

Engineering Report on the

# Rehabilitation of Monitor Well MW-1 and Construction and Testing of Monitor Well MW-2 and Regional Monitor Well RMW-1 at the G.T. Lohmeyer Wastewater Treatment Plant

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Submitted to

City of Fort Lauderdale  
Broward County, Florida

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Prepared by

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**Regional Monitor Well RMW-1  
Pilot Hole/Packer Test Data**

PARAMETER	Interval			
	1097 to 1150 ft.	1253 to 1300 ft.	1408 to 1450 ft.	1563 to 1600 ft.
Conductivity (umhos/cm)	8,950	10,500	8,800	39,500
pH Units)	8.07	7.95	8.00	7.75
TDS (mg/L)	5,647	6,290	5,030	28,880
Chloride (mg/L)	2,900	2,950	2,600	16,200
Alkalinity (mg/L)	119	151	133	169
TKN (mg/L)	0.99	1.12	0.89	0.54
Nitrate/Nitrite	<.01	<.01	<.01	<.01
Total Phosphorus (mg/L)	<.01	0.03	0.04	0.44
Sulfate (mg/L)	600	275	370	750
Ammonia (mg/L)	0.97	0.96	0.79	0.51
Ft. of Head (NGVD)	23.60	22.80	23.30	11.15

Date	Depth Interval (ft)		Observer's Description
	From	To	
10/20/94	0	10	No sample collected
"	10	20	SAND AND LIMESTONE, very light gray (N 8), medium grained silica sand and very light gray (N 8) silty limestone (5%)
10/22/94	20	30	same as above, increasing amount of limestone (30%)
"	30	40	SAND AND SANDY LIMESTONE, yellowish-gray (5 Y 8/1), medium-to-coarse grained silica sand and yellowish-gray (5 Y 7/2) moderately consolidated sandy limestone (50%)
"	40	50	SILTY LIMESTONE, yellowish-gray (5 Y 8/1), moderately consolidated
"	50	60	same as above
"	60	70	same as above
"	70	80	same as above
"	80	90	SANDY LIMESTONE, yellowish-gray (5 Y 8/1), medium grained, sub-rounded silica grains with 15% shell fragments
"	90	100	same as above
"	100	110	SANDY AND LIMESTONE, very light gray (N 8), medium grained silica sand and yellowish-gray (5 Y 8/1) silty limestone
"	110	120	SANDY LIMESTONE, yellowish-gray (5 Y 8/1), medium grained, sub-rounded silica sand, moderately consolidated
"	120	130	same as above
"	130	140	same as above
"	140	150	same as above
"	150	160	same as above
"	160	170	same as above
"	170	180	same as above
"	180	190	same as above, less sandy
"	190	200	same as above
"	200	210	same as above
"	210	220	same as above
"	220	230	same as above
"	230	240	same as above
"	240	250	same as above
10/26/94	250	260	CALCAREOUS SILT, yellowish-gray (5 Y 7/2), friable
"	260	270	same as above



## Depth Interval (ft)

Date

From

To

Observer's Description

Date	From	To	Observer's Description
10/26/94	270	280	CALCAREOUS SILT, pale olive (10 Y 6/2), very fine silica sand (5%), trace of fossil fragments, friable
"	280	290	same as above
"	290	300	same as above
"	300	310	CALCAREOUS SILT, light olive gray (5 Y 6/1), very friable, trace of very fine sand silica grains
"	310	320	same as above
"	320	330	CALCAREOUS SILT, pale olive (10 Y 6/2), friable, trace of very fine grained phosphate
"	330	340	same as above
"	340	350	same as above, some well consolidated limestone fragments
"	350	360	same as above, increasing limestone fragments
"	360	370	CALCAREOUS SILT AND LIMESTONE, yellowish-gray (5 Y 8/1), well consolidated
"	370	380	no sample collected
"	380	390	same as above, less consolidated
"	390	400	same as above
"	400	410	CALCAREOUS SILT, pale olive (10 Y 6/2), friable
"	410	420	CALCAREOUS SILT, pale olive (10 Y 6/2), some moderately consolidated limestone fragments
"	420	430	same as above, increasing limestone fragments
"	430	440	same as above
"	440	450	same as above
"	450	460	same as above
"	460	550	no sample collected
10/27/94	550	560	CALCAREOUS SILT, yellowish-gray (5 Y 7/2), poorly consolidated, trace of calcareous forams
"	560	570	same as above, trace of well consolidated limestone fragments
"	570	580	same as above
"	580	590	CALCAREOUS SILT, yellowish-gray (5 Y 7/2), very friable
"	590	600	same as above
"	600	610	same as above
"	610	620	same as above
"	620	630	same as above
"	630	640	same as above

## Depth Interval (ft)

Date

From

To

Observer's Description

Date	From	To	Observer's Description
10/27/94	640	650	same as above
"	650	660	same as above
"	660	670	no sample collected
"	670	680	CALCAREOUS SILT, yellowish-gray (5 Y 7/2) friable, some well consolidated limestone fragments
"	680	690	same as above
"	690	700	same as above
"	700	710	CALCAREOUS SILT, yellowish-gray (5 Y 7/2), very friable, some well consolidated black limestone fragments
"	710	720	no sample collected
"	720	730	same as above
"	730	740	CALCAREOUS SILT AND LIMESTONE, yellowish-gray (5 Y 7/2), friable, very light gray (N 8), moderately consolidated limestone
"	740	750	CALCAREOUS SAND, yellowish-gray (5 Y 7/2), fine to very coarse grained, poorly sorted, unconsolidated
"	750	760	CALCAREOUS SAND, yellowish-gray (5 Y 5/2), poorly sorted, unconsolidated, fine grained sand to fine gravel
"	760	770	same as above, fine to coarse grained sand
"	770	780	CALCAREOUS SILTY CLAY, light olive gray (5 Y 5/2), trace of phosphate
"	780	790	same as above
"	790	800	CALCAREOUS SILTY CLAY, moderate olive brown (5 Y 4/4), trace of phosphate
"	800	810	SANDY CALCAREOUS CLAY, moderate olive brown (5 Y 4/4), with medium grained calcareous sand
"	810	820	same as above
"	820	830	same as above
"	830	840	CALCAREOUS SILTY CLAY, dusky yellow (5 Y 6/4), poorly consolidated, some limestone fragments
10/28/94	840	850	same as above
"	850	860	same as above
"	860	870	CALCAREOUS SILT, dusky yellow (5 Y 6/4), poorly consolidated, trace of limestone fragments

## Depth Interval (ft)

Date

From

To

Observer's Description

Date	From	To	Observer's Description
10/28/94	870	880	CALCAREOUS CLAY, moderate olive brown (5 Y 4/4), trace of moderately consolidated limestone fragments
"	880	890	same as above
"	890	900	same as above
"	900	910	CALCAREOUS CLAY, light olive gray (5 Y 5/2), traces of chert and limestone
"	910	920	same as above
"	920	930	same as above
"	930	940	same as above
"	940	950	CALCAREOUS SILT AND LIMESTONE, light olive gray (5 Y 6/1)
"	950	960	CALCAREOUS SAND, light olive gray (5 Y 6/1)
"	960	970	same as above
"	970	980	LIMESTONE AND CALCAREOUS SILT, yellowish-gray (5 Y 7/2), moderately consolidated
"	980	990	same as above
"	990	1,000	LIMESTONE, yellowish-gray (5 Y 8/1), fossiliferous, well consolidated, abundant <i>Americus dictyconus</i> , sp.
11/6/94	1,000	1,010	LIMESTONE, light-gray (N 7), fossiliferous, well consolidated, traces of chert
"	1,010	1,020	FORAMINIFERAL LIMESTONE, pinkish-gray (5 Y 8/1), moderately consolidated
"	1,020	1,030	same as above
"	1,030	1,040	same as above
"	1,040	1,050	same as above
"	1,050	1,060	same as above
"	1,060	1,070	same as above
"	1,070	1,080	same as above
"	1,080	1,090	same as above
"	1,090	1,100	same as above
"	1,100	1,110	same as above
"	1,110	1,120	same as above
"	1,120	1,130	same as above
"	1,130	1,140	same as above
"	1,140	1,150	same as above
11/8/94	1,150	1,160	same as above
"	1,160	1,170	same as above



Date	From	To	Observer's Description
11/8/94	1,170	1,180	LIMESTONE, very pale orange (10 YR 8/2), fossiliferous, well consolidated
"	1,180	1,190	same as above
"	1,190	1,200	LIMESTONE, pale yellowish-brown (10 YR 6/2), fossiliferous, well consolidated
"	1,200	1,210	same as above
"	1,210	1,220	same as above
"	1,220	1,230	same as above
"	1,230	1,240	same as above
"	1,240	1,250	same as above
"	1,250	1,260	same as above
"	1,260	1,270	same as above
"	1,270	1,280	same as above
"	1,280	1,290	same as above
"	1,290	1,300	same as above
11/10/94	1,300	1,310	CALCAREOUS SAND, grayish-orange (10 YR 7/4), very fine, poorly consolidated
"	1,310	1,320	same as above
"	1,320	1,330	LIMESTONE, pinkish-gray (5 YR 8/1), forams, moderately consolidated
"	1,330	1,340	same as above
"	1,340	1,350	same as above
"	1,350	1,360	same as above
"	1,360	1,370	same as above
"	1,370	1,380	same as above
"	1,380	1,390	same as above
"	1,390	1,400	same as above with very light gray (N 8), dense, well consolidated, micritic limestone
"	1,400	1,410	same as above
"	1,410	1,420	same as above, with decreasing very light gray limestone
"	1,420	1,430	LIMESTONE, pinkish-gray (5 YR 8/1), moderately consolidated
"	1,430	1,440	same as above
"	1,440	1,450	LIMESTONE, very light gray (N 8), dense, micritic, well consolidated
11/12/94	1,450	1,460	LIMESTONE, very pale orange (10 YR 8/2), fine to coarse grained, poorly consolidated
"	1,460	1,470	same as above
"	1,470	1,480	same as above, medium to coarse sand grained

Date	Depth Interval (ft)		Observer's Description
	From	To	
11/12/94	1,480	1,490	LIMESTONE, yellowish-gray (5 Y 8/1), abundant forams, moderately consolidated, with very light gray (N 8) dense, well consolidated, micritic limestone
"	1,490	1,500	same as above
"	1,500	1,510	same as above
"	1,510	1,520	LIMESTONE, white (N 9), micritic, moldic porosity, well consolidated
"	1,520	1,530	LIMESTONE, pinkish-gray (5 YR 8/1), moderately consolidated, with fragments of medium dark gray (N 4), recrystallized limestone and yellowish-gray (5 Y 8/1) micritic limestone
"	1,530	1,540	LIMESTONE, pinkish-gray (5 YR 8/1), micritic, well consolidated, abundant forams
"	1,540	1,550	LIMESTONE, white (N 9), abundant forams, micritic, moderately consolidated, with medium dark gray (N 4), micritic, well consolidated limestone
"	1,550	1,560	same as above, trace of medium dark gray limestone
"	1,560	1,570	LIMESTONE, pinkish-gray (5 YR 8/1), abundant forams, poorly consolidated
"	1,570	1,580	same as above, trace of light gray (N 7) micritic limestone
"	1,580	1,590	same as above, no light gray limestone
"	1,590	1,600	same as above, minor amount (5%) of medium dark gray (N 4), well consolidated limestone
"	1,600	1,610	no sample collected
"	1,610	1,620	no sample collected
"	1,620	1,630	same as above, increasing medium dark gray limestone (20%)
"	1,630	1,640	same as above

Lithologic color designations are based on the *Rock-Color Chart*, distributed by the Geological Society of America, 1984.