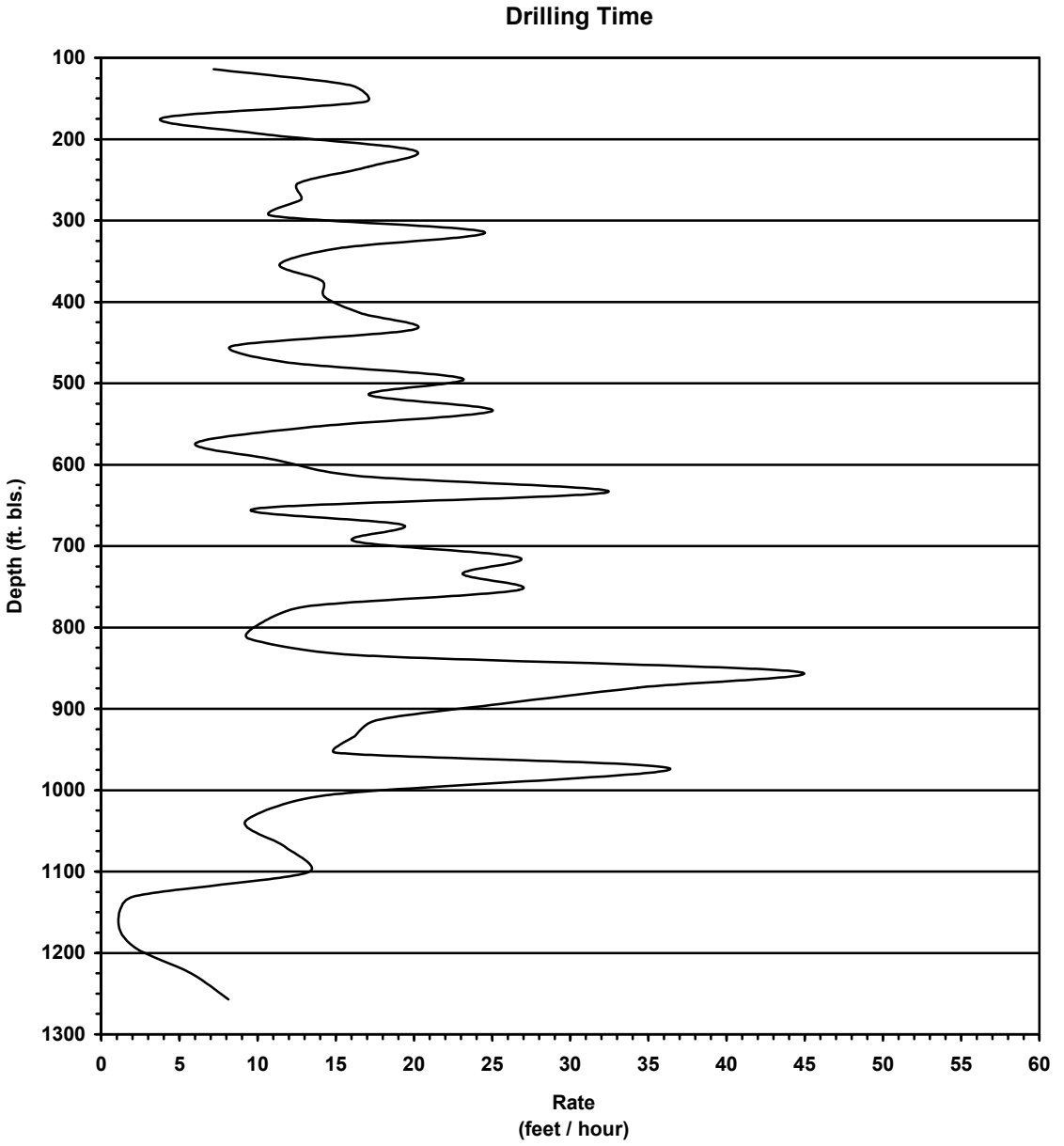
Borehole Data		Drilling Time Data			
Total Depth (ft bls)	**Open Hole (ft)**	**Bit Size (in)**	**From (ft bls)**	**To (ft bls)**	**Time (ft/hr)**
110	23	15.25	NA	NA	NA
114	27	15.25	87	114	7.20
134	47	15.25	114	134	16.0
154	67	15.25	134	154	16.9
174	87	15.25	154	174	3.90
194	107	15.25	174	194	10.4
214	127	15.25	194	214	20.0
234	147	15.25	214	234	17.1
254	167	15.25	234	254	12.6
274	187	15.25	254	274	12.8
294	207	15.25	274	294	10.9
314	227	15.25	294	314	24.5
334	247	15.25	314	334	15.2
354	267	15.25	352	354	11.4
374	287	15.25	354	374	14.1
394	307	15.25	374	394	14.3
414	327	15.25	394	414	16.6
434	347	15.25	414	434	20.0
454	367	15.25	434	454	8.39
474	387	15.25	454	474	11.8
494	407	15.25	474	494	23.1
514	427	15.25	494	514	17.1
534	20	12.00	514	534	25.0
554	40	12.00	534	554	13.3
574	60	12.00	554	574	6.03
594	80	12.00	574	594	11.1

Table 5. (cont.) Drilling Rate: Floridan Monitor Well V-0802

Site: Clark Bay **Well Number**: V-0802

Hydrologist: J. Sego **Casing Depth**: Ref Grout Table

Borehole Data		Drilling Time Data			
Total Depth (ft bls)	Open Hole (ft)	Bit Size (in)	From (ft bls)	To (ft bls)	Time (ft/hr)
614	100	12.00	594	614	16.43
634	120	12.00	614	634	32.4
654	140	12.00	634	354	9.84
674	160	12.00	654	674	19.3
694	180	12.00	674	694	16.2
714	200	12.00	694	714	26.7
734	220	12.00	714	734	23.1
754	240	12.00	734	754	26.7
774	260	12.00	754	774	13.2
794	280	12.00	774	794	10.3
814	300	12.00	794	814	9.45
834	320	12.00	814	834	16.2
854	340	12.00	834	854	44.4
874	360	12.00	854	874	34.3
894	380	12.00	874	894	25.5
914	400	12.00	894	914	17.6
934	420	12.00	914	934	16.2
954	440	12.00	934	954	15.0
974	460	12.00	954	974	36.4
1006	492	12.00	974	1006	14.4
1038	524	12.00	1006	1038	9.23
1070	556	12.00	1038	1070	11.8
1101	587	12.00	1080	1101	13.2
1131	617	12.00	1101	1131	2.00
1162	648	12.00	1131	1162	1.09
1193	679	12.00	1162	1193	2.13
1225	711	6.00	1193	1225	5.73
1257	743	6.00	1225	1257	8.13



Site: Clark Bay	**SJRWMD**
Project No: 031-51000	**Figure 7: Drilling Rate: Floridan Monitor Well V-0802**

Table 6. Grout Data

Site: Clark Bay **Well Number**: V-0802

DATE	TAG DEPTH (ft bls)	ANNULUS/ BORE	VOLUME (YARDS/BAGS)	GROUT/ MATERIAL	COMMENTS
03/15/96	40	29-A	5 yds	Type I Portland	Set 40 ft of 24 inch dia. surface casing via pressure grouting from 40 ft bls to LSD
03/20/96	87	22-A	5 yds	Type I Portland	Set 87 ft of 18 inch dia. surface casing via pressure grouting from 87 ft bls to LSD
04/09/96	NR	16-A	7 yds	Type I Portland	Set 514 ft of 12 inch dia. surface casing via pressure grouting
04/10/96	NR	16-A	7 yds	Type I Portland	Tremie grout 12 inch dia. casing
04/10/96	NR	16-A	7 yds	Type I Portland	Tremie grout 12 inch dia. casing
04/11/96	125	16-A	4 yds	Type I Portland	Tremie grout 12 inch dia. casing
04/11/96	92	16-A	1 yd	Peagravel	Use 1 yd of gravel to close off highly porous media @ 92 ft bls
04/11/96	88	16-A	3 yds	Type I Portland	Tremie grout 12 inch dia. casing
6/12/96	1170	12-B	4 yds	Type I Portland	Back plug borehole via 2 inch dia. tremie pipe from 1170 ft bls
6/13/96	1170	12-B	3 yds	Peagravel	Use 3 yds of gravel via 6 inch dia. PVC casing to close off highly porous media @ 1170 ft bls
6/14/96	1164	12-B	1 yd	Peagravel	Use 1 yd of gravel via 6 inch dia. PVC casing to close off highly porous media
6/17/96	1160	12-B	1 yd	Peagravel	Use 1 yd of gravel via 6 inch dia. PVC casing to close off highly porous media
6/18/96	1160	12-B	5 yds	Peagravel	Use 5 yds. of gravel via 6 inch dia. PVC casing to close off highly porous media
6/19/96	1145	12-B	4.5 yds	Peagravel	Use 5 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/20/96	1130	12-B	3 yds	Type I Portland	Back plug borehole via 2 inch dia. tremie pipe from 1145 ft bls
6/21/96	1145	12-B	0.5 yds	Peagravel	Use 0.5 yds of gravel via 6 inch dia. PVC casing to close off highly porous media; grout tremied on 6/20/96 caused gravel to slump from 1130 ft bls down to 1145 ft bls

Table 6. (cont.) Grout Data

Site: Clark Bay **Well Number**: V-0802

DATE	TAG DEPTH (ft. bls.)	ANNULUS/ BORE	VOLUME (YARDS/BAGS)	GROUT/ MATERIAL	COMMENTS
6/22/96	1120	12-B	7 yds	Peagravel	Use 7 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/22/96	1103	12-B	0.49 yds	Type I Portland	Back plug borehole via 2 inch dia. tremie pipe from 1102 ft bls
6/23/96	1120	12-B	1 yd	Peagravel	Use 1 yd of gravel via 6 inch dia. PVC casing to close off highly porous media; grout tremied on 6/22/96 caused gravel to slump from 1102 ft bls down to 1120 ft bls
6/24/96	1120	12-B	7 yds	Peagravel	Use 7 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/25/96	1119	12-B	7 yds	Peagravel	Use 7 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/26/96	1115	12-B	7 yds	Peagravel	Use 7 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/27/96	1112	12-B	7 yds	Peagravel	Use 7 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/27/96	1102	12-B	7 yds	Peagravel	Use 7 yds of gravel via 6 inch dia. PVC casing to close off highly porous media
6/28/96	1083	12-B	0.5 yds	Type I Portland	Back plug borehole via 2-inch tremie pipe from 1083 ft bls
6/30/96	1072	12-B	0.5 yds	Type I Portland	Back plug borehole via 2-inch tremie pipe from 1072 ft bls
7/01/96	1075	12-B	NONE	NONE	Grout tremied on 6/30/96 caused gravel to slump from 1072 ft bls down to 1075 ft bls
7/02/96	959	12-A	6 bgs	Holeplug	Set 960 ft of 6-inch dia. SCH 80 PVC casing, three well formation packers set at 959, 957, and 955 ft bls, pour 6 bgs holeplug from land surface
7/02/96	959	12-A	0.5 yds	Peagravel	Pour 0.5 yds of peagravel from land surface
7/02/96	943	12-A	12 bgs	Type I Portland	Tremie grout 6 inch inch dia. casing

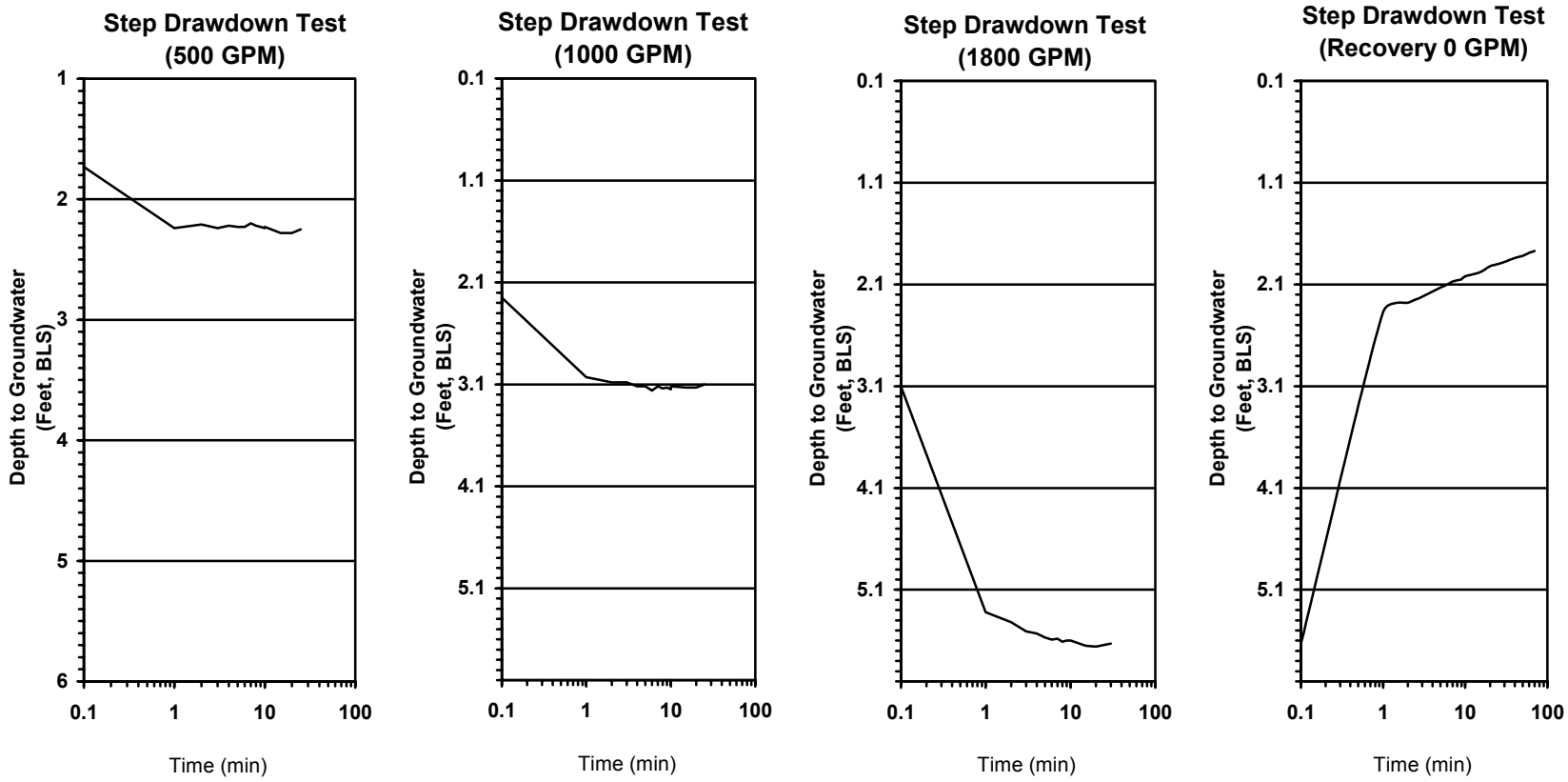
Table 6. (cont.) Grout Data

Site: Clark Bay **Well Number**: V-0802

DATE	TAG DEPTH (ft. bls.)	ANNULUS/ BORE	VOLUME (YARDS/BAGS)	GROUT/ MATERIAL	COMMENTS
7/04/96	1075	12-A / 12-B	NA	NA	Pulled casing from well after seal fails@ well formation packers. Material poured on 7/02/96 assumed to be at 1075 ft bls. Subsequent tag confirms 1075 ft bls.
7/08/96	939	12-A	2 yds	Peagravel	Set 940 ft of 6-inch SCH 80 PVC casing, three well formation packers set at 939, 937, and 935 ft bls, pour 2 yds peagravel from land surface
7/08/96	920	12-A	0.49 yds	Type I Portland	Tremie grout 6 inch dia. Casing from 920 ft bls
7/08/96	920	12-A	5 yds	Type I Portland	Tremie grout 6 inch dia. Casing from 920 ft bls
7/09/96	913	12-A	12 bgs	Type I Portland	Tremie grout 6 inch dia. Casing from 913 ft bls
7/09/96	803	12-A	5 yds	Type I Portland	Tremie grout 6 inch dia. Casing from 803 ft bls
7/10/96	620	12-A	5 yds	Type I Portland	Tremie grout 6 inch dia. Casing from 620 ft bls
7/11/96	515	12-A	5 yds	Type I Portland	Tremie grout 6 inch dia. Casing from 515 ft bls
7/12/96	NR	12-A	3 yds	Type I Portland	Tremie grout 6 inch dia. Casing to land surface

Table 7: Step Drawdown Pump Test Data: Floridan Monitor Well V-0802

Pump Specs.	Type: Diesel motor powered turbine pump	Size: 14 in. dia.	Depth Set: 40-45 ft. bls.	Max. Discharge Rate: 2900 GPM	
Pump Times	Start: 1156		Stop: 1331		
Steps	1	2	3	Recovery	
Pump Rate (gpm)	500	1000	1800	0	
Time (min) After pumping starts	GWL (ft. TOC)	GWL (ft. TOC)	GWL (ft. TOC)	Time (min) After pumping stops	GWL (ft. TOC)
0	1.73	2.25	3.1	0	5.63
1	2.24	3.03	5.32	1	2.37
2	2.21	3.08	5.42	2	2.28
3	2.24	3.08	5.51	3	2.22
4	2.22	3.12	5.53	4	2.17
5	2.23	3.12	5.57	5	2.13
6	2.23	3.16	5.59	6	2.1
7	2.2	3.12	5.58	7	2.07
8	2.22	3.14	5.61	8	2.06
9	2.23	3.13	5.6	9	2.05
10	2.24	3.15	5.6	10	2.02
10	2.23	3.12	5.6	15	1.98
15	2.28	3.13	5.65	20	1.92
20	2.28	3.13	5.66	25	1.9
25	2.25	3.1	NR	30	1.88
30	NR	NR	5.63	40	1.84
35	NR	NR	NR	50	1.82
				60	1.79
				70	1.77



Site: Clark Bay

Project No: 31-58200

SJRWMD

Figure 8. Step Drawdown Test Data: Monitor Well V-0802

Lithologic Description

Site: Clark Bay **Well ID:** V-0802

Samples Described By: J. Sego

From (ft)	To (ft)	Lithology
0	5	Sand, dark brown, med-fine, with organic material
5	10	Sandy clay, orange
10	75	Shell, gray, with phosphatic clay, green to yellow, trace limestone from 30 to 75 ft bls
75	94	Limestone, tan, pelletal, fossiliferous (echinoids) @ 80 ft bls
94	103	Dolomite, tan, pinpoint to moldic porosity, platy cuttings, with dolomitic limestone, tan-gray, and trace clay, white
103	130	Dolomite, gray, □cherty, with clay, tan (□peaty), and limestone, creme colored @ 116 ft bls
130	150	Limestone, creme colored, micritic, fossiliferous (dictyconus)
150	165	Limestone, dolomitic, tan, fossiliferous (echinoids) with some clay, tan
165	171	Dolomite, dark tan, pinpoint to moldic porosity
171	172	Dolomitic limestone, tan, with some clay, tan
172	180	Dolomite, tan, □cherty
180	197	Dolomite, tan, sucrosic, platy, pinpoint to moldic porosity to 183 ft bls, then intergranular porosity
197	200	Limestone, tan, micritic, fossiliferous (echinoids), with dolomite, dark tan
200	205	Limestone, dolomitic, tan, fine grained, □chalky, little visible porosity, interbedded with micrite/dolomite
205	207	Dolostone, tan with granular dolomite, tan, and trace of limestone, creme colored, vuggy-moldic porosity @ 207 ft bls
207	210	Limestone, gray-white, micritic, pinpoint to moldic porosity
210	217	Limestone, tan, micritic to fossiliferous skeletal mass, pinpoint to vuggy porosity
217	220	Limestone, tan, fine grained-chalky
220	222	Dolomite, dark brown, fine to granular, trace peat
222	232	Dolomite, dark brown, platy, pinpoint porosity, with trace clay, white @ 226 ft bls, sulfurous odor from discharge line @ 229 ft bls
232	246	Dolomite, gray-tan to tan, granular, pinpoint porosity, moldic porosity @ 234 ft bls, vuggy @ 242 ft bls
246	247	Clay, gray
247	262	Dolomite, tan, hard, pinpoint and vuggy porosity, fine grained 254 to 263 ft bls
262	263	Clay, tan
263	282	Dolomite, tan, platy, pinpoint porosity, with peaty clay @ 270 ft bls, dark brown (□peaty) to tan dolomite @ 272 ft bls, clay, white @ 280 ft bls
282	287	Limestone, creme colored, micritic to dolomitic, pinpoint to moldic porosity, with clay, white, @ 283 ft bls
287	290	Dolomite, tan, platy cuttings, pinpoint porosity, sulfurous odor from discharge line
290	292	Limestone, dolomitic, tan, fine grained, with trace clay, tan
292	293	Limestone, creme colored, micritic, and dolomite, tan-dark tan, granular to sub-sucrosic, with peat/silt lamination, pinpoint to moldic porosity
293	300	Dolomite, tan, sucrosic to cherty some peat/silt lamination
300	303	Limestone, dolomitic, tan, fine grained, with trace peat/silt lamination, with clay, white @ 303 ft bls
303	305	Limestone, creme colored, micritic

Lithologic Description

Site: Clark Bay **Well ID:** V-0802

Samples Described By: J. Sego

From (ft)	To (ft)	Lithology
305	307	Limestone, dolomitic, tan
307	308	Limestone, dolomitic, gray
308	309	Limestone, dolomitic, tan
309	310	Limestone, dolomitic, gray; with peat/silt lamination
310	320	Limestone, tan, micritic, fossiliferous (echinoids), with dolomite, dark tan
320	360	Dolomite, tan to dark brown, hard, platy cuttings, sulfurous odor from discharge line, fine grained, little porosity, cherty @ 322 ft bls with clay, white @ 324 ft bls, □□ % pinpoint porosity and peat/silt lamination @ 325 ft bls, clay white @ 330 ft bls, dolomite is granular @ 331 ft bls, fine grained/platy, little porosity, @ 332 ft bls, clay, tan and vuggy porosity @ 343 ft bls, very hard @ 347 ft bls, peat/silt lamination @ 357 ft bls
360	367	Dolomite, tan-gray (marled), cherty, trace clay, white, dolomite is granular @ 364 ft bls, hard and cherty with trace clay, brown-black @ 365 ft bls
367	375	Dolomite, gray, hard, pinpoint to vuggy porosity, very hard @ 370 ft to 373 ft bls
375	405	Dolomite, tan-gray, platy, hard, with clay, tan @ 387 ft bls, softer dolomite @ 392 ft bls, hard dolomite with sulfurous odor @ 402 ft bls
405	424	Dolomite, tan, with trace clay, gray @ 405 ft bls, trace clay, white @ 410 ft bls, dolomite is very hard @ 422 ft bls, Dolomitic limestone, white, soft @ 422 ft bls
424	434	Dolomite, brown, fine grained, with trace limestone, creme colored, and clay, tan
434	450	Dolomite, gray, fossiliferous (echinoids), with dolomitic limestone, tan-gray @ 440 ft bls
450	468	Dolomite, dark brown, hard, fossiliferous (dictyconus & echinoids) @ 462 ft bls, with trace white clay @ 465 ft bls, peaty silt/clay @ 465 ft bls
468	471	Dolomite, gray-tan, with peaty clay, brown, @ 469 ft bls
471	490	Dolomite, dark brown, with trace peaty clay, brown @ 475 ft bls, with limestone, tan-creme colored and fossiliferous (echinoids) @ 480 ft bls, clay, tan @ 487 ft bls
490	494	Dolomite, dark brown, with limestone, tan-creme colored hard @ 492 ft bls, some dolomite, gray @ 292 ft bls
494	510	Dolomite, dark brown-gray, hard @ 498 ft. bls, with trace dolomitic limestone, white and peaty clay @ 504 ft bls, dolomitic limestone, tan-gray and clay, gray-white @ 504 ft bls, peaty clay @ 507 ft bls, clay, white @ 507 ft bls
510	511	Limestone, dolomitic, creme colored, micritic
511	512	Clay, tan
512	525	Limestone, dolomitic, tan, fossiliferous (dictyconus) @ 513 ft bls
525	530	Dolomite, dark brown, with limestone, tan
530	586	Limestone, dolomitic, tan-brown, fine grained, friable, soft sediment causing longer than average drilling time (ft/min), fossiliferous (dictyconus, echinoid) @ 542 ft and 566 ft bls
586	588	Limestone, dolomitic, tan-gray
588	632	Dolomite tan-gray, pin point porosity, fossiliferous (echinoid) @ 600 ft bls, (dictyconus, echinoid) @ 617 ft bls
632	647	Limestone, tan, micritic, pin point to vuggy porosity
647	725	Dolomite, tan-gray, fossiliferous (dictyconus), hard □ cherty @ 666 ft bls, with creme colored dolomitic limestone @ 694 ft bls

Lithologic Description

Site: Clark Bay **Well ID:** V-0802

Samples Described By: J. Sego

From (ft)	To (ft)	Lithology
725	740	Dolostone, gray, fine grained
740	750	Dolomite, tan, with dolomitic limestone, creme-gray, peaty @ 743 ft bls
750	760	Dolomite, tan-crème, with dolomite, tan, fossiliferous (dictyconus)
760	762	Dolomite, dark brown, peaty
762	800	Limestone, dolomitic, tan-creme colored, peaty @ 768 ft bls, pin point porosity, with trace clay, white @ 770 ft bls, cherty dolomite, gray @ 777 ft bls, limestone, creme colored @ 782 ft bls, fossiliferous (dictyconus, echinoid) @ 784 ft bls, dolomite, dark brown-gray @ 785 ft bls, vuggy-pin point porosity @ 798 ft bls
800	820	Dolomite, dark brown, peaty @ 812 ft bls, with limestone, creme colored
820	908	Limestone, dolomitic, tan-creme colored, fossiliferous (dictyconus) @ 827 ft bls, peaty @ 830 and 850 ft bls, hard calcitic @ 885 ft bls, with gray dolomitic limestone @ 850 ft bls, clay, white and limestone @ 870 ft bls
908	910	Clay, dark brown, peaty
910	912	Limestone, dolomitic, tan-dark tan
912	913	Clay, dark brown, peaty; with limestone, creme colored
913	1010	Limestone, dolomitic, tan-dark brown, fossiliferous (dictyconus), peaty; with peaty clay @ 935 ft bls, limestone, creme colored @ 940 ft bls, peaty brown and white clays @ 950 ft bls, peaty brown and limestone, white @ 955 ft bls
1010	1032	Cavernous zone, drill rod drops from 1010 ft to 1032 ft bls
1032	1038	Limestone, dolomitic, tan, vuggy porosity, fossiliferous, peaty @ 1037 ft bls
1038	1045	Dolomite, brown, hard
1045	1080	Limestone, dolomitic, tan, soft (frequently clogging drill rods), with dolomite, brown, granular, peaty, cavernous @ 1087 ft to 1098 ft bls
1080	1107	Limestone, dolomitic, tan-dark brown
1107	1110	Limestone, dolomitic, tan-creme colored, soft
1110	1193	Cavernous/soft sediment zone, drill rod drops from 1090 ft to 1092 ft bls, dredge from 1110 ft to 1162 ft bls, soft sediment/cavernous zone from to be 1110 ft to 1131 ft bls, soft sediment from 1131 ft to 1165 was dolomitic limestone, tan-creme colored 1110 to 1137 ft bls, dolomite, dark tan, granular with chalky creme colored limestone from 1137 ft to 1144 ft bls, dolomite, brown, hard, sucrosic to glassy texture from 1144 ft to 1155 ft bls, dolomite, creme colored from 1155 ft to 1160 ft bls, and chert, gray from 1160 to 1165 ft bls, limestone, white from 1165 to 1167 ft bls, mixture of all the above from 1167 ft to 1193 ft bls
1193	1195	Dolomite, brown, with white gypsiferous covering/rind, hard
1195	1206	Dolomite, brown-gray
1206	1257	Dolomite, brown, with creme colored limestone, and rock with green tinted sulfide deposits

Table 8. ***Permeability**

Site: Clark Bay **Well Number**: V-0802

MONITORING WELL		Density (PCF)	Sample Depth (ft, bls)	Coefficient Of Permeability (cm/sec)
SITE	Well ID			
Clark Bay	V-0802	111.2	534-537	3.5×10^{-6}

* Permeability test (ASTM standard) performed by Law Engineering and Environmental Services, June 19, 1996.

Table 9. **Video Logs Available**

Site: Clark Bay **Well Number**: V-0802

Date	Logger	Well Number	Casing/Bore Dia. (inch)	Survey Depth (ft bls)	Depth (ft bls)
05/28/96	Deep Venture	V-0802	B-12	950	1257
06/07/96	Deep Venture	V-0802	B-12	1028	1257

Figure 9. Monitor Well V-0802C Geophysical Logs

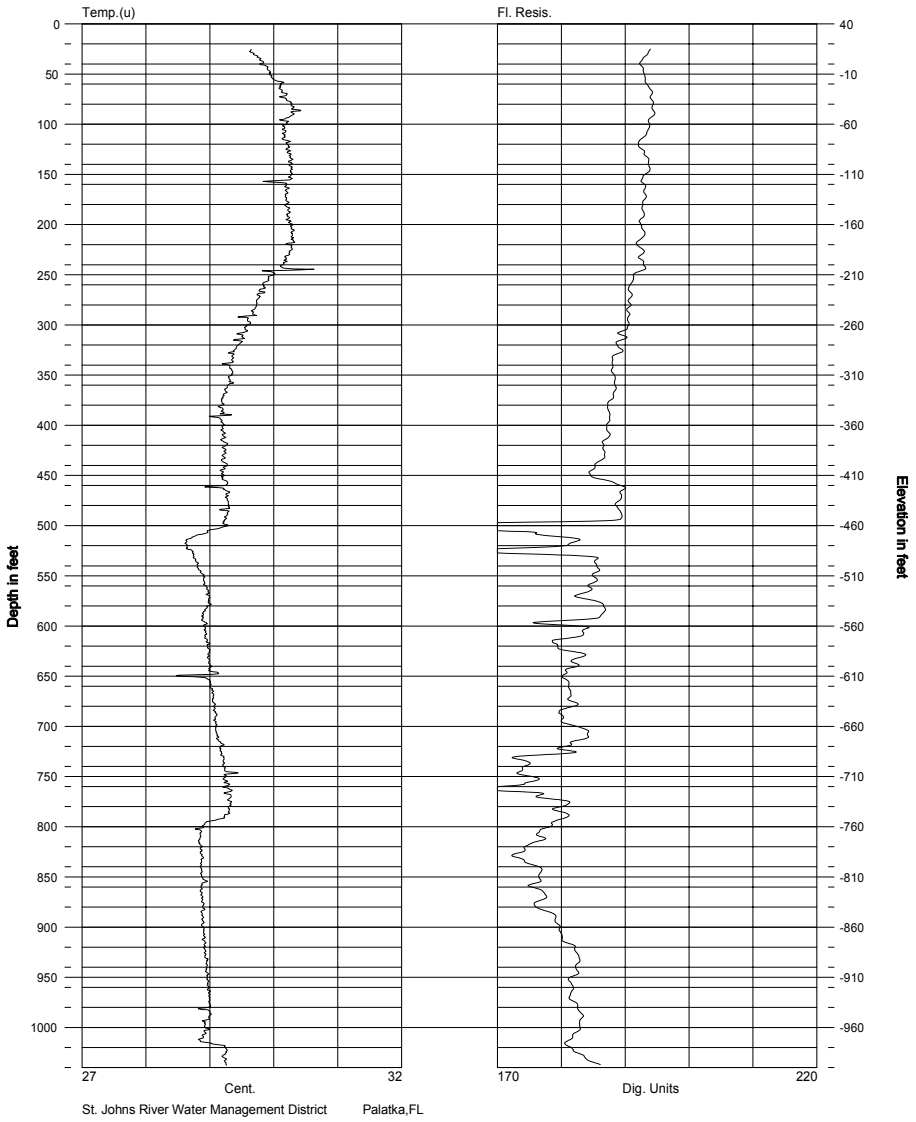


Figure 10. Monitor Well V-0802 Geophysical Logs