SAUGERTIES (T) LANDFILL
ULSTER COUNTY
INVESTIGATION REPORT

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CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS

LANDFILL CLOSURE INVESTIGATION REPORT

TOWN OF SAUGERTIES LANDFILL

Volume 1 of 2

LANDFILL CLOSURE INVESTIGATION REPORT

TOWN OF SAUGERTIES LANDFILL

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I. INTRODUCTION

Pursuant to issuance of the Organization and Delegation Memorandum 84-36 on September 17, 1984 by the New York State Department of Environmental Conservation (NYSDEC) Commissioner, the NYSDEC undertook a vigorous landfill enforcement program to develop orders on consent for closure of landfills whose operational practices warranted this action. Consequently, in 1987 the Town of Saugerties entered into an Order on Consent to comply with NYSDEC mandates set forth in the 6 NYCRR Part 360 Regulations, and close the Town Sanitary Landfill.

Clough Harbour and Associates (CHA) was retained by the Town of Saugerties to provide engineering and hydrogeological services in support of the preparation of a Closure Investigation Report (CIR) for the town landfill in compliance with the New York State Department of Environmental Conservation (NYSDEC) Part 360 regulations. Included in this CIR are detailed descriptions of work conducted by CHA in support of the landfill closure, as well as summaries of the previous investigations performed at the town landfill by Gibbs and Hill, Inc. and Hazen and Sawyer Environmental Engineers and Scientists. These previous investigations are included in Appendices C and D, respectively.

II. EXISTING LANDFILL CONDITIONS

A. SITE LOCATION AND ADJACENT LANDS:

The Town of Saugerties Sanitary Landfill is located on the southeast side of New York State Route 212 in the Town of Saugerties approximately 3,500 feet south of Shultis Corners (see Figure 1). The landfill is approximately 100 feet from NYS Route 212 and surrounded by woods on the east, west, and south sides, and sparsely vegetated land on the north side. Descriptions of the site included herein are based in part on field inspections performed by CHA personnel during 1994.

B. TOPOGRAPHIC AND PROPERTY SURVEY:

A photogrametric survey of the landfill site was completed in December, 1992 by Golden Aerial Surveys, Inc. for Praetorius and Conrad, P.C. A property survey was also completed in December, 1992 by Praetorius and Conrad, P.C. The mapping used by Clough, Harbour & Associates (Figure 2) is taken from a map prepared by Praetorius and Conrad, P.C. in March, 1993 entitled, "Boundary and Topographic Map of Lands of the Town of Saugerties".

C. PHYSICAL SITE DESCRIPTION:

The main landfill footprint is approximately 11 acres. The top of the landfill is gently sloping from the southeast to the northwest side of the landfill. The sideslopes of the landfill reach a maximum height of about 40 feet on the southeast side. The sideslopes range in slope from about 20% on the northwest side of the landfill to approximately 40% along the steepest portion of the southeast sideslope. During previous operations, the site received municipal solid waste and construction and demolition C&D debris. Daily cover soil consisted mainly of medium to coarse sand and gravel, broken rock, and fine process materials from Northeast Solite Inc. (Solite "fines"). The Solite "fines" are a by-product of a lightweight aggregate manufacturing operation and resemble a fine grained "rock-flour" soil of silt and clay size particles. This material has received a beneficial use determination from the NYSDEC for such uses. The main landfill footprint (limit of waste) shown on Figure 2 was established by visual inspections and communications with site attendants. It should be noted that this limit of waste is approximate, and variations may be encountered during the construction of the final cover system.

During early operations of the landfill site, an area to the north of the main landfill mass was used for disposal. CHA explored this portion of the site with a number of test pits. The locations are noted on the topographic base map (Figure 2). Test pit logs are included in Appendix A. In general, the test pits revealed only municipal mixed solid waste and construction and demolition debris. Based on dated waste materials and the recollections of past landfill operators, this area was closed and capped with soil in accordance with NYSDOH regulations sometime between 1969 and 1970. The capping techniques also appear to be consistent with later 1973 NYSDEC regulations concerning landfill operations and closure.

As noted in the Gibbs and Hill Phase II Investigation, no leachate outbreaks worthy of sampling exist at the town landfill. Although CHA personnel did note leachate stained soil, presumably from rain water infiltration of the waste mass, CHA concurs with Gibbs and Hill that no significant leachate outbreaks or point sources emanate from the landfill.

D. EXISTING STRUCTURES AND EQUIPMENT:

No structures other than the monitoring wells exist within the landfill footprint. The landfill is inactive, and no equipment is used at the site other than grading equipment used for implementing closure. The Town of Saugerties operates a transfer station immediately north of the landfill (NYSDEC Permit No. 3-5148-0185/00001-0). Various structures and equipment exist at this location. Utilities available at this location include telephone, electric, and water (well).

E. CURRENT OPERATING PRACTICES:

The Town of Saugerties Sanitary Landfill is an inactive site. Therefore, no disposal operations are currently taking place on the landfill. The Town is planning to undertake some rough grading and cover materials (intermediate and daily) placement to assist final closure and limit closure costs.

F. WASTE FLOW CONDITIONS:

The Town of Saugerties Sanitary Landfill is an inactive site, therefore, no waste is currently being landfilled. All solid waste generated within the Town is disposed of by the Ulster County Resource Recovery Agency.

III. INVESTIGATIONS PERFORMED BY CLOUGH, HARBOUR & ASSOCIATES

A. MITIGATION OF GROUNDWATER CONTRAVENTION:

Hydrogeologic conditions at the Town of Saugerties Landfill have been investigated and summarized in two documents:

1. "Town of Saugerties Landfill, Saugerties, New York, Supplemental Subsurface Investigation Report," prepared by Hazen & Sawyer, September 10, 1993.

2. "Engineering Investigations at Inactive Hazardous Waste Sites in the State of New York, Phase II Investigation, Saugerties Landfill, Town of Saugerties Ulster County, Site No. 356003, Final", prepared by Gibbs & Hill, Inc., March 1993.

These documents concluded that the landfill was having a negative impact on groundwater quality in the immediate vicinity of the landfill. Some analytical data for residential and on-site wells indicated that there may be landfill related impacts on groundwater quality (SSIR, prepared by Hazen & Sawyer, Phase II Investigation, prepared by Gibbs & Hill). However, the analytical data presented in the SSIR was considered inconclusive due to a number of factors including sample turbidity. Therefore, CHA conducted additional analytical testing to assist in resolving data uncertainties.

WRONG, DEC DID NOT CONSIDER THIS DATA INCONCLUSIVE.

On February 16, 1994, CHA collected groundwater samples from landfill monitoring wells MW-1 and MW-N and private residential wells for homeowners Kanover, Lerner, and Perez. Monitoring well MW-5, representing the upgradient well for the Saugerties Landfill, was found to be frozen at the time of sampling. Therefore, no sample was obtained from this well for analysis. The samples from the landfill wells were designated as MW-1 and MW-N. The residential wells were labelled as K-1, L-1, and P-1, with the letter of the label corresponding to the first letter of the homeowner name. All of the samples were collected following established sampling procedures. The samples were placed on ice in the field and were delivered within twenty-four hours of procurement to Adirondack Environmental Services, Inc. (AES) located in Albany, New York, for analytical testing. AES is currently certified by the New York State Department of Health (NYSDOH) under their Environmental Laboratory Approval Program to perform the required analyses. The landfill monitoring well

samples were analyzed for specific conductivity, turbidity, expanded scan metal parameters, both total and dissolved, as listed in Title 6 of the New York Codes, Rules, and Regulations Part 360 regulations (6 NYCRR Part 360), and Part 360 baseline scan volatile organic compounds. The residential well samples were analyzed for the above parameters (minus dissolved metals) with the addition of ammonia, total dissolved solids (TDS), and biochemical oxygen demand (BOD). The results of the sampling and analysis program are discussed below and summarized on Table 1. Table 2 outlines Regulatory Compliance data.

It should be noted that the samples collected from each of the residential wells were not filtered and were not analyzed for dissolved metals concentrations, as indicated in the Scope of Work. This was based on the low (<50 NTU) turbidities of the residential well samples at the time of procurement. The wet chemistry and metal parameter results are reported in milligrams per liter (mg/l) which is equivalent to parts per million (ppm). The organic compound results are reported in micrograms per liter (u/l) which is equivalent to parts per billion (ppb). Field data sheets and laboratory reports are included in Appendix B.

MONITORING WELL RESULTS

The analytical results for monitoring wells MW-w and MW-N were generally comparable in regards to parameters detected, however, slightly higher levels were generally reported for the sample MW-N. Parameters detected slightly in exceedance of groundwater and/or drinking water regulatory standards in both of the downgradient wells were turbidity, aluminum (total), and iron (total). Both total and dissolved sodium levels were elevated in comparison to drinking water guidance levels for the sample MW-1. The influence of turbidity is illustrated by comparing the results of MW-1 with the results of MW-N. Sample MW-1 had a significantly lower turbidity and subsequently significantly lower metal levels. This is also reinforced by the fact that dissolved, or filtered, metal levels were generally significantly lower than the total levels, and in terms of regulatory exceedance for total metals, the dissolved levels were well below regulatory limits. The elevated sodium levels of MW-1 may likely be attributable to its proximity to the roadway and the influence of roadway runoff, which, at this time of year, tends to contain higher levels of deicing compounds (salt).

The most recent results for both monitoring wells are generally comparable with results of the September 1993 sampling event in terms of parameters detected. However, the most recent results are significantly lower for all tested parameters than previously reported. This may be a result of seasonal water

table fluctuations as well as turbidity effects. It should be noted that no volatile organic compounds were reported during the most recent sampling round.

RESIDENTIAL WELL RESULTS

The results for the most recent sampling of the Kanover, Lerner, and Perez residential wells are generally comparable for detected parameters and reported levels as seen during the September 1993 sampling event. Levels of TDS, iron, manganese, and sodium in exceedance of drinking water standards were noted for all three wells. In addition, the Lerner well (sample L-1) exhibited an elevated level of arsenic. The elevated calcium and sodium levels in the residential wells may be related to the use of roadway deicing compounds and the proximity of the residences to the roadway. The presence of arsenic in the Lerner well may be a breakdown product of herbicide and/or pesticide use by residents on their lawns/gardens or area orchards. Potassium, sodium, and calcium levels influence TDS and specific conductivity due to the ionic nature of these elements. Therefore, the elevated conductivity and TDS concentrations are related.

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SUMMARY

Landfill monitoring well analytical results are comparable between the most recent round and those observed previously. Slightly elevated levels of turbidity, aluminum, iron, and sodium were observed in one or both of the wells sampled. Turbidity effects are illustrated by the sample with a lower turbidity (MW-1) exhibiting lower metal levels, as compared to the higher turbidity of MW-N and the subsequently higher metal concentrations.

Due to the inability to collect an upgradient sample at the landfill, it is uncertain how the most recent round of results compares to upgradient water quality at the time of the January 1994 sampling. Based upon comparisons to upgradient data resulting from the September 1993 sampling round, the most recent results for the downgradient monitoring wells MW-1 and MW-N are substantially lower.

Residential well results are comparable with those of previous sampling programs. Iron, sodium, manganese, and TDS were elevated above standards in the three wells sampled. These may be attributable to background levels inherent to the geographic location of the residences, as well as influence of roadway runoff. Furthermore, since arsenic was detected at higher levels in the residential wells than in the landfill wells, the

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arsenic may be more attributable to other causes such as pesticide use in the area. Arsenic is a common constituent of pesticides heavily used in the past for area orchards.

Based on the available data, the most effective step in preventing continued long term contaminant concentration in the groundwater is through the placement of an impermeable barrier layer over the waste mass. Mitigation of groundwater contravention will ultimately be achieved by limiting sources of water infiltration into the waste mass. A cover system will be installed to limit rainwater infiltration and surface waters will be collected and redirected away from the landfilled area to prevent "ponding" of surface water in low areas of the landfill and subsequent filtration of the waste mass.

B. METHANE GAS SURVEY:

An explosive gas survey was conducted at the Town of Saugerties Landfill on March 1, 1994. The gas survey was conducted for the purpose of identifying the presence and concentration of combustible gas around the perimeter of the landfill, as well as at selected locations within the landfill itself, and to determine whether explosive levels of gas are currently migrating off-site. In addition, all on-site structures were surveyed for the presence of combustible gas. The data collected during this investigation will be used as a baseline value to be compared against data collected during future gas surveys after closure of the landfill.

The gas investigation utilized a Scott Model D-15 gas tester for all locations within and around the landfill. A Digiflam gas tester was used to examine gas levels within on-site structures. These portable gas detection instruments are designed to detect the presence of natural gas in air. The D-15 instrument utilized was factory calibrated for natural gas and as such is suitable for detecting methane and other natural gases expected to be generated at a landfill. The instrument has two range scales, one for measuring low concentration levels (0-5 percent combustible gas in air) and the other for measuring high concentration levels (0-100 percent combustible gas in air). The Digiflam gas tester presents gas concentrations as the percentage of the lower explosive limit level (LEL) of methane. The LEL for methane is 5% in air.

At each exterior gas survey point, a three quarter (0.75) inch diameter probe hole was advanced approximately one (1) to two (2) feet into the ground or cover material. The hole was advanced with a hammer and steel rod. Immediately upon extracting the rod from the hole, a thirty (30) inch transparent probe attached

to the gas meter aspirator adaptor was inserted into the ground, and a gas reading was taken from the gas tester after aspiration.

Survey points were performed along the perimeter of the landfill with a test hole spacing of 100 feet. Test hole locations are shown on Figure 3, Explosive Gas Investigation Map. If methane gas was detected in any of the perimeter survey points then another point was advanced approximately 50 feet away from the landfill material. This was repeated until less than 0.1% (background) methane was detected. A semi-grid pattern was developed for survey points on top of the landfill so that all sections of the landfill were covered. Gas concentrations for exterior points are presented as percentage of methane in air. Readings taken within on-site structures were recorded at three different heights; overhead, head, and foot. Concentrations from on-site structures are presented as percent of the LEL of methane. All methane test hole readings are summarized in Table 3, Explosive Gas Survey Data.

Of the survey points performed along the landfill perimeter, all but five (5), S5, S8, S9, and S20, showed methane concentrations of less than 0.1%, which is considered background. These higher concentrations ranged from 2.0 percent to 40 percent methane. Survey points performed 50 feet away from the perimeter at these five (5) locations showed background levels of methane. Readings from points on top of the landfill ranged from 10% to 46% methane. Readings taken from within on-site structures all showed 0.0 percent LEL. Considering that the lower explosive limit (LEL) of methane is five (5) percent, the majority of the areas surveyed are below the lower explosive limit (LEL) of methane. Readings taken from within on-site structures all showed 0.0 percent LEL.

C. BIOLOGICAL VECTOR INVESTIGATION:

A biological vector investigation of the Town of Saugerties Landfill was performed by Orkin Pest Control (Orkin) of Albany, New York, on April 22, 1994. This investigation was conducted for the purpose of identifying the presence of any vectors at the landfill including, but not limited to, rodents, insects, and birds, and to determine the most effective way of eradicating any vectors noted.

Based on the results of the vector investigation, Orkin has developed a vector remediation program for the town landfill. A copy of Orkin's letter detailing the results of the investigation and the corrective actions suggested is included in Appendix E. Orkin noted numerous rat burrows and an infestation of spiders and other

insects. To eradicate the rat population, Contrac bait blocks would be placed in all rat burrows and covered and contained bait stations would be located inside all on-site structures. Orkin recommends spraying a ten (10) foot wide band of microencapsulated chlorpyritos around the entire limit of waste in order to control insect and spider infestation.

IV. PREVIOUS INVESTIGATIONS

A. GIBBS AND HILL PHASE II INVESTIGATION:

Gibbs and Hill, Inc. of New York, N.Y., contracted with the New York State Department of Environmental Conservation (NYSDEC) to perform a preliminary investigation (Phase I) and a field investigation (Phase II) at the Town of Saugerties Landfill. Gibbs and Hill contracted EA Science and Technology to perform the Phase I investigation which began in June, 1987. Gibbs and Hill began the Phase II investigation in July, 1988 to determine if contaminants were present at the landfill and to determine if off-site contaminant migration had occurred. A copy of the Phase II Investigation is included in Appendix C. A description of the tasks performed and a brief discussion of the results and conclusions follows.

To characterize subsurface conditions, several forms of geophysical testing were conducted. A magnetometer was used to locate metal objects which might obstruct drilling operations. A resistivity survey was conducted to determine the depth to the groundwater table and to locate anomalies which could indicate groundwater quality changes. A terrain conductivity survey was conducted to define the subsurface conditions.

Four (4) monitoring wells were installed into the bedrock underlying the site in order to characterize groundwater flow conditions and to provide points for the procurement of groundwater samples. The wells were advanced to depths below ground surface ranging from 26.67 feet to 28.67 feet. The predicted southwest groundwater flow direction was in error and, therefore, none of the four (4) monitoring wells installed monitored upgradient or background groundwater. Slug tests were performed on the installed monitoring wells to determine the hydraulic conductivity of the bedrock unit screened. Results indicated hydraulic conductivities in the 10^{-1} to 10^{-3} cm/sec range.

Elevations of the monitoring well casings were obtained so that water elevations could be calculated from water depth measurements. A groundwater flow diagram was created by plotting the monitoring wells with their corresponding groundwater elevations on a site plan. The flow diagram indicated the presence of a groundwater divide situated in the center of the Town of Saugerties Landfill with groundwater flowing off-site to both the northwest and southeast. Therefore, none of the monitoring wells were located in an upgradient groundwater direction.

On February 2, 1989, February 28, 1989, and March 1, 1989, groundwater and surface water/sediment sample pairs were collected from the Town of Saugerties Landfill for testing of the parameters outlined in the Phase II Investigation Report contained in Appendix A of this CIR. Because there was no background water quality data available for comparison, all results were compared to Contract Required Quantitation Limits (CRQL). Groundwater samples were obtained from monitoring wells MW-1, MW-2, MW-3, and MW-4. In addition, a duplicate sample, MW-5, was collected. Iron and manganese were detected at concentrations above the applicable Environmental Protection Agency (EPA) and NYSDEC groundwater standards.

Two (2) surface water/sediment sample pairs were collected from two swampy areas adjacent to the working face of the landfill to assess the contamination of surface water by leachate generated from the site. Because the marshy area lacked a clearly defined upgradient source, no background surface water sample was collected. The organic compound aldrin was detected at levels above the NYS water standards but below three (3) times the CRQL and, therefore, was not considered to be a release into surface water. The following inorganic compounds were detected at levels greater than three (3) times the CRQLs and are not considered laboratory artifacts: aluminum, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, potassium, silver, sodium and zinc. The following inorganics were detected at levels above the NYSDEC surface water standards: calcium, iron, lead, manganese, potassium, silver, sodium, vanadium, and zinc. No compounds were detected in the sediment samples which were not considered laboratory artifacts. With the exception of cadmium, the inorganics found in the sediment did not exceed typical non-contaminated soil levels.

B. HAZEN AND SAWYER SUPPLEMENTAL SUBSURFACE INVESTIGATION REPORT:

In accordance with a directive letter from the NYSDEC dated August 19, 1992, the Town of Saugerties contracted with Hazen and Sawyer Environmental Engineers and Scientists of Upper Saddle River, New Jersey, to conduct additional investigations to supplement the Phase I and Phase II investigations performed by EA Science and Technology and Gibbs and Hill, Inc. Based on review of the previous work, the NYSDEC determined that the Town landfill was not in compliance with applicable state and federal regulations.

A copy of the Supplemental Subsurface Investigation Report (SSIR) is included in Appendix D. A description of the work performed by Hazen and Sawyer and a discussion of their conclusions is outlined below.

Three (3) additional monitoring wells were installed to verify the presence of the groundwater divide described by Gibbs and Hill in their Phase II investigation and to determine the direction of the vertical groundwater gradient. Monitoring well MW-5 was installed to the north of the landfilled area and a well couplet, MW-6D and MW-6S, was installed to the southwest of the landfilled area. With the additional groundwater elevation data, Hazen and Sawyer compiled a groundwater elevation contour map which confirmed the presence of the groundwater divide previously described. A comparison of water elevations measured in both a deeper well (landfill water supply well) and a shallower monitoring well (MW-5), indicated a downward vertical groundwater gradient in the vicinity of the groundwater divide.

Slug tests were performed on the newly installed monitoring wells to calculate hydraulic conductivities of the bedrock unit. MW-5 produced results of 5.4×10^{-3} cm/sec and MW-6D measured at 1.45×10^{-5} cm/sec. MW-6S was dry at the time of testing and a hydraulic conductivity value was not calculated. The test data was analyzed considering water table conditions. However, Hazen and Sawyer concedes that the groundwater likely exists under both water table and confined conditions do to the range of orientation (horizontal to vertical) of the bedding plans and fractures through which groundwater is flowing.

On July 19 and 20, 1993, Hazen and Sawyer personnel sampled eight (8) of the nine (9) monitoring wells at the Town of Saugerties Landfill. MW-6S was dry at the time of sampling. Sampling results detected the inorganic parameters boron, chloride, ammonia, sodium, turbidity, total dissolved solids (TDS), iron, manganese, and hardness in exceedence of New York State (NYS) standards in at least one of the eight (8) monitoring wells sampled. Turbidity and TDS were elevated above NYS standards in all wells sampled. The elevated levels of iron, manganese and hardness were attributed to natural regional conditions in the bedrock aquifer. Five (5) priority pollutants, silver, cadmium, chromium, lead, and zinc, were detected in excess of applicable standards in four (4) of the on-site monitoring wells (MW-1, MW-5, MW-6D, and MW-N). It is noted in the SSIR that with the exception of MW-6D, these monitoring wells are located in the northern portion of the landfill which reportedly received waste from industrial concerns. Organic compound concentrations for total phenols (MW-N), 1,1 - dichloroethane (MW-4), benzene (MW-3, MW-6D, MW-S) toluene (MW-3, MW-4), and chlorobenzene (MW-3, MW-S) exceeded applicable standards.

Fifty-four (54) residential Water Well Questionnaires were distributed to homeowners in the landfill area. Eight (8) of these residences were selected for well water sampling. Concentrations of the inorganic parameters iron, manganese, sodium, lead, turbidity, and TDS were detected above applicable NYS standards. Sodium levels were elevated in all eight (8) samples, although, due to the distance from the landfill and the fact that sodium is attributable to residential septic systems, the presence of sodium was not attributed solely to the landfill. Likewise, iron, manganese and TDS levels are not attributed to the landfill, rather, these levels are attributed to natural iron and manganese levels in the bedrock aquifer of the region and to silt seams in the bedrock unit. The elevated lead levels detected in four (4) of the eight (8) wells are due to possible landfill influence, however, Hazen and Sawyer points out the possible influence of lead in domestic piping.

TABLES

CLOUGH HARBOUR & ASSOCIATES
TOWN OF SAUGERTIES LANDFILL
ANALYTICAL LABORATORY RESULTS
TABLE 1

SAMPLE IDENTIFICATION SAMPLE LOCATION (3) TEST PARAMETER (4)	MW–1 DG	MW–N DG	K–1 DG	P–1 DG	L–1 DG
Specific conductance	383	495	1140	1080	1120
Turbidity	41	290	8.9	11	21
Ammonia	---	---	<0.1	0.5	1.0
Total dissolved solids	---	---	695	700	675
Biochemical oxygen demand	---	---	<2	<2	<2
Aluminum	0.39	0.3	<0.1	<0.1	<0.1
Aluminum – Dissolved	<0.1	<0.1			
Antimony	<0.06	<0.06	<0.06	<0.06	<0.06
Antimony – Dissolved	<0.06	<0.06			
Arsenic	<0.005	<0.005	<0.005	0.007	0.125
Arsenic – Dissolved	<0.005	<0.005			
Barium	0.10	0.35	0.56	0.59	0.57
Barium – Dissolved	0.06	0.31			
Beryllium	<0.005	<0.005	<0.005	<0.005	<0.005
Beryllium – Dissolved	<0.005	<0.005			
Boron	0.55	0.15	0.36	0.36	0.36
Boron – Dissolved	0.54	0.14			
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium – Dissolved	<0.005	<0.005			
Calcium	5.8	73.8	114	92.8	104
Calcium – Dissolved	5.1	75.1			
Chromium	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium – Dissolved	<0.005	<0.005			
Cobalt	<0.05	<0.05	<0.05	<0.05	<0.05
Cobalt – Dissolved	<0.05	<0.05			
Copper	<0.05	<0.05	<0.05	<0.05	<0.05
Copper – Dissolved	<0.05	<0.05			
Iron	0.66	1.7	1.3	1.4	2.6
Iron – Dissolved	0.07	<0.05			
Lead	<0.005	<0.005	<0.005	<0.005	<0.005
Lead – Dissolved	<0.005	<0.005			
Magnesium	0.7	11.9	18.7	14.5	18.1
Magnesium – Dissolved	0.7	12.0			
Manganese	0.08	0.28	4.2	3.14	8.2
Manganese – Dissolved	<0.02	0.25			
Mercury	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Mercury – Dissolved	<0.0004	<0.0004			

CLOUGH HARBOUR & ASSOCIATES
TOWN OF SAUGERTIES LANDFILL
ANALYTICAL LABORATORY RESULTS
TABLE 1

SAMPLE IDENTIFICATION SAMPLE LOCATION (3) TEST PARAMETER (4)	MW-1 DG	MW-N DG	K-1 DG	P-1 DG	L-1 DG
Nickel	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel – Dissolved	<0.05	<0.05			
Potassium	0.8	1.4	2.5	2.3	3.6
Potassium – Dissolved	<0.5	1.4			
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium – Dissolved	<0.005	<0.005			
Silver	<0.02	<0.02	<0.02	<0.02	<0.02
Silver – Dissolved	<0.02	<0.02			
Sodium	86.8	13.0	78.2	85.6	71.9
Sodium – Dissolved	87.6	13.3			
Thallium	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium – Dissolved	<0.01	<0.01			
Vanadium	<0.02	<0.02	0.02	0.03	<0.02
Vanadium – Dissolved	<0.02	<0.02			
Zinc	0.01	0.03	<0.01	0.01	<0.01
Zinc – Dissolved	0.01	<0.01			
Tin	<0.01	<0.01	<0.01	<0.01	<0.01
Tin – Dissolved	<0.01	<0.01			
Volatile organics (5)	<MDL	<MDL	<MDL	<MDL	<MDL

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TOWN OF SAUGERTIES LANDFILL
ANALYTICAL LABORATORY RESULTS
REGULATORY COMPLIANCE DATA
TABLE 2

TEST PARAMETER	MCL(1)	CAS #(6)	METHOD	MDL(2)	UNITS
Turbidity	5(7,9,10,11),50(13)		EPA-180.1	0.1	NTU
Total Dissolved Solids	500(7,10,11)		EPA-160.1	10	mg/l
Biochemical Oxygen Demand			EPA-405.1	2.0	mg/l
Ammonia	2.0(8,10)	7664-41-7	EPA-350.2	0.1	mg/l
Aluminum	0.2(11)	7429-90-5	EPA-200.7	0.1	mg/l
Antimony	0.003(8)	7440-36-0	EPA-200.7	0.06	mg/l
Arsenic	0.025(7,8),0.05(9,10,11)	7440-38-2	EPA-206.2	0.005	mg/l
Barium	1.0(7,8,10,11),2.0(9)	7440-39-3	EPA-200.7	0.018	mg/l
Beryllium	0.003(8)	7440-41-7	EPA-200.7	0.005	mg/l
Boron	1.0(7,8,10)	7440-42-8	EPA-200.7	0.035	mg/l
Cadmium	0.01(7,8,10,11),0.05(9)	7440-43-9	EPA-200.7	0.005	mg/l
Calcium		7440-70-2	EPA-200.7	0.5	mg/l
Chromium	0.05(7,8,11),0.1(9)	7440-47-3	EPA-200.7	0.005	mg/l
Cobalt		7440-48-4	EPA-200.7	0.05	mg/l
Copper	1.0(9,11),<0.2(10),0.2(7,8)	7440-50-8	EPA-200.7	0.05	mg/l
Iron	0.3(7,8,9,11)	7439-89-6	EPA-200.7	0.05	mg/l
Lead	0.025(7,8),0.05(9,10,11)	7439-92-1	EPA-239.2	0.005	mg/l
Magnesium	35(8)	7439-95-4	EPA-200.7	0.5	mg/l
Manganese	0.3(7,8,9),0.05(11)	7439-96-5	EPA-200.7	0.02	mg/l
Mercury	0.002(7,8,9,11),0.005(10)	7439-97-6	EPA-245.1	0.0004	mg/l
Nickel	0.7(12)	7440-02-0	EPA-200.7	0.05	mg/l
Potassium			EPA-200.7	0.5	mg/l
Selenium	0.01(7,8,9,10,11)	7782-49-2	EPA-270.2	0.005	mg/l
Silver	0.05(7,8,9,10),0.1(11)	7440-22-4	EPA-200.7	0.02	mg/l
Sodium	20,270(9),20(7,8,10)	7440-23-5	EPA-200.7	0.5	mg/l
Thallium	0.004(8)	7440-28-0	EPA-279.2	0.01	mg/l
Vanadium		7440-62-2	EPA-200.7	0.02	mg/l
Zinc	5(9,11),<0.3(10),0.3(7,8)	7440-66-6	EPA-200.7	0.01	mg/l
Tin		7440-31-5	EPA-282.2	0.01	mg/l
Volatile Organic Compounds	5,50(7,9)		EPA-8240	5-10	ug/l

CLOUGH HARBOUR & ASSOCIATES
ANALYTICAL LABORATORY RESULTS
TOWN OF SAUGERTIES LANDFILL
FOOTNOTES - TABLES 1 - 2

1. MCL = Maximum Contaminant Level as designated by regulatory agencies referenced in footnotes 7 - 13.

2. MDL = Method Detection Limit of the EPA-approved test procedure.

3. UG = upgradient, DG = downgradient.

4. Dissolved metals = filtered samples.

5. Results in parts per billion (ppb).

6. CAS = Chemical Abstract Services number.

7. Title 6, Chapter X, Part 703.3 and 703.5, New York State Codes, Rules, and Regulations, Classes and Quality Standards for Groundwaters (6 NYCRR 703.3, 703.5). Combined concentration of iron and manganese shall not exceed 0.5 ppm.

8. New York State Department of Environmental Conservation, Ambient Water Quality Standards and Guidance Values. TOGS 1.1.1, October 1993.

9. Title 10, Chapter I, Part 5-1.52, New York State Codes, Rules, and Regulations, State Sanitary Code, Drinking Water Supplies (10 NYCRR 5-1.52). Water containing more than 20 mg/l of sodium should not be used by people on severly restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used by people on moderately restricted sodium diets.

10. Title 10, Chapter III, Part 170.4, New York State Codes, Rules, and Regulations, Public and Sources of Water Supplies, Standards of Raw Water Quality (10 NYCRR 170.4).

11. Title 40, Parts 141.11 and 143.3, Code of Federal Regulations, National Primary and Secondary Drinking Water Regulations, Maximum Contaminaant Levels (40 CFR 141.11, 143.3).

12. Environmental Protection Agency Health Based Criteria, based on verified reference dose for systemic toxicants, nickel only.

13. New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum Policy Regarding Alteration of Groundwater Samples Collected for Metals Analysis, TAGMs HWR-88-4015.

TOWN OF SAUGERTIES LANDFILL
COMBUSTIBLE GAS SURVEY DATA

LANDFILL POINTS

Sample #	Location	Reading (% CH_4 In Air)	Sample #	Location	Reading (% CH_4 In Air)
1	Perimeter	<0.1	15	Perimeter	<0.1
2	Perimeter	<0.1	16	Perimeter	<0.1
3	Perimeter	<0.1	17	Perimeter	<0.1
4	Perimeter	<0.1	18	Perimeter	<0.1
5	Perimeter	2.0	19	Perimeter	<0.1
5A	50' Offset	<0.1	20	Perimeter	30
6	Perimeter	<0.1	20A	50' Offset	<0.1
7	Perimeter	<0.1	21	Perimeter	<0.1
8	Perimeter	14	22	Perimeter	<0.1
8A	50' Offset	<0.1	23	Perimeter	<0.1
9	Perimeter	40	24	Perimeter	<0.1
9A	50' Offset	<0.1	25	Perimeter	<0.1
10	Perimeter	<0.1	26	Perimeter	<0.1
11	Perimeter	<0.1	27	Top of Waste	10
12	Perimeter	<0.1	28	Top of Waste	17
13	Perimeter	<0.1	29	Top of Waste	34
14	Perimeter	12	30	Top of Waste	44
14a	50' Offset	<0.1	31	Top of Waste	46

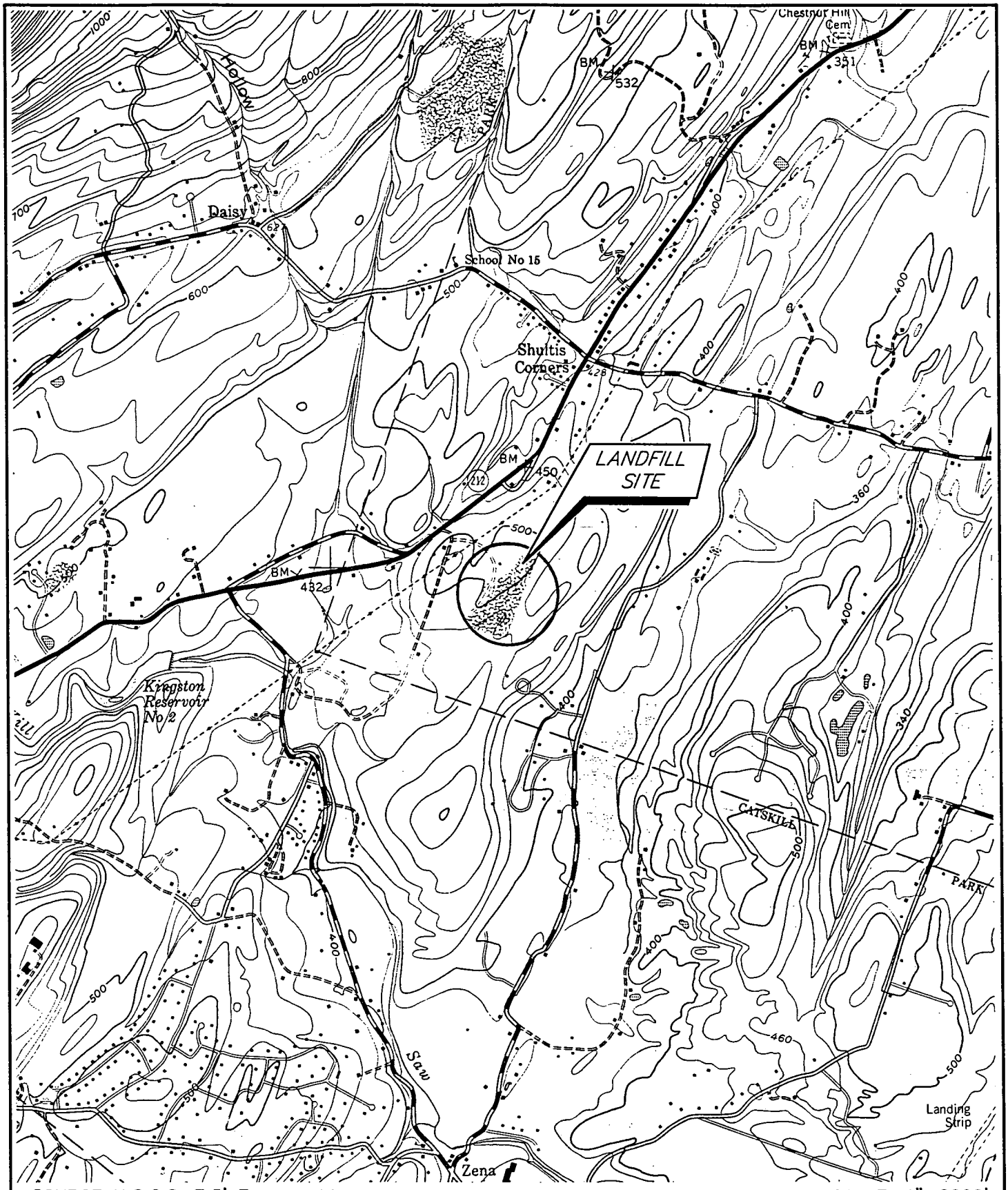
TOWN OF SAUGERTIES LANDFILL
COMBUSTIBLE GAS SURVEY DATA

ON–SITE STRUCTURES

Sample #	Location	Level	% LEL Of CH_4
A	Pole Barn	OH	0.0
		H	0.0
		F	0.0
B	Mobile Home	OH	0.0
		H	0.0
		F	0.0
C	Block Building	OH	0.0
		H	0.0
		F	0.0
D	Attendant Shed	OH	0.0
		H	0.0
		F	0.0

Note: OH–Overhead
H– Head
F– Foot

FIGURES



SOURCE: U.S.G.S. 7.5' Topographic
QUADRANGLE: WOODSTOCK, NY

SCALE: 1"=2000'

CHA
CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE ALBANY, NEW YORK, 12205

TOWN OF SAUGERTIES LANDFILL
TOWN OF SAUGERTIES, ULSTER COUNTY, NY

SITE LOCATION MAP

FIGURE 1

MATCH LINE

(SEE INSET THIS SHEET)

MATCH LINE

EXISTING LANDFILL ACCESS ROAD

LIMIT OF WASTE (APPROXIMATE)

EXISTING MONITORING WELL (TYP.)

MW-1

MW-2

MW-3

MW-4

WOOD & MIXED DEBRIS

SLUDGE PILE

CHIPPED BRUSH PILE

Iron Rod Found in Stones

Pole No. #

Underground Fuel Tank

Mobile Home

Block Building

Well for Garage

Iron Pipe Found (on line)

Wet Area (typical)

APPROXIMATE PROPERTY LINE

N 35°18'46" W 475.13'

N 57°04'40" W 248.70'

S 32°47'53" W 341.92'

N 3500

N 4000

N 4500

E 4500

E 5000

E 5500

Stone Wall Found @ Stonewall Intersection

PLOT SCALE 1=50

DATE LAST REVISED 4/27/94

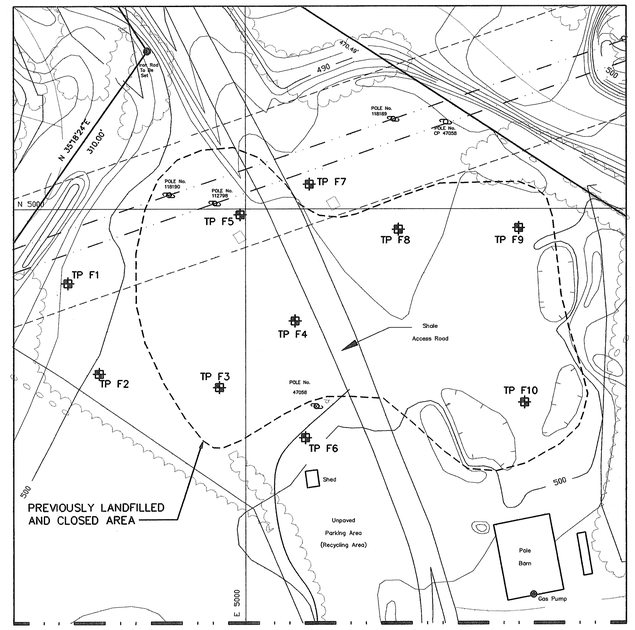
CAD OPERATOR JOPPE

2INC FILE NAME SAUGPRO

SURVEY NOTES:

1. SURVEYED BY PRAETORIUS AND CONRAD, P.C., SAUGERTIES N.Y. IN ACCORDANCE WITH DEEDS OF RECORD; PHYSICAL FEATURES FOUND AT THE TIME OF THE FIELD SURVEY; AND AS IN POSSESSION.
2. DATE OF FIELD SURVEY: 14 DECEMBER 1992.
3. BEARING DATUM IS MAGNETIC AND WAS DETERMINED AT THE TIME OF THE FIELD SURVEY.
4. SUBJECT TO THE RIGHTS OF THE PUBLIC IN AND TO THE PUBLIC ROADS KNOWN AS NEW YORK STATE ROUTE 212 AND EDDIE SHORT ROAD.
5. DEEDS OF RECORD: a) CHARLES E. KEEFE TO THE TOWN OF SAUGERTIES, DATED 14 OCTOBER 1969, LIBER 1234 PAGE 1184; b) FREDERICK C. SHADER TO THE TOWN OF SAUGERTIES, DATED 31 MARCH 1978, LIBER 1391 PAGE 675.

THIS PARCEL OF LAND WAS SURVEYED IN ACCORDANCE WITH THE ABOVE REFERENCED DEEDS OF RECORD AND IS SUBJECT TO ANY STATE OF FACTS WHICH AN ACTUAL EXAMINATION OF TITLE WOULD SHOW.



KEY

TP F1 – TEST PIT LOCATION

Revisions:	Drawn By:	App'd. By:	Date:

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY MAP IS A VIOLATION OF SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.
COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S INKED SEAL SHALL NOT BE CONSIDERED TO BE VALID COPIES.
CERTIFICATES INDICATED OR IMPLIED HEREON SHALL RUN ONLY TO THE PARTY FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE ADDITIONAL PARTIES LISTED HEREON.
CERTIFICATES ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS, NOT LISTED HEREON.

DWG. By: M.C. | CHK. By: W.L.D.

CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS
III WINNERS CIRCLE – ALBANY, NEW YORK – 12205
P.O. BOX 5269 518-453-4500

CHA Project No. 3716.07

TOWN OF SAUGERTIES
SANITARY LANDFILL CLOSURE

TOWN OF SAUGERTIES ULSTER COUNTY
STATE OF NEW YORK

CLOSURE INVESTIGATION REPORT

TOPOGRAPHIC BASEMAP

Figure No. 2

SCALE: 1"=50' | DATE: MAY, 1994 | SHEET 1 OF 1

SURVEY NOTES:

1. SURVEYED BY PRAETORIUS AND CONRAD, P.C., SAUGERTIES N.Y. IN ACCORDANCE WITH DEEDS OF RECORD; PHYSICAL FEATURES FOUND AT THE TIME OF THE FIELD SURVEY; AND AS IN POSSESSION.
2. DATE OF FIELD SURVEY: 14 DECEMBER 1992.
3. BEARING DATUM IS MAGNETIC AND WAS DETERMINED AT THE TIME OF THE FIELD SURVEY.
4. SUBJECT TO THE RIGHTS OF THE PUBLIC IN AND TO THE PUBLIC ROADS KNOWN AS NEW YORK STATE ROUTE 212 AND EDDIE SHORT ROAD.
5. DEEDS OF RECORD: a) CHARLES E. KEEFE TO THE TOWN OF SAUGERTIES, DATED 14 OCTOBER 1969, LIBER 1234 PAGE 1184; b) FREDERICK C. SHADER TO THE TOWN OF SAUGERTIES, DATED 31 MARCH 1978, LIBER 1391 PAGE 675.

THIS PARCEL OF LAND WAS SURVEYED IN ACCORDANCE WITH THE ABOVE REFERENCED DEEDS OF RECORD AND IS SUBJECT TO ANY STATE OF FACTS WHICH AN ACTUAL EXAMINATION OF TITLE WOULD SHOW.

COMBUSTIBLE GAS SURVEY DATA
LANDFILL POINTS

SAMPLE #	LOCATION	READING (% CH_4 IN AIR)	SAMPLE #	LOCATION	READING (% CH_4 IN AIR)
1	PERIMETER	<0.1	15	PERIMETER	<0.1
2	PERIMETER	<0.1	16	PERIMETER	<0.1
3	PERIMETER	<0.1	17	PERIMETER	<0.1
4	PERIMETER	<0.1	18	PERIMETER	<0.1
5	PERIMETER	2.0	19	PERIMETER	<0.1
5A	50' OFFSET	<0.1	20	PERIMETER	30
6	PERIMETER	<0.1	20A	50' OFFSET	<0.1
7	PERIMETER	<0.1	21	PERIMETER	<0.1
8	PERIMETER	14	22	PERIMETER	<0.1
8A	50' OFFSET	<0.1	23	50' OFFSET	<0.1
9	PERIMETER	40	24	PERIMETER	<0.1
9A	50' OFFSET	<0.1	25	50' OFFSET	<0.1
10	PERIMETER	<0.1	26	PERIMETER	<0.1
11	PERIMETER	<0.1	27	TOP OF WASTE	10
12	PERIMETER	<0.1	28	TOP OF WASTE	17
13	PERIMETER	<0.1	29	TOP OF WASTE	34
14	PERIMETER	12	30	TOP OF WASTE	44
14A	50' OFFSET	<0.1	31	TOP OF WASTE	46

COMBUSTIBLE GAS SURVEY DATA
ON-SITE STRUCTURES

SAMPLE #	LOCATION	LEVEL	READING (% LEL OF CH_4)
A	POLE BARN	OH	0.0
		H	0.0
		F	0.0
B	MOBILE HOME	OH	0.0
		H	0.0
		F	0.0
C	BLOCK BUILDING	OH	0.0
		H	0.0
		F	0.0
D	ATTENDANT SHED	OH	0.0
		H	0.0
		F	0.0

NOTE:
OH – OVERHEAD
H – HEAD
F – FOOT

KEY

△1 EXPLOSIVE GAS SURVEY LOCATION POINT

Revisions:	Drawn By:	App'd. By:	Date:

Designed By:	Date:
J.K.S.	5/94
Drawn By:	Date:
M.C.	5/94
Checked By:	Date:
C.H.F.	5/94

CHA

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III WINNERS CIRCLE – ALBANY, NEW YORK – 12205
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CHA Project No. 3716.07

TOWN OF SAUGERTIES
SANITARY LANDFILL CLOSURE

TOWN OF SAUGERTIES ULSTER COUNTY
STATE OF NEW YORK

CLOSURE INVESTIGATION REPORT

EXPLOSIVE GAS INVESTIGATION MAP

SCALE: 1"=50' DATE: MAY, 1994

Figure No. 3

SHEET 1 OF 1

APPENDICES

APPENDIX A

Test Pit Logs

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 1

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED

8" to 18" Diam.:

Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1 2 3 4 5		**SHALE**, red, severly weathered			
					Final Depth: 5' at backhoe refusal			

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 2

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.	NUMBER OF BOULDERS ENCOUNTERED
				8" to 18" Diam.:
				Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1 2 3 4 5 6		**SHALE**, red, severly weathered			
					Final Depth: 6' at backhoe refusal			

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 3

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED
8" to 18" Diam.:
Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1		f.m.c. SAND, some Silt, little c. gravel, grey-brown (SM) (Cover Soil)		Possible edge of waste.	
			2		Waste, C+D waste (90% soil, 10% waste)			
			3					
			4					
			5					
			6		SHALE, red, severly weathered			
					Final Depth 6'			

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 4

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED
8" to 18" Diam.:
Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1		f.m.c. Sand, some Silt, little c. gravel, grey-brown (SM) (Cover Soil)			
			2		Waste, municipal solid waste (1968) (70% soil, 30% waste)		Date notes latest identified and dated wastes at top of waste mass	
			3					
			4					
			5					
			6		SHALE, red, severly weathred, saturated			
			7					
			8				Water in bottom of excavation upon completion.	
			9		Final Depth: 9' at backhoe refusal			

C H A **CLOUGH, HARBOUR & ASSOCIATES**

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 5

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED
8" to 18" Diam.:
Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (PPM)
			1 2 3		f.m.c. SAND some Silt, little f.c. gravel, grey-brown (SM) (Cover Soil)			
			4 5 6		Waste (timbers, brush, stump) (90% waste, 10% soil)			
			7		SHALE, red, severly weathered (at backhoe refusal)			
					Final Depth: 7.2'			

C H A **CLOUGH, HARBOUR & ASSOCIATES**

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 6

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED
8" to 18" Diam.:
Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1 2 3 4 5		**SHALE**, severly weathered Final Depth: 5' at backhoe refusal			

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 7

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED

8" to 18" Diam.:

Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1 2 3 4		**SHALE** red, severly weathered			
			5		Final Depth: 5' at backhoe refusal			

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 8

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED
8" to 18" Diam.:
Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1		f.m.c. SAND, some Silt, little f.c. gravel, grey-brown (SM) (Cover Soil)			
			2		Waste, municipal solid waste and wood (1969) (60 % soil, 40% waste)		Date notes latest identified waste at top of waste mass	
			3					
			4					
			5		becomes saturated at 5'			
			6					
			7					
			8		SHALE, red, severly weathered			
					Final Depth: 8.2' at backhoe refusal			

C H A

CLOUGH, HARBOUR & ASSOCIATES

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP- 9

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED

8" to 18" Diam.:

Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1		f.m.c. SAND, Some silt, little f.c. gravel, grey-brown (SM) (Cover Soil)			
			2		Waste, municipal solid waste (1969) (80% soil, 20% waste)		Date notes latest identified and dated waste at top of waste mass	
			3					
			4					
			5					
			6					
			7		SHALE, red			
					Final Depth: 7.2' at backhoe refusal			

C H A **CLOUGH, HARBOUR & ASSOCIATES**

PROJECT NUMBER: 3716.07.51 April 1994

Town of Saugerties

SUBSURFACE LOG

TEST PIT NUMBER TP-10

LOCATION: Saugerties, N.Y.

CLIENT: Town of Saugerties

CONTRACTOR: Town of Saugerties

EQUIPMENT:

DATE: 11/12/93 INSPECTOR: J. Armony

SURFACE ELEV.: CHECKED BY:

PIT DIMENSIONS - TOP: ft. x ft. BOTTOM: ft. x ft.

WATER LEVEL OBSERVATIONS DURING/AFTER EXCAVATION	DATE	TIME	WATER ELEV.

NUMBER OF BOULDERS ENCOUNTERED
8" to 18" Diam.:
Over 18" Diam.:

SAMPLE NUMBER	SAMPLE TYPE AND DEPTH RANGE	ELEV.	DEPTH	STRATA	DESCRIPTION AND CLASSIFICATION	WATER LEVELS AND/OR SEEP ELEV.	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF EXCAVATION, ETC.	ORGANIC VAPOR CONC. (ppm)
			1		f.m.c. SAND, some Silt, little f.c. gravel, grey-brown (SM) (Cover Soil)			
			2		Waste, mixture of municpal, and construction and demolition debris (90% soil, 10% waste)			
			3					
			4					
			5		SHALE, red, severly weatherd			
					Final Depth: 5' at backhoe refusal			

APPENDIX B

Additional Analytical Data and Field Data Sheets

CLOUGH, HARBOUR & ASSOCIATES
FIELD DATA SHEET

PROJECT: Additional Sampling
CLIENT: Town of Saugerties

JOB NO: 3716.07.40
DATE: 2/16/94

SAMPLE #	WELL #	WELL LOCATION	DEPTH OF WELL TOR	WATER DEPTH TOR	3 VOL. WATER (Gals)	METHOD EVACUATED	TEMPERATURE (°C)		pH (S.U.)		COND. (MS/CM)		TURBIDITY (NTU)		COMMENTS
							B	A	B	A	B	A	B	A	
P-1	Perez	DG, Resid.					12.6	11.7	6.8	6.81	1.13	1.13	30	34	Taken before softner.
	MW-5	DG													Frozen at 6.5'. Bentonite slurry noted on Solinst probe. 3" PVC, No tubing installed, No sample
MW-1	MW-1	DG	~29'	10.63	20.2	Waterra Pump	9.3	9.0	8.6	8.39	0.426	0.401	65	103	Tubing installed. Remove over 3 vol. + sample. Filtered metals taken. 3" PVC. Well produces.
MW-N	MW-N	DG	~25'	3.48	42.2	Waterra Pump	8.4	8.6	7.55	7.31	0.532	0.518	277	550	4" PVC. Install tubing. Remove 3 vol. + sample. Filtered metals taken. Well produces.
K-1	Kanover	DG, Resid					9.8	10.1	6.73	6.81	1.23	1.23	30	10	Sample taken from spigot between tank and softener. Water tank flushed a few cycles.
L-1	Lerner	DG, Resid					9.9	9.4	6.68	6.68	1.2	1.2	3	5	Sample taken from spigot between tank and softener. Water tank flushed a few cycles.

SAMPLING

WELL SEQUENCE: P-1, MW-1, MW-N, K-1, L-1
WEATHER: Sunny, 30°F
SAMPLED BY: J. Spallen, S. Markowitz

NOTE B/A = Before/After

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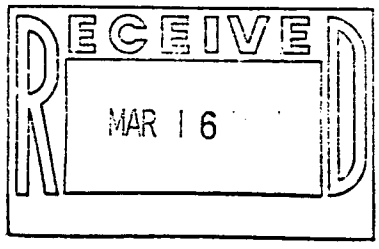
LABORATORY REPORT

for

Clough, Harbour & Associates
3 Winners Circle
PO Box 5269
Albany, NY 12205 5269

Attention: Margaret Scrodanus



Purchase Order #: 3716.07.40

Report date: 03/10/94
Number of samples analyzed: 5
AES Project ID: 940217 I
Invoice #: 134737

ELAP ID#: 10709

AIHA ID#: 12144-001

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-1
AES sample #: 940217 I01

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: ground water grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Specific Conductance	EPA-120.1	383	umhos/cm	FM-D-11	03/02/94
Turbidity	EPA-180.1	41	ntu	MC-E-31	02/18/94
Aluminum	EPA-200.7	0.39	mg/l	BS-I-2D-3	02/25/94
Antimony	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic	EPA-206.2	<0.005	mg/l	JW-GLE-69	02/22/94
Barium	EPA-200.7	0.10	mg/l	BS-I-2D-3	02/25/94
Beryllium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron	EPA-200.7	0.55	mg/l	BS-I-2D-3	02/25/94
Cadmium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium	EPA-200.7	5.8	mg/l	BS-I-2D-3	02/25/94
Chromium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron	EPA-200.7	0.66	mg/l	BS-I-2D-3	02/25/94
Lead	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94
Magnesium	EPA-200.7	0.7	mg/l	BS-I-2D-3	02/25/94
Manganese	EPA-200.7	0.08	mg/l	BS-I-2D-3	02/25/94
Mercury	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium	EPA-200.7	0.8	mg/l	BS-I-2D-3	02/25/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-1
AES sample #: 940217 I01
Samples taken by: S. Markowitz
MATRIX: ground water
Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Selenium	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium	EPA-200.7	86.8	mg/l	BS-I-2D-3	02/25/94
Thallium	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Zinc	EPA-200.7	0.01	mg/l	BS-I-2D-3	02/25/94
Tin	EPA-282.2	<0.01	mg/l	JW-GMD-22	02/22/94
Aluminium-Filtered	EPA-200.7	<0.1	mg/l	BS-I-2D-3	02/25/94
Antimony-Filtered	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic-Filtered	EPA-206.2	<0.005	mg/l	JW-GLE-69	02/22/94
Barium-Filtered	EPA-200.7	0.06	mg/l	BS-I-2D-3	02/25/94
Beryllium-Filtered	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron-Filtered	EPA-200.7	0.54	mg/l	BS-I-2D-3	02/25/94
Cadmium-Filtered	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium-Filtered	EPA-200.7	5.1	mg/l	BS-I-2D-3	02/25/94
Chromium-Filtered	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron-Filtered	EPA-200.7	0.07	mg/l	BS-I-2D-3	02/25/94
Lead-Filtered	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-1
AES sample #: 940217 I01
Samples taken by: S. Markowitz
MATRIX: ground water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Magnesium-Filtered	EPA-200.7	0.7	mg/l	BS-I-2D-3	02/25/94
Manganese-Filtered	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Mercury-Filtered	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium-Filtered	EPA-200.7	<0.5	mg/l	BS-I-2D-3	02/25/94
Selenium-Filtered	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver-Filtered	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium-Filtered	EPA-200.7	87.6	mg/l	BS-I-2D-3	02/25/94
Thallium-Filtered	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium-Filtered	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Zinc-Filtered	EPA-200.7	0.01	mg/l	BS-I-2D-3	02/25/94
Tin-Filtered	EPA-282.2	<0.01	mg/l	JW-GMD-77	02/22/94
Chloromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromomethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Vinyl Chloride	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Chloroethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Methylene Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Carbon Disulfide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-1
AES sample #: 940217 I01
Samples taken by: S. Markowitz
MATRIX: ground water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2-Dichloroethene Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
2-Butanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Carbon Tetrachloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Vinyl Acetate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromodichloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
t-1,3 Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dibromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Benzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
cis-1,3-Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Bromoform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
4-Methyl-2-pentanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2-Hexanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Tetrachloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT'S SAMPLE ID: MW-1
AES sample #: 940217 I01
Samples taken by: S. Markowitz
MATRIX: ground water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2,2 Tetrachloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Toluene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chlorobenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Ethylbenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Styrene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Xylenes,Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetonitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrolein	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrylonitrile	EPA-8240	<25	ug/l	MT-AP-30	03/03/94
Allyl Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroprene	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
1,2-Dibromo-3-chloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Dibromomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dichlorodifluoromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Ethylene Dibromide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Iodomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Methyl-methacrylate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1,2,tetra-chloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Isobutanol	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Methacrylonitrile	EPA-8240	<10	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-1
AES sample #: 940217 I01

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Propionitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Bromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,3-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2,2-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1-Dichloropropene	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,2,3-Trichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichlorofluoromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-N
AES sample #: 940217 I02
Samples taken by: S. Markowitz
MATRIX: ground water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Specific Conductance	EPA-120.1	495	umhos/cm	FM-D-11	03/02/94
Turbidity	EPA-180.1	290	ntu	MC-E-31	02/18/94
Aluminum	EPA-200.7	0.3	mg/l	BS-I-2D-3	02/25/94
Antimony	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic	EPA-206.2	<0.005	mg/l	JW-GLE-69	02/22/94
Barium	EPA-200.7	0.35	mg/l	BS-I-2D-3	02/25/94
Beryllium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron	EPA-200.7	0.15	mg/l	BS-I-2D-3	02/25/94
Cadmium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium	EPA-200.7	73.8	mg/l	BS-I-2D-3	02/25/94
Chromium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron	EPA-200.7	1.7	mg/l	BS-I-2D-3	02/25/94
Lead	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94
Magnesium	EPA-200.7	11.9	mg/l	BS-I-2D-3	02/25/94
Manganese	EPA-200.7	0.28	mg/l	BS-I-2D-3	02/25/94
Mercury	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium	EPA-200.7	1.4	mg/l	BS-I-2D-3	02/25/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-N
AES sample #: 940217 I02

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Selenium	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium	EPA-200.7	13.0	mg/l	BS-I-2D-3	02/25/94
Thallium	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Zinc	EPA-200.7	0.03	mg/l	BS-I-2D-3	02/25/94
Tin	EPA-282.2	<0.01	mg/l	JW-GMD-22	02/22/94
Aluminium-Filtered	EPA-200.7	<0.1	mg/l	BS-I-2D-3	02/25/94
Antimony-Filtered	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic-Filtered	EPA-206.2	<0.005	mg/l	JW-GLE-69	02/22/94
Barium-Filtered	EPA-200.7	0.31	mg/l	BS-I-2D-3	02/25/94
Beryllium-Filtered	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron-Filtered	EPA-200.7	0.14	mg/l	BS-I-2D-3	02/25/94
Cadmium-Filtered	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium-Filtered	EPA-200.7	75.1	mg/l	BS-I-2D-3	02/25/94
Chromium-Filtered	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Lead-Filtered	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-N
AES sample #: 940217 I02
Samples taken by: S. Markowitz
MATRIX: ground water
Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Magnesium-Filtered	EPA-200.7	12.0	mg/l	BS-I-2D-3	02/25/94
Manganese-Filtered	EPA-200.7	0.25	mg/l	BS-I-2D-3	02/25/94
Mercury-Filtered	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel-Filtered	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium-Filtered	EPA-200.7	1.4	mg/l	BS-I-2D-3	02/25/94
Selenium-Filtered	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver-Filtered	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium-Filtered	EPA-200.7	13.3	mg/l	BS-I-2D-3	02/25/94
Thallium-Filtered	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium-Filtered	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Zinc-Filtered	EPA-200.7	<0.01	mg/l	BS-I-2D-3	02/25/94
Tin-Filtered	EPA-282.2	<0.01	mg/l	JW-GMD-77	02/22/94
Chloromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromomethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Vinyl Chloride	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Chloroethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Methylene Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Carbon Disulfide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-N
AES sample #: 940217 I02
Samples taken by: S. Markowitz
MATRIX: ground water
Location: Saugerties
grab
Date Sampled: 02/16/94
Date sample received: 02/17/94

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2-Dichloroethene Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
2-Butanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Carbon Tetrachloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Vinyl Acetate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromodichloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
t-1,3 Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dibromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Benzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
cis-1,3-Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Bromoform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
4-Methyl-2-pentanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2-Hexanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Tetrachloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-N
AES sample #: 940217 I02

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,1,2,2 Tetrachloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Toluene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chlorobenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Ethylbenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Styrene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Xylenes,Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetonitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrolein	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrylonitrile	EPA-8240	<25	ug/l	MT-AP-30	03/03/94
Allyl Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroprene	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
1,2-Dibromo-3-chloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Dibromomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dichlorodifluoromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Ethylene Dibromide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Iodomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Methyl-methacrylate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1,2,tetra-chloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Isobutanol	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Methacrylonitrile	EPA-8240	<10	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: MW-N
AES sample #: 940217 I02

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: ground water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Propionitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Bromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,3-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2,2-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1-Dichloropropene	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,2,3-Trichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichlorofluoromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: P-1
AES sample #: 940217 I03

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz
MATRIX: potable water
Location: Saugerties
grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Specific Conductance	EPA-120.1	1080	umhos/cm	FM-D-11	03/02/94
Turbidity	EPA-180.1	11	ntu	MC-E-31	02/18/94
Ammonia-N	EPA-350.1	0.5	mg/l	FM-I-7	02/22/94
Total Dissolved Solids	EPA-160.1	702	mg/l	MC-F-24	02/24/94
Biochemical Oxygen Demand 5	EPA-405.1	<2	mg/l	SW-M	02/18/94
Aluminum	EPA-200.7	<0.1	mg/l	BS-I-2D-3	02/25/94
Antimony	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic	EPA-206.2	0.007	mg/l	JW-GLE-69	02/22/94
Barium	EPA-200.7	0.59	mg/l	BS-I-2D-3	02/25/94
Beryllium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron	EPA-200.7	0.36	mg/l	BS-I-2D-3	02/25/94
Cadmium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium	EPA-200.7	92.8	mg/l	BS-I-2D-3	02/25/94
Chromium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron	EPA-200.7	1.4	mg/l	BS-I-2D-3	02/25/94
Lead	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94
Magnesium	EPA-200.7	14.5	mg/l	BS-I-2D-3	02/25/94
Manganese	EPA-200.7	3.14	mg/l	BS-I-2D-3	02/25/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: P-1
AES sample #: 940217 I03

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: potable water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Mercury	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium	EPA-200.7	2.3	mg/l	BS-I-2D-3	02/25/94
Selenium	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium	EPA-200.7	85.6	mg/l	BS-I-2D-3	02/25/94
Thallium	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium	EPA-200.7	0.03	mg/l	BS-I-2D-3	02/25/94
Zinc	EPA-200.7	0.01	mg/l	BS-I-2D-3	02/25/94
Tin	EPA-282.2	<0.01	mg/l	JW-GMD-22	02/22/94
Chloromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromomethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Vinyl Chloride	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Chloroethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Methylene Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Carbon Disulfide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2-Dichloroethene Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: P-1
AES sample #: 940217 I03
Samples taken by: S. Markowitz
MATRIX: potable water
Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chloroform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
2-Butanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Carbon Tetrachloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Vinyl Acetate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromodichloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
t-1,3 Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dibromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Benzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
cis-1,3-Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Bromoform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
4-Methyl-2-pentanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2-Hexanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Tetrachloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2,2 Tetrachloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Toluene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: P-1
AES sample #: 940217 I03
Samples taken by: S. Markowitz
MATRIX: potable water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chlorobenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Ethylbenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Styrene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Xylenes,Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetonitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrolein	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrylonitrile	EPA-8240	<25	ug/l	MT-AP-30	03/03/94
Allyl Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroprene	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
1,2-Dibromo-3-chloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Dibromomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dichlorodifluoromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Ethylene Dibromide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Iodomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Methyl-methacrylate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1,2,tetra-chloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Isobutanol	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Methacrylonitrile	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Propionitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Bromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: P-1
AES sample #: 940217 I03

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz
MATRIX: potable water
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,3-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2,2-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1-Dichloropropene	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,2,3-Trichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichlorofluoromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: K-1
AES sample #: 940217 I04

Samples taken by: S. Markowitz
MATRIX: potable water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Specific Conductance	EPA-120.1	1140	umhos/cm	FM-D-11	03/02/94
Turbidity	EPA-180.1	8.9	ntu	MC-E-31	02/18/94
Ammonia-N	EPA-350.1	<0.1	mg/l	FM-I-7	02/22/94
Total Dissolved Solids	EPA-160.1	695	mg/l	MC-F-24	02/24/94
Biochemical Oxygen Demand 5	EPA-405.1	<2	mg/l	SW-M	02/18/94
Aluminum	EPA-200.7	<0.1	mg/l	BS-I-2D-3	02/25/94
Antimony	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic	EPA-206.2	<0.005	mg/l	JW-GLE-69	02/22/94
Barium	EPA-200.7	0.56	mg/l	BS-I-2D-3	02/25/94
Beryllium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron	EPA-200.7	0.36	mg/l	BS-I-2D-3	02/25/94
Cadmium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium	EPA-200.7	114	mg/l	BS-I-2D-3	02/25/94
Chromium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron	EPA-200.7	1.3	mg/l	BS-I-2D-3	02/25/94
Lead	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94
Magnesium	EPA-200.7	18.7	mg/l	BS-I-2D-3	02/25/94
Manganese	EPA-200.7	4.2	mg/l	BS-I-2D-3	02/25/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: K-1
AES sample #: 940217 I04

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: potable water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Mercury	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium	EPA-200.7	2.5	mg/l	BS-I-2D-3	02/25/94
Selenium	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium	EPA-200.7	78.2	mg/l	BS-I-2D-3	02/25/94
Thallium	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium	EPA-200.7	0.02	mg/l	BS-I-2D-3	02/25/94
Zinc	EPA-200.7	<0.01	mg/l	BS-I-2D-3	02/25/94
Tin	EPA-282.2	<0.01	mg/l	JW-GMD-22	02/22/94
Chloromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromomethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Vinyl Chloride	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Chloroethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Methylene Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Carbon Disulfide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2-Dichloroethene Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: K-1
AES sample #: 940217 I04

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: potable water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chloroform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
2-Butanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Carbon Tetrachloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Vinyl Acetate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromodichloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
t-1,3 Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dibromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Benzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
cis-1,3-Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Bromoform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
4-Methyl-2-pentanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2-Hexanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Tetrachloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2,2 Tetrachloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Toluene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: K-1
AES sample #: 940217 I04
Samples taken by: S. Markowitz
MATRIX: potable water
Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chlorobenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Ethylbenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Styrene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Xylenes,Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetonitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrolein	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrylonitrile	EPA-8240	<25	ug/l	MT-AP-30	03/03/94
Allyl Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroprene	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
1,2-Dibromo-3-chloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Dibromomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dichlorodifluoromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Ethylene Dibromide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Iodomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Methyl-methacrylate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1,2,tetra-chloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Isobutanol	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Methacrylonitrile	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Propionitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Bromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: K-1
AES sample #: 940217 I04

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: potable water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF.	TEST DATE
1,3-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2,2-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1-Dichloropropene	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,2,3-Trichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichlorofluoromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: L-1
AES sample #: 940217 I05
Samples taken by: S. Markowitz
MATRIX: potable water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Specific Conductance	EPA-120.1	1120	umhos/cm	FM-D-11	03/02/94
Turbidity	EPA-180.1	21	ntu	MC-E-31	02/18/94
Ammonia-N	EPA-350.1	1.0	mg/l	FM-I-7	02/22/94
Total Dissolved Solids	EPA-160.1	675	mg/l	MC-F-24	02/24/94
Biochemical Oxygen Demand 5	EPA-405.1	<2	mg/l	SW-M	02/18/94
Aluminum	EPA-200.7	<0.1	mg/l	BS-I-2D-3	02/25/94
Antimony	EPA-200.7	<0.06	mg/l	BS-I-2D-3	02/25/94
Arsenic	EPA-206.2	0.125	mg/l	JW-GLE-69	02/22/94
Barium	EPA-200.7	0.57	mg/l	BS-I-2D-3	02/25/94
Beryllium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Boron	EPA-200.7	0.36	mg/l	BS-I-2D-3	02/25/94
Cadmium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Calcium	EPA-200.7	104	mg/l	BS-I-2D-3	02/25/94
Chromium	EPA-200.7	<0.005	mg/l	BS-I-2D-3	02/25/94
Cobalt	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Copper	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Iron	EPA-200.7	2.6	mg/l	BS-I-2D-3	02/25/94
Lead	EPA-239.2	<0.005	mg/l	JW-GMD-78	02/22/94
Magnesium	EPA-200.7	18.1	mg/l	BS-I-2D-3	02/25/94
Manganese	EPA-200.7	8.2	mg/l	BS-I-2D-3	02/25/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: L-1
AES sample #: 940217 I05

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: potable water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Mercury	EPA-245.1	<0.0004	mg/l	JW-PSE-69	02/18/94
Nickel	EPA-200.7	<0.05	mg/l	BS-I-2D-3	02/25/94
Potassium	EPA-200.7	3.6	mg/l	BS-I-2D-3	02/25/94
Selenium	EPA-270.2	<0.005	mg/l	JW-GLE-69	02/22/94
Silver	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Sodium	EPA-200.7	71.9	mg/l	BS-I-2D-3	02/25/94
Thallium	EPA-279.2	<0.01	mg/l	JW-GLE-68	02/22/94
Vanadium	EPA-200.7	<0.02	mg/l	BS-I-2D-3	02/25/94
Zinc	EPA-200.7	<0.01	mg/l	BS-I-2D-3	02/25/94
Tin	EPA-282.2	<0.01	mg/l	JW-GMD-22	02/22/94
Chloromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromomethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Vinyl Chloride	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Chloroethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Methylene Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Carbon Disulfide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2-Dichloroethene Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: L-1
AES sample #: 940217 I05
Samples taken by: S. Markowitz
MATRIX: potable water

Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chloroform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
2-Butanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Carbon Tetrachloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Vinyl Acetate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Bromodichloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,2 Dichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
t-1,3 Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dibromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2 Trichloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Benzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
cis-1,3-Dichloropropene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Bromoform	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
4-Methyl-2-pentanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2-Hexanone	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Tetrachloroethene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
1,1,2,2 Tetrachloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Toluene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
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Date Sampled: 02/16/94
Date sample received: 02/17/94
Location: Saugerties
grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
Chlorobenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Ethylbenzene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Styrene	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Xylenes,Total	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Acetonitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrolein	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Acrylonitrile	EPA-8240	<25	ug/l	MT-AP-30	03/03/94
Allyl Chloride	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Chloroprene	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
1,2-Dibromo-3-chloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Dibromomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Dichlorodifluoromethane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Ethylene Dibromide	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Iodomethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Methyl-methacrylate	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1,1,2,tetra-chloroethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Isobutanol	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Methacrylonitrile	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
Propionitrile	EPA-8240	<100	ug/l	MT-AP-30	03/03/94
Bromochloromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

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CLIENT: Clough, Harbour & Associates
CLIENT'S SAMPLE ID: L-1
AES sample #: 940217 I05

Date Sampled: 02/16/94
Date sample received: 02/17/94
Samples taken by: S. Markowitz Location: Saugerties
MATRIX: potable water grab

continued:

PARAMETER PERFORMED	METHOD	RESULT	UNITS	NOTEBK REF	TEST DATE
1,3-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
2,2-Dichloropropane	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,1-Dichloropropene	EPA-8240	<10	ug/l	MT-AP-30	03/03/94
1,2,3-Trichloropropane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94
Trichlorofluoromethane	EPA-8240	<5	ug/l	MT-AP-30	03/03/94

APPROVED BY: Tara Daniel
Report date: 03/10/94

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
CHA		
ADDRESS	**PO NUMBER**	**SAMPLERS: (Signature)**

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.		SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
941021-101	MW-1	3/11/94	1130	A	GW		X	6	
				P					
				A					
				P					
				A					
				P					
				A					
				P					
JCA	MW-D	3/11/94	1300	A	GW		X	5	
				P					
				A					
				P					
				A					
				P					
				A					
				P					
				A					
				P					
	K-1			A					
	R-A			P					
	L-A			A					
				P					
				A					
				P					

Turnaround Time

Laboratory Approval:

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

Dispatched by: *(Signature)*	**Date/Time**	**Received for Laboratory by:**	**Date/Time** 3/11/94 10.33
Method of Shipment:	**Send Report To:**		**Client Phone No.:**

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

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CHAIN OF CUSTODY RECORD

CLIENT NAME	PROJECT NAME (Location)	SAMPLERS' (Names)
ADDRESS	**PO NUMBER**	**SAMPLERS: (Signature)**

AES SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION & LOCATION	DATE SAMPLED	TIME A=a.m. P=p.m.	SAMPLE TYPE MATRIX	COMP	GRAB	NUMBER OF CONT'S	ANALYSIS REQUIRED
103			A/P	Dw				
104			A/P	Dw				
105			A/P	Dw				
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					
			A/P					

Turnaround Time

Laboratory Approval:

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

Dispatched by: *(Signature)*	**Date/Time**	**Received for Laboratory by:**	**Date/Time** 4/12/94 10:33

Method of Shipment:	**Send Report To:**	**Client Phone No.:**

The Laboratory reserves the right to return hazardous samples to the client or may levy a fee of $10.00 per container for disposal.

WHITE - Lab Copy YELLOW - Sampler Copy PINK - Generator Copy

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ENGINEERS, SURVEYORS, PLANNERS & LANDSCAPE ARCHITECTS

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