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AQUATERRA

Aquaterra, Inc. • P.O. Box 50328 • Raleigh, NC 27650 • 91[illegible]-019[illegible]

September 6, 1989

01-01

Alamance County Health Department
Graham-Hopedale Road
Burlington, North Carolina 27215

RECEIVED
SEP 13 1989
SOLID WASTE BRANCH

Attention: Mr. Ernest Perry

Reference: Annual Sampling Analytical Results
Alamance County Landfill
Aquaterra Job #25

Dear Mr. Perry:

Please find attached the analytical results for the annual sampling at the above referenced facility. Please note that four of the six onsite monitoring wells were sampled. MW-4 was dry and no sample was collected. MW-6, which had been recently replaced, had been contaminated during the drilling operation. Landfill personnel directed the Aquaterra sampler not to collect a sample from the well. An upstream and downstream sample were also collected and analyzed.

If we can be of further service prior to the next sampling round, please do not hesitate to call.

Sincerely,

AQUATERRA, INC.

Thomas A. Proctor
Project Geologist

L809-89

TAP/plv

Industrial & Environmental Analysts, Inc.
P.O. Box 12846 • Research Triangle Park, NC 27709 • 919-467-9919

Date: May 3, 1989

David Grubb
Aqua-Terra Resource Technologies
P.O. Box 50328
Raleigh, NC 27650

Reference: IEA Report No. 196383
Project I.D.: 200-88-164

Dear Mr. Grubb,

Transmitted herewith are the results of analyses on six samples submitted to our laboratory on April 18, 1989.
Please see the enclosed reports for your results.

Very truly yours,

INDUSTRIAL & ENVIRONMENTAL ANALYSTS, INC.

Frederick Doane
Senior Scientist

IEA LABORATORY RESULTS

IEA Project #: 196-383
Client Name: Aqua-Terra Resource Technologies

Sample #	Client ID	Parameter	Results		Date Analyzed
1	MW-1	Silver	<0.05	mg/L	04/26/89
2	SW-d	Silver	<0.05	mg/L	04/26/89
3	MW-2	Silver	<0.05	mg/L	04/26/89
4	MW-3	Silver	<0.05	mg/L	04/26/89
5	MW-5	Silver	<0.05	mg/L	04/26/89
6	SW-UP	Silver	<0.05	mg/L	04/26/89
1	MW-1	Arsenic	<0.005	mg/L	04/24/89
2	SW-d	Arsenic	<0.005	mg/L	04/24/89
3	MW-2	Arsenic	<0.005	mg/L	04/24/89
4	MW-3	Arsenic	<0.005	mg/L	04/24/89
5	MW-5	Arsenic	<0.005	mg/L	04/24/89
6	SW-UP	Arsenic	<0.005	mg/L	04/24/89
1	MW-1	Barium	0.18	mg/L	04/26/89
2	SW-d	Barium	<0.10	mg/L	04/26/89
3	MW-2	Barium	0.15	mg/L	04/26/89
4	MW-3	Barium	0.42	mg/L	04/26/89
5	MW-5	Barium	<0.10	mg/L	04/26/89
6	SW-UP	Barium	<0.10	mg/L	04/26/89
1	MW-1	Biochemical Oxygen Demand	<4.0	mg/L	04/24/89
2	SW-d	Biochemical Oxygen Demand	<2.0	mg/L	04/24/89
3	MW-2	Biochemical Oxygen Demand	2.2	mg/L	04/24/89
4	MW-3	Biochemical Oxygen Demand	3.4	mg/L	04/24/89
5	MW-5	Biochemical Oxygen Demand	<10	mg/L	04/24/89
6	SW-UP	Biochemical Oxygen Demand	<2.0	mg/L	04/24/89
1	MW-1	Cadmium	<0.01	mg/L	04/26/89
2	SW-d	Cadmium	<0.01	mg/L	04/26/89
3	MW-2	Cadmium	<0.01	mg/L	04/26/89
4	MW-3	Cadmium	<0.01	mg/L	04/26/89
5	MW-5	Cadmium	<0.01	mg/L	04/26/89
6	SW-UP	Cadmium	<0.01	mg/L	04/26/89
1	MW-1	Chloride	12	mg/L	04/26/89
2	SW-d	Chloride	7.2	mg/L	04/26/89
3	MW-2	Chloride	5.3	mg/L	04/26/89
4	MW-3	Chloride	6.1	mg/L	04/26/89
5	MW-5	Chloride	6.3	mg/L	04/26/89
6	SW-UP	Chloride	4.4	mg/L	04/26/89
1	MW-1	Chemical Oxygen Demand	28	mg/L	04/24/89
2	SW-d	Chemical Oxygen Demand	<25	mg/L	04/24/89
3	MW-2	Chemical Oxygen Demand	28	mg/L	04/24/89
4	MW-3	Chemical Oxygen Demand	51	mg/L	04/24/89
5	MW-5	Chemical Oxygen Demand	55	mg/L	04/24/89
6	SW-UP	Chemical Oxygen Demand	62	mg/L	04/24/89
1	MW-1	Chromium	<0.03	mg/L	04/26/89
2	SW-d	Chromium	<0.03	mg/L	04/26/89
3	MW-2	Chromium	<0.03	mg/L	04/26/89

IEA LABORATORY RESULTS

IEA Project #: 196-383
Client Name: Aqua-Terra Resource Technologies

Sample #	Client ID	Parameter	Results		Date Analyzed
1	MW-1	Selenium	<0.01	mg/L	04/27/89
2	SW-d	Selenium	<0.01	mg/L	04/27/89
3	MW-2	Selenium	<0.01	mg/L	04/27/89
4	MW-3	Selenium	<0.01	mg/L	04/27/89
5	MW-5	Selenium	<0.01	mg/L	04/27/89
6	SW-UP	Selenium	<0.01	mg/L	04/27/89
1	MW-1	Sulfate	5.2	mg/L	05/01/89
2	SW-d	Sulfate	8.5	mg/L	05/01/89
3	MW-2	Sulfate	2.4	mg/L	05/01/89
4	MW-3	Sulfate	6.1	mg/L	05/01/89
5	MW-5	Sulfate	7.8	mg/L	05/01/89
6	SW-UP	Sulfate	4.3	mg/L	05/01/89
1	MW-1	Total Dissolved Solids	100	mg/L	04/21/89
2	SW-d	Total Dissolved Solids	93	mg/L	04/21/89
3	MW-2	Total Dissolved Solids	80	mg/L	04/21/89
4	MW-3	Total Dissolved Solids	130	mg/L	04/21/89
5	MW-5	Total Dissolved Solids	310	mg/L	04/21/89
6	SW-UP	Total Dissolved Solids	56	mg/L	04/21/89
1	MW-1	Total Organic Carbon	6.5	mg/L	04/28/89
2	SW-d	Total Organic Carbon	5.2	mg/L	04/28/89
3	MW-2	Total Organic Carbon	8.2	mg/L	04/28/89
4	MW-3	Total Organic Carbon	12	mg/L	04/28/89
5	MW-5	Total Organic Carbon	25	mg/L	04/28/89
6	SW-UP	Total Organic Carbon	2.9	mg/L	04/28/89
1	MW-1	Total Organic Halide	0.02	mg/L	04/24/89
2	SW-d	Total Organic Halide	<0.01	mg/L	04/24/89
3	MW-2	Total Organic Halide	<0.01	mg/L	04/24/89
4	MW-3	Total Organic Halide	<0.01	mg/L	04/24/89
5	MW-5	Total Organic Halide	<0.01	mg/L	04/24/89
6	SW-UP	Total Organic Halide	<0.01	mg/L	04/24/89
1	MW-1	Zinc	0.06	mg/L	04/26/89
2	SW-d	Zinc	0.01	mg/L	04/26/89
3	MW-2	Zinc	0.04	mg/L	04/26/89
4	MW-3	Zinc	0.12	mg/L	04/26/89
5	MW-5	Zinc	<0.01	mg/L	04/26/89
6	SW-UP	Zinc	<0.01	mg/L	04/26/89

IEA LABORATORY RESULTS

IEA Project #: 196-383
Client Name: Aqua-Terra Resource Technologies

Sample #	Client ID	Parameter	Results		Date Analyzed
4	MW-3	Chromium	0.04	mg/L	04/26/89
5	MW-5	Chromium	<0.03	mg/L	04/26/89
6	SW-UP	Chromium	<0.03	mg/L	04/26/89
1	MW-1	Copper	<0.02	mg/L	04/27/89
2	SW-d	Copper	<0.02	mg/L	04/27/89
3	MW-2	Copper	<0.02	mg/L	04/27/89
4	MW-3	Copper	0.08	mg/L	04/27/89
5	MW-5	Copper	<0.02	mg/L	04/27/89
6	SW-UP	Copper	<0.02	mg/L	04/27/89
1	MW-1	Iron	8.7	mg/L	04/26/89
2	SW-d	Iron	1.4	mg/L	04/26/89
3	MW-2	Iron	19	mg/L	04/26/89
4	MW-3	Iron	52	mg/L	04/26/89
5	MW-5	Iron	1.5	mg/L	04/26/89
6	SW-UP	Iron	3.4	mg/L	04/26/89
1	MW-1	Fluoride	<0.1	mg/L	04/26/89
2	SW-d	Fluoride	<0.1	mg/L	04/26/89
3	MW-2	Fluoride	<0.1	mg/L	04/26/89
4	MW-3	Fluoride	<0.1	mg/L	04/26/89
5	MW-5	Fluoride	0.1	mg/L	04/26/89
6	SW-UP	Fluoride	<0.1	mg/L	04/26/89
1	MW-1	Mercury	<0.0005	mg/L	04/27/89
2	SW-d	Mercury	<0.0005	mg/L	04/27/89
3	MW-2	Mercury	<0.0005	mg/L	04/27/89
4	MW-3	Mercury	<0.0005	mg/L	04/27/89
5	MW-5	Mercury	<0.0005	mg/L	04/27/89
6	SW-UP	Mercury	<0.0005	mg/L	04/27/89
1	MW-1	Manganese	0.36	mg/L	04/26/89
2	SW-d	Manganese	0.61	mg/L	04/26/89
3	MW-2	Manganese	0.27	mg/L	04/26/89
4	MW-3	Manganese	0.68	mg/L	04/26/89
5	MW-5	Manganese	0.05	mg/L	04/26/89
6	SW-UP	Manganese	0.27	mg/L	04/26/89
1	MW-1	Nitrate	2.2	mg/L	04/24/89
2	SW-d	Nitrate	0.07	mg/L	04/24/89
3	MW-2	Nitrate	<0.10	mg/L	04/24/89
4	MW-3	Nitrate	1.9	mg/L	04/24/89
5	MW-5	Nitrate	0.66	mg/L	04/24/89
6	SW-UP	Nitrate	0.07	mg/L	04/24/89
1	MW-1	Lead	<0.005	mg/L	04/26/89
2	SW-d	Lead	<0.005	mg/L	04/26/89
3	MW-2	Lead	<0.005	mg/L	04/26/89
4	MW-3	Lead	<0.005	mg/L	04/26/89
5	MW-5	Lead	<0.005	mg/L	04/26/89
6	SW-UP	Lead	<0.005	mg/L	04/26/89

IEA LABORATORY RESULTS

IEA Project #: 196-383
Client Name: Aqua-Terra Resource Technologies

Sample #	Client ID	Parameter	Results		Date Analyzed
1	MW-1	Selenium	<0.01	mg/L	04/27/89
2	SW-d	Selenium	<0.01	mg/L	04/27/89
3	MW-2	Selenium	<0.01	mg/L	04/27/89
4	MW-3	Selenium	<0.01	mg/L	04/27/89
5	MW-5	Selenium	<0.01	mg/L	04/27/89
6	SW-UP	Selenium	<0.01	mg/L	04/27/89
1	MW-1	Sulfate	5.2	mg/L	05/01/89
2	SW-d	Sulfate	8.5	mg/L	05/01/89
3	MW-2	Sulfate	2.4	mg/L	05/01/89
4	MW-3	Sulfate	6.1	mg/L	05/01/89
5	MW-5	Sulfate	7.8	mg/L	05/01/89
6	SW-UP	Sulfate	4.3	mg/L	05/01/89
1	MW-1	Total Dissolved Solids	100	mg/L	04/21/89
2	SW-d	Total Dissolved Solids	93	mg/L	04/21/89
3	MW-2	Total Dissolved Solids	80	mg/L	04/21/89
4	MW-3	Total Dissolved Solids	130	mg/L	04/21/89
5	MW-5	Total Dissolved Solids	310	mg/L	04/21/89
6	SW-UP	Total Dissolved Solids	56	mg/L	04/21/89
1	MW-1	Total Organic Carbon	6.5	mg/L	04/28/89
2	SW-d	Total Organic Carbon	5.2	mg/L	04/28/89
3	MW-2	Total Organic Carbon	8.2	mg/L	04/28/89
4	MW-3	Total Organic Carbon	12	mg/L	04/28/89
5	MW-5	Total Organic Carbon	23	mg/L	04/28/89
6	SW-UP	Total Organic Carbon	2.9	mg/L	04/28/89
1	MW-1	Total Organic Halide	0.02	mg/L	04/24/89
2	SW-d	Total Organic Halide	<0.01	mg/L	04/24/89
3	MW-2	Total Organic Halide	<0.01	mg/L	04/24/89
4	MW-3	Total Organic Halide	<0.01	mg/L	04/24/89
5	MW-5	Total Organic Halide	<0.01	mg/L	04/24/89
6	SW-UP	Total Organic Halide	<0.01	mg/L	04/24/89
1	MW-1	Zinc	0.06	mg/L	04/26/89
2	SW-d	Zinc	0.01	mg/L	04/26/89
3	MW-2	Zinc	0.04	mg/L	04/26/89
4	MW-3	Zinc	0.12	mg/L	04/26/89
5	MW-5	Zinc	<0.01	mg/L	04/26/89
6	SW-UP	Zinc	<0.01	mg/L	04/26/89

AQUATERRA, INC.

CHAIN OF CUSTODY RECORD

PROJ. NO.: 88184

PROJECT NAME: Alamance Co. landfield

SAMPLERS: (Signature) David Gubb

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	LANDFIELD PARAMETERS: As, Ba, Cd, Cl, CR	Cu, F, Fe, Pb	Mn, Hg, NO3, Se	Au, SO3, ZN	TOX, TOC, TDS	BOD, COD	REMARKS
MW1	4-18-89			✓	AT GATE	11							
SW-d				✓	Surface Downstream	11							
MW2				✓	2nd counterclockwise	11							
MW3				✓	3rd "	11							
MW4					DRY	0							no water at all
MW5				✓	5th "	11							
SW-up				✓	Surface water up stream	11							

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
David L Gubb	4-18-89 1500	Greg Hudson	4-18-89 3:30	P.O. 1326 TFA-196-303

DISTRIBUTION: Original and Pink copies accompany sample shipment to laboratory; Pink copy retained by laboratory.