State of Florida
Department of Environmental Regulation
CONVERSATION RECORD

Date January 16, 1991
Time 12:45
Recorded by KMM

Permit No.
File No.
County Escambia
Suspense Date
Telephone No. 968-6628 n 9294

Ms. Cindy W. Anderson, P.E.

Representing Escambia County Solid Waste

Address

[ ] Telephoned [ ] Came In [✓] Was Called [ ] No Further Action Recd.

Regarding Perdido Landfill

Conversation I started off the conversation discussing the January 6 letter from Cindy, which reffered to Construction details of the new composting wells and piezometer. I indicated that the referenced memo from Peter Dohms was not included with this letter. She indicated that she would get this document in the mail.

Next we discussed a statement in her letter which was as follows: "At this meeting it was decided that the boundary of the Conservation Easement will be relocated such that it will not contain the ZOD or any monitoring wells." I indicated that the new conservation easement allowed for wells to be installed with the appropriate permits. She indicated she understood this point.

I indicated that a Surface Water Assessment Plan (SWAP) was needed for the surface water contamination. She indicated that a plan would be submitted. She indicated that she would like to meet on-site to discuss this assessment and indicate sampling locations.

In addition, I requested a copy of Dr. Moshiri's article on fecal Coliform and fecal Streptococcus, that he discussed previously at one of our meetings. Cindy indicated she would get a copy of the article and submit it soon.

Copies to Bob Beisel, P.E.
SW Files

Signature Richard M. Markey
Title ES-II

Esc Co. Perdido Remedial

State of Florida
Department of Enviornmental Regulation
CONVERSATION RECORD

Date 1-20-91
Time 9:00
Recorded by Amy Tharp

Permit No.
File No.
County Escambia
Suspense Date
Telephone No.

M r. Jack Walker UWF

Representing Escambia County

Address

[✓] Telephoned [ ] Came In [ ] Was Called [ ] No Further Action Recd.

ART

Regarding assessment Q.A. plans for Perdido & Klondike Landfills

Conversation

He will have to update the UWF laboratory's Generic to a Comprehensive Q.A. plan before he can update the Project Plans for Klondike and Perdido. He anticipates submittal of the Comprehensive by June 1, 1991 (the deadline given by the Q.A. section was March 1991.). Since he has no way of predicting when the Comprehensive plan will be approved, he can not project a submittal date for the Q.A. project plans.

I suggested he contact the Q.A. section directly to request an extension for the due date for the Comprehensive plan.

Copies to CWA files

Signature Amy Tharp
Title ES I

Sec 6. Klondike LF Remedial

BOARD OF COUNTY COMMISSIONERS
ESCAMBIA COUNTY
SOLID WASTE MANAGEMENT
13009 BEULAH ROAD
CANTONMENT, FL 32533
(904) 968-6628
FAX (904) 968-0716

January 23, 1991

Cindy Anderson
Florida Department of
Environmental Regulation
Northwest District
160 Governmental Center
Pensacola, FL 32501-5794

SW
Part

RE: NWSW 17-9031
Klondike Landfill

Dear Cindy:

Quality Assurance Project Plans for all of our landfills are being compiled by our consultant, University of West Florida. When these reports are completed they will promply be forwarded to your office.

Sincerely,

Drew VanLandingham
Environmental Control Coordinator
Solid Waste Department

DVL:gpr

Engineers
Planners
Economists
Scientists

January 29, 1991

GNV22977.B0

SW

Mr. Tom Moody
Florida Department of Environmental
Regulation
160 Governmental Center
Pensacola, Florida 32501-5794

Dear Mr. Moody:

Subject: Perdido Landfill Contamination Status Report

As indicated in our December 26, 1990 status report, we have resampled Wells MW-12D and MW-19D and have conducted an initial sampling of Wells MW-20D and MW-21D. VOCs were detected in the samples from all four of the wells. Raw analytical data sheets and a summary of the volatile organics data are attached for your information.

As stated in our previous status report, sampling to date has been adequate to evaluate the horizontal extent of contamination in the perched groundwater zone; however, some questions still exist as to the horizontal extent of contamination in the sand and gravel aquifer to the south of the landfill. The wells at the Welcome Center (MW-19D, MW-20D, and MW-21D) are 4 inch wells as required by FDER. To date these wells have been developed and purged by bailing. A 4-inch submersible well pump has been obtained by the County and is now operational. We plan to resample the wells during the week of February 4, 1991 using the submersible pump for purging. We feel that the additional purging and sampling is warranted to confirm the presence of VOCs in the wells at the Welcome Center.

Our anticipated sampling and reporting schedule is:

Sample Collection	February 4, 1991
Data Reporting	February 25, 1991
Draft CAR	March 19, 1991
CAR to FDER	April 9, 1991

CH2M HILL Gainesville Office 7201 N.W. 11th Place, P.O. Box 1647
Gainesville, FL 32602-1647
904.331.2442
FAX 904.331.5320

This schedule assumes that no additional field work will be required after the proposed February sampling. Depending on the outcome of this sampling, additional field work may be necessary. If so, the project schedule will be modified according to the additional effort required.

If you have any questions regarding the status of the Perdido Landfill Contamination Assessment, please give me a call.

Sincerely,

CH2M HILL

R.J. Bruner III, P.E.
Project Manager

10010694.GNV

xc: Charlie Miller/ECSWD
Drew VanLandingham/ECSWD
Jack Walker/UWF

Table 4-6
VOLATILE ORGANICS DATA

Station	Date	1,1,-Di-chloro-ethane (µg/l)	1,1,2,2-Tetra-chloro-ethane (µg/l)	1,2-Di-chloro-ethane (µg/l)	1,2 Di-chloro-propane (µg/l)	1,1,1-Tri-chloro-ethane (µg/l)	Carbon Tetra-chloride (µg/l)	Chloro-ethane (µg/l)	1,1-Di-chloro-ethene (µg/l)	1,2-Di-chloro-ethene (µg/l)	Tri-chloro-ethene (µg/l)	Tetra-chloro-ethene (µg/l)	Methylene Chloride (µg/l)	Chloro-methane (µg/l)	Chloro-form (µg/l)	Vinyl Chloride (µg/l)	Trichloro-fluoro-methane (µg/l)	Dichloro-difluro-methane (µg/l)	Benzene (µg/l)	Chloro-benzene (µg/l)	1,4-Di-Chloro-benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Xylene (µg/l)	Total VOCs (µg/l)
Monitor Wells																									
MW-1A	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	*4*	NA	NA	*2*	NA	NA	NA	NA	NA	6
	16-Feb-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	*5*	NA	NA	*2*	NA	NA	NA	--	NA	7
	08-Apr-87	NA	NA	*8*	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	*140*	NA	NA	*11*	NA	NA	NA	NA	NA	159
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	*5*	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	*7*	NA	NA	NA	NA	NA	12
	27-Jul-87	42	--	*6*	--	--	--	--	--	86	--	--	--	--	--	--	--	--	*8*	2	--	--	--	--	144
	08-Nov-88	11	--	--	--	--	--	--	--	--	--	--	--	--	--	136	--	--	5	--	--	--	--	--	152
	14-Feb-89	12	--	--	--	--	--	--	--	9	--	--	--	--	--	44	--	--	*6*	--	--	--	--	--	71
	10-Jan-90	--	--	--	--	--	--	--	--	10	--	--	--	--	--	44	--	--	*5*	3	--	--	--	--	62
	17-Sep-90	17	--	3	3	--	--	--	--	18	3	--	--	--	10	65	--	10	4	2	8	--	--	--	133
MW-1AD	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-2S	18-Mar-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	--	0
	30-Jun-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-2D	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	30-Jun-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
Drinking Water Standard[a]		**	**	*3*	**	*200*	*3*	**	7	**	*3*	*3*	**	**	**	*1*	**	**	1	**	75	**	**	**	*

10010181.GNV-1

Table 4-6
(Continued)

Station	Date	1,1,-Di-chloro-ethane (µg/l)	1,1,2,2-Tetra-chloro-ethane (µg/l)	1,2-Di-chloro-ethane (µg/l)	1,2 Di-chloro-propane (µg/l)	1,1,1-Tri-chloro-ethane (µg/l)	Carbon Tetra-chloride (µg/l)	Chloro-ethane (µg/l)	1,1-Di-chloro-ethene (µg/l)	1,2-Di-chloro-ethene (µg/l)	Tri-chloro-ethene (µg/l)	Tetra-chloro-ethene (µg/l)	Methylene Chloride (µg/l)	Chloro-methane (µg/l)	Chloro-form (µg/l)	Vinyl Chloride (µg/l)	Trichloro-fluoro-methane (µg/l)	Dichloro-difluro-methane (µg/l)	Benzene (µg/l)	Chloro-benzene (µg/l)	1,4-Di-Chloro-benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Xylene (µg/l)	Total VOCs (µg/l)
MW-3	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	NA	NA	NA	--	NA	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	NA	NA	NA	--	NA	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-4	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	NA	NA	*7*	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	7
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-5	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	
	30-Jun-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	3
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-6	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	*4*	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	4
	16-Feb-87	NA	NA	--	NA	NA	--	NA	NA	--	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	08-Apr-87	NA	NA	--	NA	NA	--	NA	NA	--	--	*5*	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	5
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	NA	NA	--	NA	NA	NA	*5*	*12*	NA	NA	NA	--	NA	NA	2	NA	NA	NA	NA	NA	19
Drinking Water Standard[a]		**	**	*3*	**	*200*	*3*	**	7	**	*3*	*3*	**	**	**	*1*	**	**	*1*	**	75	**	**	**	**

Table 4-6
(Continued)

Station	Date	1,1,-Di-chloro-ethane (µg/l)	1,1,2,2-Tetra-chloro-ethane (µg/l)	1,2-Di-chloro-ethane (µg/l)	1,2 Di-chloro-propane (µg/l)	1,1,1-Tri-chloro-ethane (µg/l)	Carbon Tetra-chloride (µg/l)	Chloro-ethane (µg/l)	1,1-Di-chloro-ethene (µg/l)	1,2-Di-chloro-ethene (µg/l)	Tri-chloro-ethene (µg/l)	Tetra-chloro-ethene (µg/l)	Methylene Chloride (µg/l)	Chloro-methane (µg/l)	Chloro-form (µg/l)	Vinyl Chloride (µg/l)	Trichloro-fluoro-methane (µg/l)	Dichloro-difluro-methane (µg/l)	Benzene (µg/l)	Chloro-benzene (µg/l)	1,4-Di-Chloro-benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Xylene (µg/l)	Total VOCs (µg/l)
MW-6	27-Jul-87	11	--	--	--	--	--	--	--	57	*5*	--	--	--	--	--	--	--	*5*	--	--	--	--	--	78
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-6D	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-8	18-Mar-86	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	08-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-11D	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-12S	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**10**	--	--	**15**	--	--	28	4	119	176
	12-Jan-90	6	--	--	--	--	--	--	--	13	--	--	--	--	--	***8***	--	--	**32**	4	9	7	--	20	98
	13-Feb-90	4	--	--	--	--	--	--	--	9	--	--	4	18	--	***6***	--	--	**24**	3	7	3	--	7	85
	17-Sep-90	3	--	--	--	--	--	--	--	8	--	--	--	--	--	***9***	--	--	5	2	--	--	--	--	27
MW-12D	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	11-Jan-90	65	--	--	--	--	--	--	--	6	***16***	--	18	--	--	***4***	--	--	**18**	--	--	147	49	652	994
	13-Feb-90	43	--	--	--	3	--	14	--	5	***10***	***12***	20	--	--	***3***	2	--	**10**	--	--	98	22	424	666
	15-Feb-90	60	18	--	--	4	--	--	--	8	***12***	***17***	27	17	--	***5***	--	--	**14**	--	--	213	42	748	1,185
	17-Sep-90	30	--	--	--	--	--	--	--	12	--	--	70	--	--	--	--	--	--	--	--	280	--	1,180	1,572
	02-Jan-91	24	--	--	2	3	--	6	1	2	***9***	***15***	218	--	2	***10***	4	6	***11***	2	2	39	5	201	562
MW-13S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Drinking Water Standard[a]		**	**	***3***	**	***200***	***3***	**	7	**	***3***	***3***	**	**	**	***1***	**	**	1	**	75	**	**	**	**
						✓			✓	✓	✓	✓	✓			✓	✓		✓					✓	

10010181.GNV-3

✓ parameters which showed up in 12D which were also found in MW-19D (1/2/91)

Table 4-6
(Continued)

Station	Date	1,1,-Di-chloro-ethane (µg/l)	1,1,2,2-Tetra-chloro-ethane (µg/l)	1,2-Di-chloro-ethane (µg/l)	1,2 Di-chloro-propane (µg/l)	1,1,1-Tri-chloro-ethane (µg/l)	Carbon Tetra-chloride (µg/l)	Chloro-ethane (µg/l)	1,1-Di-chloro-ethene (µg/l)	1,2-Di-chloro-ethene (µg/l)	Tri-chloro-ethene (µg/l)	Tetra-chloro-ethene (µg/l)	Methylene Chloride (µg/l)	Chloro-methane (µg/l)	Chloro-form (µg/l)	Vinyl Chloride (µg/l)	Trichloro-fluoro-methane (µg/l)	Dichloro-difluro-methane (µg/l)	Benzene (µg/l)	Chloro-benzene (µg/l)	1,4-Di-Chloro-benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Xylene (µg/l)	Total VOCs (µg/l)
MW-14S	14-Feb-89	16	--	--	--	--	--	--	--	6	--	--	--	--	--	*18*	--	--	--	--	--	--	--	--	24
	11-Jan-90	12	--	--	--	--	--	--	--	7	--	--	--	--	--	18	--	--	6	--	--	--	--	--	43
	18-Sep-90	12	--	--	3	--	--	--	--	7	--	--	--	--	--	20	--	--	3	--	--	--	--	--	45
MW-15S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-16S	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-17S	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-18S	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
MW-19D	18-Sep-90	--	--	--	--	--	--	--	--	--	--	5	--	--	--	--	--	--	--	--	--	--	--	--	5
	02-Jan-91	--	--	--	--	2	--	--	1	1	*8*	*18*	7	--	--	*7*	4	--	*4*	--	--	--	--	7	59
MW-20D	02-Jan-91	--	--	--	--	--	--	--	--	--	1	--	7	--	--	--	--	--	1	--	--	--	--	--	9
MW-21D	02-Jan-91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	3	--	19	23
TP-1	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
Hand-Augered Borehole Water Samples																									
HA-1S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
HA-2S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
HA-3S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
Surface Water																									
SW-1	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*10*	--	--	17	--	--	31	5	127	190
	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	13-Feb-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Drinking Water Standard[a]		**	**	*3*	**	*200*	*3*	**	7	**	*3*	*3*	**	**	7	*1*	**	7	1	**	75	**	**	**	**

10010181.GNV-4

Table 4-6
(Continued)

Station	Date	1,1,-Di-chloro-ethane (µg/l)	1,1,2,2-Tetra-chloro-ethane (µg/l)	1,2-Di-chloro-ethane (µg/l)	1,2 Di-chloro-propane (µg/l)	1,1,1-Tri-chloro-ethane (µg/l)	Carbon Tetra-chloride (µg/l)	Chloro-ethane (µg/l)	1,1-Di-chloro-ethene (µg/l)	1,2-Di-chloro-ethene (µg/l)	Tri-chloro-ethene (µg/l)	Tetra-chloro-ethene (µg/l)	Methylene Chloride (µg/l)	Chloro-methane (µg/l)	Chloro-form (µg/l)	Vinyl Chloride (µg/l)	Trichloro-fluoro-methane (µg/l)	Dichloro-difluro-methane (µg/l)	Benzene (µg/l)	Chloro-benzene (µg/l)	1,4-Di-Chloro-benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Xylene (µg/l)	Total VOCs (µg/l)
SW-2	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SW-100	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	2	--	--	2
SW-101	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	3
SW-102	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SW-103	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SW-104	19-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SW-200	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
SW-201	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9
Drinking Water Standard[a]		**	**	*3*	**	*200*	*3*	**	7	**	*3*	*3*	**	**	7	1	**	7	*1*	**	75	**	**	**	**

[a]Florida Primary Drinking Water Standards (FAC 17-550, April 1990).

Note: Conventional parameters included nitrate + nitrite.

Bold indicates exceedance of secondary drinking water standard.
Bold Italics indicates exceedance of primary drinking water standard.

µg/l = Micrograms per liter.
NA = Not analyzed.
-- = Below detection limits.
** = No applicable drinking water standard.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To: _____ Location: _____
To: _____ Location: _____
To: _____ Location: _____
From: _____ Date: _____

Interoffice Memorandum

TO: Cindy W. Anderson, P.E. CWA

THROUGH: Robin M. Bjorklund, P.G. RMB

FROM: Richard M. Markey, P.G. RMM

DATE: February 18, 1991

SUBJECT: December 1990 and January 1991 Perdido Landfill CA Status Reports - Escambia County

I have reviewed these two submittals and I have several comments regarding information found in each report. These comments deal with the potentiometric map of the Sand and Gravel Aquifer (9/90); the presence of contaminants hydraulically downgradient of the landfill; and the apparent necessity of interim remedial actions.

In regard to the potentiometric map (Figure 4-5) submitted by CH2M Hill, this map indicates a potentiometric high in the vicinity of MW-10 and the primary treatment pond. In a telephone conversation with Mr. Peter Dohms, P.G., on January 22, he stated that he had recontoured water levels in this aquifer using additional well data and that his map did not indicate this same configuration. A corrected map should be submitted if the interpretation in Figure 4-5 is incorrect.

The December progress report stated that "it is unlikely that the tetrachloroethene reported in the sample from MW-19D is associated with the contaminant plume identified at MW-12D" (MW-12D is upgradient of MW-19D). The September 18, 1990 sampling event indicated the presence of tetrachloroethene (PCE) in MW-19D. The January 2 sampling event indicated the presence of PCE and its breakdown products and other very similar contaminants in both MW-12D and MW-19D,. Based on the similarity of contaminants in both wells and the presence of these contaminants existing downgradient of the landfill it appears likely that the contaminants found in MW-19D originated from landfill operations. Therefore, it appears that the vertical and horizontal extent of contamination still needs to be defined.

CH2M Hill stated that they intend to resample MW-19D, MW-20D and MW-21D. Purging will be accomplished by using a 4 inch submersible pump instead of a bailer (as employed in the past). This resampling should help confirm the presence of VOCs in MW-20D and MW-21D. The presence of tetrachloroethene has already been confirmed in MW-19D.

Sampling results from MW-12D have indicated the presence of high total VOC concentrations in the last five sampling events (1/11/90-1/2/91). In order to reduce and/or inhibit further downgradient movement of contaminants in the vicinity of MW-12D and aid in the capture of upgradient contaminants being released from the landfill, I recommend that interim remedial actions be initiated near MW-12. It appears that contamination from Perdido Landfill has already reached the Welcome Center across I-10 and interim remedial actions are warranted. Also, further assessment activities are warranted to define the vertical and horizontal extent of contamination.

RMM:mml

2/20/91

Distance between MW-12D + MW-19D = ~625'

dh/dl = .004096 ft/ft

n_e = .20 CH2M Hill Rpt less 1.99ft/day 12D

PDohms Rpt 65.2 - .51 ft/day = K_h
dated 11/27/90

$$V = \frac{K_h I}{N_e} = \frac{65.2\,(.0041)}{.2} = 1.33 \text{ ft/day}$$

$$V = \frac{K_h I}{N_e} = \frac{.51\,(.0041)}{.2} = .01 \text{ ft/day}$$

$$V = \frac{K_h I}{N_e} = \frac{17.86\,(.0041)}{.2} = .37 \text{ ft/day}$$

Ave = .57 ft/day = V

625 ft / .57 ft/day = 1096.5 days / 365 = 3 yrs.

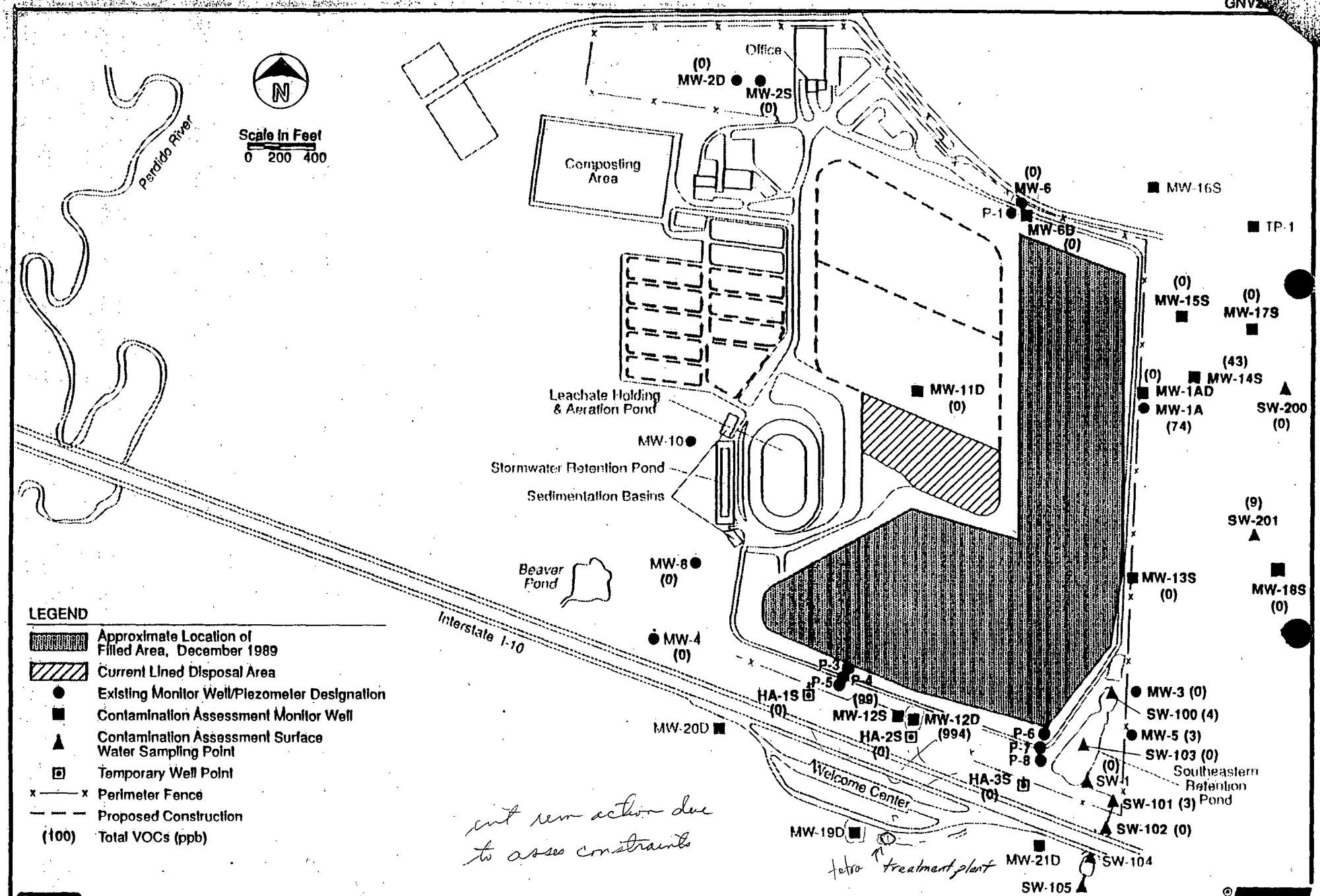
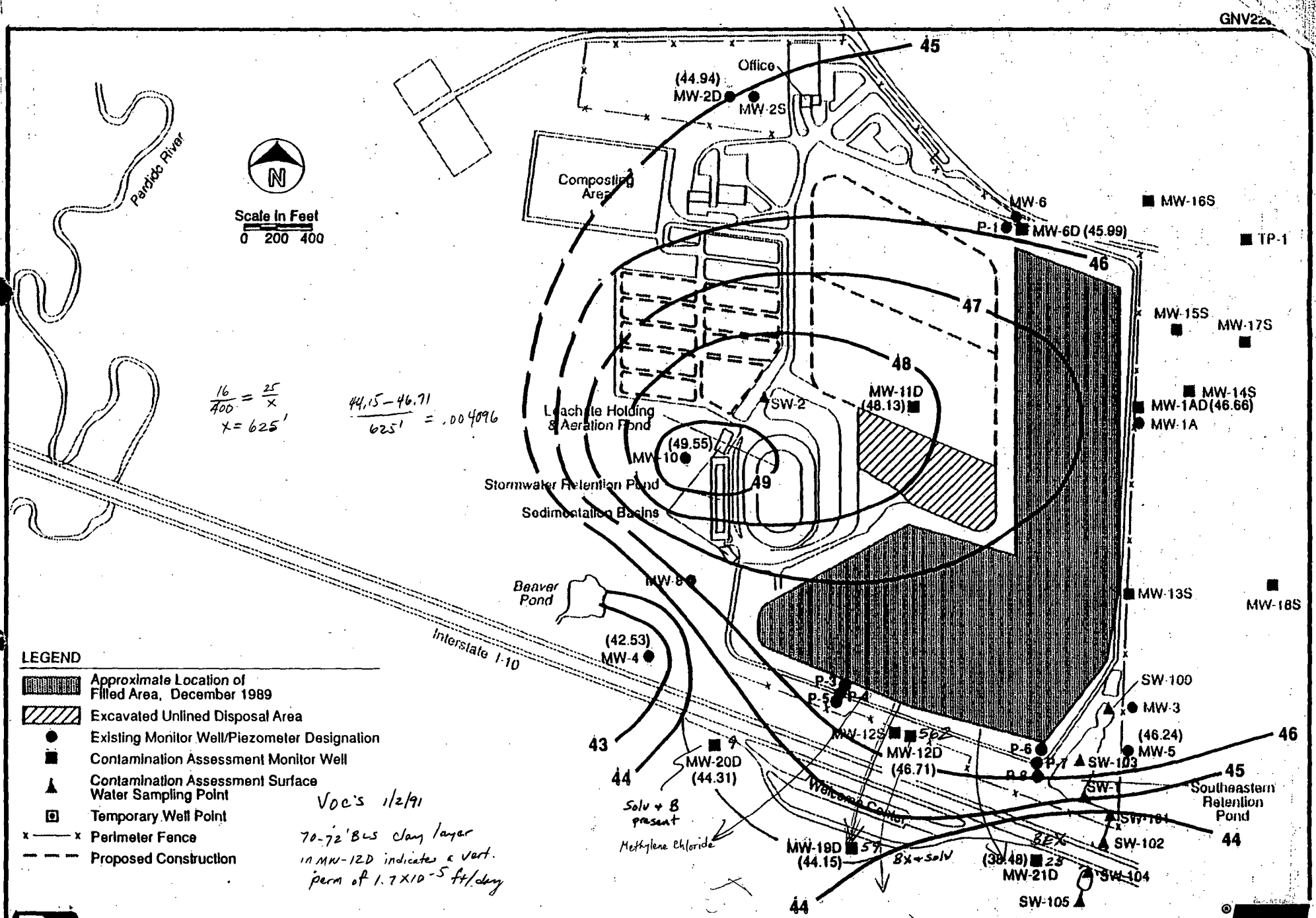


FIGURE 5-2.
Reported VOC Concentrations, January 1990.



$\frac{16}{400} = \frac{25}{x}$ $x = 625'$

$\frac{44.15 - 46.71}{625'} = .004096$

VOC's 1/2/91

70-72' BLS clay layer in MW-12D indicates a vert. perm of 1.7×10^{-5} ft/day

FIGURE 4-5.

Sand and Gravel Aquifer Groundwater Contours Relative to NGVD, September 1990.

FILE

Florida Department of Environmental Regulation

Northwest District • 160 Governmental Center • Pensacola, Florida 32501-5794

Lawton Chiles, Governor

Carol M. Browner, Secretary

Esc.
Perdido
Rem.

February 26, 1991

Mr. J. R. Bruner III, P.E.
Project Manager
CH2M Hill
Post Office Box 1647
Gainesville, Florida 32602-1647

Dear Mr. Bruner:

This is in response to your December 26, 1990 and January 29, 1991 Perdido Landfill contamination status reports. As indicated in the enclosed memorandum from Richard Markey of our ground water staff, there is a growing concern regarding the movement and limits of the contamination. It appears that the contaminate movement and lack of limit definition warrant not only further assessment activities, but immediate interim remedial actions.

Please provide us with a revised contamination assessment schedule, including the interim remedial actions, within 30 days. If you have any questions, please call Cindy Anderson, Solid Waste Section Supervisor, at (904) 436-8360.

Sincerely,

Thomas W. Moody

Thomas W. Moody, P.E.
Waste Management Program
Administrator

TWM:cal
Enclosure
cc: Charlie Miller, P.E. w/enclosures
Drew VanLandingham w/enclosures
Jack Walter w/enclosure

DEPARTMENT OF L IRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

	Initial	Date
1. TO: (NAME, OFFICE, LOCATION) Cindy Anderson		
2.		
3.		
4.		

REMARKS:

This memo adresses the Dec 1990 and Jan 1991 progress report for Perdido LF CA. They propose a revised CAR due date of 4/9/91. The vertical + Horizontal extent of contamination appears be undefined at this point. If this date appears appropriate to you, I ~~see~~ suggest that you include it in your cover letter.

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: Mike Markey

DATE 2/22/91

#142

PHONE

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Mike Markey
2.
3.
4. Perdido Landfill

Remarks:

Points to note in your next review of progress report for assessment.

The 1-15-91 sampling showed:

SW-B Benzene 24g/l, TCE 44g/l
SW-C Benzene 34g/l, TCE 44g/l
MW-4 mercury 0.0023 mg/l

Equipment blank contamination by TCE 1ug/l
Fe, Na & NO_3

Field blank contamination by Fe, Na+NO_3

ammonia has also been confirmed in some surface water points,

The 6/(25/26)/90 sampling showed:
SW-5 mercury .0005 mg/l
SW-C lead .06mg/l
MW-18 arsenic .097mg/l

From: Amy

Date: 3/6/91

Phone:

Amy is going to discuss these points

Perdido Rem.

State of Florida
Department of Enviornmental Regulation
CONVERSATION RECORD

Date March 11, 1991
Time 11:06 am
Recorded by RMM

Permit No. _____
File No. _____
County Escambia
Suspense Date _____
Telephone No. _____

M r. Peter Dohmes

Representing Escambia County

Address _____

[✓] Telephoned [ ] Came In [ ] Was Called [ ] No Further Action Recd.

Regarding Installation of additional monitoring wells at Perdido LF (wetlands and composting areas)

Conversation Mr. Dohmes requested the Departments thoughts on sealing the bottom portion of the new wells which will be 5 feet above the confining layer. I stated that if the clay was drilled into, it should be sealed with bentonite. Mr. Dohmes wanted to fill the remaining area (~4') with cuttings so the flow paths would not be disturbed. I stated this would be acceptable but the bottom of the screen should be separated from the cuttings. Filter pack sand should be employed to keep any fine grained material out of the well.

Copies to Cindy W. Anderson (file)

Signature Richard M. Markey
Title ES-II

Esc. Perdido Ea Rem.

Engineers
Planners
Economists
Scientists

March 25, 1991

GNV22977.B0

Mr. Tom Moody
Florida Department of Environmental
Regulation
160 Governmental Center
Pensacola, FL 32501-5794

SW

Dear Mr. Moody:

Subject: Perdido Landfill Contamination Status Report

Wells MW-19D, MW-20D, and MW-21D were installed in late 1990 for the purpose of determining the downgradient extent of a contaminant plume previously detected in the vicinity of MW-12D. Ongoing monitoring of groundwater in these offsite wells by others shows the presence of leachate indicator constituents, some exceeding recommended drinking water standards. Thus, the lateral extent of groundwater contamination in this area has not been fully defined. Raw analytical data sheets and a summary of the volatile organics data are attached for your information.

To better define the extent of the offsite plume, three new monitoring wells will be installed generally south of the Florida Welcome Center. These wells will be of the same design as those previously constructed at the Welcome Center.

The estimated schedule for this work is shown in Figure 1. Field work on well installation will not begin until the FDER reviews the well locations. It is assumed that access to the well sites will not be unreasonably withheld. One round of responses to FDER comments, and one CAR review meeting with FDER is assumed.

After completion and acceptance of the CAR, a Remedial Action Plan (RAP) will be prepared and submitted to FDER. Current (1988) FDER guidance requires submittal of the RAP within 2 months following CAR approval. The RAP preparation will begin before approval of the CAR to facilitate the 2-month requirement.

FDER has directed (by letter from Thomas W. Moody to R.J. Bruner) that Escambia County submit a plan for interim remedial action (IRA) to remediate groundwater in

the vicinity of Well MW-12D. A schedule for the plan was to be submitted within 30 days and is enclosed. The purpose of the IRA is to begin remediation as quickly as possible of groundwater containing relatively high VOC concentrations. A plan for this activity (IRAP) will be prepared and submitted to FDER. Upon final IRAP approval, implementation of the IRA will be started.

If you have any questions regarding the status of the Perdido Landfill Contamination Assessment, please give me a call.

Sincerely,

CH2M HILL

R.J. Bruner III, P.E.
Project Manager

10010B58.GNV

xc: Charlie Miller/ECSWD
Drew VanLandingham/ECSWD
Jack Walker/UWF

GNV240.30.01

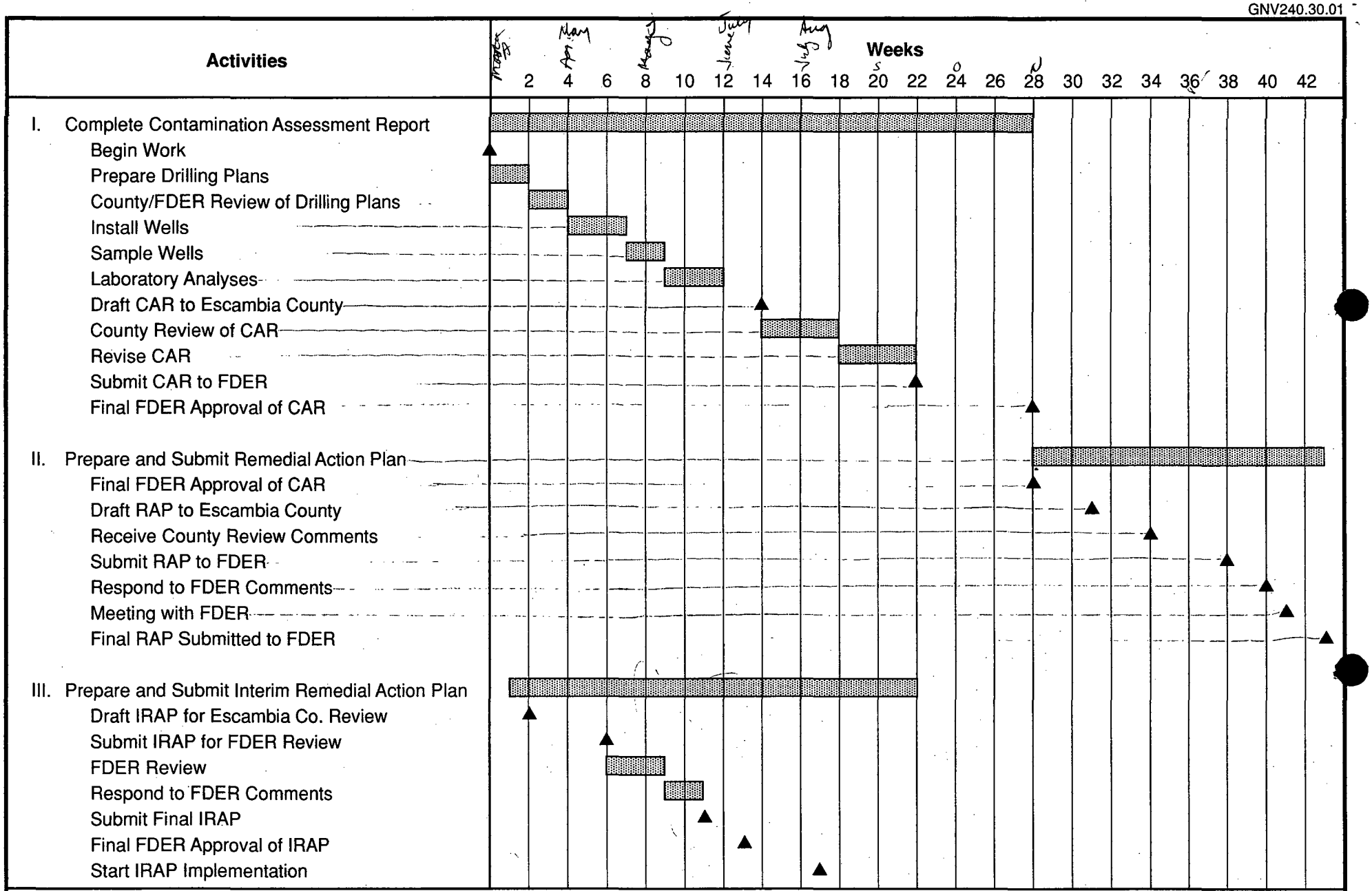


FIGURE 1.
Estimated Schedule for CAR/RAP Completion and Submittal of IRAP, Perdido Landfill - Escambia County, March 1991.

CH2MHILL

Table 4-6

VOLATILE ORGANICS DATA

Station	Date	1,1,-Di-chloro-ethane (ug/l)	1,1,2,2,-Tetra-chloro-ethane (ug/l)	1,2-Di-chloro-ethane (ug/l)	CIS-1,3-Di-chloro-propene (ug/l)	1,2-Di-chloro-propane (ug/l)	1,1,1-Tri-chloro-ethane (ug/l)	Carbon Tetra-chloride (ug/l)	Chloro-ethane (ug/l)	1,1,-Di-chloro-ethene (ug/l)	1,2-Di-chloro-ethene (ug/l)	Tri-Chloro-ethene (ug/l)	Tetra-chloro-ethene (ug/l)	Methylene Chloride (ug/l)	Chloro-methane (ug/l)	Chloro-form (ug/l)	Vinyl Chloride (ug/l)	Trichloro-fluoro-methane (ug/l)	Dichloro-difluro-methane (ug/l)	Benzene (ug/l)	Chloro-benzene (ug/l)	1,2-Di-Chloro-benzene (ug/l)	1,4-Di-Chloro-benzene (ug/l)	Ethyl Benzene (ug/l)	Toluene (ug/l)	Xylene (ug/l)	Total VOCs (ug/l)
Monitor Wells																											
MW-1A	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	*4*	NA	NA	*2*	NA	--	NA	NA	NA	NA	6
	16-Feb-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	*5*	NA	NA	*2*	NA	--	NA	NA	--	NA	7
	8-Apr-87	NA	NA	*8*	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	*140*	NA	NA	*11*	NA	--	NA	NA	NA	NA	159
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	*5*	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	*7*	NA	--	NA	NA	NA	NA	12
	27-Jul-87	42	--	*6*	--	--	--	--	--	--	*86*	--	--	--	--	--	--	--	--	*8*	*2*	--	--	--	--	--	144
	8-Nov-88	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*136*	--	--	*5*	--	--	--	--	--	--	152
	14-Feb-89	12	--	--	--	--	--	--	--	--	*9*	--	--	--	--	--	*44*	--	--	*6*	--	--	--	--	--	--	71
	10-Jan-90	--	--	--	--	--	--	--	--	--	*10*	--	--	--	--	--	*44*	--	--	*5*	*3*	--	--	--	--	--	62
	17-Sep-90	17	--	3	--	*3*	--	--	--	--	*18*	3	--	--	--	*10*	*65*	--	*10*	*4*	*2*	--	8	--	--	--	143
																											0
MW-1AD	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-2S	18-Mar-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	--	0
	30-Jun-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-2D	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	30-Jun-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
[a] Drinking Water Standards		--	--	3	--	--	200	3	--	7	--	3	3	--	--	--	1	--	--	1	--	--	75	--	--	--	--

Table 4-6

VOLATILE ORGANICS DATA

Station	Date	1,1,-Di-chloro-ethane (ug/l)	1,1,2,2,-Tetra-chloro-ethane (ug/l)	1,2-Di-chloro-ethane (ug/l)	CIS-1,3-Di-chloro-propene (ug/l)	1,2-Di-chloro-propane (ug/l)	1,1,1-Tri-chloro-ethane (ug/l)	Carbon Tetra-chloride (ug/l)	Chloro-ethane (ug/l)	1,1,-Di-chloro-ethene (ug/l)	1,2-Di-chloro-ethene (ug/l)	Tri-Chloro-ethene (ug/l)	Tetra-chloro-ethene (ug/l)	Methylene Chloride (ug/l)	Chloro-methane (ug/l)	Chloro-form (ug/l)	Vinyl Chloride (ug/l)	Trichloro-fluoro-methane (ug/l)	Dichloro-difluro-methane (ug/l)	Benzene (ug/l)	Chloro-benzene (ug/l)	1,2-Di-Chloro-benzene (ug/l)	1,4-Di-Chloro-benzene (ug/l)	Ethyl Benzene (ug/l)	Toluene (ug/l)	Xylene (ug/l)	Total VOCs (ug/l)
MW-3	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	NA	NA	NA	--	NA	--	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	NA	NA	NA	--	NA	--	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-4	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	--	NA	NA	*7*	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	7
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-5	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	10-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*3*	--	3
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-6	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	*4*	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	4
	16-Feb-87	NA	NA	--	--	NA	NA	--	NA	NA	--	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	8-Apr-87	NA	NA	--	--	NA	NA	--	NA	NA	--	--	*5*	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	5
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	*5*	*12*	NA	NA	NA	--	NA	NA	*2*	NA	--	NA	NA	NA	NA	19
a																											
Drinking Water Standards		--	--	3	--	--	200	3	--	7	--	3	3	--	--	--	1	--	--	1	--	--	75	--	--	--	--

Table 4-6

VOLATILE ORGANICS DATA

Station	Date	1,1,-Di-chloro-ethane (ug/l)	1,1,2,2,-Tetra-chloro-ethane (ug/l)	1,2-Di-chloro-ethane (ug/l)	CIS-1,3-Di-chloro-propene (ug/l)	1,2-Di-chloro-propane (ug/l)	1,1,1-Tri-chloro-ethane (ug/l)	Carbon Tetra-chloride (ug/l)	Chloro-ethane (ug/l)	1,1,-Di-chloro-ethene (ug/l)	1,2-Di-chloro-ethene (ug/l)	Tri-Chloro-ethene (ug/l)	Tetra-chloro-ethene (ug/l)	Methylene Chloride (ug/l)	Chloro-methane (ug/l)	Chloro-form (ug/l)	Vinyl Chloride (ug/l)	Trichloro-fluoro-methane (ug/l)	Dichloro-difluro-methane (ug/l)	Benzene (ug/l)	Chloro-benzene (ug/l)	1,2-Di-Chloro-benzene (ug/l)	1,4-Di-Chloro-benzene (ug/l)	Ethyl Benzene (ug/l)	Toluene (ug/l)	Xylene (ug/l)	Total VOCs (ug/l)
MW-6	27-Jul-87	*11*	--	--	--	--	--	--	--	--	*57*	*5*	--	--	--	--	--	--	--	*5*	--	--	--	--	--	--	78
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-6D	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-8	18-Mar-86	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	11-Jun-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	30-Jun-87	NA	NA	--	--	NA	NA	--	NA	NA	NA	--	--	NA	NA	NA	--	NA	NA	--	NA	--	NA	NA	NA	NA	0
	27-Jul-87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	8-Nov-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-11D	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	17-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-12S	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*10*	--	--	*15*	--	--	--	*28*	*4*	*119*	176
	12-Jan-90	*6*	--	--	--	--	--	--	--	--	*13*	--	--	--	--	--	*8*	--	--	*32*	*4*	--	9	*7*	--	*20*	99
	13-Feb-90	*4*	--	--	--	--	--	--	--	--	*9*	--	--	*4*	*18*	--	*6*	--	--	*24*	*3*	--	7	*3*	--	*7*	85
	17-Sep-90	*3*	--	--	--	--	--	--	--	--	*8*	--	--	--	--	--	*9*	--	--	*5*	*2*	--	--	--	--	--	27
																											0
MW-12D	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	11-Jan-90	*65*	--	--	--	--	--	--	--	--	*6*	*16*	--	*18*	--	--	*4*	--	--	*18*	--	--	--	*147*	*49*	*652*	975
	13-Feb-90	*43*	--	--	--	--	3	--	*14*	--	*5*	*10*	*12*	*20*	--	--	*3*	*2*	--	*10*	--	--	--	*98*	*22*	*424*	666
	15-Feb-90	*60*	*18*	--	--	--	4	--	--	--	*8*	*12*	*17*	*27*	*17*	--	*5*	--	--	*14*	--	--	--	*213*	*42*	*748*	1185
	17-Sep-90	*30*	--	--	--	--	--	--	--	--	*12*	--	--	*70*	--	--	--	--	--	--	--	--	--	*280*	--	*1180*	1572
	2-Jan-91	*24*	--	--	--	*2*	3	--	*6*	1	*2*	*9*	*15*	*218*	--	*2*	*10*	*4*	*6*	*11*	*2*	--	2	*39*	*5*	*201*	562
	6-Feb-91	*44*	--	--	--	--	5	--	*42*	--	*1*	*17*	*22*	*93*	--	--	*42*	*12*	--	*15*	*1*	--	4	*180*	*18*	*580*	1076
																											0
MW-13S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
a																											
Drinking Water Standards		**	**	3	**	**	200	3	**	7	**	3	3	**	**	**	1	**	**	1	**	**	75	**	**	**	**

Table 4-6

VOLATILE ORGANICS DATA

Station	Date	1,1,-Di-chloro-ethane (ug/l)	1,1,2,2,-Tetra-chloro-ethane (ug/l)	1,2-Di-chloro-ethane (ug/l)	CIS-1,3-Di-chloro-propene (ug/l)	1,2-Di-chloro-propane (ug/l)	1,1,1-Tri-chloro-ethane (ug/l)	Carbon Tetra-chloride (ug/l)	Chloro-ethane (ug/l)	1,1,-Di-chloro-ethene (ug/l)	1,2-Di-chloro-ethene (ug/l)	Tri-Chloro-ethene (ug/l)	Tetra-chloro-ethene (ug/l)	Methylene Chloride (ug/l)	Chloro-methane (ug/l)	Chloro-form (ug/l)	Vinyl Chloride (ug/l)	Trichloro-fluoro-methane (ug/l)	Dichloro-difluro-methane (ug/l)	Benzene (ug/l)	Chloro-benzene (ug/l)	1,2-Di-Chloro-benzene (ug/l)	1,4-Di-Chloro-benzene (ug/l)	Ethyl Benzene (ug/l)	Toluene (ug/l)	Xylene (ug/l)	Total VOCs (ug/l)
MW-14S	14-Feb-89	*16*	--	--	--	--	--	--	--	--	*6*	--	--	--	--	--	*18*	--	--	--	--	--	--	--	--	--	40
	11-Jan-90	*12*	--	--	--	--	--	--	--	--	*7*	--	--	--	--	--	*18*	--	--	*6*	--	--	--	--	--	--	43
	18-Sep-90	*12*	--	--	--	*3*	--	--	--	--	*7*	--	--	--	--	--	*20*	--	--	*3*	--	--	--	--	--	--	45
																											0
MW-15S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-16S	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-17S	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-18S	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
MW-19D	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	*5*	--	--	--	--	--	--	--	--	--	--	--	--	--	5
	2-Jan-91	--	--	--	--	--	2	--	--	*1*	*1*	*8*	*18*	*7*	--	--	*7*	*4*	--	*4*	--	--	--	--	--	*7*	59
	6-Feb-91	*7*	--	--	--	--	--	--	--	--	--	3	*7*	--	--	--	--	--	--	*3*	--	*2*	--	--	--	*3*	25
																											0
MW-20D	2-Jan-91	--	--	--	--	--	--	--	--	--	--	1	--	*7*	--	--	--	--	--	1	--	--	--	--	--	--	9
	6-Feb-91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	*2*	--	--	--	--	3
																											0
MW-21D	2-Jan-91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	*3*	--	*19*	23
	6-Feb-91	--	--	--	--	--	--	--	--	--	--	--	--	--	*3*	--	--	--	--	--	--	*2*	--	*2*	--	*14*	21
	6-Feb-91	--	--	--	*1*	--	--	--	--	--	--	--	--	--	*6*	--	--	--	--	1	--	*2*	--	*3*	--	*21*	34
																											0
TP-1	14-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
Hand-Augered Borehole Water Samples																											0
																											0
HA-1S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
HA-2S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
HA-3S	11-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
Surface Water																											0
																											0
SW-1	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*10*	--	--	*17*	--	--	--	*31*	*5*	*127*	190
	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	13-Feb-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
[a] Drinking Water Standards		**	**	3	**	**	200	3	**	7	**	3	3	**	**	**	1	**	**	1	**	**	75	**	**	**	**

Table 4-6

VOLATILE ORGANICS DATA

Station	Date	1,1,-Di-chloro-ethane (ug/l)	1,1,2,2,-Tetra-chloro-ethane (ug/l)	1,2-Di-chloro-ethane (ug/l)	CIS-1,3-Di-chloro-propene (ug/l)	1,2-Di-chloro-propane (ug/l)	1,1,1-Tri-chloro-ethane (ug/l)	Carbon Tetra-chloride (ug/l)	Chloro-ethane (ug/l)	1,1,-Di-chloro-ethene (ug/l)	1,2-Di-chloro-ethene (ug/l)	Tri-Chloro-ethene (ug/l)	Tetra-chloro-ethene (ug/l)	Methylene Chloride (ug/l)	Chloro-methane (ug/l)	Chloro-form (ug/l)	Vinyl Chloride (ug/l)	Trichloro-fluoro-methane (ug/l)	Dichloro-difluro-methane (ug/l)	Benzene (ug/l)	Chloro-benzene (ug/l)	1,2-Di-Chloro-benzene (ug/l)	1,4-Di-Chloro-benzene (ug/l)	Ethyl Benzene (ug/l)	Toluene (ug/l)	Xylene (ug/l)	Total VOCs (ug/l)
SW-2	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
SW-100	16-Feb-89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	***2***	--	--	--	--	--	***2***	--	--	4
																											0
SW-101	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	***3***	--	3
																											0
SW-102	12-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
SW-103	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
	18-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
SW-104	19-Sep-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
SW-200	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0
																											0
SW-201	16-Jan-90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	***9***	9
[a]																											0
Drinking Water Standards [a]		**	**	3	**	**	200	3	**	7	**	3	3	**	**	**	1	**	**	1	**	**	75	**	**	**	**

[a] Florida Primary Drinking Water Standards (FAC 17-550, April 1990).

Note: Conventional parameters included nitrate + nitrite.

Bold indicates exceedance of secondary drinking water standard.

Bold italics indicates exceedance of primary drinking water standard.

ug/l = Micrograms per liter.

NA = Not analyzed.

-- = Below detection limits.

** = No applicable drinking water standard.

FILE

Florida Department of Environmental Regulation

Northwest District • 160 Governmental Center • Pensacola, Florida 32501-5794

Lawton Chiles, Governor Carol M. Browner, Secretary

May 7, 1991

Esc
Perdido.
Rem

Mr. R. J. Bruner III, P.E.
Project Manager
CH2M Hill
Post Office Box 1647
Gainsville, Fl 32602-1647

Dear Mr. Bruner:

This is reference to the Interim Remedial Action Plan for Perdido Landfill, Escambia County. According to your March 1991 schedule, this plan was to be submitted to our office in mid April, as of May 6 we have not received it. Please inform us within the next week of the status.

If there are any questions or concerns, please feel free to contact me at (904)436-8360

Sincerely,

Cindy W. Anderson, P.E.
Solid Waste Section
Supervisor

CWA:caa
cc: Charlie Miller, ECSWD
Drew VanLandingham, ECSWD
Jack Walker, UWF

Esc
Perdido
Rem.

Engineers
Planners
Economists
Scientists

May 10, 1991

GNV26091.B0

Ms Cindy W. Anderson
Florida Department of Environmental
Regulation
160 Governmental Center
Pensacola, Florida 32501-5794

Dear Ms Anderson:

Subject: IRAP for Perdido Landfill

The "Begin Work" milestone on our March 25, 1991 schedule referred to our receipt of Notice to Proceed from Escambia County. In order for the County to issue Notice to Proceed, a Contract Amendment had to be processed through the County Commission. The required Contract Amendment was submitted to the County on March 5, 1991 and approved by the County Commission on March 28, 1991. We received the signed Contract Amendment and authorization to proceed with the IRAP on April 9, 1991. Based on an April 9 Notice to Proceed, the due date for the IRAP is May 21, 1991.

If you have further any questions regarding IRAP, please give me a call.

Sincerely,

CH2M HILL

R. J. Bruner III, P.E.
Project Manager

RECEIVED
MAY 14 1991
Northwest Florida
DER

xc: Charlie Miller/ECSWD
Drew VanLandingham/ECSWD
Jack Walker/UWF
David Lane/CH2M HILL/GNV

RJB/clr/candm10.lt

CH2M HILL Gainesville Office 7201 N.W. 11th Place, P.O. Box 1647
Gainesville, FL 32602-1647
904.331.2442
FAX 904.331.5320

Esc. Perdido Compl.

State of Florida
Department of Enviornmental Regulation
CONVERSATION RECORD

Date May 13, 1991
Time 8:25
Recorded by RMM

Permit No. _____
File No. _____
County Escambia
Suspense Date _____
Telephone No. 477-0454

Mr. Peter H. Dohms (Condor)

Representing Escambia County - Perdido Landfill

Address _____

[•] Telephoned [ ] Came In [✓] Was Called [ ] No Further Action Recd.

Regarding Monitoring for Wetlands @ Perdido Landfill.

Conversation Mr. Dohms asked if the Department would have any problem with moving MW-25 along the ZOD 45 feet. I replied that the compromise that we discussed on-site appeared appropriate. (That was splitting the difference between moving MW-25 directly toward the landfill approximately 35 feet and moving to the southeast 45 feet along the ZOD.)

Mr. Dohmes requested a copy of the map we discussed out in the field, with Pensacola Testings boring locations on it. I stated a copy would be sent.

Copies to Cindy W. Anderson (SW files)

Signature Richard M. Markley
Title ES-II

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Cindy
2. Perdido CA
3.
4.

Remarks:

I have reviewed this progress report 3/26 and the schedules enclosed appear appropriate.

From: Mike Markey

Date 5/21/91

Phone #142

Esc. Perdido Rem

State of Florida
Department of Enviornmental Regulation
CONVERSATION RECORD

Date May 31, 1991
Time 9:45am
Recorded by RMM

Permit No.
File No.
County Escambia County
Suspense Date
Telephone No.

M c Peter Dohms

Representing Escambia County (Perdido Landfill)

Address

[✓] Telephoned [ ] Came In [ ] Was Called [ ] No Further Action Recd.

Regarding

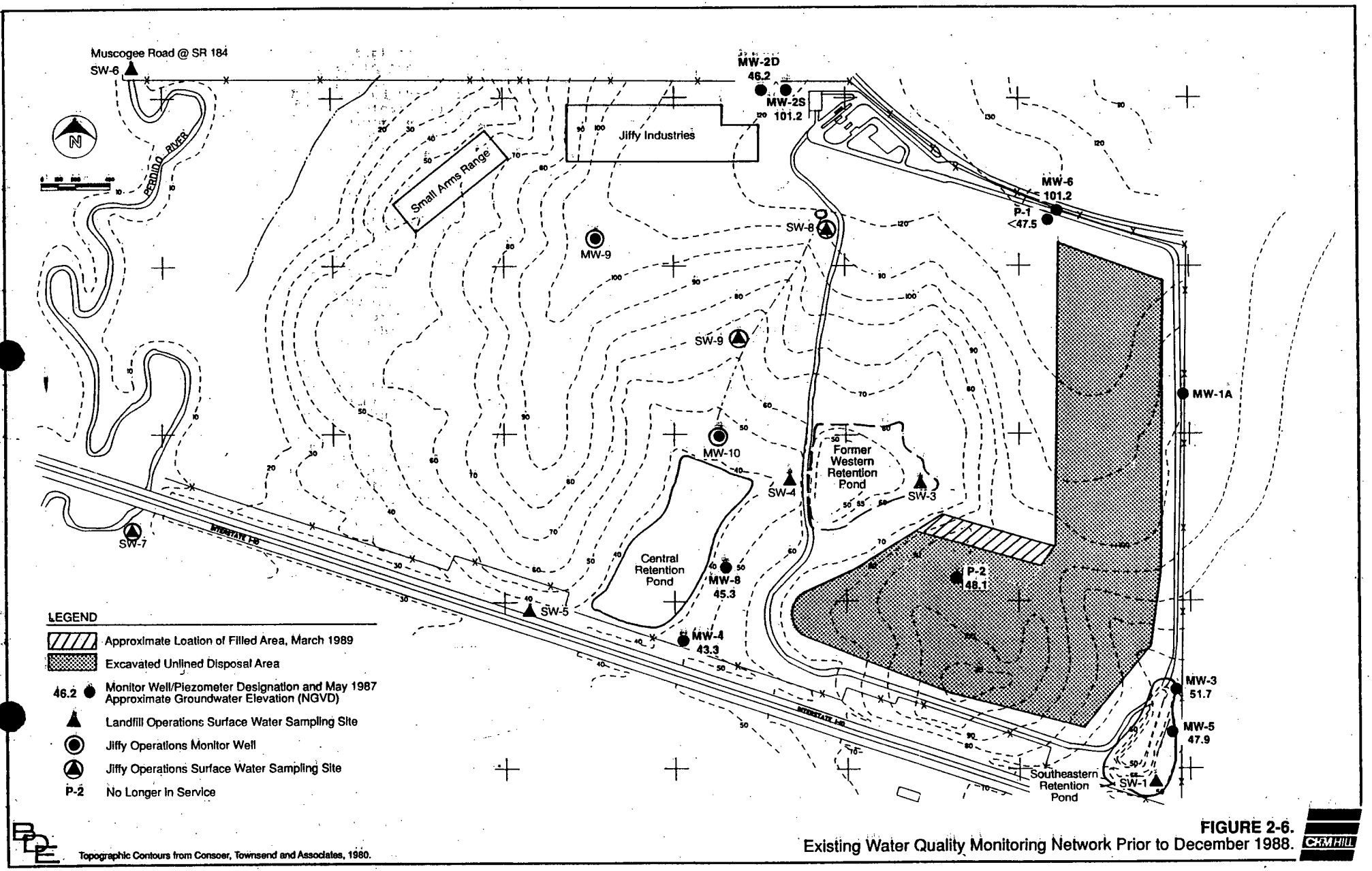
Conversation In our conversation regarding another site, I requested that Peter Dohms send a copy of his revised potentiometric map for Perdido Landfill. He stated he would send a copy of his base map and provide me with the water levels on 9/17/90. He stated that MW-2D was in an incorrect location on Figure 5-3 (Base map) and he had corrected the location. He also mentioned that MW-10 was screened from 2'-10' and was not included. The water levels that are provided are as follows:

WL's 9/17/90

WL-3	46.05
MW-2D	44.94
WL-2	50.23
P2WL-1S	47.01
MW-4	42.53
MW-20D	44.31
MW-6D	45.99
MW-11D	48.13
MW-12D	46.71

Copies to Cindy Anderson (SW files - remedial)

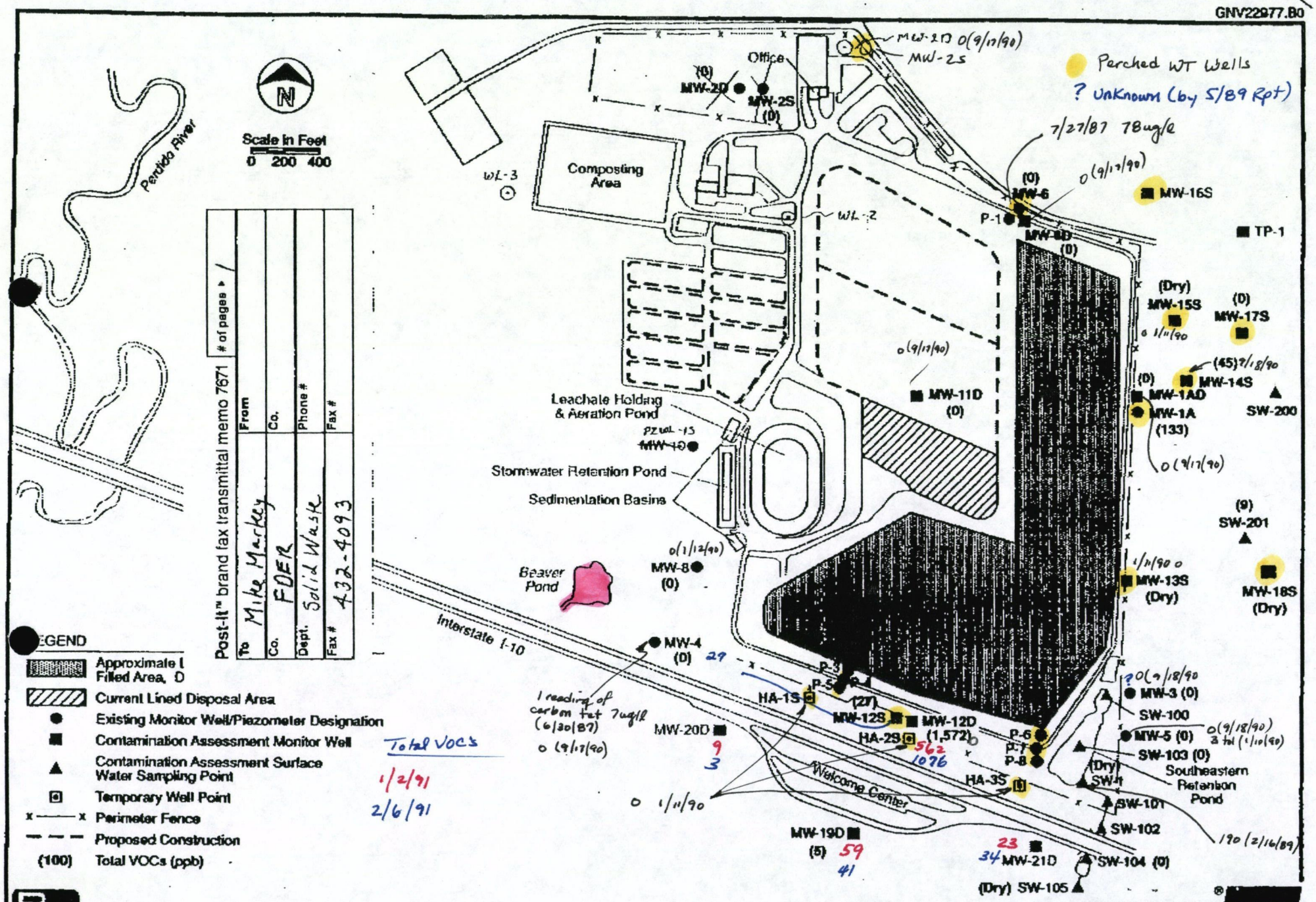
Signature Richard M. Markey
Title ES-II



Topographic Contours from Consoer, Townsend and Associates, 1980.

FIGURE 2-6.
Existing Water Quality Monitoring Network Prior to December 1988.

GNV22977.B0



Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Mike Markey	From
Co. FDER	Co.
Dept. Solid Waste	Phone #
Fax # 432-4093	Fax #

LEGEND

- Approximate L Filled Area, D
- Current Lined Disposal Area
- Existing Monitor Well/Piezometer Designation
- Contamination Assessment Monitor Well
- Contamination Assessment Surface Water Sampling Point
- Temporary Well Point
- Perimeter Fence
- Proposed Construction
- (100) Total VOCs (ppb)

FIGURE 5-3.
Reported VOC Concentrations, September 1990.
(Sampling data provided)

$\frac{16}{400} = \frac{25}{X}$

GNV22977.B0

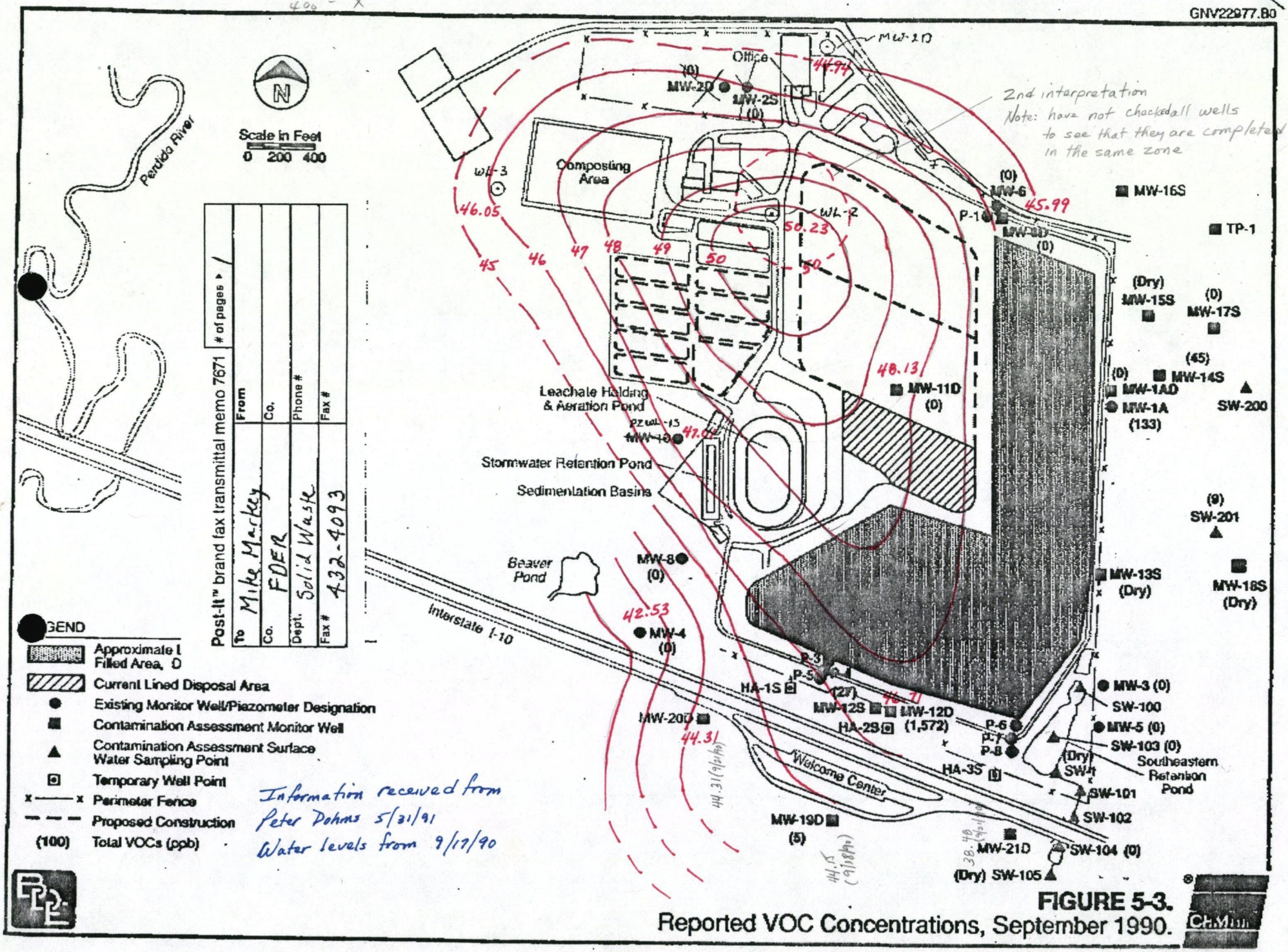


FIGURE 5-3.
Reported VOC Concentrations, September 1990.

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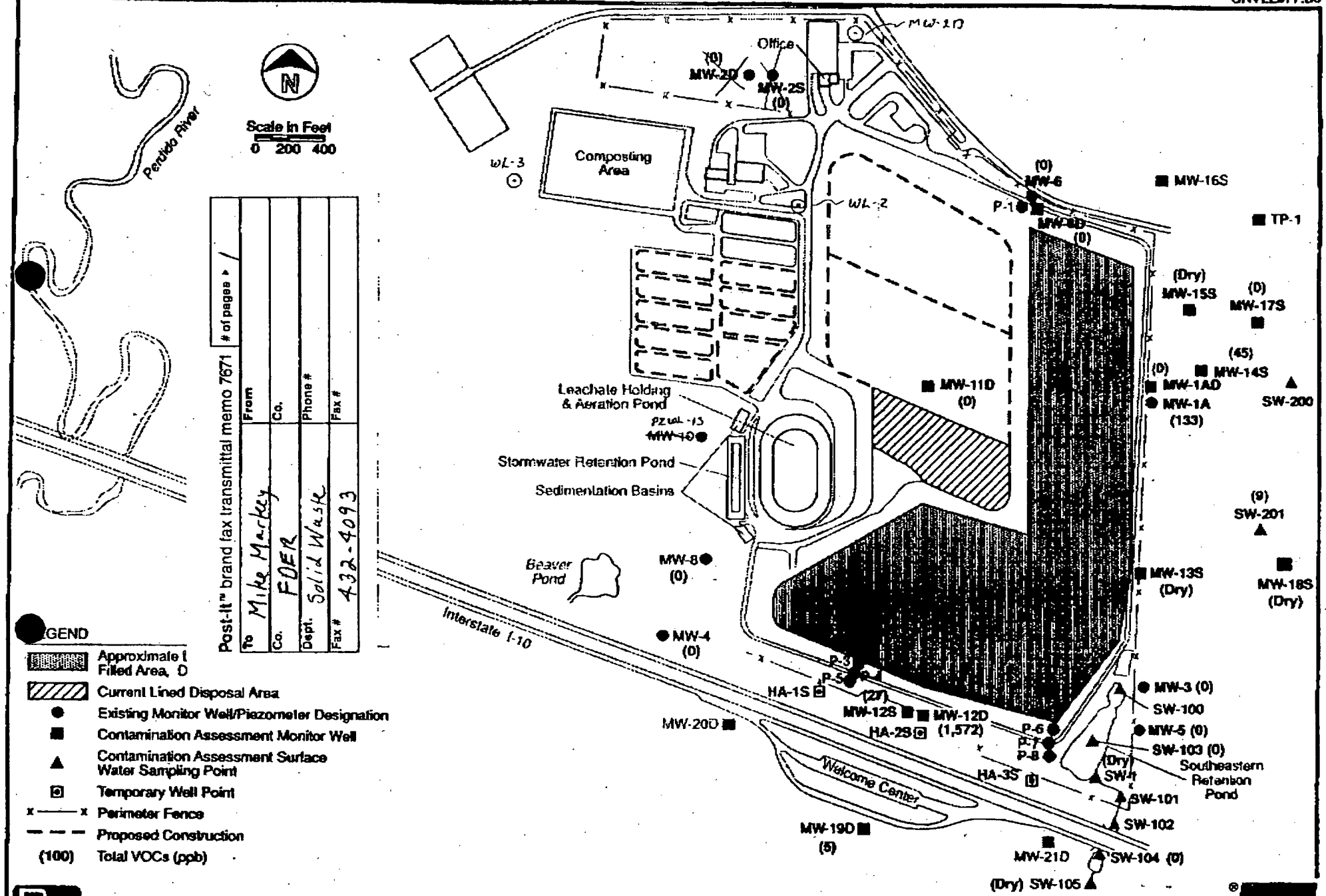
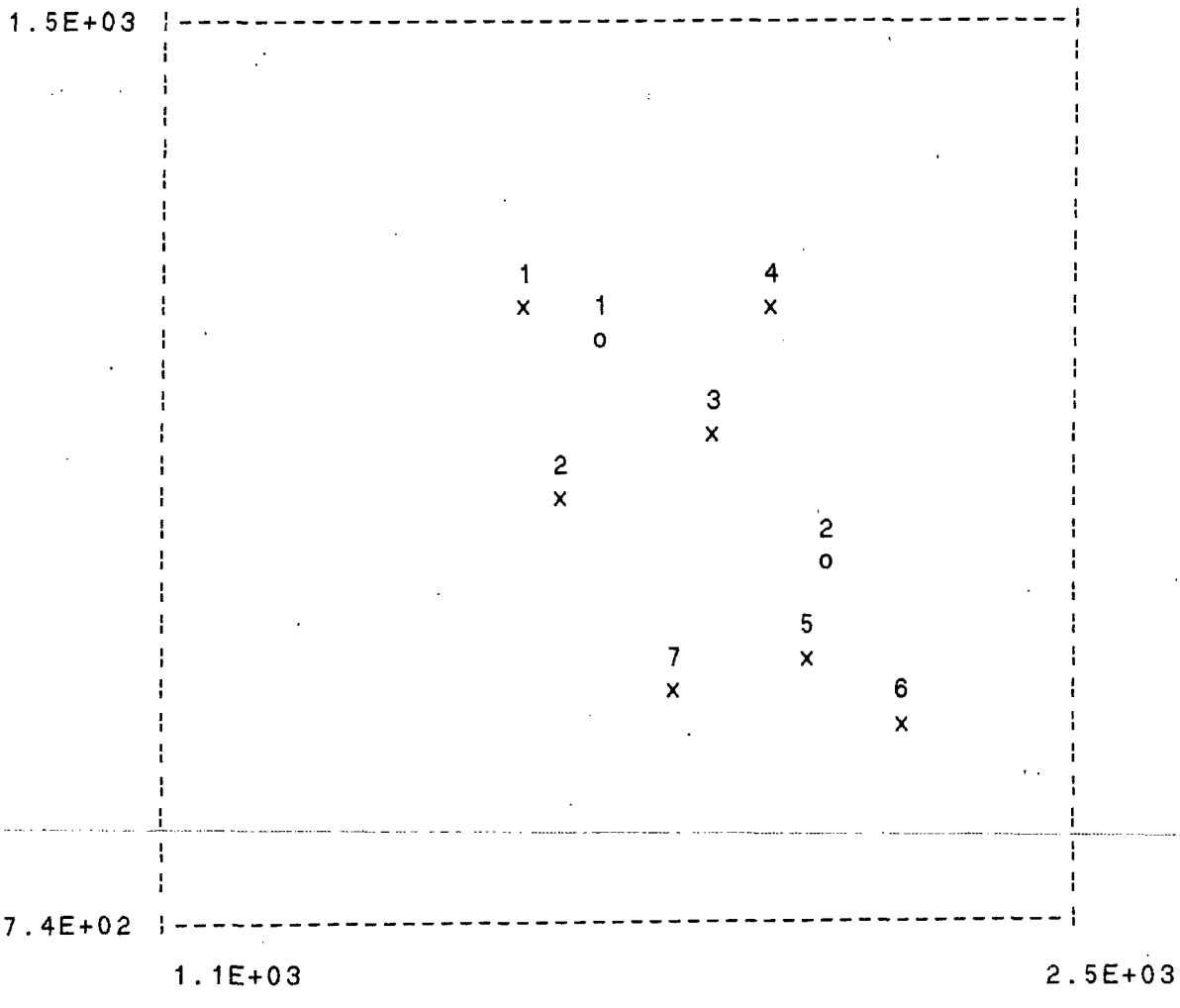


FIGURE 5-3.
Reported VOC Concentrations, September 1990.

LOCATION OF WELLS AND OBSERVATION POINTS

o - WELLS
x - OBSERVATION POINTS

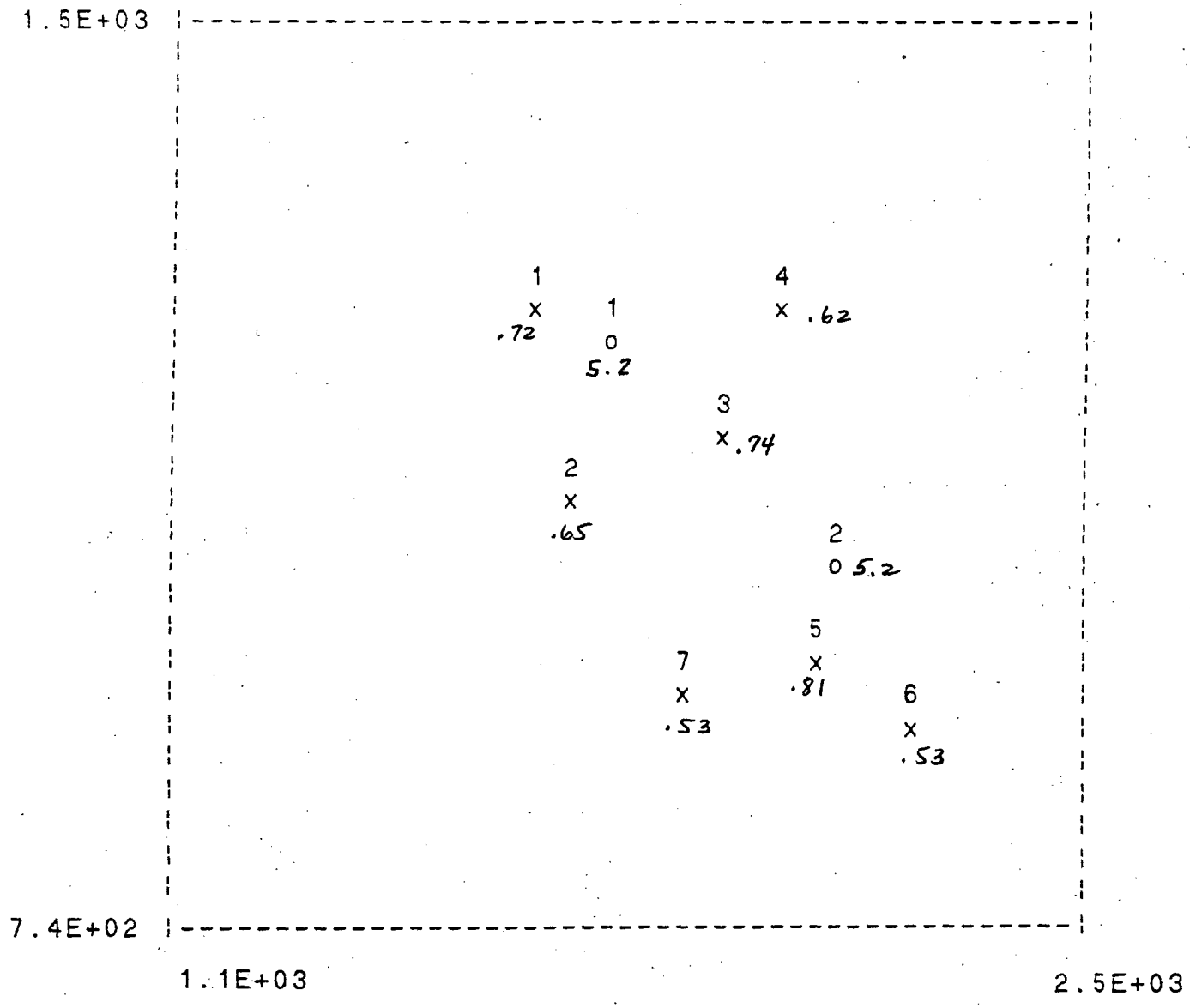


LOCATION OF WELLS AND OBSERVATION POINTS

(DRAWDOWN @ 200 DAYS @ 2GPM 11' AQUIFER THICKNESS)

o - WELLS

x - OBSERVATION POINTS



PERDIDO DRAWDOWN AT 5GPM WITH AN AQUIFER THICKNESS OF 11 FT.

GENERAL AQUIFER ANALYSIS

WELL DATA

	LOCATION X(FT)	LOCATION Y(FT)	DISCHARGE (GPM)	TIME PUMPING (DAYS)
R-1	+1770.0	+1245.0	+2.00	+0.0
R-2	+2115.0	+1050.0	+2.00	+0.0

OBSERVATION POINT DATA

	LOCATION X0(FT)	LOCATION Y0(FT)
OB-1	+1675.0	+1260.0
OB-2	+1725.0	+1110.0
OB-3	+1950.0	+1150.0
OB-4	+2025.0	+1270.0
OB-5	+2090.0	+975.0
OB-6	+2220.0	+920.0
OB-7	+1880.0	+935.0
ROW-1	+1770.0	+1245.0
ROW-2	+2115.0	+1050.0

AQUIFER CHARACTERISTICS
HYDRAULIC CONDUCTIVITY (GPD/SQ FT) = 149.5
SPECIFIC YIELD = .2
AQUIFER THICKNESS (FT) = 11

TIME= 100 DAYS
OBSERVATION POINT OB-1 X0= 1675 FT, Y0= 1260 FT
DRAWDOWN DUE TO WELL 1 R-1 = .4606232 FT
DRAWDOWN DUE TO WELL 2 R-2 = 7.154548E-02 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .5321686 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .5457048 FT

OBSERVATION POINT OB-2 X0= 1725 FT, Y0= 1110 FT
DRAWDOWN DUE TO WELL 1 R-1 = .3548562 FT
DRAWDOWN DUE TO WELL 2 R-2 = .1095435 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .4643996 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .4746399 FT

OBSERVATION POINT OB-3 X0= 1950 FT, Y0= 1150 FT
DRAWDOWN DUE TO WELL 1 R-1 = .2615913 FT
DRAWDOWN DUE TO WELL 2 R-2 = .2752163 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .5368077 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .5505867 FT

OBSERVATION POINT OB-4 X0= 2025 FT, Y0= 1270 FT
DRAWDOWN DUE TO WELL 1 R-1 = .2046503 FT
DRAWDOWN DUE TO WELL 2 R-2 = .2228606 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .427511 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .4361582 FT

OBSERVATION POINT OB-5 X0= 2090 FT, Y0= 975 FT
DRAWDOWN DUE TO WELL 1 R-1 = 9.819655E-02 FT

```
DRAWDOWN DUE TO WELL  2    R-2 =  .5143169  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .6125135  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .6305885  FT

OBSERVATION POINT  OB-6  X0=  2220  FT, Y0=  920  FT
DRAWDOWN DUE TO WELL  1    R-1 =  5.201618E-02  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .3124364  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .3644525  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .3706989  FT

OBSERVATION POINT  OB-7  X0=  1880  FT, Y0=  935  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .1472566  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .1996528  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .3469094  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .3525591  FT

OBSERVATION POINT  ROW-1  X0=  1770  FT, Y0=  1245  FT
DRAWDOWN DUE TO WELL  1    R-1 =  3.770312  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .1087004  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  3.879012  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  5.028256  FT

OBSERVATION POINT  ROW-2  X0=  2115  FT, Y0=  1050  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .1087004  FT
DRAWDOWN DUE TO WELL  2    R-2 =  3.770312  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  3.879012  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  5.028256  FT


TIME=  200  DAYS
OBSERVATION POINT  OB-1  X0=  1675  FT, Y0=  1260  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .5557681  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .1371481  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .6929162  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .7162342  FT

OBSERVATION POINT  OB-2  X0=  1725  FT, Y0=  1110  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .4483012  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .1844642  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .6327654  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .6520939  FT

OBSERVATION POINT  OB-3  X0=  1950  FT, Y0=  1150  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .3518522  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .3660998  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .717952  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .7430487  FT

OBSERVATION POINT  OB-4  X0=  2025  FT, Y0=  1270  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .2914064  FT
DRAWDOWN DUE TO WELL  2    R-2 =  .3109236  FT
TOTAL DRAWDOWN IN CONFINED AQUIFER =  .60233  FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE =  .619791  FT

OBSERVATION POINT  OB-5  X0=  2090  FT, Y0=  975  FT
DRAWDOWN DUE TO WELL  1    R-1 =  .1707715  FT
```

DRAWDOWN DUE TO WELL 2 R-2 = .6099312 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .7807028 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .8105669 FT

OBSERVATION POINT OB-6 X0= 2220 FT, Y0= 920 FT
DRAWDOWN DUE TO WELL 1 R-1 = .1105794 FT
DRAWDOWN DUE TO WELL 2 R-2 = .4047141 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .5152935 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .5279636 FT

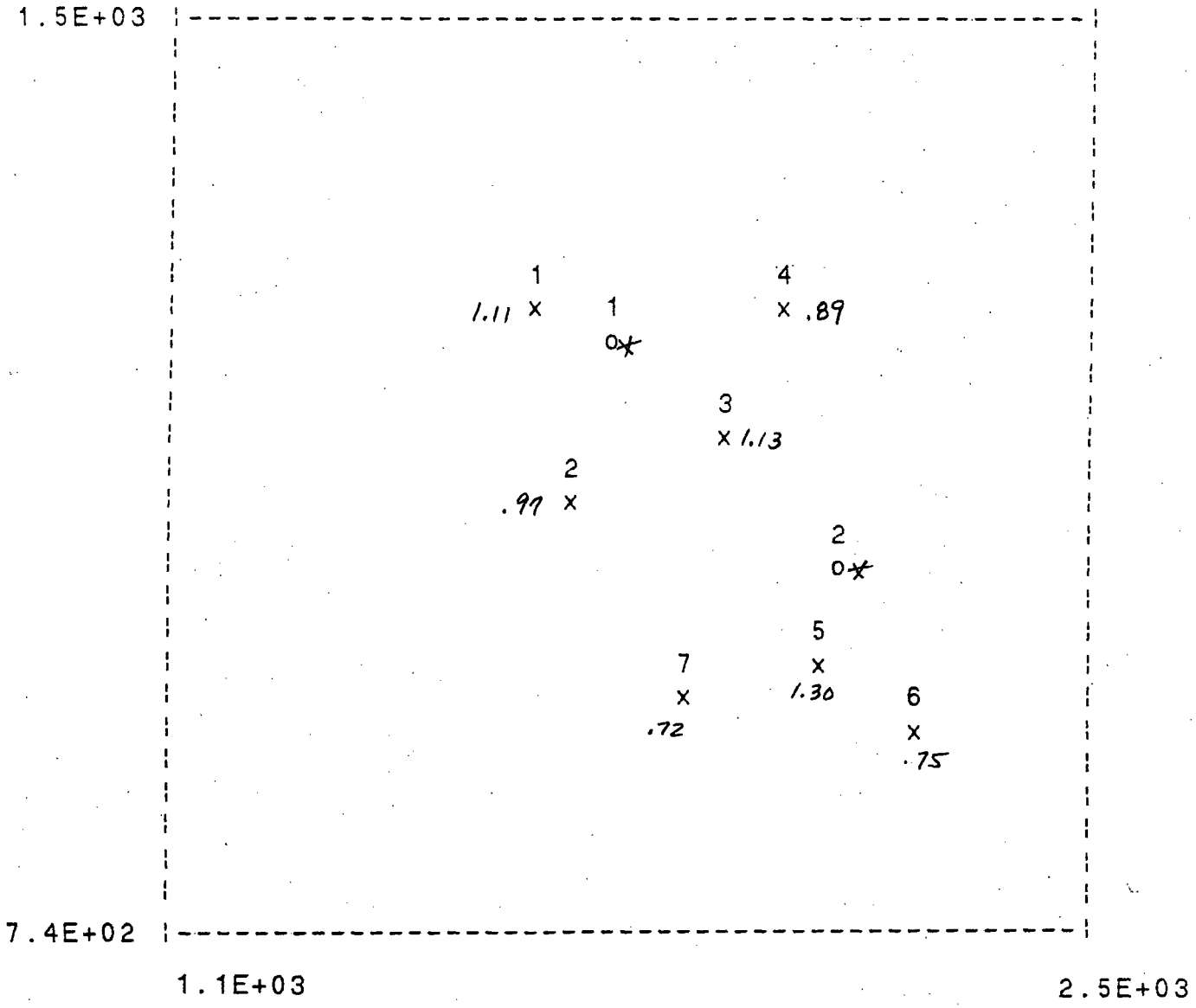
OBSERVATION POINT OB-7 X0= 1880 FT, Y0= 935 FT
DRAWDOWN DUE TO WELL 1 R-1 = .2281951 FT
DRAWDOWN DUE TO WELL 2 R-2 = .286013 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .5142081 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .526824 FT

OBSERVATION POINT ROW-1 X0= 1770 FT, Y0= 1245 FT
DRAWDOWN DUE TO WELL 1 R-1 = 3.770312 FT
DRAWDOWN DUE TO WELL 2 R-2 = .183457 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 3.953769 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = 5.167583 FT

OBSERVATION POINT ROW-2 X0= 2115 FT, Y0= 1050 FT
DRAWDOWN DUE TO WELL 1 R-1 = .183457 FT
DRAWDOWN DUE TO WELL 2 R-2 = 3.770312 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 3.953769 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = 5.167583 FT

LOCATION OF WELLS AND OBSERVATION POINTS
(DRAWDOWN @ 200 DAYS @ 26PM 6' AQUIFER)

o - WELLS
x - OBSERVATION POINTS



* AQUIFER COMPLETELY DEWATERED

PERDIDO DRAWDOWN (2GPM) AT 6FT OF AQUIFER

GENERAL AQUIFER ANALYSIS

	WELL DATA LOCATION X(FT)	Y(FT)	DISCHARGE (GPM)	TIME PUMPING (DAYS)
R-1	+1770.0	+1245.0	+2.00	+0.0
R-2	+2115.0	+1050.0	+2.00	+0.0

	OBSERVATION POINT DATA LOCATION X0(FT)	Y0(FT)
OB-1	+1675.0	+1260.0
OB-2	+1725.0	+1110.0
OB-3	+1950.0	+1150.0
OB-4	+2025.0	+1270.0
OB-5	+2090.0	+975.0
OB-6	+2220.0	+920.0
OB-7	+1880.0	+935.0
ROW-1	+1770.0	+1245.0
ROW-2	+2115.0	+1050.0

AQUIFER CHARACTERISTICS
HYDRAULIC CONDUCTIVITY (GPD/SQ FT) = 149.5
SPECIFIC YIELD = .2
AQUIFER THICKNESS (FT) = 6

TIME= 100 DAYS
OBSERVATION POINT OB-1 X0= 1675 FT, Y0= 1260 FT
DRAWDOWN DUE TO WELL 1 R-1 = .6940213 FT
DRAWDOWN DUE TO WELL 2 R-2 = 5.690084E-02 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .7509221 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .8049126 FT

OBSERVATION POINT OB-2 X0= 1725 FT, Y0= 1110 FT
DRAWDOWN DUE TO WELL 1 R-1 = .5051949 FT
DRAWDOWN DUE TO WELL 2 R-2 = .1053114 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .6105064 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .6451964 FT

OBSERVATION POINT OB-3 X0= 1950 FT, Y0= 1150 FT
DRAWDOWN DUE TO WELL 1 R-1 = .3434963 FT
DRAWDOWN DUE TO WELL 2 R-2 = .3666835 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .7101797 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .7580686 FT

OBSERVATION POINT OB-4 X0= 2025 FT, Y0= 1270 FT
DRAWDOWN DUE TO WELL 1 R-1 = .2489833 FT
DRAWDOWN DUE TO WELL 2 R-2 = .2787275 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .5277108 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .5532146 FT

OBSERVATION POINT OB-5 X0= 2090 FT, Y0= 975 FT
DRAWDOWN DUE TO WELL R-1 = 9.010109E-02 FT

DRAWDOWN DUE TO WELL 2 R-2 = .7910431 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .8811442 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .9575534 FT

OBSERVATION POINT OB-6 X0= 2220 FT, Y0= 920 FT
DRAWDOWN DUE TO WELL 1 R-1 = 3.543748E-02 FT
DRAWDOWN DUE TO WELL 2 R-2 = .4308647 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .4663022 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .4859839 FT

OBSERVATION POINT OB-7 X0= 1880 FT, Y0= 935 FT
DRAWDOWN DUE TO WELL 1 R-1 = .1593627 FT
DRAWDOWN DUE TO WELL 2 R-2 = .2409143 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .400277 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .4146013 FT

OBSERVATION POINT ROW-1 X0= 1770 FT, Y0= 1245 FT
DRAWDOWN DUE TO WELL 1 R-1 = 6.912239 FT
DRAWDOWN DUE TO WELL 2 R-2 = .1041622 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 7.016401 FT
AQUIFER COMPLETELY DEWATERED

OBSERVATION POINT ROW-2 X0= 2115 FT, Y0= 1050 FT
DRAWDOWN DUE TO WELL 1 R-1 = .1041622 FT
DRAWDOWN DUE TO WELL 2 R-2 = 6.912239 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 7.016401 FT
AQUIFER COMPLETELY DEWATERED

TIME= 200 DAYS
OBSERVATION POINT OB-1 X0= 1675 FT, Y0= 1260 FT
DRAWDOWN DUE TO WELL 1 R-1 = .8662637 FT
DRAWDOWN DUE TO WELL 2 R-2 = .1444147 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 1.010678 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = 1.114116 FT

OBSERVATION POINT OB-2 X0= 1725 FT, Y0= 1110 FT
DRAWDOWN DUE TO WELL 1 R-1 = .6718418 FT
DRAWDOWN DUE TO WELL 2 R-2 = .2166677 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .8885095 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .9663248 FT

OBSERVATION POINT OB-3 X0= 1950 FT, Y0= 1150 FT
DRAWDOWN DUE TO WELL 1 R-1 = .4998973 FT
DRAWDOWN DUE TO WELL 2 R-2 = .5250633 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 1.024961 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = 1.131687 FT

OBSERVATION POINT OB-4 X0= 2025 FT, Y0= 1270 FT
DRAWDOWN DUE TO WELL 1 R-1 = .3944616 FT
DRAWDOWN DUE TO WELL 2 R-2 = .4282351 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .8226968 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .8884797 FT

OBSERVATION POINT OB-5 X0= 2090 FT, Y0= 975 FT
DRAWDOWN DUE TO WELL 1 R-1 = .1952032 FT

DRAWDOWN DUE TO WELL 2 R-2 = .9648452 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 1.160048 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = 1.301126 FT

OBSERVATION POINT OB-6 X0= 2220 FT, Y0= 920 FT
DRAWDOWN DUE TO WELL 1 R-1 = .1067276 FT
DRAWDOWN DUE TO WELL 2 R-2 = .5937197 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .7004473 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .7469406 FT

OBSERVATION POINT OB-7 X0= 1880 FT, Y0= 935 FT
DRAWDOWN DUE TO WELL 1 R-1 = .2875344 FT
DRAWDOWN DUE TO WELL 2 R-2 = .3851823 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = .6727167 FT
TOTAL DRAWDOWN CORRECTED FOR WATER TABLE = .7153621 FT

OBSERVATION POINT ROW-1 X0= 1770 FT, Y0= 1245 FT
DRAWDOWN DUE TO WELL 1 R-1 = 6.912239 FT
DRAWDOWN DUE TO WELL 2 R-2 = .2150754 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 7.127314 FT
AQUIFER COMPLETELY DEWATERED

OBSERVATION POINT ROW-2 X0= 2115 FT, Y0= 1050 FT
DRAWDOWN DUE TO WELL 1 R-1 = .2150754 FT
DRAWDOWN DUE TO WELL 2 R-2 = 6.912239 FT
TOTAL DRAWDOWN IN CONFINED AQUIFER = 7.127314 FT
AQUIFER COMPLETELY DEWATERED

Engineers
Planners
Economists
Scientists

June 4, 1991

GNV22977.B0

Mike M

Ms. Cindy W. Anderson
Florida Department of Environmental Regulation
160 Governmental Center
Pensacola, FL 32501-5794

Dear Ms. Anderson:

Subject: Contamination Assessment for Escambia County's Perdido Landfill

Dear Ms. Anderson:

Escambia County is continuing to pursue the contamination assessment of the Perdido Landfill. Three additional wells are proposed to help bound the plume in the area south of the I-10 Welcome Station. These wells are expected to be up to 40 feet deep. Soil sampling will be performed at each well location at 5-ft intervals throughout the well depth. The well locations are shown in Figure 1. The wells will be numbered MW-22D, MW-23D, and MW-24D.

Escambia County is currently investigating the ownership of and access to the proposed well locations. We assume that the County will be able to secure access to these sites.

The wells listed in Table 1 will be sampled as indicated for the contamination assessment.

If you have any questions concerning this matter, please do not hesitate to call me or Martin Brungard at (904) 331-2442

Sincerely,

CH2M HILL

R.J. Bruner III, P.E.
Project Manager

10011175.GNV
Enclosure
xc: Charlie Miller/ECSWD
Drew Van Landingham/ECSWD
Jack Walker/UWF

RECEIVED
JUN - 6 1991
Northwest Florida
DER

CH2M HILL Gainesville Office 7201 N.W. 11th Place, P.O. Box 1647
Gainesville, FL 32602-1647
904.331.2442
FAX 904.331.5320

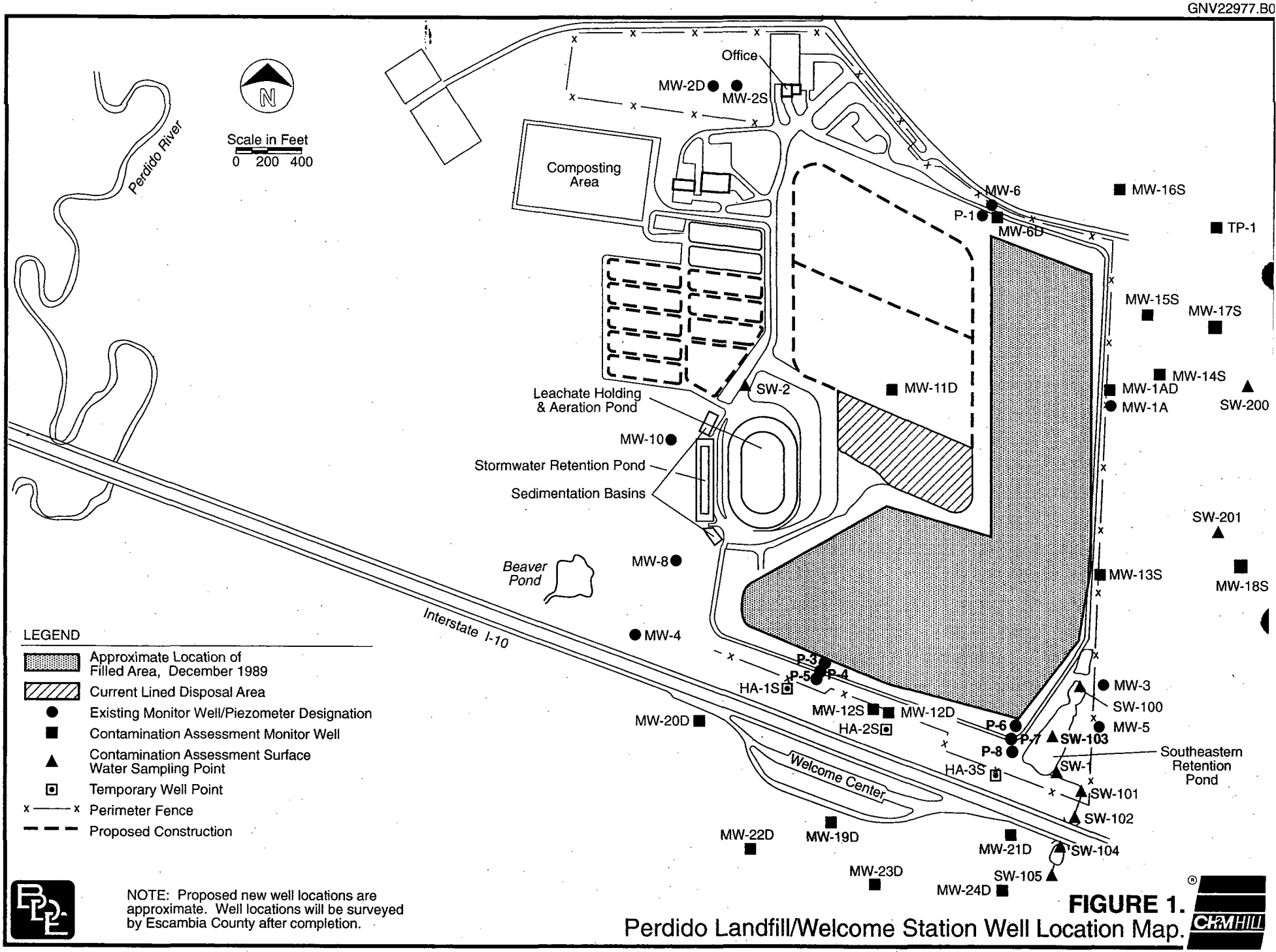
eas 6/11

Table 1
GROUNDWATER MONITORING LOCATIONS
AND PARAMETER COVERAGE

Monitor Well[a]	Conventional Parameters[b]	Purgeable Organics[c]
MW-1A	X	X
MW-2S	X	X
MW-2D	X	X
MW-3	X	X
MW-4	X	X
MW-5	X	X
MW-6	X	X
MW-8	X	X
MW-12S		X
MW-12D		X
MW-19D		X
MW-20D		X
MW-21D		X
MW-22D		X
MW-23D		X
MW-24D		X

[a]Conductivity and pH will be measured for all samples.
[b]Nitrate (as N), iron, chloride, manganese, sulfate, lead, arsenic, TOC.
[c]Priority pollutant purgeable organics by EPA Method 601 and 602.

GNV22977.B0



NOTE: Proposed new well locations are approximate. Well locations will be surveyed by Escambia County after completion.

FIGURE 1.
Perdido Landfill/Welcome Station Well Location Map.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

TO: File

THROUGH: Charles F. Goddard
Mark S. Sowell, Jr.
Robert V. Kriegel

FROM: T. Christopher Bosso TCB-3

DATE: June 17, 1991

SUBJECT: Perdido Sanitary Landfill, Escambia County

On April 17, 1991, along with other Departmental personnel, I visited the above referenced site. Mr. Charles Miller of the Perdido Sanitary Landfill conducted the field trip which outlined the landfill's operation. During the tour of the artificial wetland cells it was noted that the western boundary of the cells ended in wetlands dominated by sweet bay (Magnolia virginiana) and black titi (Cliftonia monophylla). The artificial wetlands and the right-of-way for an electrical transmission line had overlapped the wetlands resulting in the complete elimination of the northeastern bayhead of the western wetland. Dewatering trenches that have intercepted the surface water and groundwater were also conveying water off-site. It was not known during the field trip whether dredge and fill permits had been obtained for work at the site.

Further research of the matter revealed that although the landfill had received solid waste construction permits, dredge and fill permits had not been obtained for activities overlapping the wetlands. In questioning the Solid Waste Section on why they didn't consult the Dredge & Fill staff, they directed my attention to a 1979 jurisdictional letter from the Department (see Exhibit 1). The interpretation of this letter is summarized on the drawing attached to Exhibit 1. The determination was based on the rules at the time and defined in Florida Administrative Code Rule 17-301.200.

In 1984 the Warren S. Henderson Act went into effect and expanded Departmental jurisdiction. The rule made provisions for property owners to petition Tallahassee to allow parcels of property to be "grandfathered" (subject to pre-Henderson rules) pursuant to Florida Administrative Code Rule 17-301.400(8).

received 11/4/91

The Perdido Sanitary Landfill personnel did not petition Tallahassee to have the site "grandfathered" and as a result work performed after October 1, 1984 is subject to the expanded jurisdiction pursuant to Florida Administrative Code Rule 17-301.400. The jurisdictional line based on the rules that apply to the site from October 1, 1984 to the present date are shown on Exhibit 2. The expanded jurisdiction is based on the presence/dominance of indicator species which are on the 1984 list of vegetative indices but was not on the pre-Henderson list. This assessment was also confirmed by Rick Cantrell, the head of the Jurisdictional Section in the Bureau of Water Management in Tallahassee.

In 1986 Charles Harp of the Dredge & Fill Section visited the site with Dr. Gerald Moshuri and informed him that the site was jurisdictional.

On June 4, 1991, I inspected the site with aerial photographs to estimate the extent of the unauthorized dredge and fill activities which have occurred in the wetlands. The permit issued by the Solid Waste Section to convert the impoundment into a leachate pond and for the construction of landfill cells east of the impoundment have resulted in the permanent loss of approximately 21.2 acres of waters of the State.

The northeast portion of wetland area identified in the 1979 letter as a swamp has been covered by artificial wetland cells and a fill road that borders entirely within the eastern portion of this wetland. This has been estimated from aerial photographs to be approximately 5.82 acres of wetlands. Also additional fill spits have been placed within these wetlands for monitoring wells. Approximately 100' by 300' by 20' (0.69 acres) pile of fill material has been stockpiled in wetlands in the area of the compost pile within the northern reaches of the swamp wetland. The two ditches approximately 20' wide and 200' long have been excavated through the uplands (compost construction site) and into the wetlands to dewater the high water table. An additional fill pile has been placed in the wetlands at the northwestern corner of this wetland.

Numerous ditches have been excavated throughout the upland portions of the project site which are dewatering the water table. These ditches connect just west of the leachate pond/impoundment and discharge into the swamp and "beaver dam". At the point of confluence with the swamp a spoil pile approximately 150' by 20' by 8' and a 150' by 10' fill road extend into the wetlands. The spoil piles appear to be from maintenance of the ditched creek that is receiving excessive sedimentation from the unstabilized areas of the site. It was also noted that some cypress and black gum trees have been killed by the sedimentation.

A water quality sample of surface water taken at the site revealed turbidity levels of 6000 NTU's. This sample compared to background is over 200 times the State water quality standard.

Samples taken off-site along I-10 where the creek leaves the site revealed fecal and total coliform violations as well as turbidity sample of 1000 NTU's. Two pH samples taken in the affected creek revealed elevated pH over 1 unit above background samples. Nutrient samples were also collected but at the time of this memo analysis was not complete. Violations of the same parameters were taken by Departmental personnel on August 25, 1989. A summary of the water quality samples for both dates is attached as Exhibit 33

On June 11, 1991, Cliff Street and Charlie Goddard also toured the landfill site with Charlie Miller. Additional turbidity samples were taken, with results as shown on Exhibit 35.

Cliff Street confirmed that the stormwater pond serving the landfill site was in violation of permit conditions because the filter system had malfunctioned in the past and had been removed by landfill personnel. Consequently stormwater was routinely being discharged untreated from the site. A review of the files also confirmed that the stormwater portions of the various solid waste permits had been reviewed by Jim Sherrouse in December 1988, November 1989 and April 1990 and found to meet appropriate 17-701 and 17-25 criteria.

TCB:cbb

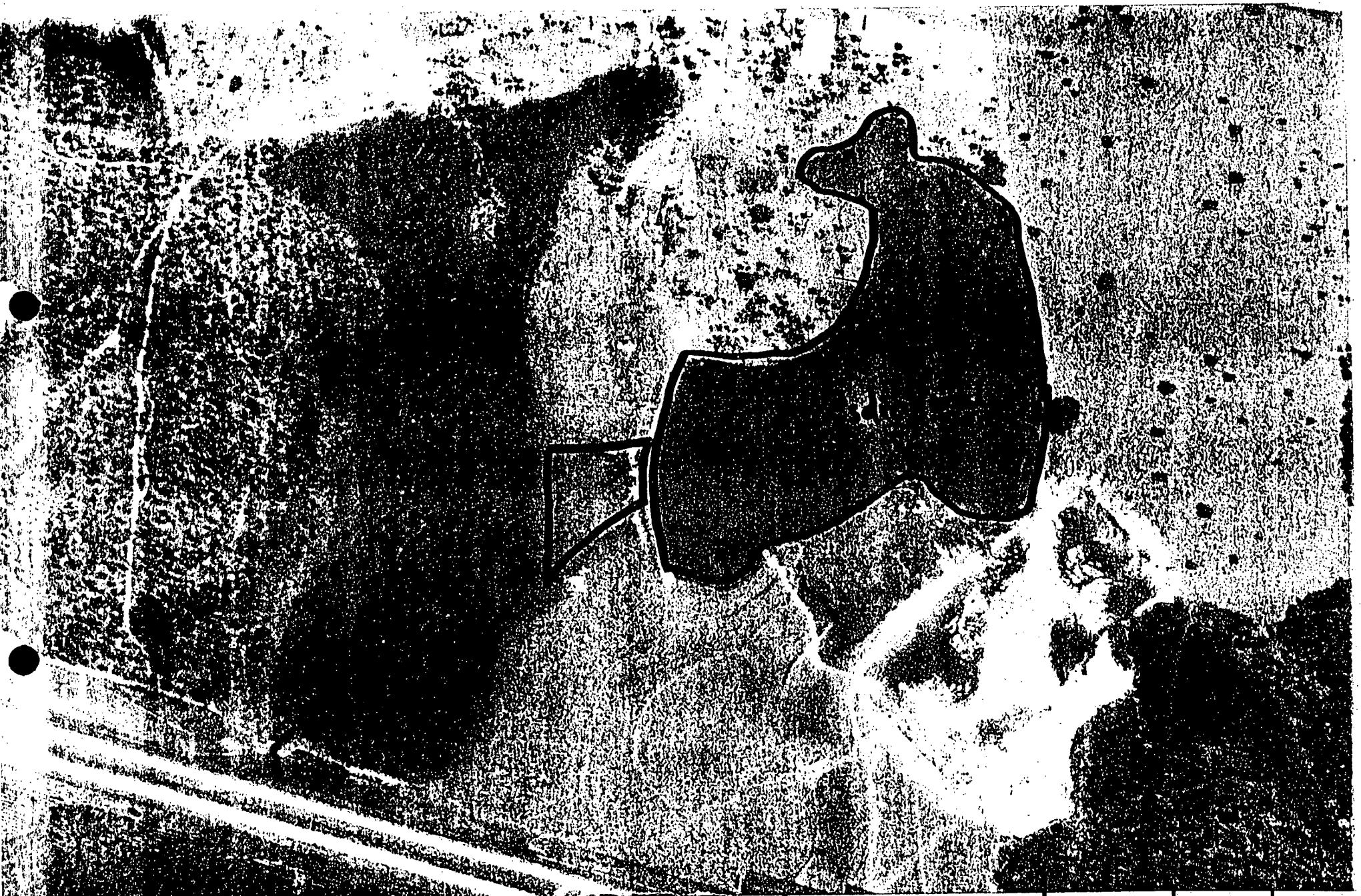


Exhibit 1	1"=400'	SECTION		TWP	RANGE
Interpretation of 1979 letter	PHOTO DATE APRIL 19	26	25	1N	32W
PHOTO NO	DOR 1888 7-20	35	36		


N
Black line
JD by 79
line
red line
nt JD by 79
line
I-10
PERDIDO RIVER
BALDWIN CO.
ESCAMBIA CO.
24
25
26
32
20
D
(Sheet 45) | (Sheet 46)
0
½
1 Mile
Scale 1:
IMPOUNDMENT

Exhibit 1

4 to 10 inches, light yellowish-brown very fine sandy loam; friable; weak fine crumb structure.
10 to 18 inches, yellow fine sandy clay loam; firm fine subangular blocky structure.
18 to 42 inches, fine sandy clay loam with yellowish-brown, gray, strong-brown, and yellow mottles; firm subangular blocky structure.

The surface soil varies from very dark gray to black in color and from 3 to 5 inches in thickness. The subsoil is a yellow to yellowish-brown fine sandy clay loam. The depth to mottled material varies, but in most places mottling begins 16 to 20 inches from the surface. A few areas on slopes in excess of 2 percent are included with this soil.

Use and management.—The surface runoff is slow on the nearly level areas of this soil. Permeability is retarded by the subsoil of fine texture and the underlying materials. Artificial drainage is necessary to insure normal growth of crops.

In areas where drainage is feasible, this soil can be used for pasture plants and crops that tolerate wetness. If drainage is improved and adequate fertilizer and lime are applied, this soil will produce excellent pasture. Practically all of this soil is in native vegetation.

Mixed Local Alluvial Land, Moderately Well Drained

Mixed local alluvial land (Mb) is composed of colluvial-alluvial materials that have washed, rolled, or sloughed from areas of Red Bay, Ruston, Tifton, and associated soils. These materials have accumulated in moderately well drained depressions and shallow drainageways or near the base of slopes. The areas generally are long narrow strips. Level or nearly level areas are scattered throughout the northern part of the county. The native vegetation consists of a thick growth of native grasses and, in some places, pine and dogwood.

The color, texture, and structure of this land vary with the surrounding soils, the amount of material accumulated, and the kind of material on which it was deposited. In places most of the surface soil is brown to reddish-brown friable fine sandy loam; the subsoil is a light-brown to brown friable fine sandy loam. Runoff is slow to medium, and internal drainage is medium. After heavy rains, however, water may stand in low places long enough to damage crops.

Use and management.—None of this miscellaneous land type is cultivated. With proper control of surface runoff from the adjacent higher soils, it can be used for improved pasture. Selected small areas are suitable for field crops. Management requires primarily that fertility be built and maintained by applying lime and fertilizer, adding organic matter, and using a suitable crop rotation. Improved pastures of a high carrying capacity could be maintained fairly easily.

Mixed Alluvial Land, Poorly Drained

Mixed alluvial land, poorly drained (Ma) represents a mixture of dissimilar materials that border the streams throughout the county and make up a very large total acreage. This land is a result of soil material accumulation rather than soil development. The materials vary so greatly in color, texture, and consistence that any attempt to map the soils separately would be impracticable. This land is subject to frequent overflow. In many places it lies only a few inches above the water level of adjacent streams. The characteristics of this miscellaneous land type change from time to time as new material is deposited or removed with each overflow.

Texture of this land varies greatly, depending on the source of the material and the condition of the stream when the material was deposited. Locally, texture varies from silt loam to sand. The color ranges from gray to black according to the amount of organic matter in it. The land is mostly level to nearly level. Internal drainage is variable; surface runoff, very slow.

Use and management.—As a result of the wide variations in texture, and more particularly because of the hazard of flood, none of this miscellaneous land type is used for cultivated crops. Drainage is too expensive. Some of the better-drained areas along the smaller drainageways are cleared and used for pasture. Most of this land type is forested with swamp hardwoods and, in some places, has an undergrowth of various kinds of water-tolerant plants.

Myatt Series

The Myatt soils occupy the lowest and most poorly drained areas on the stream terraces. They were derived from alluvium washed from the Norfolk and Ruston soils and related soils of the uplands. Most areas of the Myatt soils are associated with the Kalmia, Izagora, and Wahee soils. They are more poorly drained than these soils. In addition, they have less yellow coloring in the lower horizons than the Kalmia soils; have a more friable and coarser textured subsoil than the Izagora soils; and have a more friable, grayer subsoil than the Wahee soils.

Myatt soils are poorly drained; surface runoff is slow; internal drainage, very slow. They are strongly acid throughout.

Myatt very fine sandy loam, level phase (0 to 2 percent slopes) (Mc; Vw-1).—This soil occurs principally in the northeastern part of the county. Nevertheless, small irregular patches are along the rivers and larger creeks throughout the county and in low, nearly level places near streams or slightly depressed areas at the foot of slopes that are occupied by better drained soils of the terraces. Much of the soil is forested with sweetgum, blackgum, cypress, and a few scattered pines. The more open areas are covered with water-tolerant herbs and grasses and a scattered stand of slash pine and cypress.

Profile description:

0 to 4 inches, light brownish-gray very fine sandy loam; friable; weak fine crumb structure.
4 to 14 inches, light-gray very fine sandy loam with a few fine brownish-yellow mottles; friable; weak medium crumb structure.
14 to 36 inches, light brownish-gray fine sandy clay loam with common, medium, distinct, brownish-yellow mottles; friable; moderate fine subangular blocky structure.
36 to 42 inches, light grayish-brown, brownish-yellow, reddish-yellow, and strong-brown fine sandy clay loam; mottled; friable; moderate medium subangular blocky structure.

The surface soil varies from dark gray to light brownish gray in color and from 3 to 5 inches in thickness. The subsoil is friable fine sandy clay loam that ranges

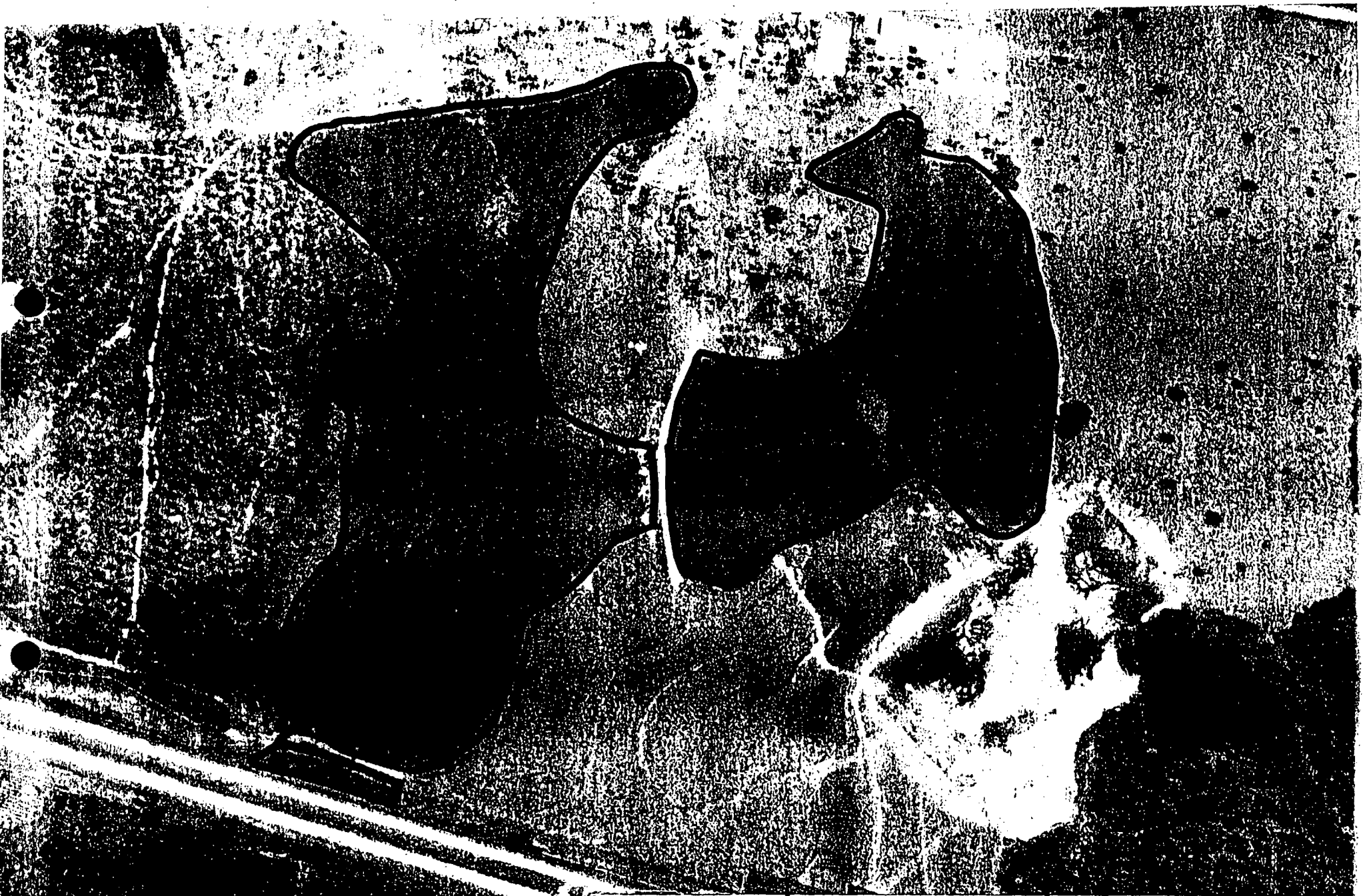


Exhibit 2	1"=400'	SECTION		TWP	RANGE
OCTOBER 1,	1984 1976 jurisdiction	26	25	1N	32W
PHOTO NO	DOR 1888 7-20	35	36		

SCALE	1"=400'	SECTION	TWP	RANGE
PHOTO DATE	APRIL, 1976	26 | 25 / 35 | 36	1N	32W
PHOTO NO.	DOR-1888 7-20			

SURFACE WATER QUALITY SAMPLES

LOCATIONS

	I-10 crossing of creek draining landfill	I-10 crossing of Perdido River (background)	Similar creek crossing on I-10 2 miles east of Station 1	In creek in swamp above Beaver Dam
		June 11, 1991		
Turbidity	140 NTU'S*	9 NTU'S		1120 NTU'S*
		June 4, 1991		
Fecal Coliform	66,000*	190	20	NS
Total Coliform	TNT Count*	2100	1500	NS
Turbidity	1000*	12	4	6000*
pH	6.81*	5.10	4.92	6.55*
Residue	130	10	5u	3969
Cond	100	28	31	110
Color	700	120	100	1200
Total Phosphorus	-	-	-	-
TKN	-	-	-	-
		August 25, 1989		
Turbidity	108*	1u		
BOD	1.2	.4		
DO	NS	6.8		
pH	7.17*	4.9		
Total Nitrogen	1.22*	.40		
Total Phosphorus	.12*	.001u		
Chlorides	9.4*	2.8		
Total Coliform	1400*	60		
Total Coliform	2600*	430		

* indicates violation of water quality standards for Class III Water of the State
TNT too numerous to count
NS no sample
\- analysis not complete

Exhibit 3

State of Florida
Department of Enviornmental Regulation
CONVERSATION RECORD

ESC.
Perdido
Rem

Date June 20, 1991
Time 9:35
Recorded by RMM

Permit No.
File No.
County Escambia
Suspense Date
Telephone No. (904) 331-2442

M r. Martin Brungard (CH2M Hill)

Representing Escambia County

Address

[ ] Telephoned [ ] Came In [ ] Was Called [ ] No Further Action Recd.

Regarding Perdido Landfill

Conversation I stated that we had received a submittal from CH2M Hill on June 4, 1991. I stated that I needed the boring logs and completion information on wells MW-19D, MW-20D and MW-21D. He said that he would send this information.

Copies to Cindy W. Anderson (SW Remedial file)

Signature Richard M. Markey
Title FS-II

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
To: _____ Location: _____
To: _____ Location: _____
To: _____ Location: _____
From: _____ Date: _____

Interoffice Memorandum

TO: Cindy W. Anderson, P.E.

THROUGH: Robin M. Bjorklund, P.G. RMB for

FROM: Richard M. Markey, P.G. RMM

Note: Annotated w/ 8/27/91 response

DATE: June 21, 1991

SUBJECT: Interim Remedial Action Plan (IRAP) for Perdido Landfill - Escambia County

I have reviewed the subject plan, received May 23, and found it to be inadequate. The plan includes proposals to install two recovery wells. One recovery well is proposed near MW-12D and the second well location is proposed at "about 400 feet west-southwest of well MW-12D." The second recovery well location is assumed to be a "typo" since Figure 2 illustrates that recovery well R2 is approximately 400 feet east-southeast of MW-12D. Based on the limited amount of sampling data, it appears that the recovery well locations illustrated on Figure 2, are adequate. However, a plan to monitor the effectiveness of the recovery system was not included. Sampling of the recovery wells and surrounding wells should be proposed. Also, water levels should be obtained from existing wells and observation wells at an appropriate frequency. The contaminated water withdrawn by the recovery system is proposed to be discharged into the leachate pond. The engineering concerns for this proposal are not covered by this review.

The loc was a typo ①

The proposed screen location for the two new recovery wells is approximately 56 to 66 feet BLS. The proposed pumping rate of each well is 2GPM. This is based on an assumed aquifer transmissivity of 120 ~~feet~~ ft^2/day; an aquifer saturated thickness of 6 feet and a Kh value of 20 ft/day. The boring log for MW-12D and water levels collected on May 15, 1989 and September 17, 1990, indicate that the saturated aquifer thickness was 11.5 and 11.41 feet, respectively. It appears that the saturated thickness of the "upper surficial aquifer" is greater than 6 feet and therefore, the transmissivity of the "upper surficial aquifer" could be estimated on the order of 229 ~~feet~~ ft^2/day. These factors may necessitate the installation of the recovery wells at slightly deeper depths and may require a recovery rate of more than 2GPM. This situation exemplifies the need for an observation system.

addressed by item 3 but need to comment on below

Need another comment →

In the IRAP it is indicated that a 30-slot (0.030") wire wrapped screen and a 6-20 silica sand filter will be used. This design is based on sediments found in wells MW-19D and MW-20D. These sediments are similar to those found in MW-12D. However, the sediments in MW-21D differ from the sediments in the three above wells. Due to varying sediment sizes in the "upper surficial aquifer", a sieve analysis should be conducted at the recovery well screen locations. This data should ensure that a proper screen and filter pack is chosen.

Suggest again

Construction of the recovery system can begin as soon as possible. However, recovery of ground water should not begin until a proposal to monitor the effectiveness of the recovery system has been approved by the Department. I recommend that the following items be submitted:

1. A specific time schedule for the proposed IRAP activities; Conditions of (1) inadequate situation necessitates immediate action
2. A proposal for a monitoring system, including 3 observation wells, that will indicate the effectiveness of the recovery system; Inadequate, recommend the installation of 3 obs wells to monitor effect of system
3. A proposal for sampling the recovery and any necessary surrounding wells; suggest sampling obs wells?
4. A proposal indicating all parameters to be included in the sampling of wells; Methods 601/602 (sample @ 1,2,5,10,20+50 days after startup) - then qtrly recommend monthly for rec wells
5. A proposal to collect water level readings from observation and relavent surrounding wells at an adequate frequency. Measure W/ 12D, 12S, R-1, R-2 (WL's @ same AA) - then qtrly

Need observation wells.

OK 6. A proposal to obtain several water level readings, on the same day, from <u>all</u> wells present on site (including observation wells).

Items 2 - 6 should help evaluate the effectiveness of this recovery system once this plan has been implemented.

The County's consultant, previously indicated that the extent of contamination in the "perched water table aquifer" has been defined. In my opinion, there is no assurance that the extent of contamination in this zone has been defined. The CAR for this site should demonstrate that the extent of contamination in the perched zone has been defined. In addition, CH2M Hill does not propose remediation of the perched water table aquifer, where MW-12S is completed. This is because the unit is not continuously saturated and "its saturated thickness is insufficient for feasible extraction of ground water". Considering the existing conditions of the perched water table aquifer, I recommend the following tasks be completed:

1. Other technologies should be investigated (i.e., slurry wall system, sump recovery system, etc.) to cleanup and prohibit contaminants in the perched zone from migrating off site or entering the surrounding surface water bodies.

2. An appropriately scaled map (1"=300') should be submitted which shows the <u>exact</u> location of all "french drain" or drainage systems which are dewatering the perched water table aquifer at this site.

3 Clays at this site should be mapped to help determine contaminant flow paths as recommended previously by Michael S. Kennedy.

In a narrative attached to an inspection report dated March 3, it is stated that volatile organic compounds were noted in surface water points SW-B and SW-C. Mercury exceeding the standard in MW-4 was also noted. It is further stated that "interim remedial actions will be needed if there is a discharge into surface water points that can be prevented." It appears that the Department has not received a response to the Perdido Landfill items listed in the Department's March 25 letter, which included the March 3 inspection report. Therefore, I recommend that a response be requested again. It should also be noted that lead, exceeding the standard, has also been detected and confirmed at surface water point SW-C.

In conclusion, the IRAP is incomplete. However, the recovery well locations appear appropriate. I recommend that construction begin on the recovery system subject to the comments above. A proposal to appropriately monitor the effectiveness at the recovery system should be developed and submitted. Withdrawal from the recovery wells should not be initiated until the Department approves a plan for monitoring the effectiveness of the recovery system. Also, no withdrawal should ~~not~~ begin until the monitoring plan above has been implemented. The monitoring plan to determine the effectiveness of the recovery system; the information requested concerning the "perched zone" assessment and remediation, and the facilities responses to the Department's March 25 letter should all be submitted within 30 days of response.

RMM:mml

$I = .004$ (SW direction)

flow direction – 210 degrees south of east

$T = 120\ ft^2/day$ K_h values from slug tests 2-35 ft/day $35 \times 6' = 210$

$t = 6'$

$S = Ne = .2$

2 recovery wells pumping @ 26PM were used

200 day drawdown was 4'

1) Sampling of the effluent

2) MW-12D 9/17/90 WL = 46.71'

Grade elevation – 70' BLS (clay) = 35.3

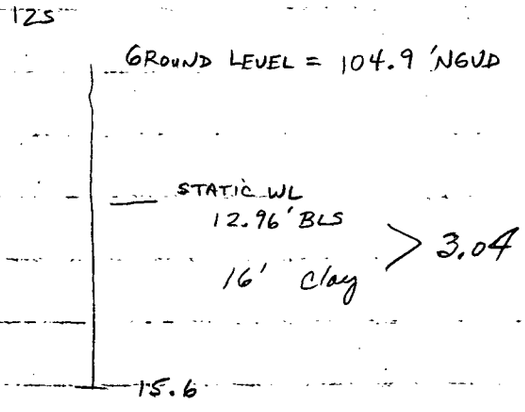
> 11.41'

Ave. of 12D + 1AD

$1.64 + 27.71/2 = 19.7\ ft/day / \frac{35.314 ft^3}{264 gal} = 109.9 \frac{GPD}{ft^2}$

3) Rpt WL in 12D 46.8' NGVD – 35.3 = 11.5'

4) Assume 20 ft/day (due to probable improper dev etc) = 149.5 GPD/ft²



Post Rpt indicates that perched zone flows E + W from 12S

no wells to define these areas

9/17/90

$\frac{2\,GAL}{MIN} \times \frac{60\,MIN}{1\,HR} \times \frac{24\,HR}{1\,day}$

$K = 149.5\,GPD/ft^2 \times 11.5' = 1719.25\,GPD/ft$ $\quad I = \frac{2}{625} = .0032$

$r_s = Q_p / 2\pi T I$

$2880\,GPD / 2\pi (1719.25\,GPD/ft)(.0032)$

Stag. pt. $A = r_s = 83.31\,ft$

distance from pumping well to dividing streamline perp to GW flow

$B = \frac{Q}{4Ti} = \frac{2880\,GPD}{4(1719.25\,GPD/ft)(.0032)} = 130'$

$B_{@ 46PM} = \frac{5760}{22.0064} = 261\,ft$

distance from capture zone axis to dividing streamline for upgradient

$C_{@ 26PM} = \frac{Q}{2Ti} \quad \frac{2880\,GPD}{2(1719.25\,GPD/ft)(.0032)} = 261.74\,ft$

$C_{@ 46PM} = \frac{Q}{2Ti} = 523.5\,ft$

Engineers
Planners
Economists
Scientists

June 25, 1991

GNV22977.B0

Mike Markey
Florida Department of Transportation
Northwest District Office
160 Governmental Center
Pensacola, Florida 32501

Dear Mike:

Subject: Well completion reports and soil boring logs

Enclosed are the well completion reports and soil boring logs for the wells installed at the Florida Welcome Center on Interstate-10.

Please call me or Bo Bruner at (904)331-2442 if you have any further questions.

Thank you.

Sincerely,

CH2M HILL

Martin Brungard, P.E.

mmb/markey

CH2M HILL Gainesville Office 7201 N.W. 11th Place, P.O. Box 1647
Gainesville, FL 32602-1647
904.331.2442
FAX 904.331.5320

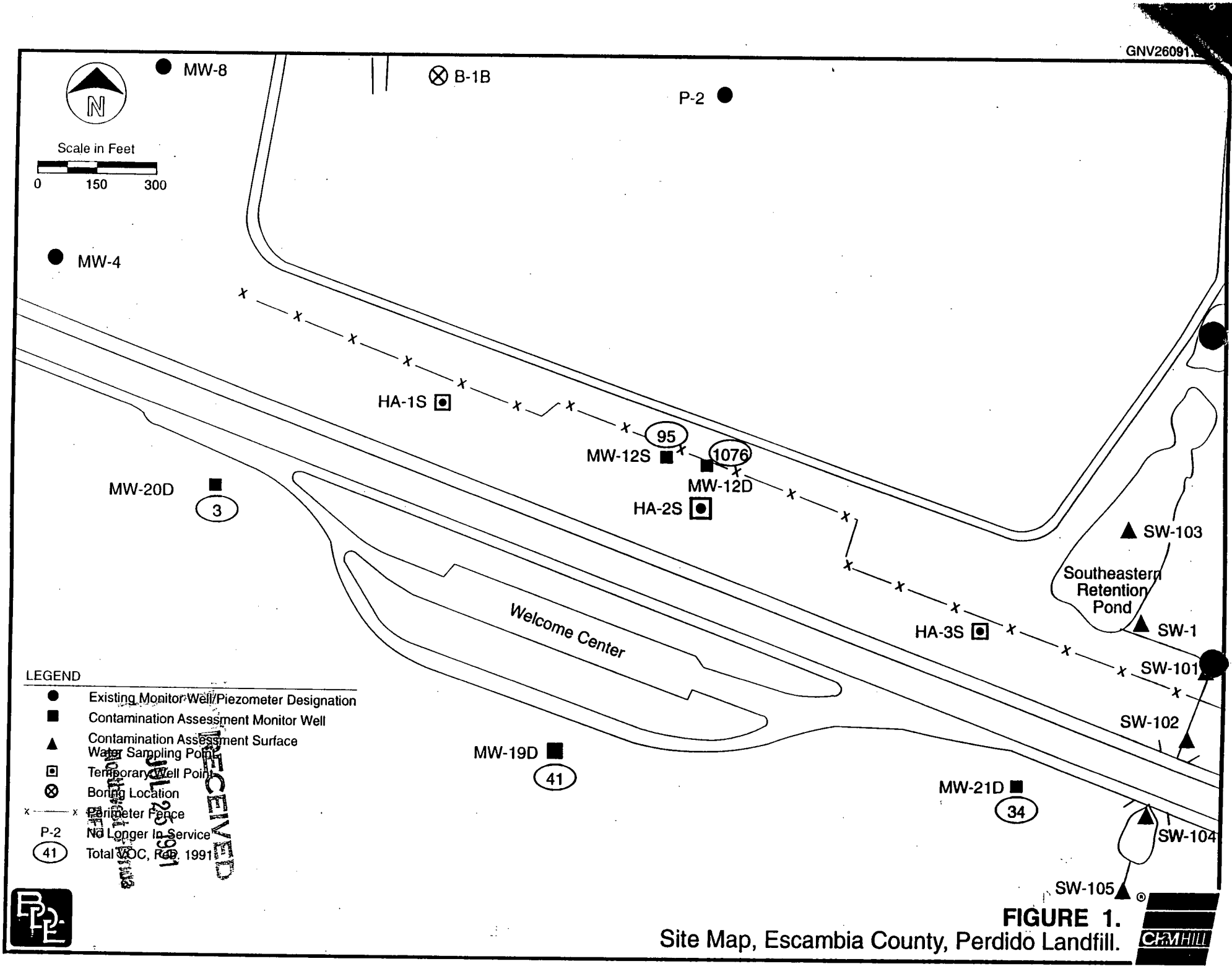


FIGURE 1.
Site Map, Escambia County, Perdido Landfill.

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	19D	SHEET 1 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Bailey Engineering and Testing, Pensacola, FL

DRILLING METHOD AND EQUIPMENT Solid-Stem Auger and Mud-Rotary/Trailer-Mounted THD

WATER LEVEL AND DATE _____ START 7-23-90 FINISH 7-26-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
2	2.0	S-1	Unk.	2-4-3-2	SANDY SILTY CLAY, qtz., med. to coarse, sub-ang. to sub-ang., light brown (5 YR 5/6), low plst., dry, pine knot and noticible pine odor		Samples collected by drillers HN_U = ±8 ppm on jarred sample
4	4.0	S-2	Unk.	3-4-5-7	SANDY SILTY CLAY, qtz., fine, sub-ang., light brown (5 YR 5/6), mod. plst., moist		Samples collected by drillers
6	6.0	S-3	Unk.	-	SANDY SILTY CLAY, qtz., trace of fine sand, light brown (5 YR 5/6), mod. plst., moist		Samples collected by drillers
8	8.0	S-4	Unk.	-	CLAYEY SILTY SAND, qtz., fine to med., sub-rnd. to sub-ang., light brown (5 YR 5/6), low plst., dry		Samples collected by drillers
10	10.0	S-5	Unk.	-	CLAYEY SAND AND GRAVEL, qtz. fine sand, sub-ang., qtz. fine gravel (<5%), sub-ang., light brown (5 YR 5/6), stiff, low plst., dry		Samples collected by drillers
12	12.0	S-6	22/24	4-7-8-9	CLAYEY SAND, qtz., med., rnd. to sub-ang., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), low to mod. plst., dry		
14	14.0	S-7	10/24	10-13-13-12	SAND, qtz., fine to med., ang., light brown (15 YR 5/6) to dark yel. brown (10 YR 6/6), slightly clayey in top 4" of spoon, loose, slightly plastic, dry, (slightly clayey)		

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	19D	SHEET 2 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Bailey Engineering and Testing, Pensacola, FL

DRILLING METHOD AND EQUIPMENT Solid-Stem Auger and Mud-Rotary/Trailer-Mounted THD

WATER LEVEL AND DATE _____ START 7-23-90 FINISH 7-26-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16	16.0	S-8	23/24	10-14-25-30	SAND, qtz., fine to med., sub-ang., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), med. dense, with seams of clayey sand, slightly plst., dry		
18	18.0	S-9	18/24	23-28-23-34	SAND, qtz., fine, sub-ang., light brown (5 YR 5/6) to dark yel. brown (10 YR 6/6), med. dense, dry (slightly clayey)		
20	20.0	S-10	24/24	15-13-14-17	CLAYEY SAND, qtz., fine to med., sub-rnd. to sub-ang., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), low plst., stiff, dry		
22	22.0	S-11	17/24	10-16-24-16	SAND, qtz., fine, sub-ang., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), med. dense, dry; iron stone at bottom of spoon, mod. brown (5 YR 3/4), hard, dry		
24	24.0	S-12	11/24	12-11-9-10	SAND, qtz., fine, sub-rnd., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), slightly clayey, slightly plst. to loose, wet (slightly clayey)		
26	26.0	S-13	24/24	7-8-10-17	SAND, qtz., fine, sub-ang., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), low plst., slightly clayey, loose, moist		Split spoon over-driver. Assume sampler scraped sidewall. Sample may not be representative.
28	28.0	S-14	24/24	12-18-21-23	SAND as above with transition at bottom 4" of spoon SAND, fine to med., sub-ang., very light gray (N8), med. dense, wet		Split spoon over-driver. Assume sampler scraped sidewall. Sample may not be representative.

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	19D	SHEET 3 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Baily Engineering and Testing, Pensacola, FL

DRILLING METHOD AND EQUIPMENT Solid-Stem Auger and Mud-Rotary/Trailer-Mounted THD

WATER LEVEL AND DATE _____ START 7-23-90 FINISH 7-26-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
30	30.0	S-15	24/24	19-22-10-14	SAND, qtz., fine, sub-rnd., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6); qtz., gravel-fine, med. dense, wet Bottom 4" spoon sand, fine, sub-ang., very lt. gray (N8), loose, wet		Split spoon over-driven. Assume sampler scraped sidewall. Sample may not be representative.
32	32.0	S-16	24/24	16-22-22-26	Top 14" - SILTY SAND, qtz., fine, sub-rnd., low plst., med. dense, moist 4"-10" Above bottom, sand, qtz., fine, sub-ang., low plst., moist, separated from unit above by lt. gray sandy clay, high plst., moist, ±1/4" thick Bottom 4" - SAND, qtz, fine to med. with fine gravel, very lt. gray (N8), loose, wet, separated from unit above by 1/4" seam of lt. gray sandy clay, high plst., v. stiff, moist		Same as above
34	34.0	S-17	24/24	15-18-21-25	SAND, qtz., fine, sub-ang., light brown (5 YR 5/6) to dark yel. orange (10 YR 6/6), low plst., moist Bottom 3" SAND, qtz., fine to coarse sub-rnd. to sub-ang.; with qtz. gravel- fine, rnd., low plst., wet, light gray (N8)		Same as above
36	36.0	S-18	24/24	14-11-12-13	SAND, qtz., fine to med., sub-ang., with gravel, sub-rnd., light brown (5 YR 5/6) med. dense, wet		Same as above
38	38.0	S-19	24/24	9-13-14-16	As above (assumed to be fill) Bottom 3" of spoon SAND, qtz., med. to coarse, sub-ang., light gray (N8); with fine gravel, loose, wet		Same as above
40	40.0	S-20	24/24	12-16-22-26	SAND AND GRAVEL, coarse sand to fine gravel, sub-ang., light gray (N8), med. dense, wet		
42	42.0	S-21	13/24	12-13-18-24	SAND, qtz., med. to coarse, sub-rnd, grayish orange pink (5 YR 7/2) to grayish orange (10 YR 7/4), med. dense, wet		Change from solid stem auger to mud rotary.

SCREEN DEPTH

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	19D	SHEET 4 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Baily Engineering and Testing, Pensacola, FL

DRILLING METHOD AND EQUIPMENT Solid-Stem Auger and Mud-Rotary/Trailer-Mounted THD

WATER LEVEL AND DATE _____ START 7-23-90 FINISH 7-26-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
44	44.0	S-22	14/24	6-12-16-11	SAND, med. to coarse, sub-rnd., pale reddish brown (10 YR 5/4) to grayish orange (10 YR 7/4), loose, wet		
46	46.0	S-23	14/24	11-13-16-14	Top 4" SANDY CLAY, fine, light gray (N8) to light red (5 Y 5/6), high plst., wet Bottom 3" SAND, qtz., fine to coarse, sub-ang., clear, light gray (N8), med. dense, wet		
48	48.0	S-24	10/24	7-6-9-6	Top 6-8" caved sand Bottom 3" SAND, fine to coarse, sub-ang., very pale reddish brown (10 YR 8/2) to dark yel. brown (10 YR 6/6), loose, slightly clayey, wet		
50	50.0	S-25	24/24	3-2-4-3	CLAYEY SILT, qtz., yel. gray (5 Y 7/2) to dark yel. orange (10 YR 6/6), high plst., soft, wet		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	19X	SHEET 1 OF 1

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500

WATER LEVEL AND DATE _____ START 8-2-90 FINISH 8-2-90 LOGGER T.C. Richardson

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
		S-1	24/24	12-14-60-22	SILTY SAND, qtz., fine to med., sub-ang., dark yel. orange (10 YR 6/6), slightly cohesive, moist, iron rock seam ~2" at 25'		Jarred sample HN_U = 5 ppm
26	26.0						
		S-2	18/24	10-15-31-33	Upper 12" as above. Lower 6" SAND, qtz., fine to med., sub-ang., white (N9), <5% brown and black grains, dense, wet		Jarred sample HN_U = 7 ppm
28	28.0						
		S-3	10/24	30-41-43-40	SAND, qtz., med., sub-ang., grayish yel. (5 Y 8/4) to pale yel. orange (10 Yr 8/6), brown to black grains as above, some white qtz. gravel		Jarred sample HN_U = 4 ppm
30	30.0						
		S-4	12/24	20-24-30-35	SAND, qtz., med. to coarse with 5% qtz. gravel, sub-ang. to sub-rnd., grayish yel. (5 Y 8/4) to mod. red. orange (10 R 6/6), dense, wet		Jarred sample HN_U = 25 ppm musky odor
32	32.0						
		S-5	12/24	9-16-20-19	SAND, qtz. as above, minor light gray sandy clay seams (~0.1" thick)		Jarred sample HN_U = 25 ppm
34	34.0						
		S-6	18/24	21-27-32-35	Same as above, large iron rock pebbles		Jarred sample HN_U = 15 ppm
36	36.0						
		S-7	10/24	15-16-12-18	SAND, qtz., med. to very coarse with light gray clay seams; qtz. gravel, med. dense, wet, pale yel. orange (10 YR 8/6)		Jarred sample HN_U = 25 ppm
38	38.0						
		S-8	12/24	9-12-19-22	SAND AND GRAVEL, qtz., pale yel. orange (10 YR 8/6) to mod. red. orange (10 R 6/6, loose, wet		Jarred sample HN_U = 25 ppm
40	40.0						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	20D	SHEET 1 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500

WATER LEVEL AND DATE START 7-30-90 FINISH 8-1-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
2	2.0	S-1	Unk.	2-2-2-2	SILTY SAND, qtz., fine, ang. to sub-ang., mod. yel. brown (10 YR 5/4), loose, moist		Sample collected by driller HN_U = 5 ppm on jarred sample (8-2-90)
4	4.0	S-2	Unk.	7-6-5-4	SAND, qtz., fine to med., ang. to sub-ang., dark yel. orange (10 YR 6/6), loose, moist		Sample collected by driller HN_U = 7 ppm on jarred sample (8-2-90)
6	6.0	S-3	Unk.	8-12-16-13	SILTY SAND, qtz., fine, sub-ang., dark yel. orange (10 YR 6/6), slightly cohesive, med. dense, moist		Sample collected by driller HN_U = 4 ppm on jarred sample (8-2-90)
8	8.0	S-4	Unk.	16-18-21-28	SAND, qtz., fine to course, sub-rnd. to sub-ang., mod. yel. brown (10 R 5/4), med. dense, moist, slightly clayey to slightly silty		Sample collected by driller HN_U = 2 ppm on jarred sample (8-2-90)
10	10.0	S-5	Unk.	15-18-22-23	Same as above		Sample collected by driller HN_U = 2 ppm on jarred sample (8-2-90)
12	12.0	S-6	Unk.	15-18-22-23	CLAYEY SILTY SAND, qtz., fine, sub-rnd., dark yel. orange (10 YR 6/6) to mod. red. brown (10 R 4/6), low plst., med. dense, moist		Sample collected by driller HN_U = 2 ppm on jarred sample (8-2-90)
14	14.0	S-7	Unk.	8-10-16-12	Same as above		Sample collected by driller HN_U = 2 ppm on jarred sample (8-2-90)

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	20D	SHEET 2 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500

WATER LEVEL AND DATE START 7-30-90 FINISH 8-1-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16	16.0	S-8	Unk.	16-23-50-39	SAND, qtz., fine to med., sub-ang., mod. yel. brown (5 Y 6/4), med. dense, wet?		Sample collected by driller HN_U = 4 ppm on jarred sample (8-2-90)
18	18.0	S-9	Unk.	12-12-13-12	Same as above		Sample collected by driller HN_U = 4 ppm on jarred sample (8-2-90)
20	20.0	S-10	Unk.	4-7-10-12	Same as above		Sample collected by driller HN_U = 3 ppm on jarred sample (8-2-90)
22	22.0	S-11	Unk.	14-16-16-18	SAND, qtz., fine to med., sub-ang., mod. yel. orange (10 YR 6/6), slightly clayey, med. dense, wet		Sample collected by driller HN_U = 2 ppm on jarred sample (8-2-90)
24	24.0	S-12	20/24	15-18-25-50+	SAND, qtz., fine, sub-ang., dark yel. orange (10 YR 6/6), med dense to very dense, wet, lost bottom 6" of sample, assume iron rock/gravel		
	25.0				Iron rock/gravel		
26	26.0 27.0	S-13	13/24	10-12-16-18	SAND, qtz., fine to med., sub-rnd. to sub-ang., Dark yel. orange (10 YR 6/6), med. dense, wet		
28	28.0	S-14	8/12	12-13	Same as above (gravel at top of spoon)		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	20D	SHEET 3 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500

WATER LEVEL AND DATE START 7-30-90 FINISH 8-1-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
30	30.0	S-15	16/24	18-28-42-26	SAND, qtz., fine to coarse, sub-rnd. to sub-ang., dark yel. brown (10 YR 6/6), dense, wet		
32	32.0	S-16	14/24	10-16-39-26	SAND, qtz., fine to coarse, sub-rnd. to sub-ang., dark yel. brown (10 YR 6/6), dense, wet		
34	34.0	S-17	14/24	15-18-29-30	Same as above, slightly clayey		
36	36.0	S-18	22/24	16-22-25-30	Same as above, with ± 5% qtz., gravel (0.5-1 cm), rnd		
38	38.0	S-19	-	43-63-57-28	SILTY SAND, qtz., fine, sub-ang. to sub-rnd., dark yel. orange (10 YR 6/6), very dense, wet, iron stone in drive shoe, dark brown		Refusal at 12" continued to drive spoon for sample
40	40.0	S-20	14/24	24-30-38-41	As above, iron stone at top of spoon		
42	42.0	S-21	14/24	19-22-32-41	SAND AND GRAVEL, qtz., fine to coarse, sub-rnd. to sub-ang., qtz. gravel, dark yel. orange (10 YR 6/6), dense, slightly silty to clayey, moist		

SCREEN

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	20D	SHEET 4 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500

WATER LEVEL AND DATE START 7-30-90 FINISH 8-1-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
44	44.0	S-22	-	54-54-39-60	SAND, qtz., fine to med., sub-ang., dark yel. orange, (10 YR 6/6), very dense, wet		
46	46.0	S-23	20/24	25-30-38-65	SAND AND GRAVEL, qtz., coarse sand, fine to med. gravel, sub-rnd., dark yel. brown, (10 YR 6/6), dense, wet, thin seam of gray clay in center of spoon		
48	48.0	S-24	-	76-71-105-125	SAND, qtz., fine to med., sub-ang., dark yel. brown (10 YR 4/2), very dense, wet, slightly clayey to silty		
50	50.0	S-25	24/24	11-12-13-18	CLAY (slightly silty), mod. to high plst., slightly moist, very light gray (N8) to dark yel. orange (10 YR 6/6) to pale red (5 R 6/2) to mod. red (5 R 5/4), stiff		

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	21D	SHEET 1 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500 with Standard SPT

WATER LEVEL AND DATE _____ START 8-1-90 FINISH 8-2-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
2	2.0	S-1	12/24	1-1-1-1	SANDY CLAY, qtz., fine, sub-ang., mod. red. brn (10 R 4/6), mod. plst., very soft, moist		HN_U = 0 ppm
4	4.0	S-2	20/24	2-3-5-7	SANDY CLAY, qtz., fine, sub-ang., gray orange (10 YR 7/4), mod. plst., soft, wet		HN_U = 0 ppm
6	6.0	S-3	20/24	3-5-7-9	SANDY CLAY, qtz., fine to coarse, sub-ang. to ang., mod. yellow brown (10 YR 5/4), mod. plst., firm, moist		HN_U = 0 ppm
8	8.0	S-4	18/24	8-12-18-42	SAND (slightly clayey), qtz., fine, sub-ang. to sub-ang., mod. red. brown (10 R 4/6), slightly plst., loose, moist		HN_U = 1 ppm
10	10.0	S-5	10/24	22-25-26-30	CLAYEY SAND, qtz., fine, sub-ang., mod. red. brown (10 R 4/6), dense, dry drive shoe CLAYEY SAND, qtz., fine, sub-ang., mod. red. brown, (10 R 4/6 to dark yellow brown (10 YR 6/6) mod. plst., dense, moist		HN_U = 1 ppm
12	12.0	S-6	14/24	12-18-18-22	Top 4" SANDY CLAY, qtz., fine, sub-ang., light gray (N7), mod. plst., stiff, dry Bottom 10" As above with qtz., gravel, fine, sub-rnd., ± 5%		HN_U = 1 ppm
14	14.0	S-7	12/24	12-18-21-24	SAND AND GRAVEL(slightly clayey), qtz., fine to coarse sand, sub-ang., fine gravel, sub-ang., ± 20%; dark yellow orange, (10 YR 6/6) to mod. brn. (5 YR 5/6), dense, moist		HN_U = 2 ppm

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	21D	SHEET 2 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500 with Standard SPT

WATER LEVEL AND DATE START 8-1-90 FINISH 8-2-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
16	16.0	S-8	14/24	7-9-14-16	CLAYEY SAND, qtz., fine, sub-rnd., dark yel. orange (10 YR 6/6), loose, wet		HN_U = 5 ppm
18	18.0	S-9	18/24	8-8-14-8	Top 12" same as above Bottom 6" SAND (slightly clayey), qtz., fine, sub-rnd. to sub-ang., dusky yellow (5 Y 6/4), loose, wet		HN_U = 5 ppm
20	20.0	S-10	0/24	5-8-14-18	No recovery (clay pulled out of split spoon?)		
22	22.0	S-11	24/24	4-9-16-22	CLAY (slightly silty), light gray (N7) to grayish orange (10 YR 7/4), mod. to high plst., stiff, moist		HN_U = 5 ppm
24 ▽	24.0	S-12	18/24	4-6-9-10	Same as above		HN_U = 8 ppm
26	26.0	S-13	18/24	5-9-18-22	Same as above		HN_U = 8 ppm
28	28.0	S-14	18/24	8-18-15-18	SILTY SAND, qtz., very fine, light gray (N7), med. dense, wet, mica flakes		HN_U = 8 ppm

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	21D	SHEET 3 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500 with Standard SPT

WATER LEVEL AND DATE _____ START 8-1-90 FINISH 8-2-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS
30	30.0	S-15	24/24	9-11-13-19	Top as above Bottom 10" SILTY CLAY, light gray (N7) to pale red (5 R 6/2), mod. plst., stiff, moist		HN_U = 10 ppm
32	32.0	S-16	22/24	24-31-31-36	SILTY SAND, qtz., very fine, ang., light gray (N7), dense, wet		HN_U = 1 ppm
34	34.0	S-17	22/24	13-17-25-55	SILTY SAND same as above Top 10-12" of sample looks like clayey material from up hole		HN_U = 3 ppm
36	36.0	S-18	20/24	23-11-19-10	Top of spoon, clayey as above Bottom 4" SILT TO SILTY SAND, qtz., very fine, dark yel. orange (10 YR 6/6), med. dense, wet		HN_U = 3 ppm
38	38.0	S-19	22/24	9-15-17-16	SILTY SAND, qtz., very fine, sub-ang., med. dark gray (N4), med. dense, slightly plst., wet		HN_U = 5 ppm
40	40.0	S-20	22/24	5-5-4-3	As above with interbedded silty clay, soft, high plst., med. gray (N5), moist		HN_U = 2 ppm
42	42.0	S-21	24/24	6-8-11-16	Interbedded as above		HN_U = 2 ppm

DEPTH

SCREEN

PROJECT NUMBER	BORING NUMBER	
GNV22977.B0.00	21D	SHEET 4 OF 4

SOIL BORING LOG

PROJECT Escambia County Perdido Landfill LOCATION I-10 Welcome Station

ELEVATION ± 65 Feet MSL DRILLING CONTRACTOR Pope Engineering and Testing, Mobile, AL

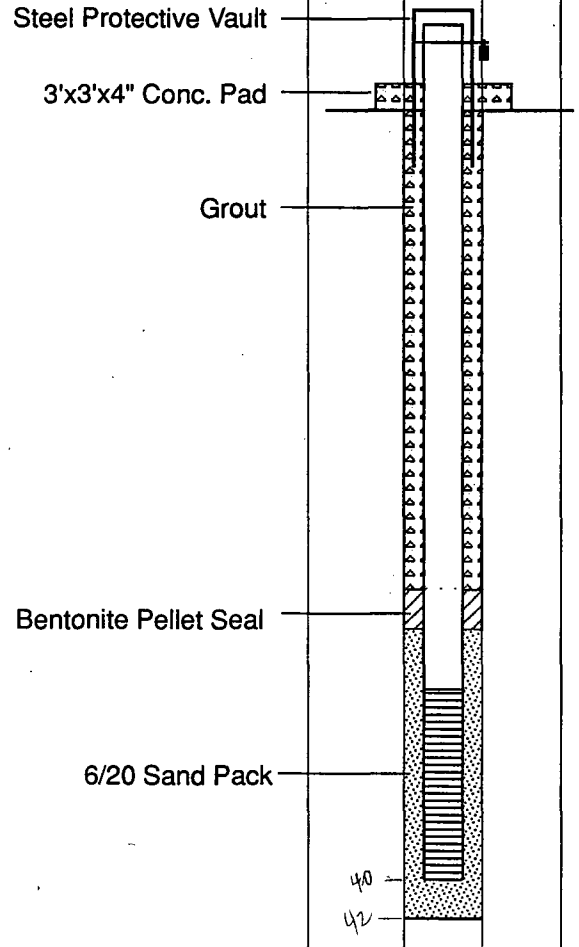
DRILLING METHOD AND EQUIPMENT Mud-Rotary/Failing 1500 with Standard SPT

WATER LEVEL AND DATE _____ START 8-1-90 FINISH 8-2-90 LOGGER E.W. Meyer

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
44	44.0	S-22	24/24	6-6-7-7	Interbedded as above		HN_U = 2 ppm
46	46.0	S-23	24/24	6-9-11-14	Top 12" same as above SILTY CLAY, med. light gray (N6) to dark yel. orange (10 YR 6/6), high plst., stiff, moist		HN_U = 2 ppm
48	48.0	S-24	24/24	11-10-12-16	Same as above		HN_U = 5 ppm
50	50.0	S-25	24/24	9-11-14-16	Same as above		HN_U = 5 ppm

DEPTH | CLASSIFICATION | LOG | WELL

See boring log form for soil description.



0' 10' 20' 30' 40' 50' 60' 70'

WELL DRILLING REPORT

CH2MHILL

PROJECT NO. GNV22977.B0

WELL: MW-20D

LOCATION: Perdido Landfill
I-10 Welcome Station

COUNTY: Escambia STATE: FL

GROUND ELEVATION: ±63.4 ft NGVD

DIAMETER: 4-inch

DEPTH: 40 ft bls

STATIC WATER LEVEL: 44.31 ft NGVD

DATE: 9-21-90

CASING: 30' of 4" dia. PVC

SCREEN: 10' of 0.030" slot of 4" dia. PVC

CONSTRUCTION: Mud rotary

DRILLER: Pope Engineering and Testing

DATE FINISHED: 9-13-90

PUMPING TEST

SPECIFIC YIELD _____ gpm/ft @ _____ gpm

WATER ANALYSIS (ppm)

TDS _____

TOTAL HARDNESS[1] _____

M.O. ALKALINITY[1] _____

CHLORIDE Cl _____

IRON Fe _____

SULFATE SO_4 _____

COLOR (ALPHA) _____

CALCIUM[1] _____

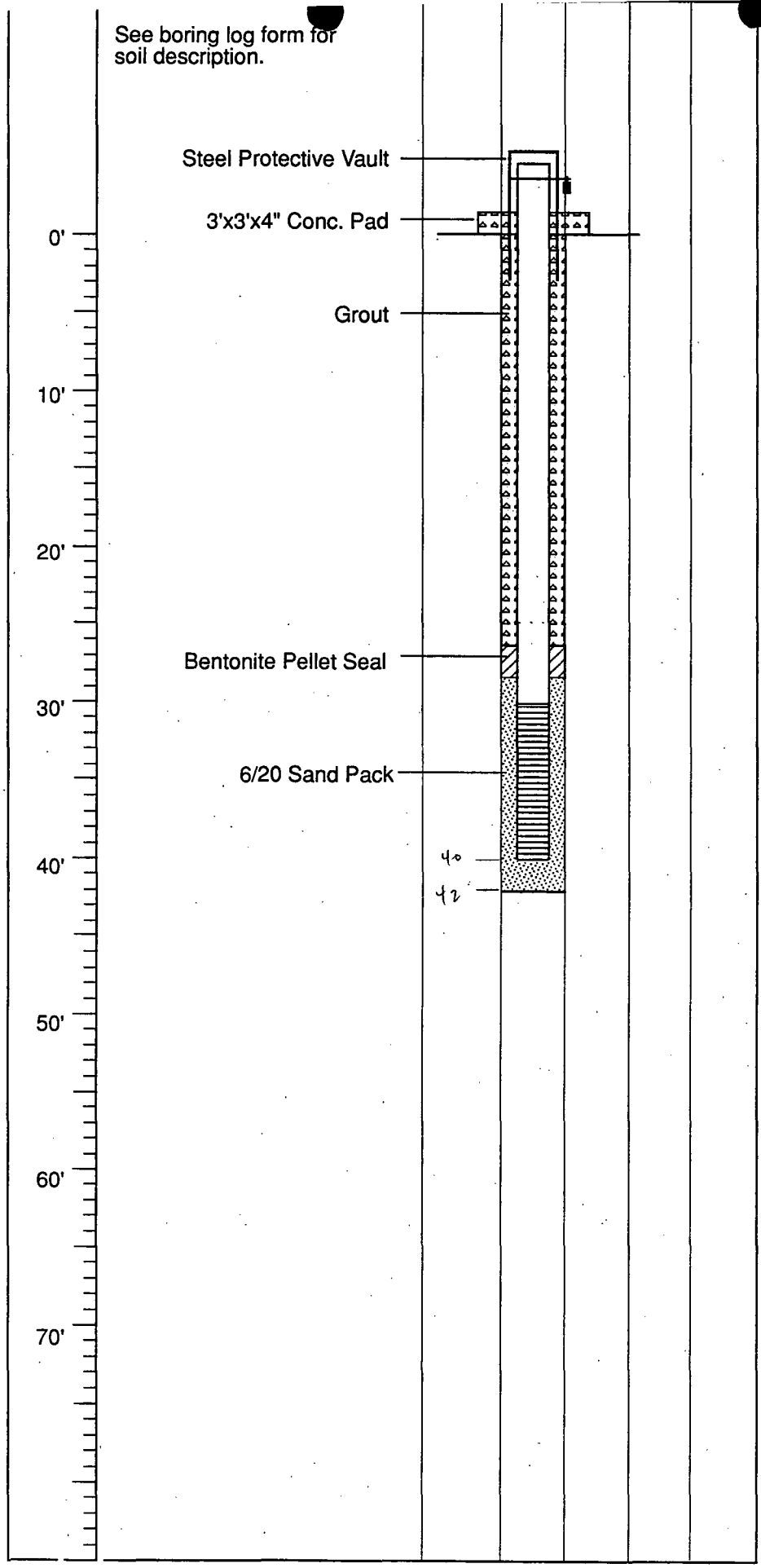
COMMENTS _____

COMPILED BY S. Scanlon/D. Snyder

DATE 9-19-90

[1] AS $CaCO_3$

See boring log form for soil description.



WELL DRILLING REPORT

CH2MHILL

PROJECT NO. GNV22977.B0

WELL: MW-19D

LOCATION: Perdido Landfill
I-10 Welcome Station

COUNTY: Escambia STATE: FL

GROUND ELEVATION: ±67.6 ft NGVD

DIAMETER: 4-inch

DEPTH: 40 ft bls

STATIC WATER LEVEL: 44.15 ft NGVD

DATE: 9-18-90

CASING: 30' of 4" dia. PVC

SCREEN: 10' of 0.030" slot of 4" dia. PVC

CONSTRUCTION: Mud rotary

DRILLER: Pope Engineering and Testing

DATE FINISHED: 9-13-90

PUMPING TEST

SPECIFIC YIELD _____ gpm/ft @ _____ gpm

WATER ANALYSIS (ppm)

TDS _____

TOTAL HARDNESS[1] _____

M.O. ALKALINITY[1] _____

CHLORIDE Cl _____

IRON Fe _____

SULFATE SO_4 _____

COLOR (ALPHA) _____

CALCIUM[1] _____

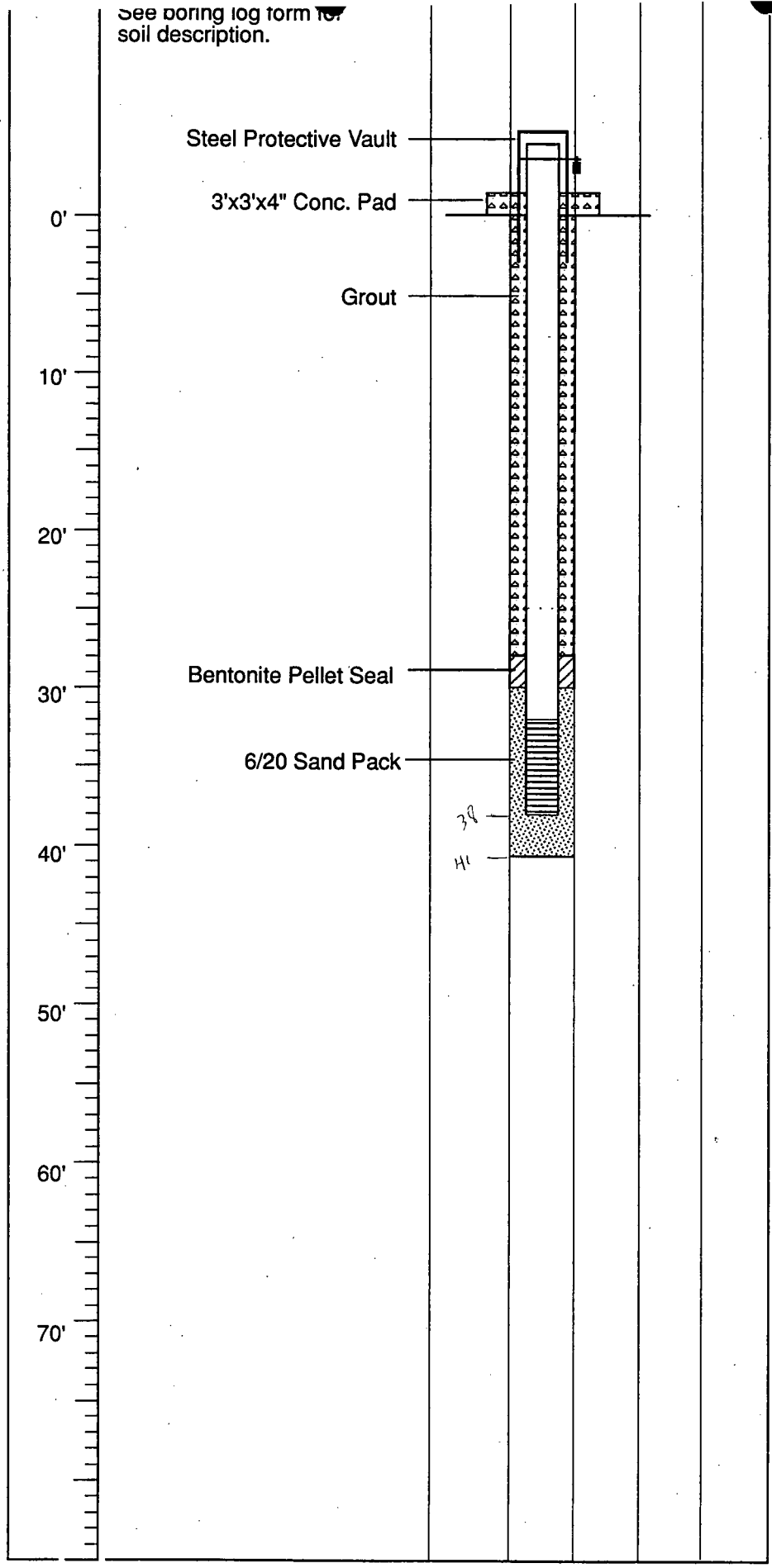
COMMENTS _____

COMPILED BY S. Scanlon/D. Snyder

DATE 9-19-90

[1] AS $CaCO_3$

See boring log form for soil description.



CH2MHILL

WELL DRILLING REPORT

PROJECT NO. GNV22977.B0

WELL: MW-21D

LOCATION: Perdido Landfill
I-10 Welcome Station

COUNTY: Escambia STATE: FL

GROUND ELEVATION: ±62.3 ft NGVD

DIAMETER: 4-inch

DEPTH: 37 ft bls

STATIC WATER LEVEL: 38.48 ft NGVD

DATE: 9-21-90

CASING: 32' of 4" dia. PVC

SCREEN: 5' of 0.030" slot of 4" dia. PVC

CONSTRUCTION: Mud rotary

DRILLER: Pope Engineering and Testing

DATE FINISHED: 9-12-90

PUMPING TEST

SPECIFIC YIELD _____ gpm/ft @ _____ gpm

WATER ANALYSIS (ppm)

TDS _____

TOTAL HARDNESS[1] _____

M.O. ALKALINITY[1] _____

CHLORIDE Cl _____

IRON Fe _____

SULFATE SO_4 _____

COLOR (ALPHA) _____

CALCIUM[1] _____

COMMENTS _____

COMPILED BY S. Scanlon/D. Snyder

DATE 9-19-90

[1] AS $CaCO_3$

Esc.
Perd.
Rem.
FILE

Florida Department of Environmental Regulation

Northwest District • 160 Governmental Center • Pensacola, Florida 32501-5794

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 1, 1991

C. R. Sproul, C.P.G.
CH2M Hill
Post Office Box 1647
Gainesville, Florida 32602-1647

Dear Mr. Sproul:

This is in reference to your May 23 submittal of the Interim Remedial Action Plan (IRAP) for Perdido Landfill, Escambia County. Enclosed is the review of this plan indicating that the plan is inadequate. Also included are the items necessary to allow it to be considered adequate and consequently, approvable by this Department. We appreciate your timely submittal of this document and hope that the items indicated in the memorandum can be resolved in such a time frame that the interim project will not be slowed down.

If there are any questions or concerns please feel free to contact Cindy Anderson or Mike Markey at (904)436-8360.

Sincerely,

Thomas W. Moody

Thomas W. Moody, P.E.
Waste Management Program
Administrator

cc: Charles Miller
Enclosure

Rem.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
CONVERSATION RECORD

Date: 7/9/91 Site Name: Perdido

Time: AM. County: Esc.

Recorded by: Cindy W. Anderson

MR Drew Vanlandingham Telephone No:

Representing: site

Address:

[X] Telephoned [ ] Came In [ ] Was Called [ ] No Further Action

Regarding: additional well requested behind welcome station

Conversation: meet w/ property owner next ~~month~~ Monday to work on placing addition wells for CA.

Copies to: Mike M FYI /File
AM

Signature: [signature]

Title: SWSS

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee
Mike Kennedy Location:
To: FYI Location:
To: Location:
From: CG Date: 7/19

Interoffice Memorandum

TO: File
Cindy Anderson

THROUGH: Charles F. Goddard CG 7/19
Mark ~~S. Sowell, Jr.~~ 19 Jul '91

FROM: T. Christopher Bosso TCB 7-19-91

DATE: July 17, 1991

SUBJECT: Perdido Landfill Complaint

On July 8, Cindy Anderson, Ron Nasca and I visited the Perdido Landfill in response to an anonymous phone complaint. The complaining party advised that discharges from the leachate pond were being pumped and eventually leaving the site.

The inspection revealed and confirmed that leachate was being pumped out of the leachate pond back onto the disposal cell. Mr. Miller had explained this process to Departmental personnel during our July 3 meeting. The leachate was being pumped on top of the active disposal cell because the leachate pond had neared capacity. During the inspection it was observed that the "segregated stormwater pond" located within the disposal cell was full, and that a pump was dewatering the "segregated" portion of the cell. It was also noted that the berm which isolates the stormwater from the disposal cell had many blowouts and rills which could allow leachate to mix with the "segregated stormwater" that was being pumped out of the cell. The discharge from the segregated cell was being pumped into the area that will serve as the next disposal cell. The water being pumped into this area was flowing via culvert into a swale, leading into the stormwater pond which was discharging offsite into a Class III water of the State. Bacteriological samples were taken for fecal and total coliform in the swale leading to the stormwater pond and immediately offsite (note attached drawing). I also observed on this date that approximately 6 to 10 "honey wagons" emptying into the leachate pond. That, with the rainfall that had occurred in the area in the days prior, probably contributed to the fullness of the leachate pond. The samples revealed elevated coliform counts which indicate that leachate from the active disposal cell was mixing with the "segregated stormwater pond."

On July 12, Ron Nasca, Ross Mitchell and I again visited the site to follow up on the high coliform counts revealed during the July 8 sampling.

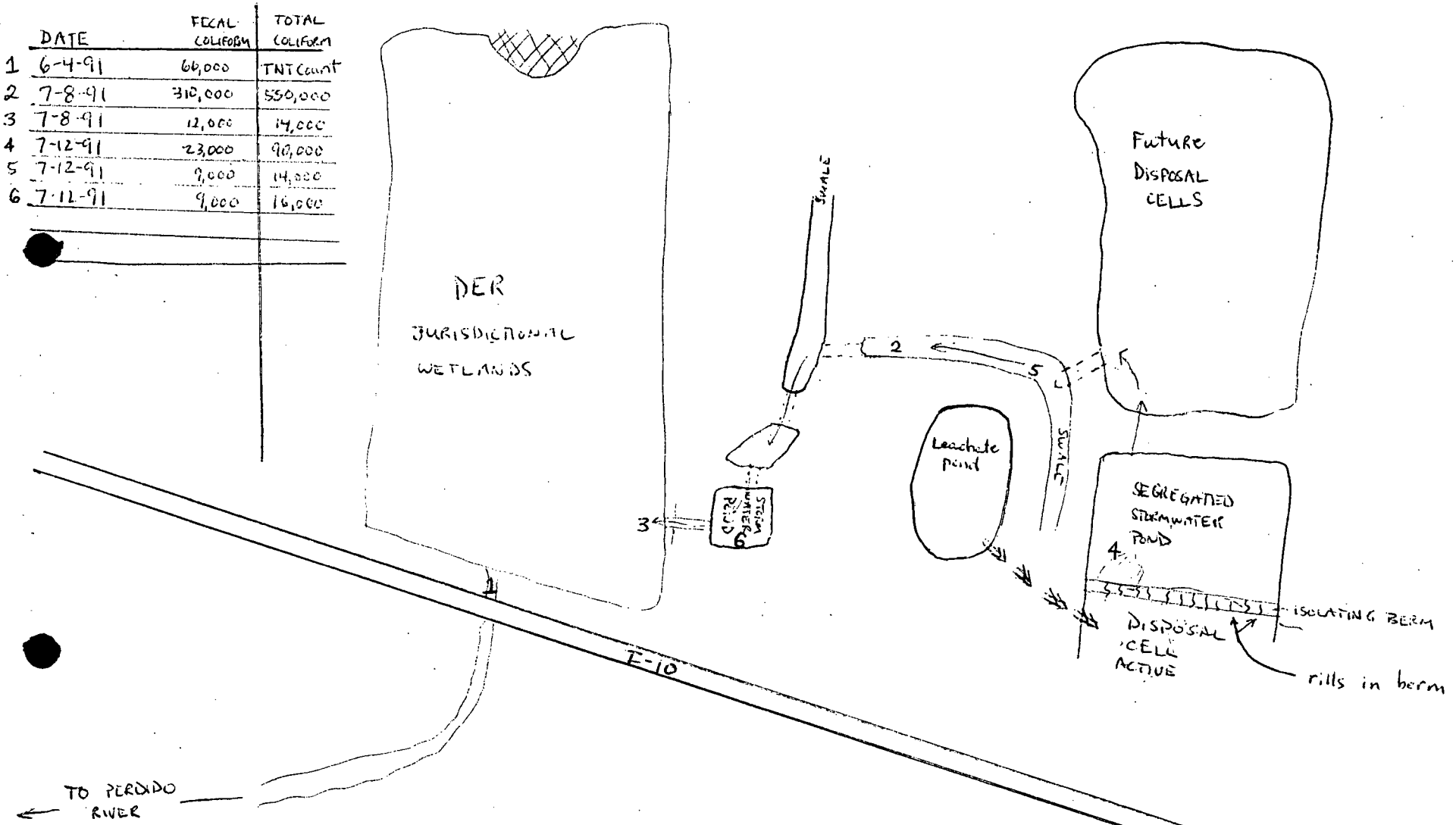
Initially, we inspected the active disposal cell, the isolating berm and the segregated stormwater pond. It was noted that leachate was not being pumped out of the leachate pond into the disposal cell, and no honey wagons visited the site during our inspection. The "segregated stormwater pond" was empty during the inspection and the pump was still present however not operating, on the northern end of the cell. The isolating berm displayed many breaks and rills. Also, at the base of each break and rill was a sediment delta which indicates that runoff from the disposal cell had mixed with the segregated stormwater portion of the cell. Mr. Miller, in a conversation earlier that morning, had stated that pumping from the segregated pond had ceased the day before. Samples were taken on this date within the "segregated stormwater pond," the ditch, and the stormwater pond. All samples indicated high levels of fecal and total coliform counts which further indicate that leachate being pumped onto the cell is mixing with stormwater thus breaking the "closed-loop" leachate process.

After sampling, Dr. Moshuri and I discussed the need for more bacteriological sampling at the project site. It was also discussed that the Department and the University coordinate and split surface water bacteriological samples. I informed Dr. Moshuri that at the present time our lab is not set up to run streptococal bacteriological analyses. Dr. Moshuri informed me that the University could run samples for strep and would provide the Department with such information.

At the present time, I recommend to the Waste Management Section that they take action to prohibit any leachate from being discharged back into the disposal cell until a more comprehensive investigation has been conducted, which confirms that leachate is not mixing with stormwater. I also recommend that the penalty assessment committee reconsider violations 8 and 9 of the initial penalty assessment.

TCB:cbd
cc: Robert V. Kriegel

	DATE	FECAL COLIFORM	TOTAL COLIFORM
1	6-4-91	66,000	TNTC count
2	7-8-91	310,000	550,000
3	7-8-91	12,000	14,000
4	7-12-91	23,000	90,000
5	7-12-91	9,000	14,000
6	7-12-91	9,000	16,000



ESC
Perdido
Rem.

State of Florida
Department of Enviornmental Regulation
CONVERSATION RECORD

Date July 22, 1991
Time 2:26 pm
Recorded by RMM

Permit No. _____
File No. _____
County Escambia
Suspense Date _____
Telephone No. (904) 331-2442

Mr. Martin Brungard (CH_2M Hill)

Representing Escambia County Solid Waste

Address _____

[ ] Telephoned [ ] Came In [ ] Was Called [ ] No Further Action Recd.

Regarding Perdido Landfill

Conversation I spoke w/ Mr. Brungard regarding the construction details and lithologic logs for the deep wells at the Welcome Center. He stated that the reason I had not received the information I had requested (logs + construction details) was because he had sent this information to the Dept. of Transportation instead of FDER. He stated that he would get it in the mail today.

Copies to Cindy W. Anderson (SW files)

Signature Richard M. Markey
Title ES-II

Florida Department of Environmental Regulation
Northwest District • 160 Governmental Center • Pensacola, Florida 32501-5794
Lawton Chiles, Governor
Carol M. Browner, Secretary

JUL 24 1991

Mr. Charlie Miller
Director of Solid Waste
Escambia County
13009 Beulah Road
Cantonment, Florida 32533-8801

Dear Mr. Miller:

The purpose of this letter is to transmit a copy of the minutes of our July 17 meeting regarding the Perdido Sanitary Landfill.

We have drafted a Consent Order and forwarded it to our Office of General Counsel for review prior to sending the document to you for signature by the authorized agent for the County.

In the interim you should take measures to contain sediments, repair berms, etc. as needed to prevent surface water discharges from the landfill in violation of Florida Administrative Code Rule 17-302.

If you have questions, please contact Ms. Cindy Anderson of this office at 436-8300.

Sincerely,

Mark S. Sowell, Jr., P.E.
Program Administrator
Water Management

MSS:cgb
Attach: Minutes
cc: Gerald Moshuri

received 11/4/91

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: File

FROM: Charles Goddard CG 7/23

DATE: July 19, 1991

SUBJECT: Perdido SLF Meeting

On July 17, representatives of Escambia County met with the Department to continue Consent Order negotiations for the violations at the Perdido SLF. A copy of the attendee roster is attached.

Charlie Miller opened the meeting by reviewing the County's proposal to resolve the violations at the landfill. The following proposal was made:

1. A Conservation Easement will be established for a parcel of land between the landfill and the Perdido River consisting of approximately 183 acres of wetlands. This area will also be utilized for wetlands research and a training ground for UWF students and others.

2. Stormwater Plan: A modified stormwater plan will be submitted along with a landfill permit modification. The landfill permit fee will be established at the minor modification rate. Charles Miller expressed desires to mingle ground water emanating from the site with stormwater and was advised that this should be addressed in his stormwater application.

3. Penalty: Charlie Miller introduced a Dr. Paul Hamilton of the UWF who presented a wetlands education program for middle school students. This program will cost approximately $51,000 to get started. Charlie Miller proposed that the Department consider allowing the County to fund the program with the proposed penalty. Bob Kriegel advised that during the last meeting a civil penalty of $30,600 was discussed with $15,300 in a cash settlement and the other $15,300 as in in-kind payment at 1.5 times the amount or $22,950. This would require a total settlement of $38,250. I added that while some

of the penalty could be earmarked for this type of in-kind payment, our guidelines require that a portion of the penalty be made as a cash payment. It was generally agreed that we would consider a cash payment of $10,000 which will leave a payment in-kind requirement of $30,900. This $30,900 could be applied to the wetland education project.

4. Comprehensive Surface Water Assessment Plan: Dr. Gerald Moshuri advised that he proposed to locate additional pH historical data to help substantiate a background. He also added that he planned to resample the site on July 18 for coliform to include streptococci to establish if the waste was human waste.

I advised that Chris Bosso's inspection (July 8 & 12) indicated that the leachate pond which accepts septic tank pumpings was being pumped into a lined landfill cell. Due to excessive rainfall, the berm to segregate leachate and stormwater was breached and consequently, contaminated stormwater was discharging into State waters. I also advised that Mike Kennedy had expressed concern that the beaver pond receiving surface waters from the site had confirmed concentrations of lead, benzene and trichlorethylene. I suggested that in view of this it may be appropriate to sample the surface waters for EPA methods 601, 602, 625 and that a dye study be considered. Miller and Moshuri advised that 601 and 602 methods were already being tested on-site with no apparent problems. Cindy Anderson advised that she would review the matter with Mike Kennedy before committing to the content of the Comprehensive Surface Water Management Plan.

The removal of fill and restoration for violations 3, 4 and 5 as discussed in the July 3 meeting was not a topic of discussion in this meeting but will be addressed in the Consent Order.

Bob Kriegel asked when a Consent Order could be drafted. I advised that we could have one drafted in a week and OGC review would require about a month. Completing this, the document will be forwarded to the County for review.

CFG:cgb
Attach: roster
cc: Cindy Anderson
Mike Kennedy
Bob Kriegel

Mtg Escambia County Solid Waste 07/17/91

Attendees

1.	Charles Goddard	Surface Water	436-8320
2.	Cindy Anderson	DER - Solid Waste	"
3.	Paul Hamilton	UWF	474-3061
4.	John Kerr	FDER	436-8320
5.	Chris Basso	DER	"
6.	Allison M. Levy	Es-County Landfill	968-9294
7.	Gerald Mashuri	URL. UWF	474-2754
8.	Charles C Miller	Esc County Solid Waste Dept	968-6625
9.	Bob Krieger	DER/DEZ	436-8300