

REMOVAL ASSESSMENT REPORT

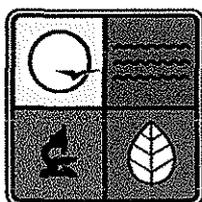
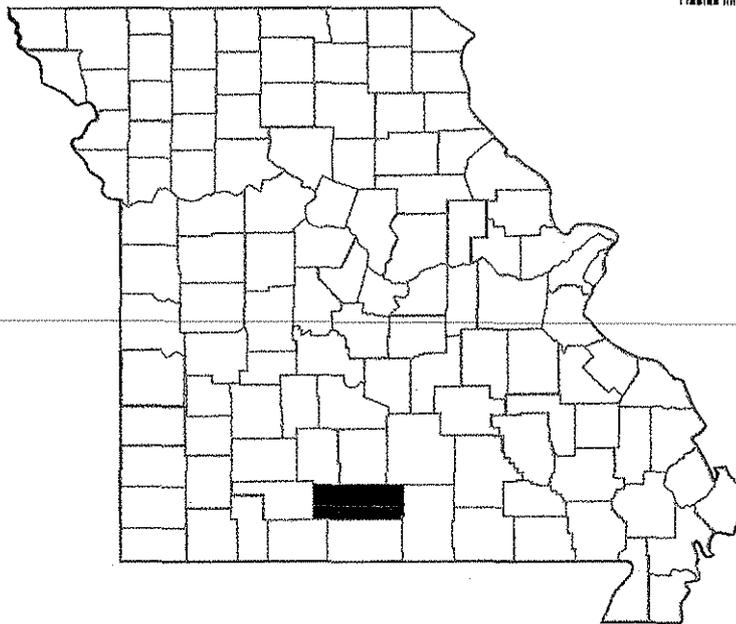
Community Laundromat Site
Douglas County, Missouri
MON000704080

April 23, 2002

30022498



Superfund



Missouri Department of Natural Resources
Air and Land Protection Division
Hazardous Waste Program

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DATE: April 23, 2002

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Missouri Department of Natural Resources

SITE: Community Laundromat Site
Douglas County

C.A. NUMBER: V997381-00-0

EPA ID. NUMBER: MON000704080

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Missouri Department of Natural Resources (Department), through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), conducted a Removal Assessment (RA) at the Community Laundromat Site in Douglas County, Missouri. The site is an active coin-operated public laundry facility that formerly included on-site dry cleaning operations utilizing tetrachloroethylene (PCE). A Pre-CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) Site Screening was completed by Tetra Tech EM Inc., an EPA contractor, in November 2001. The site was recommended for entry onto CERCLIS. Tetra Tech EM completed a Preliminary Assessment in December 2001, and recommended a Removal Assessment.

The purpose of this investigation was to collect sufficient information concerning conditions at the site to assess the threat posed to human health and the environment, and to determine the need for a removal action under CERCLA/SARA or other authority. The objectives of the RA included: attempting to delineate the extent of PCE in on-site soils and groundwater, track the migration of PCE, and to determine whether there are any other sources for PCE in the immediate area. The scope of the investigation included review of previous file information, sampling of waste and environmental media, and collecting additional non-sampling information. The RA was initiated on December 13, 2001. Investigation included a site visit on January 9, 2002 and site sampling on January 14 -17, 2002.

2.0 SITE DESCRIPTION

2.1 Location

The Community Laundromat site is located at 306 Northwest (NW) 12th Avenue in Ava, Missouri, which is 0.5 mile east of the State Route 5. NW 12th Avenue is also known as State Route 14 and Business Highway 5. Ava is approximately 40 miles southeast of Springfield. The facility on-site is currently operating under the name Hill Country Laundromat & Dry Cleaners. The business name

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was changed in 1995 from Community Laundromat to Hill Country Laundromat & Dry Cleaners (Reference 3). The facility is located in the Southeast Quarter (SE ¼) of the Northeast Quarter (NE ¼) of the Northwest Quarter (NW ¼) of Section 11, Township 26 north, Range 16 west in Douglas County (Reference 4). Geographic coordinates for the site are 36.961570° north latitude and 92.662404° west longitude, as measured from a monitoring well labeled MW-CL-02, located near the west entrance to the facility (Reference 5). Figure 1 in Appendix A is a site location map.

The Community Laundromat facility is located in a mixed commercial/industrial/residential setting in Ava, population 3,200. The EPA Region VII, the Department, and multiple potentially responsible parties (PRPs) have conducted prior investigations associated with a nearby Superfund site, the 12th Avenue Solvents site (MON000704015), and have identified numerous volatile organic compounds (VOCs), including PCE, in the groundwater beneath and downgradient of a light industrial park. The Community Laundromat site is located within this industrial park and is one of several potential sources of the groundwater contamination (Reference 6, p. 2).

The Community Laundromat facility is bordered by industrial facilities to the north and west, NW 12th Avenue to the south, and residential property to the east. Directions to the site are as follows: from Springfield, travel east on Interstate Highway 60 to Mansfield, turn south onto State Highway 5. Travel for about 14 miles to Ava, then turn east onto NW 12th Avenue, also known as State Highway 14 and Business Highway 5. Travel east for approximately 0.75 mile. The facility is located on the north side of NW 12th Avenue (References 3).

Climatic data from a weather station in Mountain Grove, Missouri is reported below. Ava is approximately 25 miles southwest of Mountain Grove. The area receives an average of 43.69 inches of precipitation annually, with the highest amount generally in the month of May. There is an average of 14.8 inches of snowfall annually (Reference 7). The two-year 24-hour rainfall is 2.75 inches (Reference 8, p. 12). The average daily temperature during the summer months is 75.2° F, and the average winter temperature is 34.7° F (Reference 7). The average wind speed and direction is approximately 12 miles per hour from the south-southeast (Reference 9).

2.2 Site Description

The Community Laundromat site consists of the property that contains the Community Laundromat facility and the PCE contaminated groundwater plume beneath the property, which extends at least 0.5 mile to the southwest. The Community Laundromat facility is approximately 15,000 square feet in size, and is actually a private home that was converted into a business facility. The building is one story high with a basement. The customer entrance is on the west side of the building, although the former private home front door and cement porch steps are still present on the south side of the building facing NW 12th Avenue. The remainder of the property consists of a gravel-lined open area. Laundromat customers generally park on the west side of the building. Access to the site is unrestricted (Reference 3). Figure 2 in Appendix A is a site sketch and sampling map. Photos 1 and 2 in Appendix C show the laundromat facility.

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Immediately east of the Community Laundromat building is the Action Auction Realty business facility. East of the Action Auction Realty building is a private residence, located less than 200 feet to the east. North of the Community Laundromat building is an abandoned Dairy Queen. To the west of the laundromat parking lot is a private drive that runs north-south from NW 12th Avenue, past the former Dairy Queen, to NW 13th Avenue. West of the private drive is the former Rawlings manufacturing facility. Just north of NW 13th Avenue is the Copeland Corporation manufacturing facility (Reference 3).

2.3 Site History/Operational History

History of Industrial Park Contamination

Figure 3 in Appendix A is an area map centered on the Ava industrial park. The various sites and associated contaminated areas that are discussed in this section are marked on the map. The Community Laundromat site was identified as one of several potential contaminant sources associated with the 12th Avenue Solvents site, as discussed in Section 2.1 of this report (Reference 3). The 12th Avenue Solvents site was identified by the Department, during investigative activities associated with another Superfund site also located in the industrial park, the Sentinel Wood Treating Co. Inc. (Sentinel) site (MOD029684438). The Sentinel site is a former wood treating facility that utilized pentachlorophenol (PCP) to pressure treat wood. The Sentinel site is located approximately 1,000 feet west of the laundromat facility. In December 2000, as part of the Expanded Site Inspection (ESI) investigation for the Sentinel site, water samples were collected at a groundwater discharge (wetland) area located just south of NW 12th Avenue, south of the Sentinel site. High levels of total xylenes (27,600 ppb), ethylbenzene (10,500 ppb), cis-1,2-dichloroethene (cis-1,2-DCE) (146 ppb), toluene (79.3 ppb), 1,1-dichloroethene (1,1-DCE) (51.5 ppb), PCE (2.4 ppb), benzene (2.3 ppb), trichloroethene (TCE) (2.2 ppb), and other compounds were detected in the samples. The wetland area drains into an unnamed tributary of Prairie Creek that runs through the center of Ava (Reference 10).

Chlorinated solvents were also detected in a water sample from another spring, located downgradient of the wetland area. The spring, referred to as the "old spring house" because the water flows from what appears to be an old concrete spring house foundation, is located on Douglas County Health Department (DCHD) property, 0.2 mile south of NW 12th Avenue. The sample was collected in May 2001, also as part of the Sentinel ESI investigation, and contained PCE at 35.1 ppb, TCE at 2.5 ppb, cis-1,2-DCE at 25.7 ppb, dichlorodifluoromethane at 4.1 ppb (Reference 10). This spring also flows into the unnamed tributary of Prairie Creek, approximately 0.25 mile downstream from NW 12th Avenue.

Based on subsequent investigations conducted by EPA, the Department, DCHD, and multiple PRPs, the primary source of the xylene, ethylbenzene and toluene compounds was determined to be the Copeland facility. Three former above ground storage tanks containing xylenes, varnish and paint thinner had leaked when the facility was owned and operated by Emerson Electric Co. from 1975 to 1996 (Reference 11). Emerson Electric is currently conducting further investigation and cleanup

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activities pursuant to an Administrative Order on Consent (AOC) that was signed by Emerson, EPA and the Department on October 1, 2001. The contaminants of concern covered under the order include the BTEX (benzene, toluene, ethylbenzene, xylenes) compounds known to be associated with Emerson operations, in addition to PCE, TCE, cis-1,2 DCE and 1,1,1-trichloroethane (TCA) (Reference 12). However, at the time the order was signed, sampling data from July 2001 at the Community Laundromat site (see Pre-CERCLIS Site Screening investigation discussion in Section 2.4) had documented PCE contamination in the soil and groundwater at the laundromat facility. It was uncertain at that time whether the laundromat facility was the primary source of the chlorinated compounds or perhaps just one of several sources in the industrial park. PCE was detected at an estimated concentration of 84 ppb in a shallow bedrock monitoring well located on the southwest corner of the former Rawlings facility, downgradient of the main xylene source area on the Copeland facility. The monitoring well was one of many installed during a Phase II Environmental Investigation conducted by Emerson Electric in 2001. Figure 4 in Appendix A is a site map from the Phase II investigation with all monitoring wells locations marked. PCE was detected in monitoring well #14B (Reference 11).

In addition to the Community Laundromat site and the Copeland facility, the industrial park contains numerous potential sources of contamination, including the former Rawlings facility (a sporting goods manufacturer), a former car dealership, and at least one former leaking underground storage tank site, all of which are located upgradient of the wetland area (Reference 11). The environmental investigations currently being conducted at the various sites in the Ava industrial park are complex in nature, due to the commingling of groundwater contaminants potentially originating from one or more source areas.

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The property on which the 306 NW 12th Avenue facility operates was originally owned by Mr. Randy Barnes. Mr. Barnes leased the facility to Mr. Joe Banta and his wife, who started the Community Laundromat business in 1986. From 1987 to 1995, Mr. Banta reports that dry cleaning operations were conducted on-site. Mr. Banta also confirmed that the facility did use PCE during the years when dry cleaning services were offered, and that a "normal amount" of spillage may have occurred during that time. Mr. Banta described two incidents in which PCE was released into the environment. Sometime in the late 1980's, the door to the dry cleaning machine, formerly located on the eastern side of the building, accidentally came open and several gallons of dry cleaning fluid spilled out onto the floor. Mr. Banta reported it was possible the fluid drained from the concrete floor to the edge of the foundation and down the outside of the building into the soil. Another incident involved a spilling of PCE contaminated sludge from the dry cleaning operations. Apparently sludge from the dry cleaning machine was cleaned out on a regular basis and placed into a five-gallon bucket for disposal. The bucket was usually placed outside the entrance to the laundromat. Mr. Banta reported that one time the bucket was accidentally knocked over and the contents spilled onto the ground (References 3; 13).

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In 1995, Mr. Banta moved the dry cleaning operations to a different facility (Hill Country Dry Cleaners) located on S. Jefferson Street in Ava. At that time, Mrs. Banta was no longer associated with the business, and Mr. Banta changed the business name of the 12th Avenue facility from Community Laundromat to Hill Country Laundromat and Dry Cleaners, which is the current operating name. The only operations on-site today are coin-operated washing machines. Customers may drop off garments for dry cleaning, but the actual dry cleaning is conducted at the Hill Country Dry Cleaners facility located on S. Jefferson. The Hill Country Dry Cleaners facility is also operated by Mr. Banta (Reference 13).

In December 1997, Mr. John Sutton of Ava bought the property from Mr. Barnes, and Mr. Banta now leases the facility from Mr. Sutton. Mr. Sutton owns the property on which the Community Laundromat building and the Action Auction Realty building are located. Mr. Sutton operates the Action Auction Realty business (Reference 13).

2.4 Previous Investigations

Pre-CERCLIS Site Screening, 2001 (Reference 6)

The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START) was tasked by the EPA Region 7 Superfund Division to conduct a Pre-CERCLIS Site Screening of the Community Laundromat site. The Site Screening investigation included a site reconnaissance and limited sampling.

The sampling event was conducted at the site on July 9 and 10, 2001. EPA and Tetra Tech START installed five soil borings across the site using a track-mounted Geoprobe unit. Continuous cores were collected at each boring location using the Geoprobe's macrocore sampling system. Cores were collected from the ground surface to refusal (assumed bedrock surface). Figure 5 in Appendix A is a site-sampling map from the Pre-CERCLIS investigation.

Soil samples were collected from two depth intervals at SB-1 through SB-4. The first sample was collected from the 0 to 2-foot interval at each of these borings. A deeper sample was collected at or just above the first occurrence of water. At SB-5, a sample was collected from the 0 to 2-foot interval, only, due to refusal at a relatively shallow depth of 8 feet below ground surface (bgs). No water was encountered at SB-5.

All soil samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs) and metals. VOC contamination only will be discussed here, as other concentrations were relatively insignificant. PCE was present at a concentration of 0.019 ppm in the soil sample collected from SB-1 at a depth of 17 to 18 feet bgs. This sample was collected very near the water table. PCE was also present at a concentration of 0.570 ppm in the soil sample collected from SB-4.

Groundwater samples were collected at the SB-1 and SB-2 locations using the Geoprobe's Screenpoint 15 sampling system. The static water level at SB-1 was about 16.7 feet bgs. The static

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water level at SB-2 was about 17.0 feet bgs. Saturated conditions were noted during the soil sampling at SB-4, at a depth interval of about 12.5 to 14 feet bgs. However, an attempt to sample groundwater at SB-4 was unsuccessful, presumably either because the saturated interval was too limited, a borehole skin precluded infiltration through the screen, or the screen itself became clogged. The groundwater sample from SB-2 was analyzed for VOCs and SVOCs. The groundwater sample from SB-1 was analyzed for VOCs, only, due to a limited volume of water available at that location.

PCE was present at a concentration of 1,300 ppb in the groundwater sample collected from SB-1 at a depth of 17 to 18 feet bgs. This sample also contained 1,1,1-TCA at a concentration of 12 ppb. PCE, at a concentration of 6 ppb, was reported in the groundwater sample collected from SB-2 at a depth of about 17 to 21 feet bgs.

Based on the limited sampling, the Community Laundromat site was determined to be a source of PCE contamination in the groundwater of the industrial park. The PCE concentrations identified at the Community Laundromat site during the Pre-CERCLIS Site Screening were significantly higher than those reported in the samples from the wetland area associated with the 12th Avenue Solvents site.

The Community Laundromat site was recommended for entry onto CERCLIS. Based on the evidence collected during the Site Screening, it was concluded that site conditions may warrant a removal action. PCE concentrations greatly exceed the EPA Maximum Contaminant Level (MCL) for drinking water of 5 ppb, and a municipal well is located approximately 400 feet from the site. Further, concentrations of PCE in the soil exceed the soil target concentrations (STARC) of 0.1 ppm established for the groundwater leaching pathway under the Department's Cleanup Levels for Missouri (CALM). A STARC for the groundwater leaching pathway (C_{LEACH}) may be interpreted as a soil contaminant concentration which, if allowed to remain, would leach to the saturated zone and result in a groundwater concentration at or below the MCL.

Preliminary Assessment, 2001 (Reference 14)

The Tetra Tech EM Inc. START was tasked by the EPA Region 7 Superfund Division to conduct a Preliminary Assessment (PA) of the Community Laundromat site. The scope of the PA included a review of existing information and collection of additional information from Internet databases and other reference sources. No sampling was conducted as part of the PA.

The PA concluded that, based on the sampling results and information gathered by Tetra Tech START, the mostly likely source of PCE contamination identified on-site and in the wetland discharge area is from the former use of the Community Laundromat facility as a dry cleaner. Additional investigation of other area facilities would be required to make any further determinations. Additionally, further characterization of this site was recommended to more accurately document the suspected releases to groundwater and surface water. After reviewing the Pre-CERCLIS Site Screening and PA, the EPA requested the Department conduct a Removal Assessment.

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2.5 Waste Characteristics

The primary contaminants of concern associated with the Community Laundromat site include: PCE, and its natural degradation products TCE, vinyl chloride and 1,2-DCE. To date, only PCE and TCE have been detected on-site, although cis-1,2-DCE has been detected in a spring downgradient of the site (Reference 5).

Tetrachlorethylene (PCE), also called perchloroethylene, is a man-made VOC. It is a colorless liquid with a sharp, sweet odor. PCE is non-flammable and evaporates quickly into the air at room temperature. The compound is only slightly soluble in water. It is a dense non-aqueous phase liquid (DNAPL), which has a higher density than water. PCE is most commonly used in the textile industry for dry-cleaning and finishing fabrics, and as a metal degreasing agent. It is also used as a base for the production of other chemicals (Reference 15).

In the environment, PCE is most likely to enter the air as emissions from dry-cleaning and metal degreasing industries. Once in the atmosphere, it will persist for several hours to several months, until being broken down by sunlight. In surface water, most PCE evaporates within several hours to several weeks. Because it is denser than water, any remaining PCE will settle to the bottom of the water body. Biodegradation may occur, but is expected to be very slow. It is not likely to bioconcentrate in aquatic life, or adsorb significantly to sediments and soils. In soils, due to its volatility and low adsorption to soil, PCE will evaporate quickly and/or rapidly leach into the groundwater. Breakdown in the soil is extremely slow. Once in the groundwater, PCE will migrate downward until meeting an impermeable layer. Microbial degradation of PCE in groundwater can produce TCE, DCE, and vinyl chloride, but the breakdown is expected to be very slow (Reference 15).

In humans, exposure typically occurs at the work place where PCE is used. It enters the body through inhalation and ingestion of contaminated air, food, and water. Short-term exposure to PCE can cause dizziness, headache, sleepiness, confusion, nausea, unconsciousness, and death. Long-term exposure to lower concentrations may cause irritation to exposed skin. The International Agency for Research on Cancer (IARC) considers PCE a probable carcinogen in humans (Reference 15).

Chlorinated VOC's, such as PCE, TCE, and 1,2-DCE, exist as separate-phase hydrocarbon liquids that are denser than water. As free-phase product, chlorinated solvents move downward through the soil under the force of gravity then flow laterally along the surface of a confining unit in the subsurface. Once in the subsurface, it is difficult or impossible to recover all of the trapped residual contamination. The chlorinated solvent that remains trapped in the soil-aquifer matrix acts as a continuing source of dissolved contamination to groundwater, preventing the restoration of the contaminated aquifer for many years (Reference 16, p.1).

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Trichloroethylene, or TCE, is a commonly used vapor degreaser and chemical intermediate. TCE can degrade to 1,1-dichloroethane, cis and trans 1,2-dichloro-ethene, and vinyl chloride (Reference 17, p. 79, 108).

1,2-Dichloroethene (1,2-DCE), also known as 1,2-dichloroethylene, exists in two polymers, cis (60%) and trans (40%) (Reference 18, p. 322).

3.0 RA SAMPLING INVESTIGATION

The scope of this RA sampling investigation included: a subsurface soil investigation for organic vapors with a membrane interface probe (MIP), the collection of depth-discrete soil samples based upon the data generated with the MIP, and the installation of four micro monitoring wells on-site. A surface water grab sample was also collected from an off-site spring discharge point, identified as the "Old Spring House". This is the same spring that was previously sampled in May 2001 and shown to contain PCE, TCE, and cis-1,2-DCE (see Section 2.3 for discussion) (Reference 5).

Throughout this report, sample results are compared against health based benchmarks from two different sources: the EPA Preliminary Remediation Goals (PRGs) and the Cleanup Levels for Missouri (CALM).

PRGs are levels used for evaluating and cleaning up contaminated sites. They are risk-based concentrations derived from standardized questions, combining exposure information assumptions and EPA toxicity data. The PRGs are generic, and include levels for residential and industrial soil as well as ambient air, tap water and soil screening levels for migration to groundwater scenarios. They are calculated without site-specific data. However, they may be recalculated using site specific data. PRGs are viewed as EPA guidelines, not legally enforceable standards. They are used for site "screening" and as initial cleanup goals, if applicable. The soil screening levels (SSLs) listed for the protection of groundwater were developed using a default-attenuation factor (DAF) of 20 to account for natural processes that reduce contaminant concentrations in the subsurface. Also included are generic SSLs that assume no dilution or attenuation between the source and the receptor well (i.e., a DAF of 1). These PRGs were developed by EPA Region 9, but are utilized by all EPA regions (Reference 19).

The Cleanup Levels for Missouri (CALM) guidance document outlines a process for determining cleanup goals at sites in Missouri with known or suspected hazardous substance contamination. The CALM process was developed for hazardous substance contamination that is remediated under Missouri's Voluntary Cleanup Program (VCP) laws and regulations administered by the department's Hazardous Waste Program. The cleanup goals for soil and groundwater are intended to protect human health and the environment. CALM levels include soil target concentrations (STARC) for residential, commercial and industrial scenarios, as well as soil target concentrations considering leaching to groundwater (C_{LEACH} STARC), and groundwater target concentrations (GTARC). The STARC's were calculated using risk based exposure scenarios for ingestion, dermal absorption and

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inhalation. The C_{LEACH} STARC may be interpreted as a soil contaminant concentration which, if allowed to remain, would leach to the saturated zone and result in a groundwater concentration at or below the GTARC. The CALM GTARC's were derived from a hierarchy of sources in this order: 1. EPA Maximum Contaminant Level (MCL); 2. EPA Health Advisory Level (EPA HAL); 3. $10e-6$ Cancer Risk Level (derived from EPA oral slope factors); 4. Missouri Water Quality Standards for Groundwater; 5. Missouri Water Quality Health Advisory Levels (MO HAL) (Reference 20).

3.1 Soil Sample Locations and Analytical Results (Reference 5)

A trailer-mounted MIP unit was brought to the site and used to determine the relative levels of volatile organic vapors in the subsurface soils on-site. The Department's Environmental Services Program (ESP) personnel performed a total of 18 borings as part of the MIP survey, with locations selected based upon previous sampling data, information profiled by Mr. Banta regarding known spills on-site, and local topography. Each MIP boring location was identified as "Ava XX", where "XX" represented a number unique to each location. Figure 2 in Appendix A shows all MIP boring locations. Each boring was advanced to refusal, considered to be bedrock. A graph, indicating relative volatile organic vapors, was generated for each boring location. The graphs for each location are included in Appendix D.

A total of 28 subsurface soil samples were collected based on MIP results. Figure 2 in Appendix A shows all of the sampling locations and analytical results. In addition, analytical results for RA soil samples are shown in Table 1 in Appendix B. Upon comparing analytical data of samples collected against the MIP data generated in the field, there was generally a direct correlation. Results from samples in soil borings 10, 12, 13, and 15 all correlated to MIP detections; however, some discrepancies were noted. Analytical results from the following samples did not reveal any contamination where detections were noted with the MIP: SB CL-09 at 12 ft., SB CL-13 at 2.5 ft., SB CL-14 at 9ft., SB CL-18 at 9.5 and 11.5 ft., and SB CL-19 at 6 ft. The discrepancies may be the result of several factors, including the sensitivity of the MIP detectors versus the ability of the analytical method to achieve low enough detection limits; heterogeneity of the soils; the fact that personnel were required to move the probe unit over slightly from the original MIP boring location in order to obtain soil cores for sampling; and that some zones of concern consisted of chert, gravel, and rock and could not be sampled. When those instances arose, sampling personnel collected samples from depths as close to the zone of concern as possible. When there were not detections with the MIP, in general, samples were still collected from a boring, usually at a depth immediately above refusal, to verify the absence of VOCs.

Due to the close proximity of the Copeland facility and a former service station, both located upgradient of the laundromat facility, three background samples were collected from borings (CL-01, CL-02, CL-03) north of the laundromat facility in an attempt to determine if PCE or any additional contaminants were originating from an upgradient source. There were no MIP detections in any of the three background borings. PCE was not detected in any of the samples from these borings,

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however, toluene was detected at 0.0065 ppm in sample number 0210559 from SB CL-01 at 7 ft. It is possible the toluene could be associated with the former service station located northeast of the Action Auction Realty building.

PCE was detected in ten soil samples from six borings (this includes one quality control duplicate sample). The levels of PCE range from 0.013 ppm to 12.4 ppm. The highest concentrations of PCE were detected in soil samples from soil borings 10 and 15, which corresponds to the two locations Mr. Banta reported releases of PCE from the facility. With the exception of the 12.4 ppm detection of PCE, none of the remaining PCE concentrations exceed EPA PRGs or CALM Soil Target Concentrations relating to exposure to soil. The primary concern relating to the PCE in the soil on-site is that the concentrations exceed benchmarks for migration or leaching to groundwater, both CALM C_{LEACH} STARC (0.1 ppm for PCE) and EPA Soil Screening Levels for Migration to Groundwater (0.06 and 0.003 ppm for PCE). Previous groundwater sampling results from on-site, nearby monitoring wells and a spring, in addition to RA groundwater results discussed in the next section, all confirm that the PCE in the soil is indeed leaching into groundwater.

There were no MIP detections in SB-CL-11, 16, 17. No soil samples were collected from these borings.

3.2 Groundwater Sample Locations and Analytical Results (Reference 5)

Based upon data generated from the MIP survey, four micro monitoring wells were installed on-site during the January 2002 RA sampling event. ESP personnel returned to the site on February 4, 2002, to determine the water level in each well and develop the wells. Each well was developed by inserting clean polyethylene tubing, fitted with a check valve, and vigorously removing water until either the wells were evacuated dry or until several volumes had been removed and water clarity did not appear to improve further.

Two of the wells were evacuated dry and were allowed to recharge, at which time, the vigorous evacuation process was repeated. The remaining two wells maintained a water column and evacuation ceased after several calculated volumes were removed.

The micro monitoring wells were allowed to stabilize for one week following well development. Personnel returned to the site on February 11, 2002 to collect water grab samples from each well. The depth to water was determined for each well and the total well depth confirmed. Two of the wells (MW-CL-01 and MW-CL-02) maintained water columns throughout well development and sampling. MW-CL-03 was evacuated to dryness several times during development and during sampling, but appeared to recharge relatively quickly. MW-CL-04 was evacuated to dryness during development and sampling, but did not recharge sufficiently to collect a sample. Samples were collected from MW-01, 02 and 03 and submitted for VOC analysis.

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All of the micro monitoring wells were completed at depths consistent with what is thought to be the top of competent bedrock (18 feet to 22 feet bgs). The relatively short water column noted in each monitoring well during development and sampling is thought to be due, at least in part, to the time of year the field activities were conducted. Winter is typically considered to be a dryer time of the year and it is not unexpected that the groundwater table is significantly reduced. The groundwater levels will likely rise as precipitation increases over the next several months.

Figure 2 in Appendix A and Table 2 in Appendix B contain sampling results from the three monitoring wells. PCE was detected in the water from all three wells at levels significantly above the MCL of 5 ppb. The highest concentration of PCE, 21,400 ppb, was detected in MW-CL-01, which is in a downgradient, southwesterly direction of the spill reported to have happened just outside of the main entrance. TCE was also detected in MW-CL-01 and MW-CL-02. MW-CL-04 was intended to be a background well, assumed to be outside the influence of the PCE contamination, but that cannot be confirmed until there is sufficient water in the well for sampling.

3.3 Spring Sampling Location and Analytical Results (Reference 5)

As part of the RA sampling event, a surface water sample was collected on January 16, 2002 from the spring that is located 0.2 mile south of NW 12th Avenue on DCHD property, south of the health department office. Figure 3 in Appendix A shows the location of the "old spring house". The spring flows from what appears to be an old concrete spring house foundation into a small wetland and then into a stream which flows southwest and feeds into the Prairie Creek tributary.

The sample from the old spring house was analyzed for VOCs. The following VOCs were detected: PCE at 37.3 ppb, TCE at 2.6 ppb, and cis-1,2-DCE at 31.4 ppb. The concentrations of these VOCs have not changed significantly from those detected in May of 2001 during the Sentinel ESI investigation.

3.4 Conclusions

Removal Assessment sampling has documented significant PCE contamination in the soil on the Community Laundromat facility. The site operator had reported at least two spill incidents during dry cleaning operations: one that occurred outside the main entrance on the west side of the building and another on the east side of the building towards the rear of the facility. Sampling data seemed to confirm the spill reports; the highest levels of PCE in the soil were detected west of the entrance (12.4 ppm) and east of the building between the laundromat and the Action Auction Realty building (2.6 ppm). PCE was detected in nine soil samples. The concentrations of PCE in six of those ten samples exceeded both the CALM and EPA PCE soil screenings levels for migration to groundwater.

Discussion regarding the impacts to groundwater and surface water targets is included in Sections 4.0 and 5.0

Community Laundromat Site Removal Assessment

4.0 GROUNDWATER PATHWAY CONSIDERATIONS

4.1 Hydrogeologic Setting

4.1.1 Quaternary Deposits (Reference 21)

Surficial Materials: Twenty-two boreholes were driven by a Geoprobe on and adjacent to the Community Laundromat property. Cores were recovered from thirteen of these and logged by a geologist from the Geological Survey Program. The following is the summation of the borehole logs:

Surficial materials range in thickness from 7.5 to 22.5 feet. The uppermost foot consists of silt and gravel fill materials. The bottom 6.5 to 21.5 feet of sediment consists of approximately 5% to 15% iron-stained, sub-rounded quartz sand and gray to tan, angular chert gravel in a red and light brown mottled clay matrix. One to two 1- to 1.5-inch-thick sand (same as above) stringers occurred in three of the cores at depths between 6.5 and 11.6 feet. Several of the core samples were wet at depths between 12 to 16 feet. Infrequently, large chert cobbles were encountered that could not be penetrated by the Geoprobe. There appears to be little to no consistency across the site with respect to the sand stringers and chert cobbles.

4.1.2 Ozark Aquifer (Reference 8)

Jefferson City Dolomite: The Jefferson City Dolomite is approximately 185 feet thick in the Ava area and is well-exposed in road cuts along the margins of State Highway 5. Composition is variable both vertically and laterally but consists mostly of alternating beds of finely crystalline argillaceous dolomite and medium-grained dolomite with thin beds of chert and fine-grained sandstone scattered throughout. Borings for monitoring wells penetrated the upper 40 feet of the Jefferson City Dolomite. Cuttings from these borings consist of silty to sandy dolomite interstratified with chert and thin partings of carbonaceous shale. A single bed of sandstone was encountered in each of the borings.

Vertical water migration is limited mostly to the upper 5 feet of the unit where weathering has produced large solution voids. Upon reaching the top of unweathered bedrock, the flow becomes primarily horizontal. Permeability through the rest of the unit is restricted mostly to bedding plane solution and discontinuous vertical fractures, leading to a leaky aquitard within the aquifer.

Roubidoux Formation: The Roubidoux Formation is about 190 feet in thickness and consists of fine- to medium-grained sandstone, dolomitic sandstone, and cherty fine-grained dolomite. Where exposed at the surface, the sandstone is medium-grained and well-sorted with highly rounded and spherical grains. Cementation is moderate to poor. These characteristics make the unit highly conducive to vertical and lateral fluid flow. Permeability is enhanced by significant dissolution along bedding surfaces and vertical fractures.

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Gasconade Dolomite: The Gasconade Dolomite does not outcrop within the target area but has been described from drill cores by nearby environmental investigations. It is around 350 feet thick and grades from coarsely crystalline cherty dolomite near the bottom to more finely-crystalline, less cherty dolomite at the top. At the base of the Gasconade Dolomite is a seventy-foot-thick bed of medium-grained sandy dolomite called the Gunter Sandstone Member.

Eminence Dolomite: The Eminence Dolomite is not exposed in the target area. Based on descriptions from nearby environmental investigations, it is nearly 200 feet in thickness and consists of massive-bedded, medium- to coarse-grained dolomite with scattered nodules and angular fragments of chert, particularly in the upper part.

Potosi Dolomite: The Potosi Dolomite is not exposed in the target area. Based on well logs, it is about 100 feet thick and is made up of medium- to fine-grained dolomite. The Potosi Dolomite is the most prolific water-bearing unit in the Houston area, located about 50 miles to the northeast of Ava.

Hydrology Information: All wells within the target area produce from the Ozark Aquifer. Domestic wells obtain water primarily from the Jefferson City Formation; whereas, municipal wells draw mostly from the much deeper Gunter Sandstone Member of the Gasconade Dolomite and from the Eminence Dolomite.

The Department's Geologic Survey and Resource Assessment Division (GSRAD) (formerly known as the Division of Geology and Land Survey, DGLS) well log records show depths of 125 to 175 feet to the top of the regional water table. Shallower, perched water tables are also apparent within the Jefferson City Dolomite, particularly between 50 and 75 feet below the ground surface. These are probably local features that vary with depth and are related to the low vertical permeability of the Jefferson City Dolomite. Most water movement within the Jefferson City Dolomite is horizontal along bedding planes. Both shallow and deep groundwater flow within the Ozark Aquifer is interpreted to be to the southwest based on topography, drainage patterns, and stratigraphic dip.

Abundant, well-developed karst features, including sinkholes, solution valleys, losing streams, and springs are prevalent features of the Ozark Aquifer throughout the Ava region. Therefore, this would be a karst aquifer.

Bedrock shows a relatively gentle southward dip. Two northwest-trending faults have been identified 1.25 and 1.5 miles to the southwest of the site and a third is located about 3.5 miles to the southwest. Because of the small amount of vertical offset along these faults, they are not expected to produce significant discontinuities within the Ozark Aquifer.

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4.1.3 St. Francois Confining Unit (Reference 8)

Derby-Doerun Dolomite and Davis Formation: The Derby-Doerun Dolomite and Davis Formations are not exposed in the target area; however, based on well logs, they are composed primarily of interbedded shale, dolomite, and sandstone.

The St. Francois Confining Unit is 350 to 400 feet thick and provides a significant impediment to vertical groundwater transport.

4.1.4 St. Francois Aquifer (Reference 8)

The St. Francois Aquifer is found over 1,400 feet below the ground surface and is separated from the Ozark Aquifer by the St. Francois Confining Unit.

Several units that comprise the St. Francois Aquifer are probably present beneath the target area; including the Bonneterre Dolomite, Reagan Sandstone, and Lamotte Sandstone; however, none are used as domestic or public water supplies in the Ava region.

4.2 Groundwater Targets

Groundwater use within four miles of the site is extensive. There are six public wells within four miles of the site: four serving the city of Ava, one serving the Mt. Zion Bible School, and one serving a Fraternal Order of Eagles restaurant. An estimated 2,938 people are served by the city of Ava wells (Reference 22). The majority of people outside the city limits of Ava within four miles of the site rely on private wells, an estimated 520 people. A detailed description of the well use follows (Reference 8).

Public Drinking Water Wells

The City of Ava is served by four drinking water wells: Well #2, #4, #5 and #6. Figure 6 of Appendix A is a site location map with the Ava public wells identified. All of these wells draw water from the Ozark Aquifer. Well #4 is located less than 500 feet north of the laundromat facility. Well #4 was drilled in 1970 to a total depth of 1005 feet with 390 feet of 8-inch steel casing. Records indicate the pump is set at 372 feet, static water level is at 255 feet, and the well yields 550 gallons per minute. Well #6 is located approximately 0.35 mile northeast of the site. Well #6 was drilled in 1993 to a total depth of 1100 feet with 500 feet of 10-inch steel casing. Well #5 is located approximately 0.6 mile southeast of the site. Well #5 was drilled in 1970 to a total depth of 805 feet with 390 feet of 8-inch steel casing. Records indicate the pump is set at 443 feet, static water level is at 246 feet, and the well yields 400 gallons per minute. Well #2 is located approximately 0.7 mile south-southeast of the site. Well #2 was drilled in 1943 to a total depth of 845 feet with 171 feet of 8-inch steel casing. Records indicate the static water level is 190 feet (References 23; 4). Well #2 is a standby well that is turned on once a month to ensure that it is operating. Water from the three

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main wells, #4, #5, and #6 are pumped into the main water distribution lines throughout the city. The wells serve an estimated 2,938 people (References 24; 25, p. 11).

The Mt. Zion Bible School has one well that is located 3.5 miles north of the site in the small town of Mt. Zion. The well was drilled in 1996 to a total depth of 370 feet with 80 feet of 6-inch steel casing. The pump is set at 350 feet and the static water level was recorded at 140 feet. The well draws from the Roubidoux Formation of the Ozark Aquifer (Reference 26). The well is classified as a non-transient non-community water system, which is defined as public water system that regularly serves at least 25 of the same persons over six months per year. The Mt. Zion Bible School "season" runs September through May (Reference 25, p. 202).

The Fraternal Order of Eagles Well #3748 is a restaurant well located approximately 1.3 miles northwest of the site. The well was drilled in 1978 to a total depth of 120 feet. No other information regarding the well was listed on the Department's Public Drinking Water Program information sheet (Reference 27). The well is classified as a transient non-community water system, which is defined as public water system that regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The Fraternal Order of Eagles restaurant season runs all year long (Reference 25).

Private Drinking Water Wells

Within four miles of the site, there are over 200 private drinking water wells recorded in the GSRAD databases. Wells installed before 1987 did not need to be registered with the Department and therefore do not show up in the databases. Some wells may no longer be active and many active wells may not be recorded in GSRAD databases. Also, any well records with incomplete location information may not appear in a database query. Therefore the number of private wells is an estimate. All the private wells draw water from the Ozark Aquifer, with most ranging from 200 to 400 feet in depth (Reference 8). The population served by private wells was calculated using the estimated average persons per household in Douglas County - 2.49 (Reference 28). The following table is a breakdown of the population served by both private and public wells within four miles of the site.

| Distance from Site | Public Wells | Population Served | Number of Private Wells | Estimated Population Served | Total Population Served By All Wells |
|--------------------|--------------------------------------|-------------------|-------------------------|-----------------------------|--------------------------------------|
| 0 - ¼ | Ava Well #4 | 980 | | | 980 |
| ¼ - ½ | Ava Well #6 | 979 | 3 | 7 | 986 |
| ½ - 1 | Ava Well #5 | 979 | 12 | 17 | 996 |
| | Ava Well #2 | standby only | | | |
| 1 - 2 | Fraternal Order of Eagles Well #3748 | 25 (minimum) | 39 | 97 | 122 |
| 2 - 3 | none | | 91 | 227 | 227 |
| 3 - 4 | Mt. Zion Bible School | 25 (minimum) | 69 | 172 | 197 |
| TOTALS | | 2,988 | 214 | 520 | 3,508 |

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4.3 Groundwater Pathway Conclusions

RA sampling has documented a release of PCE, TCE, 1,2-dichlorobenzene and 1,1,1-TCE to the shallow groundwater beneath the site. Although a background shallow groundwater sample was not obtained as part of the RA, the contaminants detected in the groundwater on-site are not naturally occurring and would not be expected to be present in a background water sample, unless there was an upgradient source. No PCE was detected in the upgradient soil samples from SB-CL-01, 02 and 03, although ultimately a water sample must be obtained from MW-CL-04 before definitive conclusions can be drawn. As soon as is possible, a water sample should be obtained from MW-CL-04.

A geologist with the Department's GSRAD has reviewed the analytical results for the RA sampling and provided the following hydrogeologic interpretations: The soil of the nearby, up-slope Copeland facility contains high concentrations of xylenes, ethylbenzene, and lesser quantities of TCE and its chlorinated daughter products. The soil and groundwater samples collected between the Emerson and Community Laundromat properties did not exhibit any contaminants. The Community Laundromat subsurface exhibits elevated concentrations of PCE and trace amounts of 1,1,1-trichloroethane, TCE, and 1,2-dichlorobenzene. The chemical signature for the subsurface at the Copeland facility is considerably different than the signature at the Laundromat and a non-contaminated zone lies between the properties. According to the Emerson Phase I and Phase II Investigation Report, the potentiometric surface south of the Copeland property has a gradient toward the southwest. Therefore, the groundwater in the residuum at the Copeland facility does not appear to flow toward the Community Laundromat. In addition, the GSRAD geologist also reported that the bedrock surface appears to roughly coincide with the low relief topographic surface. Contaminant concentrations decrease with distance toward the south-southwest and south from the back of the Laundromat building. Therefore, groundwater within the residuum beneath the site appears to flow toward the south-southwest and south in a deltaic manner while following cherty-clay-filled solution fissures (Reference 21).

The presence of PCE in water samples from two different groundwater discharge areas and a bedrock monitoring well on the former Rawlings facility indicate that the PCE contamination has migrated into upper portion of the bedrock aquifer. The groundwater discharge area (or wetland area) located just south of NW 12th Avenue and the Sentinel site and the spring located south of the county health department building both contained PCE. The bedrock monitoring well, referred to previously in section 2.3, is located on the southwest corner of the former Rawlings facility. This well is 18.7 feet deep, and was installed approximately 8 feet into bedrock. PCE was detected in the well in August 2001 at estimated concentrations of 84 ppb and 140 ppb.

There are over 3,500 people within four miles of the site that rely on public or private groundwater wells for drinking water. The nearest public drinking water well is the Ava Municipal Well #4, located 0.24 mile from the site, although well #4 would be considered upgradient of the site. There are over 200 private wells in the area. All the wells draw from the Ozark Aquifer.

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Ava's public wells have been on quarterly monitoring for VOCs, pentachlorophenol and pesticides since February of 2001 due to the groundwater contamination from the 12th Avenue Solvents and the Sentinel sites. To date, there have been no VOCs detected during quarterly monitoring (Reference 29). In view of the additional groundwater contamination now documented at the Community Laundromat site, quarterly monitoring of the Ava public wells will continue indefinitely.

5.0 SURFACE WATER PATHWAY CONSIDERATIONS

As a result of groundwater to surface water discharge, contamination from the Community Laundromat site has entered the unnamed tributary of Prairie Creek that runs through the town of Ava. As previously discussed in section 2.3, PCE was first detected in the stream in December 2000 at the groundwater discharge located in the wetland area just south of NW 12th Avenue and the Sentinel site. In May 2001 and January 2002, PCE was also detected in the spring south of the DCHD building. This spring also feeds into the Prairie Creek tributary (Reference 10).

Previous sampling data from the Prairie Creek tributary, downgradient of both groundwater discharge areas, has shown that the PCE and related chlorinated VOCs do not appear to travel very far in the surface water pathway. A sample collected in December 2000 from the Prairie Creek tributary south of NW 9th Avenue, approximately 0.3 mile downstream of the old spring house, contained cis-1,2-DCE at 4.3 ppb (no PCE or TCE were detected). A sample collected farther downstream (also in December 2000), at the Ava City Park, did not contain any chlorinated VOCs. Additional sampling along the Prairie Creek tributary in Ava is being conducted by Emerson Electric as part of the AOC for the 12th Avenue Solvents site (Reference 10).

The Prairie Creek tributary in Ava is not classified by the state for any specific uses (Reference 30). The tributary is not used for drinking water nor is there any fishing out of that portion of the creek (Reference 25). There are no sensitive species (threatened or endangered) or communities present in the creek (Reference 31). There is recreational use of the creek by local citizens, particularly children.

A wetlands identification investigation was conducted for the area just south of 12th Avenue down to the Ava wastewater treatment plant since there was a large portion of the tributary to Prairie Creek that runs south of the site and through the city of Ava that is not included in the National Wetlands Inventory. This wetlands identification report is still pending.

Due to the high levels of VOCs and other contaminants (including PCP from the Sentinel site) that were documented in the wetland area and Prairie Creek tributary, EPA requested the Missouri Department of Health and Senior Services (DHSS) conduct a Health Consultation and Risk Assessment for the Prairie Creek tributary. The Health Consultation and Risk Assessment took into consideration exposure by residents to all contaminants in the Prairie Creek tributary, which would include combined effects from the chlorinated compounds from the Community Laundromat site, the BTEX compounds from the Copeland facility and the PCP from the Sentinel site. Conclusions

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from the Health Consultation indicate that exposure to surface water contaminated from groundwater discharges could be a health concern. The Risk Assessment evaluated specific risks associated with each individual sampling location along the Prairie Creek tributary. It was determined that exposure to contaminants in the wetland location would pose a non-carcinogenic health risk, however carcinogenic risk would fall within an acceptable risk range. Exposure to contaminants in the sample from the creek downstream from the old spring house (the only chlorinated compound from this sample was cis-1,2-DCE) was not expected to pose a risk with respect to non-carcinogenic health effects (References 32; 33).

6.0 SUMMARY AND CONCLUSIONS

The Community Laundromat site is located at 306 Northwest 12th Avenue in Ava, Missouri. The facility on-site is currently operating a coin-operated public laundry facility under the name Hill Country Community Laundromat & Dry Cleaners. According to the site operator, Mr. Joe Banta, on-site dry cleaning operations utilizing tetrachloroethylene (PCE) were conducted for only a few years in the late 1980's, early 1990's. During that time frame, Mr. Banta reports there were two spill incidents where PCE was released onto the ground outside the facility.

The Community Laundromat facility is located in a light industrial park, which actually consists of a mix of commercial, industrial and residential properties. Also located in the industrial park, within 0.25 mile of the Community Laundromat facility are two other Superfund sites: the Sentinel Wood Treating Co. Inc. site and the 12th Avenue Solvents site. EPA Region VII, the Department, and multiple PRPs have conducted numerous prior investigations associated with these sites and have identified PCP and numerous VOCs, including PCE, in the groundwater beneath and downgradient of the industrial park. The Community Laundromat site was suspected as a source of the PCE contamination.

A Pre-CERCLIS Site Screening was completed at the Community Laundromat site by Tetra Tech EM Inc., an EPA contractor, in November 2001. PCE was documented on-site in the soil and shallow groundwater. The site was recommended for entry onto CERCLIS. Tetra Tech EM completed a Preliminary Assessment in December 2001, and recommended a Removal Assessment.

Removal Assessment sampling consisted of collecting subsurface soil samples, installing four micro-monitoring wells on-site, collecting three groundwater samples from those wells and one water sample from a spring located less than 0.25 mile from the site. A total of 28 soil samples were collected from the area surrounding the laundromat facility. PCE was detected in nine soil samples, with the two highest concentrations from samples located near the two spill incidents. West of the main entrance at a depth of 19 feet, PCE was detected at 12.4 ppm, and east of the building, between the laundromat and the Action Auction Realty building, at a depth of 10.5 feet, PCE was detected at 2.6 ppm. While the presence of PCE in the subsurface soil of the laundromat does not pose a direct exposure risk to workers or customers at the laundromat, the primary concern is the PCE in

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the soil leaching into groundwater. The concentrations of PCE in six of the ten samples exceeded both the CALM and EPA PCE soil screenings levels for migration to groundwater.

PCE was detected in the water from all three monitoring wells at levels significantly above the MCL of 5 ppb. PCE concentrations ranged from 49.8 ppb to 21,400 ppb. A sample could not be obtained from the fourth monitoring well, which was intended to be a background well, because there was an insufficient amount of water.

As a result of groundwater to surface water discharge, contamination from the Community Laundromat site has entered the unnamed tributary of Prairie Creek that runs through the town of Ava. PCE has been detected in two groundwater discharge areas or springs located less than 0.25 mile from the site. Both of these springs feed into the Prairie Creek tributary, which is occasionally used by children and adults in Ava for recreational purposes. A Risk Assessment and Health Consultation conducted by the Missouri Department of Health and Senior Services concluded that contact with contaminants in the creek could pose health risks.

The groundwater contamination in the Ava industrial park and the downgradient area is a complex plume of commingled contaminants including PCP and VOCs from at least three different identified sources. Removal Assessment sampling has documented that the Community Laundromat facility is a primary source of PCE. Sampling has shown PCE to be present in the unconsolidated zone above bedrock and in the shallow bedrock of the Ozark Aquifer at levels significantly above the MCL. One of Ava's municipal drinking water wells, Well #4, is located less than 500 feet north of the Community Laundromat facility, although the well is upgradient of the contamination and to date VOC contamination has not been detected in the well. The next closest municipal well is just over 0.5 mile southeast of the site.

A removal action is warranted at the Community Laundromat site. PCE is leaching from contaminated soil into groundwater at levels significantly above the MCL. There is a potential risk to public and private drinking water wells in the area. To date, no VOCs have been detected in any of Ava's four municipal wells, however the wells will continue to be monitored on a quarterly basis because the extent of the PCE plume has not been fully defined. Additional groundwater sampling may be necessary to fully define the PCE plume and its interconnection with the VOC plume from the Copeland facility. Water levels in the shallow monitoring wells installed on-site were low during the winter months the RA investigation was conducted. Levels would be expected to increase during the spring season.

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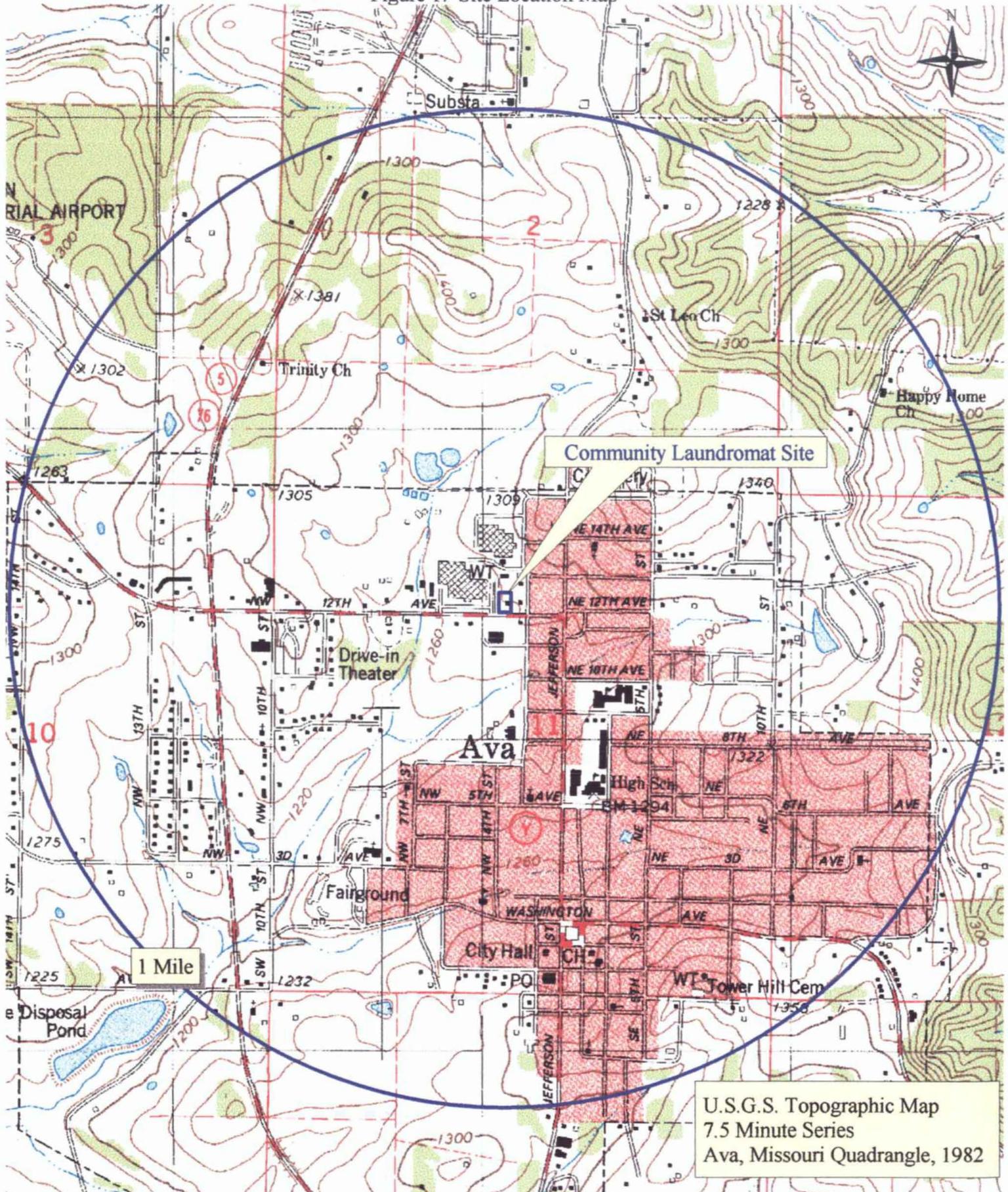
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APPENDIX A
FIGURES

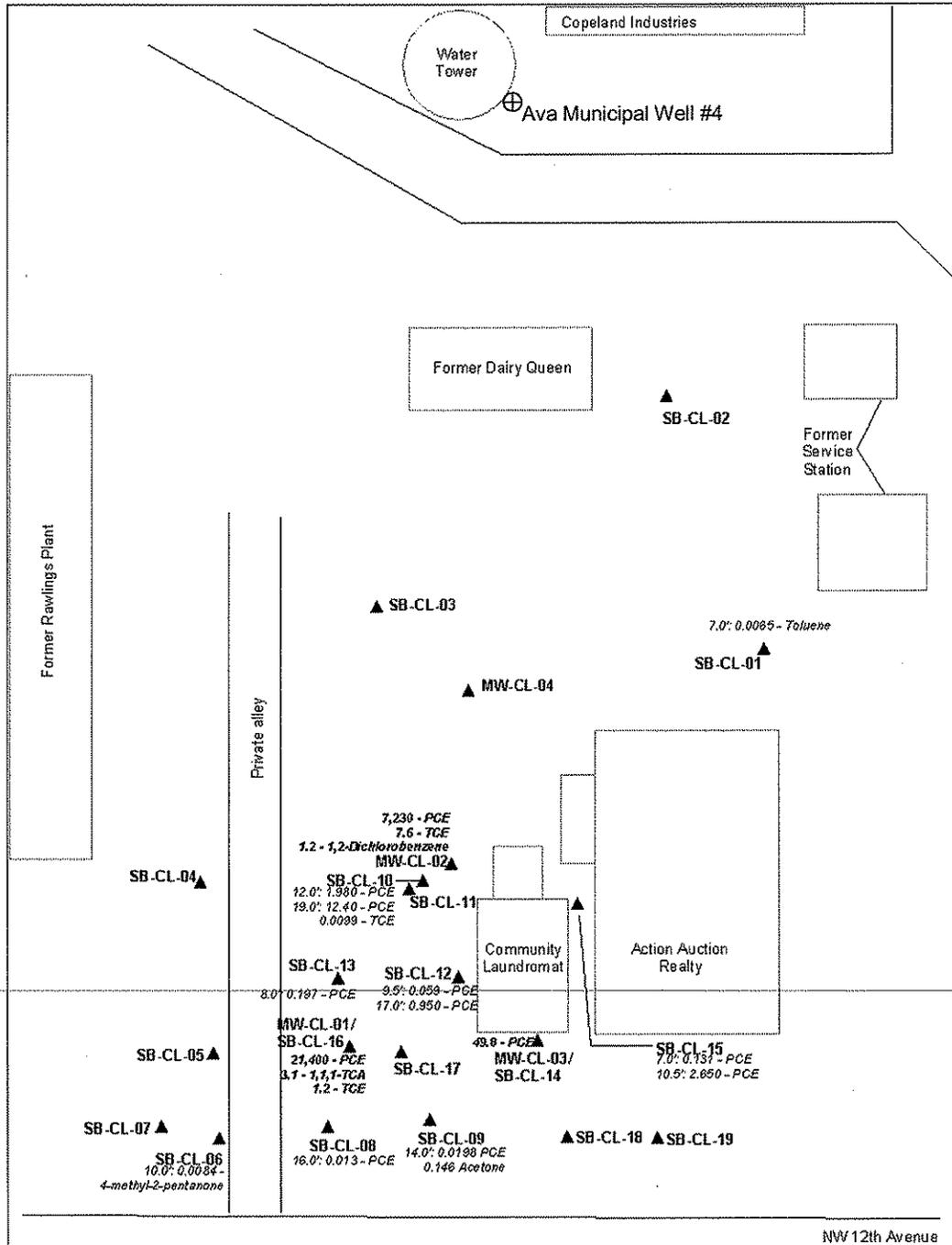
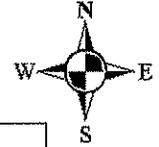
Community Laundromat Site
306 NW 12th Avenue
Ava, Missouri

Figure 1: Site Location Map



U.S.G.S. Topographic Map
7.5 Minute Series
Ava, Missouri Quadrangle, 1982

Figure 2
 Community Laundromat
 Removal Assessment Sampling Results
 306 NW 12th Avenue
 Ava, MO
 January 2002



Water results are shown in ppb, in bold.
 Soil results are shown in ppm at the depth indicated.

| Sample Listing | | | |
|--|--|--|---|
| SB-CL-01 0210559 - 4.5' depth 0210560 - 7.0' depth | SB-CL-06 0210566 - 10.0' depth SB-CL-07 0210567 - 12.5' depth | SB-CL-10 0210573 - 12.0' depth 0210574 - 19.0' depth | SB-CL-15 0210583 - 7.0' depth 0210584 - 10.5' depth |
| SB-CL-02 0210561 - 15.5' depth 0210562 - 18.0' depth | SB-CL-08 0210568 - 8.0' depth 0210569 - 16.0' depth | SB-CL-12 0210575 - 9.5' depth 0210577 - 17.0' depth | SB-CL-18 0210585 - 9.5' depth 0210586 - 11.5' depth |
| SB-CL-03 0210563 - 11.0' depth | SB-CL-09 0210571 - 12.0' depth 0210572 - 14.0' depth | SB-CL-13 0210576 - 2.5' depth 0210579 - 8.0' depth | SB-CL-19 0210588 - 6.0' depth |
| SB-CL-04 0210564 - 1.5' depth | | SB-CL-14 0210582 - 9.0' depth | |
| SB-CL-05 0210565 - 20.0' depth | | | |

(Sample 0210580, a water grab collected from the "Old Spring House" was collected at a point southwest of the site and is off the map scale)

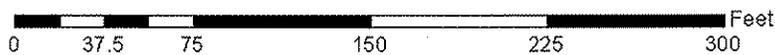


Figure 3
Area Map of Selected Industrial Park Facilities and Other Key Feature Locations
Ava, Missouri



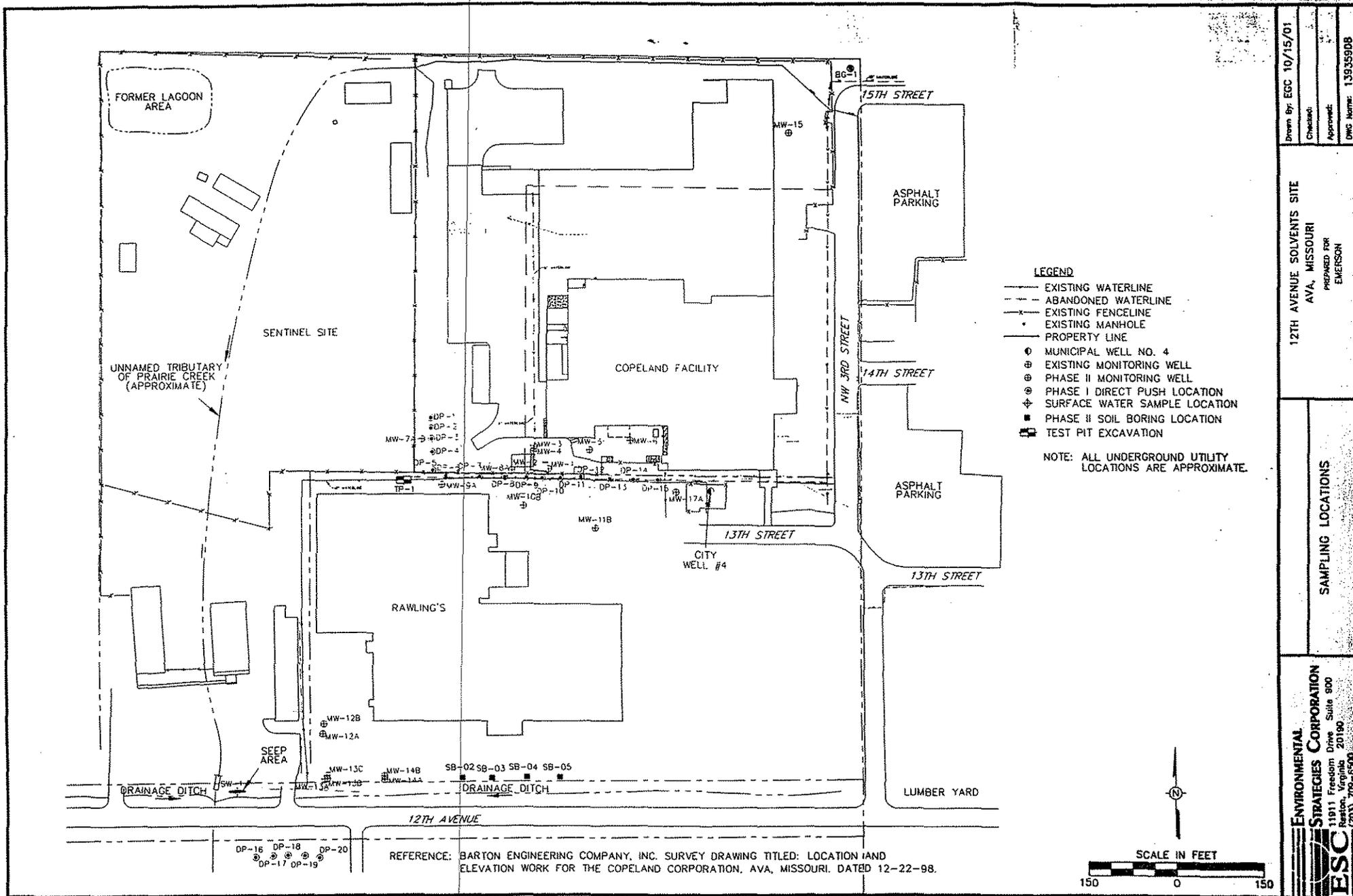


Figure 4

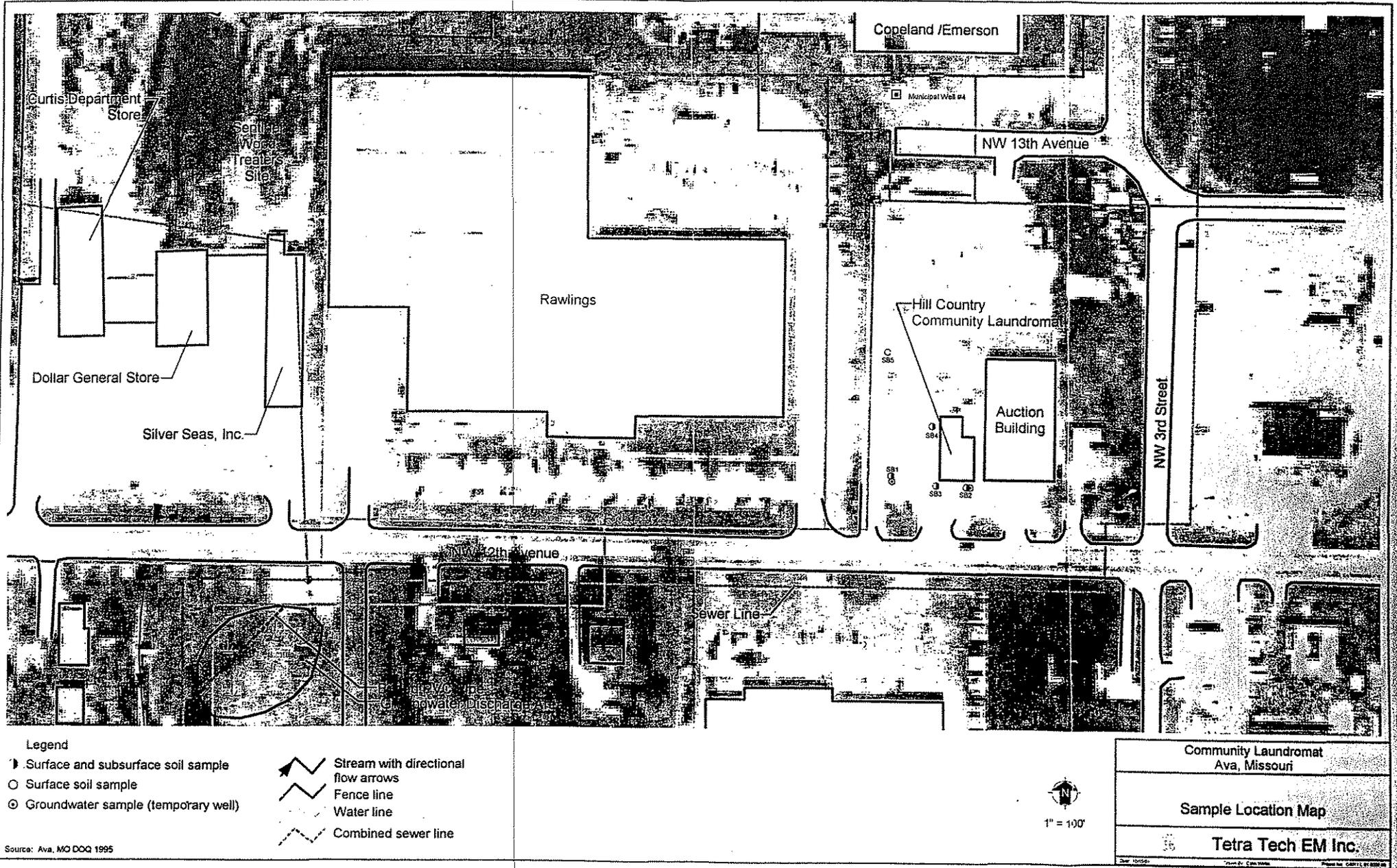
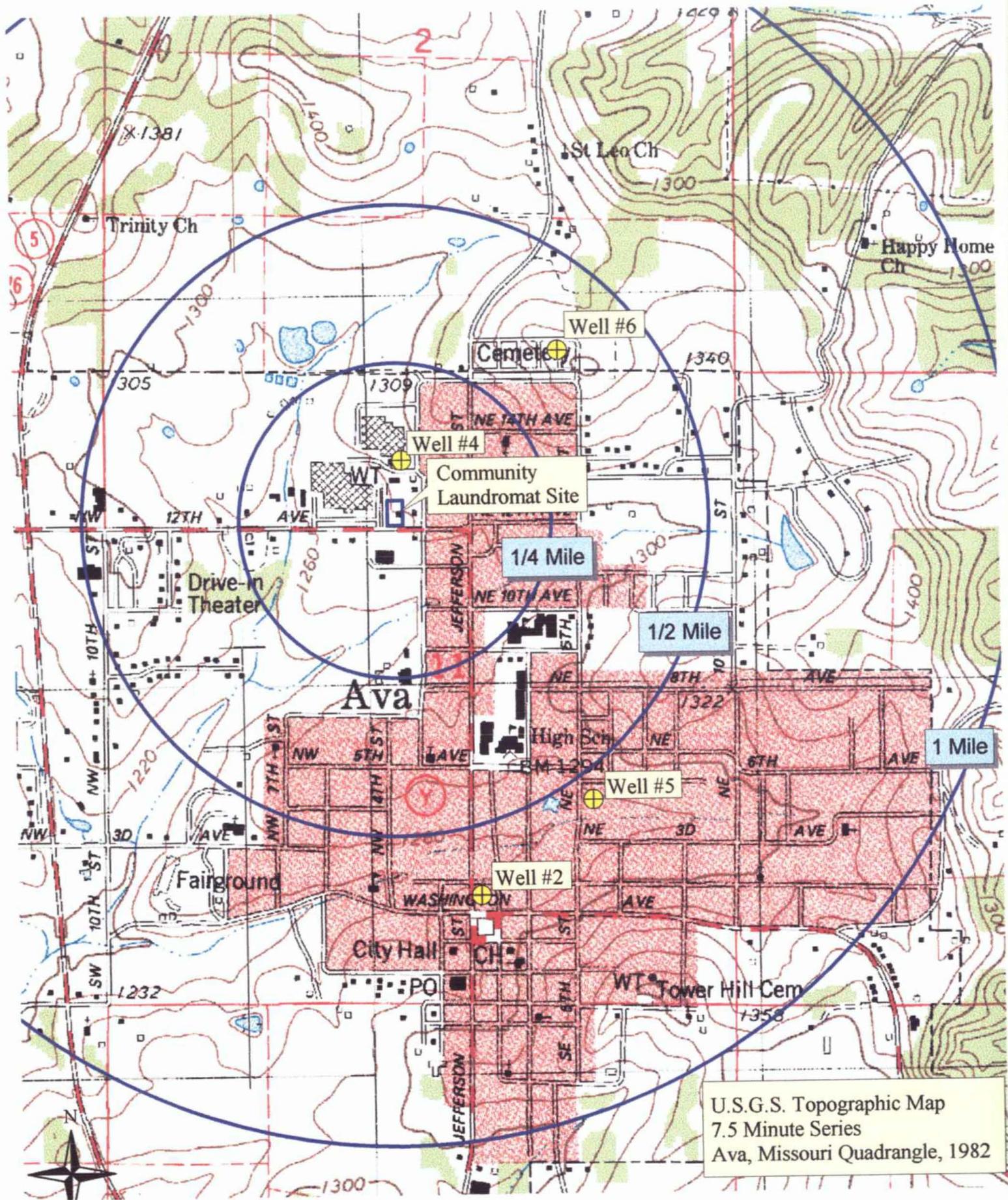


Figure 5

Community Laundromat Site
Ava, Missouri
Figure 6: Site Map with Ava Public Wells



APPENDIX B
TABLES

TABLE 1
 Community Laundromat Site
 306 NW 12th Avenue Ava, Missouri
 Select Soil Sampling Results from Removal Assessment
 January 2002

All results in parts per million

Bolded results are values that exceed CALM C_{Leach}

Underlined results are values that exceed SCDM cancer risk screening concentration

| Sample ID | Depth (feet) | Laboratory Sample No. | PCE | TCE | Toluene | Acetone | 4-Methyl-2-pentanone (Methyl isobutyl ketone) |
|--|--------------------------|-----------------------|--------------|--------|---------|-------------|---|
| SB CL-01 | 4.5 | 0210559 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 7.0 | 0210560 | <0.005 | <0.005 | 0.0065 | <0.1 | <0.005 |
| SB CL-02 | 15.5 | 0210561 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 18.0 | 0210562 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-03 | 11.0 | 0210563 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-04 | 1.5 | 0210564 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-05 | 20 | 0210565 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-06 | 10 | 0210566 | <0.005 | <0.005 | <0.005 | <0.1 | 0.0084 |
| SB CL-07 | 12.5 | 0210567 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-08 | 8.0 | 0210568 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 16.0 | 0210569 | 0.013 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-09 | 12.0 | 0210570 ^A | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 12.0 | 0210571 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 14.0 | 0210572 | 0.0198 | <0.005 | <0.005 | 0.146 | <0.005 |
| SB CL-10 | 12.0 | 0210573 | 1.980 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 19.0 | 0210574 | 12.4 | 0.0099 | <0.005 | <0.1 | <0.005 |
| SB CL-12 | 9.5 | 0210575 | 0.059 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 17.0 | 0210576 ^B | 0.741 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 17.0 | 0210577 | 0.950 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-13 | 2.5 | 0210578 | <0.025 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 8.0 | 0210579 | 0.197 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-14 | 9.0 | 0210582 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-15 | 7.0 | 0210583 | 0.131 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 10.5 | 0210584 | 2.650 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-18 | 9.5 | 0210585 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 11.5 | 0210586 | <0.025 | <0.005 | <0.005 | <0.1 | <0.005 |
| SB CL-19 | 6.0 | 0210587 ^C | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| | 6.0 | 0210588 | <0.005 | <0.005 | <0.005 | <0.1 | <0.005 |
| CALM Soil Target Concentrations | Scenario A (Residential) | | 40 | 40 | 650 | 2,700 | 1,000 |
| | Scenario B (Commercial) | | 55 | 56 | 650 | 3,700 | 1,500 |
| | Scenario C (Industrial) | | 120 | 89 | 650 | 8,700 | 2,300 |
| | C _{Leach} | | 0.1 | 0.1 | 3.7 | None Listed | None Listed |
| EPA PRG | Residential | | 5.7 | 2.8 | 520 | 1,600 | 790 |
| | Industrial | | 19 | 6.1 | 520 | 6,200 | 2,900 |
| EPA Soil Screening Levels for Migration to Groundwater | DAF 20 | | 0.06 | 0.06 | 10 | 20 | None Listed |
| | DAF 1 | | 0.003 | 0.003 | 0.06 | 0.8 | None Listed |

^A Duplicate of sample 0210571

^B Duplicate of sample 0210577

^C Duplicate of sample 0210588

TABLE 2 (Revised)
 Community Laundromat Site
 306 NW 12th Avenue Ava, Missouri
 Select Groundwater Sampling Results from Removal Assessment
 February/April 2002

All results in parts per billion, except PCE TCLP which is reported in ppm
 Bolded results are values that exceed EPA MCL
 NA - Not analyzed

| Location | Laboratory Sample No. | Date Sampled | Total Depth (feet) | Depth to Water (feet) | PCE | PCE TCLP ppm | TCE | cis-1,2-DCE | 1,2-Dichloro benzene | 1,1,1-TCA |
|------------------|-----------------------|--------------|--------------------|-----------------------|-------------|--------------|------------|-------------|----------------------|-----------|
| MW-CL-01 | 0211470 | 02/11/02 | 21.64 | 14.70 | 21,400* | 21.4 | 1.2 | <1.0 | <1.0 | 3.1 |
| MW-CL-02 | 0211468 | 02/11/02 | 18.95 | 17.52 | 7,230* | 7.23 | 7.6 | <1.0 | 1.2 | <1.0 |
| | 0211469† | 02/11/02 | 18.95 | 17.52 | 7,080* | 7.08 | 6.5 | <1.0 | 1.0 | <1.0 |
| MW-CL-03 | 0211471 | 02/11/02 | 18.35 | 16.25 | 49.8 | NA | <1.0 | <1.0 | <1.0 | <1.0 |
| MW-CL-04 | 0211071 | 04/24/02 | 22.10 | 17.00 | 1.7 | NA | <1.0 | <1.0 | <1.0 | <1.0 |
| | 0211072†† | 04/24/02 | 22.10 | 17.00 | 1.6 | NA | <1.0 | <1.0 | <1.0 | <1.0 |
| Old Spring House | 0121875 | 05/09/01 | | | 35.1 | NA | 2.5 | 25.7 | <1.0 | <1.0 |
| | 0210580 | 01/16/02 | | | 37.3 | NA | 2.6 | 31.4 | <1.0 | <1.0 |
| EPA MCL | | | | | 5 | | 5 | 70 | 600 | 200 |

* A 1:100 dilution was analyzed on 2/14/02 to quantitate PCE

† QA/QC sample - blind duplicate of 0211468

†† QA/QC sample - blind duplicate of 0211071

TABLE 2
 Community Laundromat Site
 306 NW 12th Avenue Ava, Missouri
 Select Groundwater Sampling Results from Removal Assessment
 February 2002

All results in parts per billion, except PCE TCLP which is reported in ppm

Bolded results are values that exceed EPA MCL

NA - Not analyzed

| Location | Laboratory Sample No. | Date Sampled | Total Depth (feet) | Depth to Water (feet) | PCE | PCE TCLP ppm | TCE | cis-1,2-DCE | 1,2-Dichloro benzene | 1,1,1-TCA |
|------------------|---------------------------|--------------|--------------------|-----------------------|-------------|--------------|------------|-------------|----------------------|-----------|
| MW-CL-01 | 0211470 | 02/11/02 | 21.64 | 14.70 | 21,400* | 21.4 | 1.2 | <1.0 | <1.0 | 3.1 |
| MW-CL-02 | 0211468 | 02/11/02 | 18.95 | 17.52 | 7,230* | 7.23 | 7.6 | <1.0 | 1.2 | <1.0 |
| | 0211469 [†] | 02/11/02 | 18.95 | 17.52 | 7,080* | 7.08 | 6.5 | <1.0 | 1.0 | <1.0 |
| MW-CL-03 | 0211471 | 02/04/02 | 18.35 | 16.25 | 49.8 | NA | <1.0 | <1.0 | <1.0 | <1.0 |
| MW-CL-04 | Not sampled ^{††} | | 22.10 | 19.69 | | | | | | |
| Old Spring House | 0121875 | 05/09/01 | | | 35.1 | NA | 2.5 | 25.7 | <1.0 | <1.0 |
| | 0210580 | 01/16/02 | | | 37.3 | NA | 2.6 | 31.4 | <1.0 | <1.0 |
| EPA MCL | | | | | 5 | | 5 | 70 | 600 | 200 |

* A 1:100 dilution was analyzed on 2/14/02 to quantitate PCE

† QA/QC sample - blind duplicate of 0211468

†† MW-CL-04 was evacuated to dryness and did not recharged sufficiently to collect a sample.

APPENDIX C
PHOTOGRAPHS



PHOTO 1. Community Laundromat Site, Ava, MO, Douglas County. Photo taken on January 14, 2002 by Brian Allen, Environmental Services Program, DNR. View of Community Laundromat facility, taken from former Rawlings parking lot, looking northeast. Action Auction Realty building can be seen immediately east of the laundromat building.



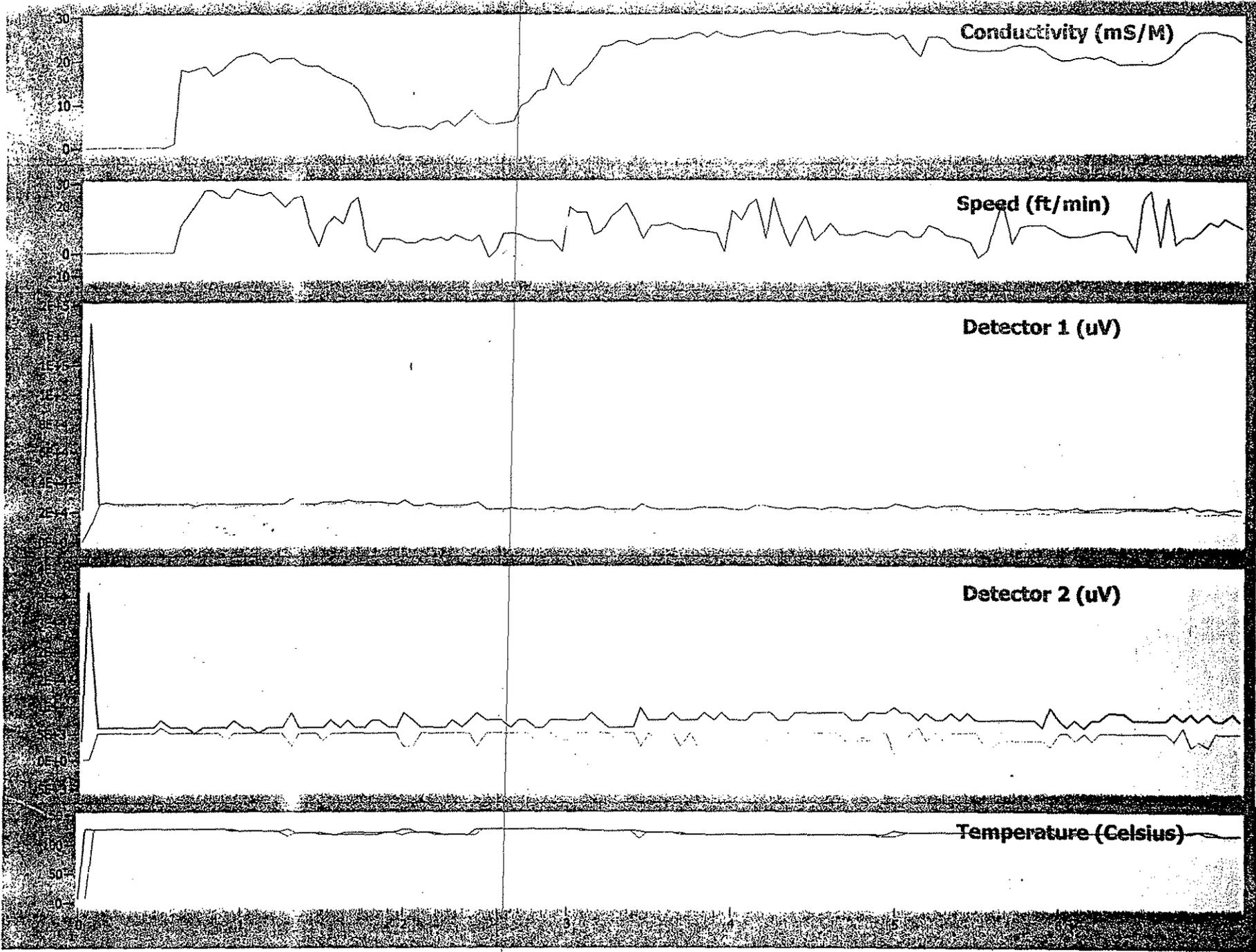
PHOTO 2. Community Laundromat Site, Ava, MO, Douglas County. Photo taken on January 15, 2002 by Brian Allen, Environmental Services Program, DNR. View of southern portion of Community Laundromat facility, taken from the parking lot, looking east.

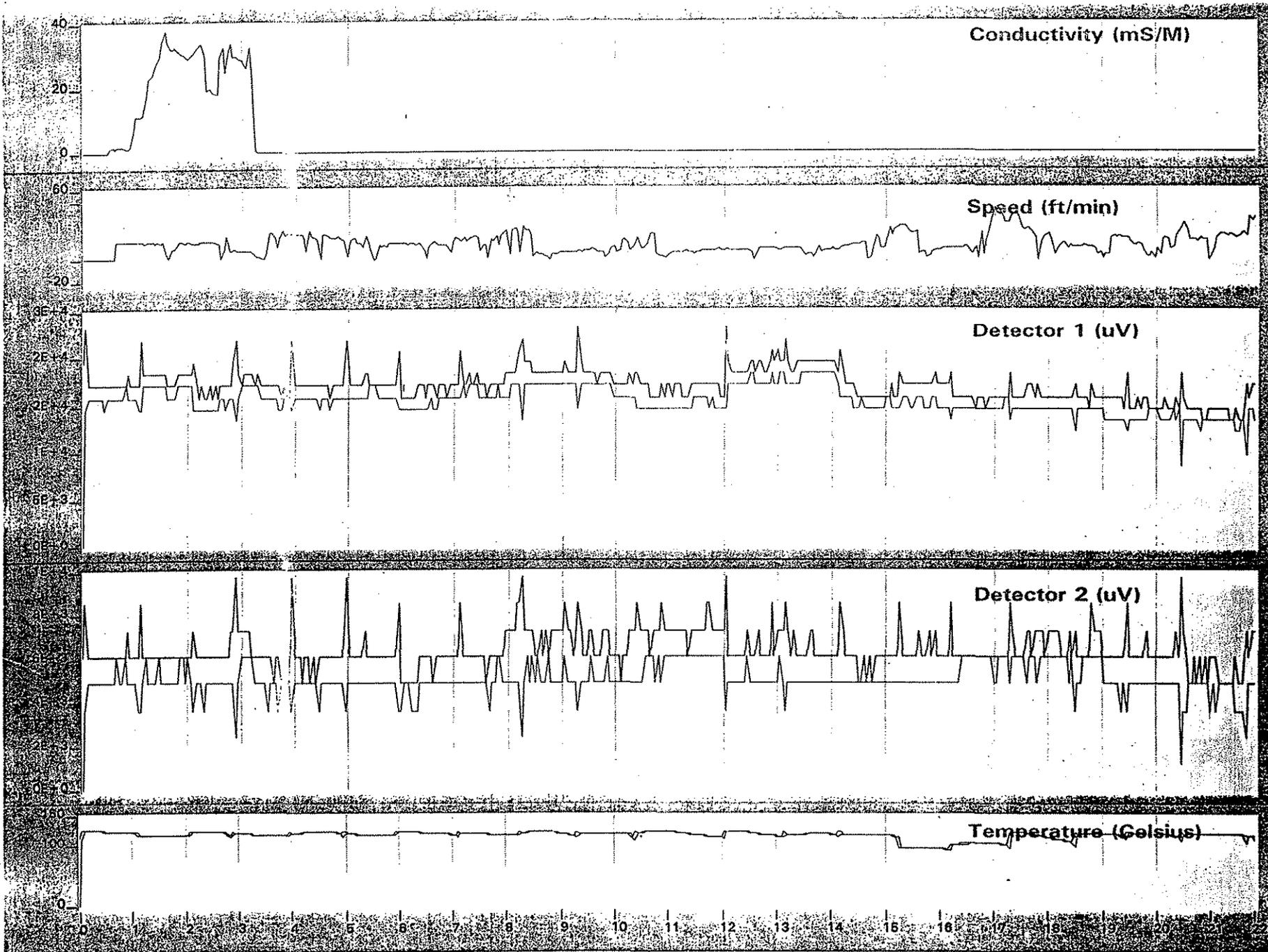


PHOTO 3. Community Laundromat Site, Ava, MO, Douglas County. Photo taken on January 14, 2002 by Brian Allen, Environmental Services Program, DNR. Photo of Removal Assessment Soil Borings CL-04, CL-05 and CL-06 located in the former Rawlings facility parking lot, west of the Community Laundromat facility. The private drive, located west of the Community Laundromat parking lot, is visible in the upper right of the photo. Also barely visible in the upper portion of the photo is a portion of the Copeland facility (on the left) and the old Dairy Queen (on the right). Photo is taken looking north.

APPENDIX D
MIP GRAPHS

Log: A:\AVA1.DA1





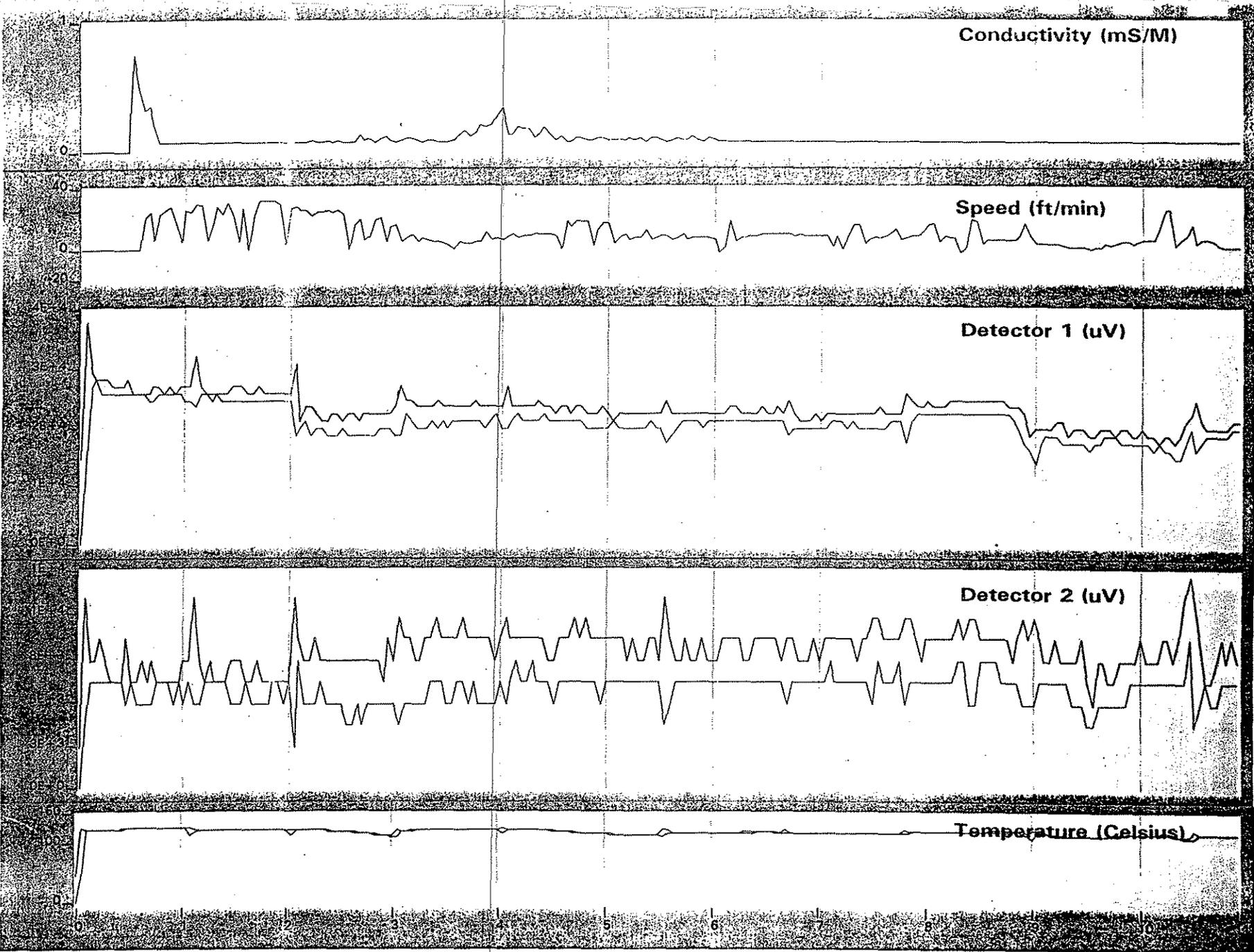
Conductivity (mS/M)

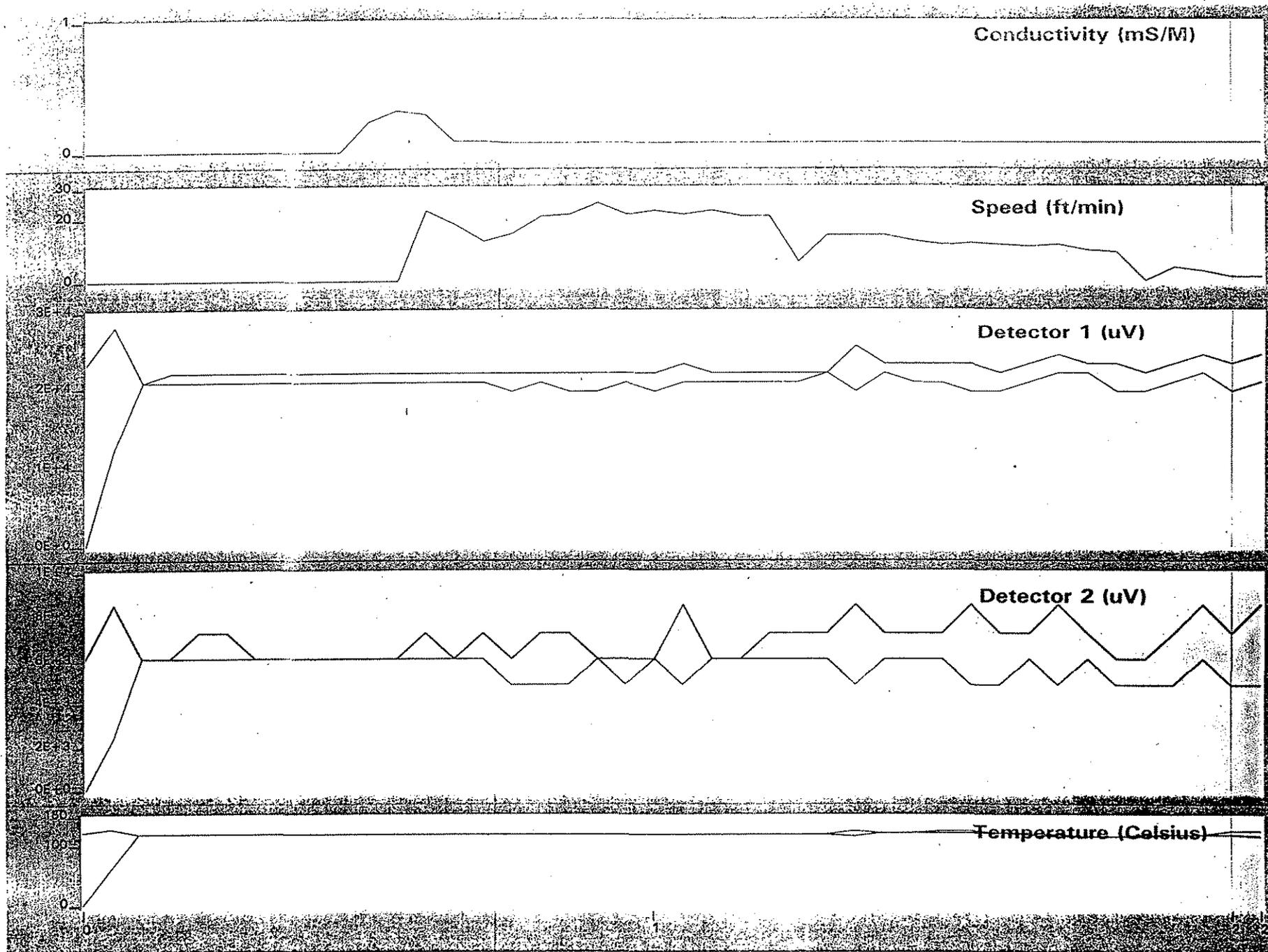
Speed (ft/min)

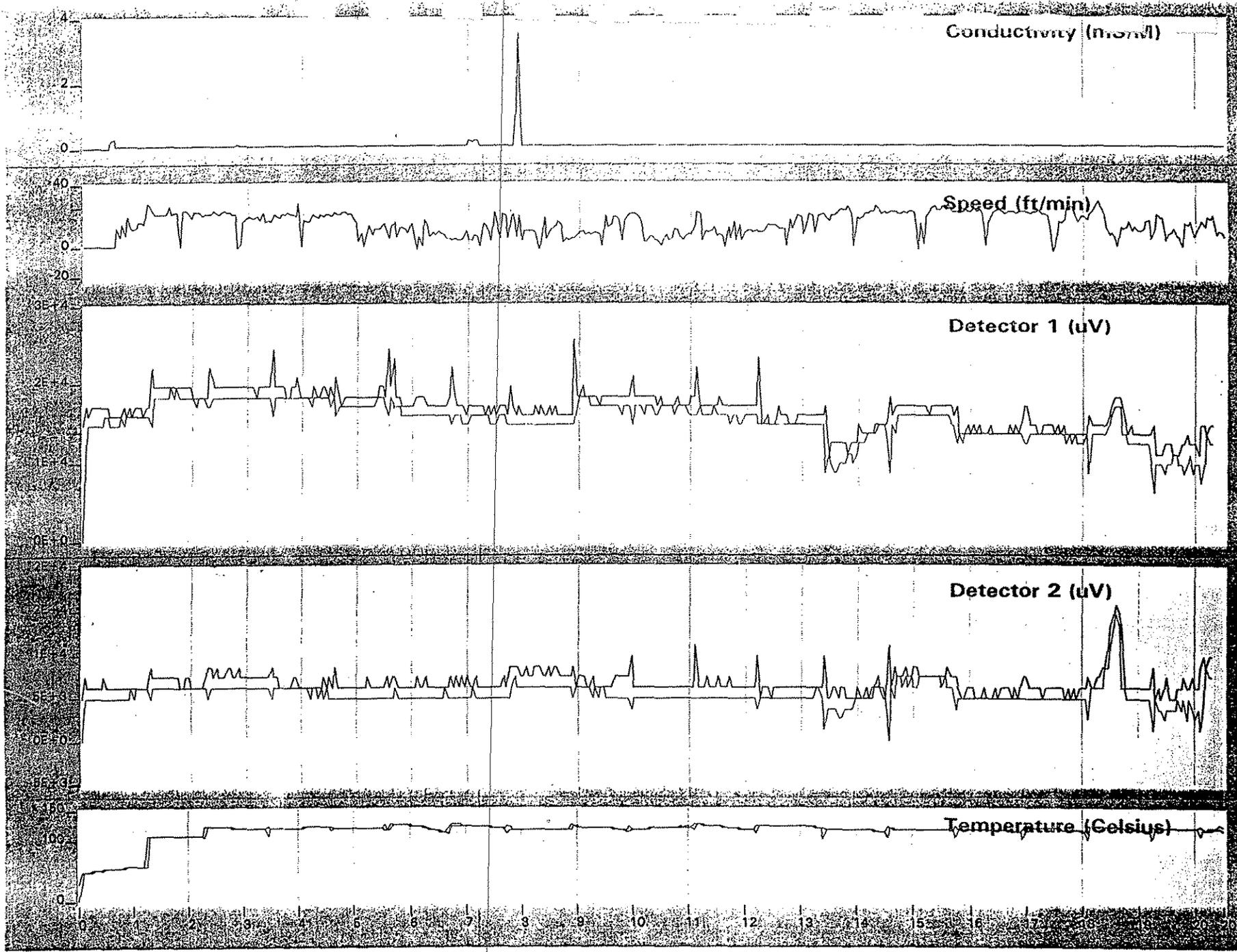
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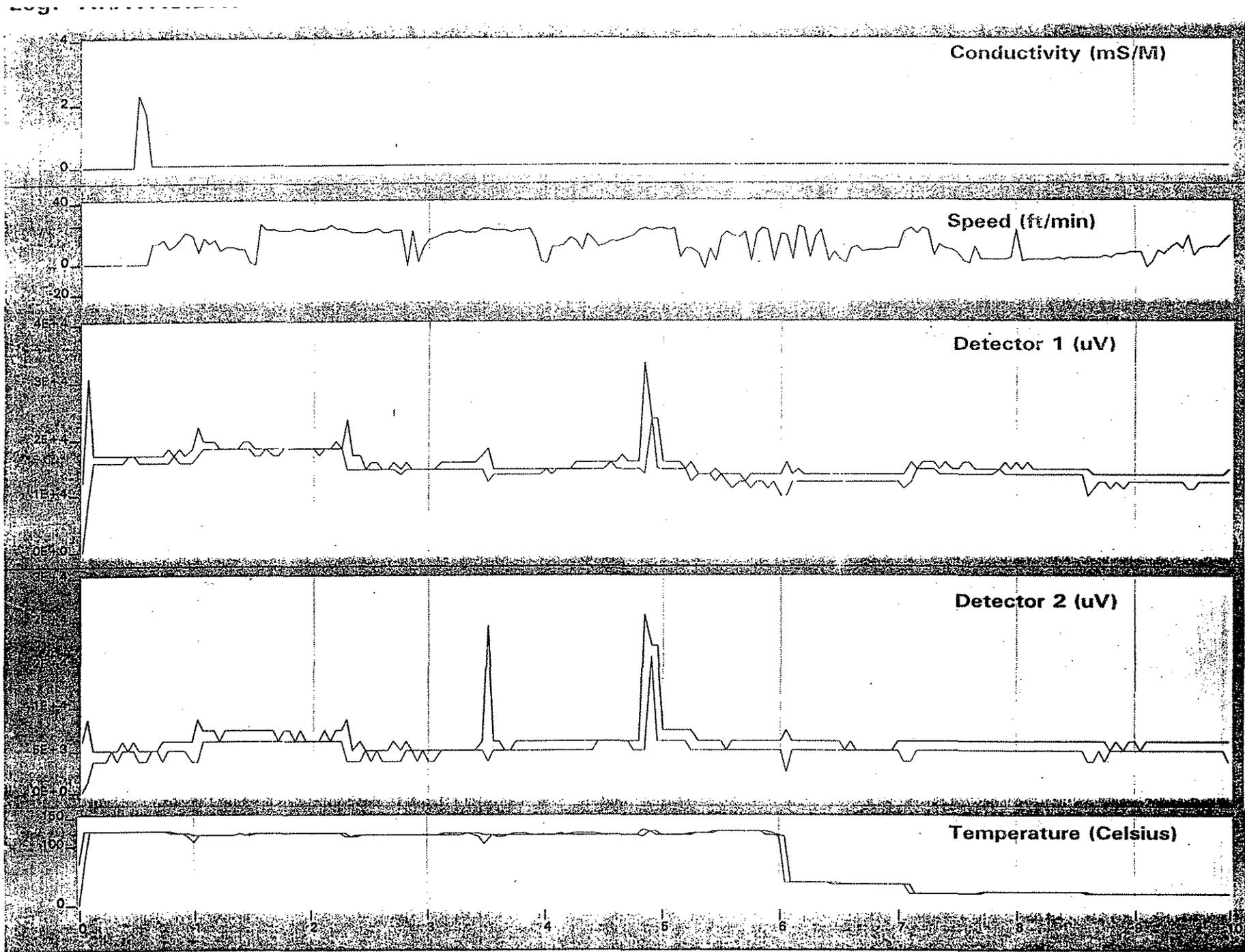
Detector 2 (uV)

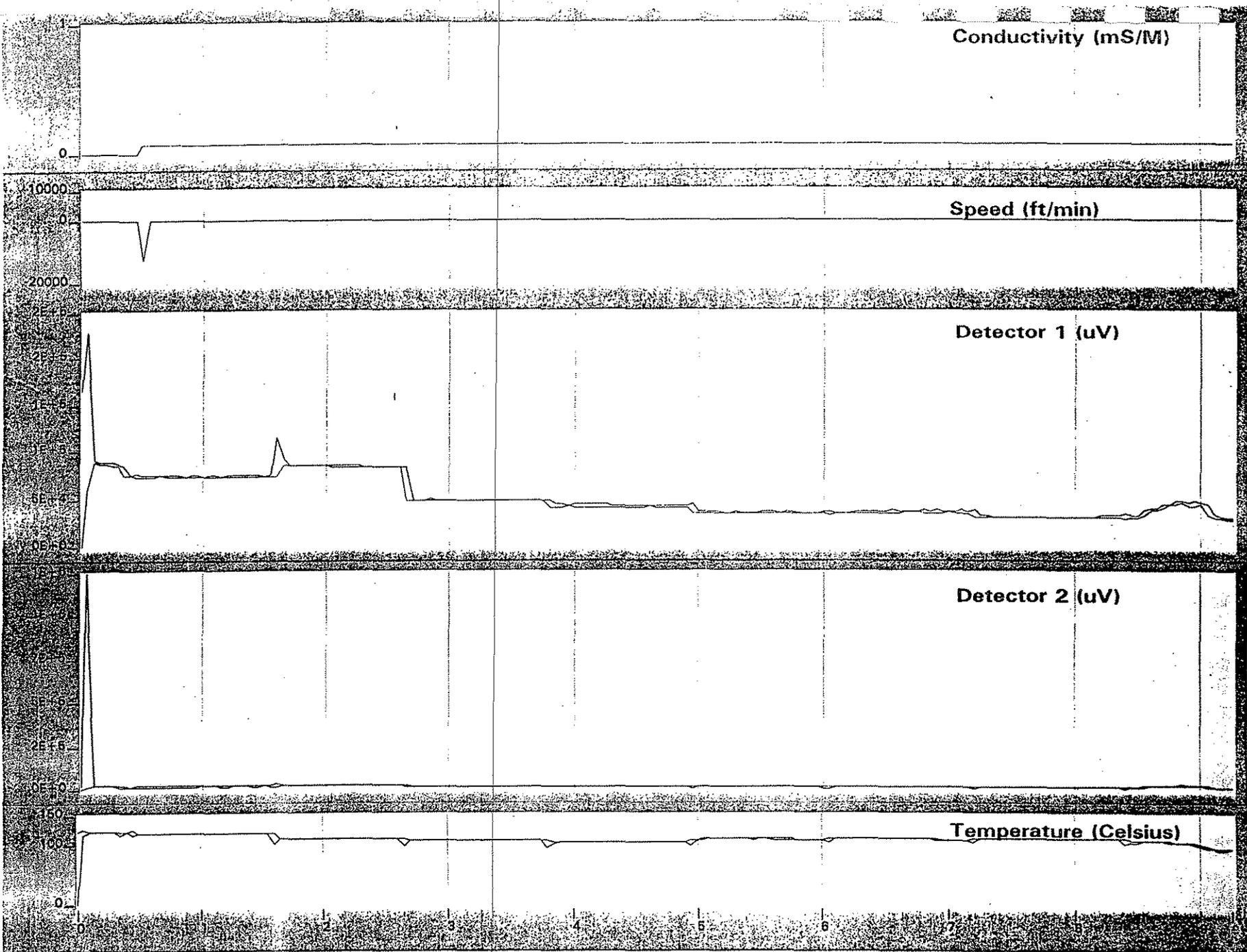
Temperature (Celsius)

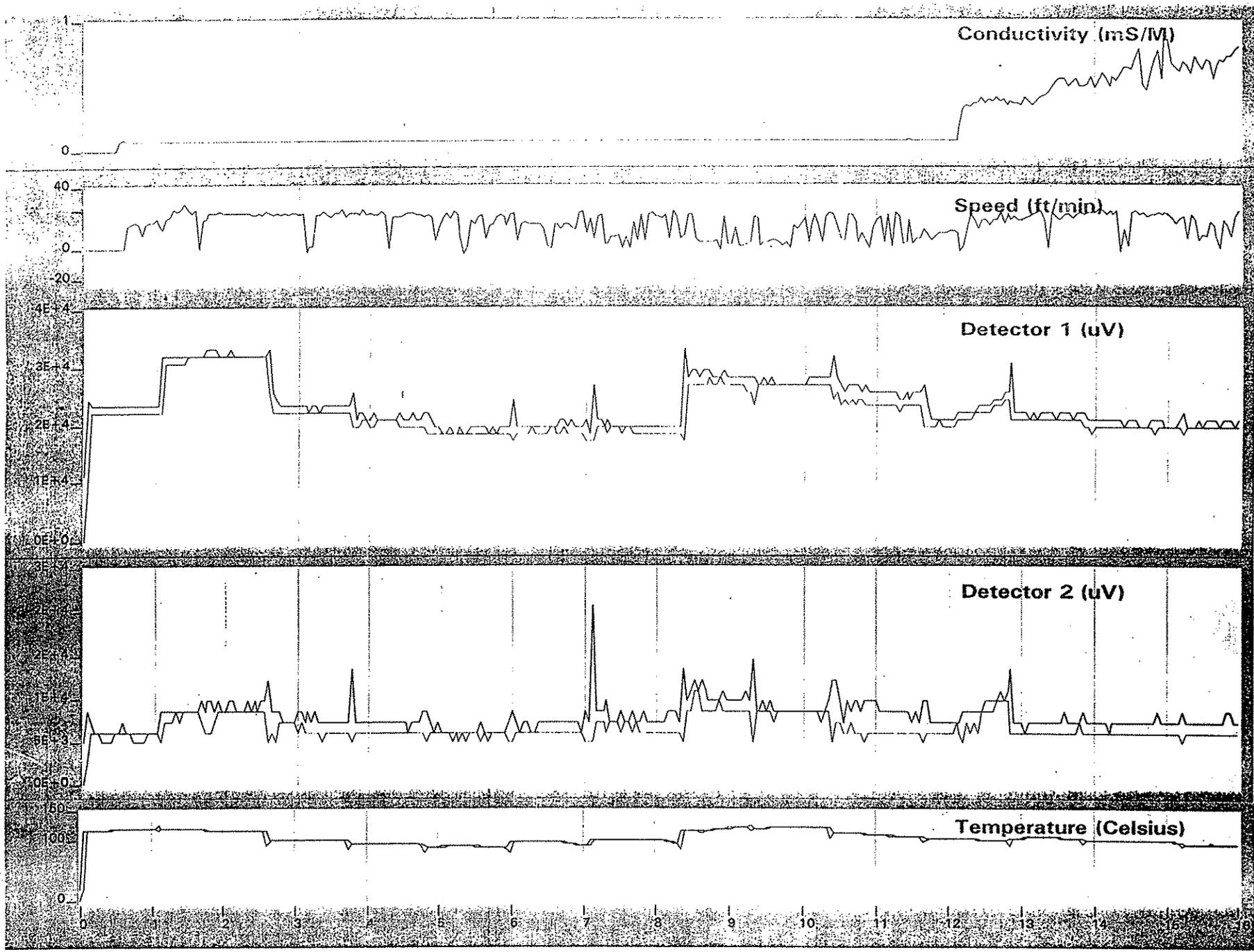


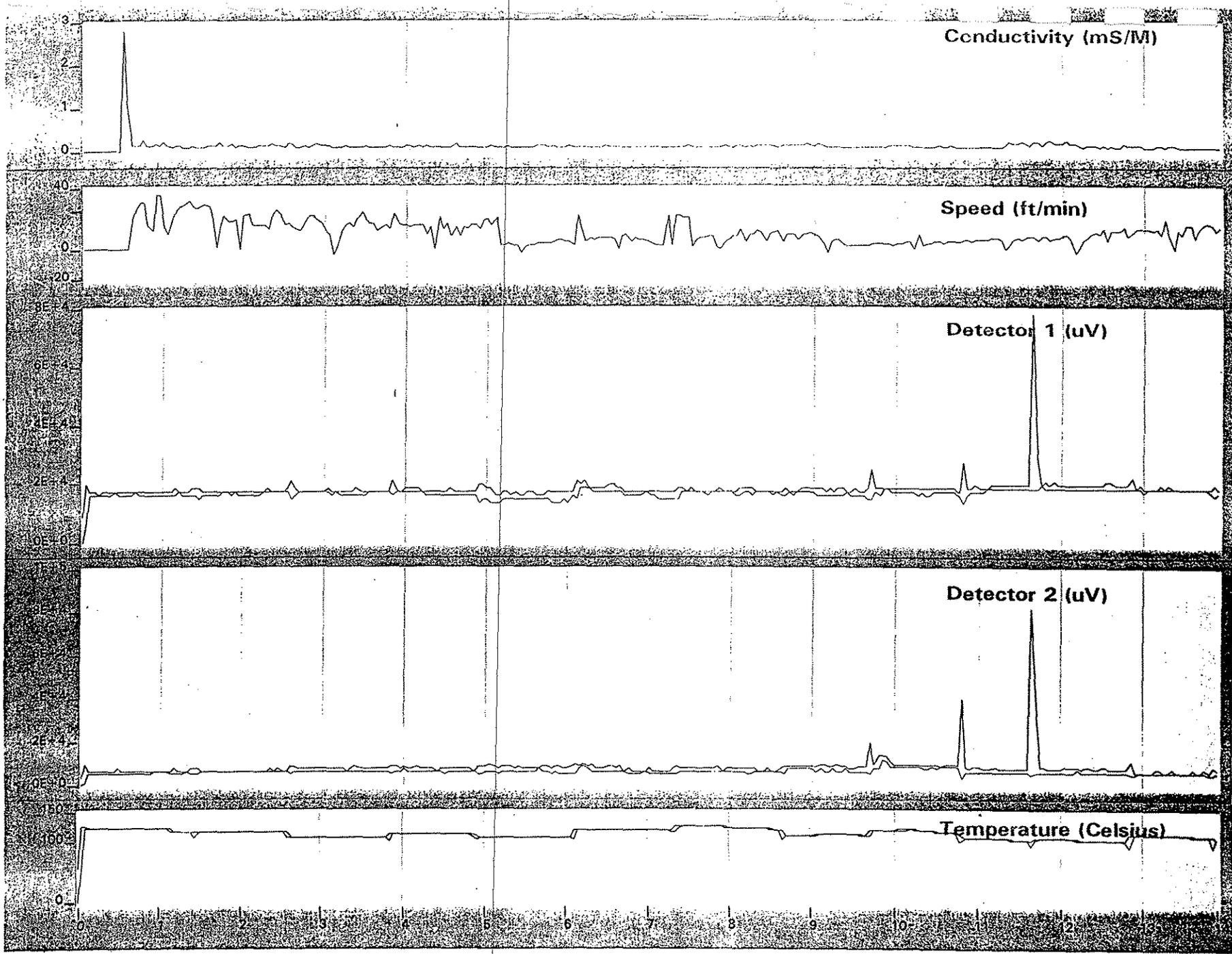








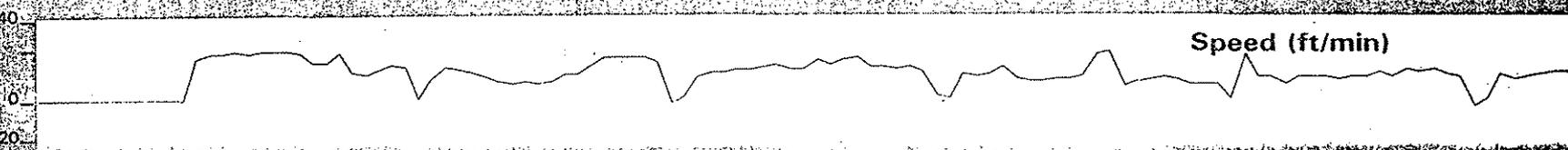




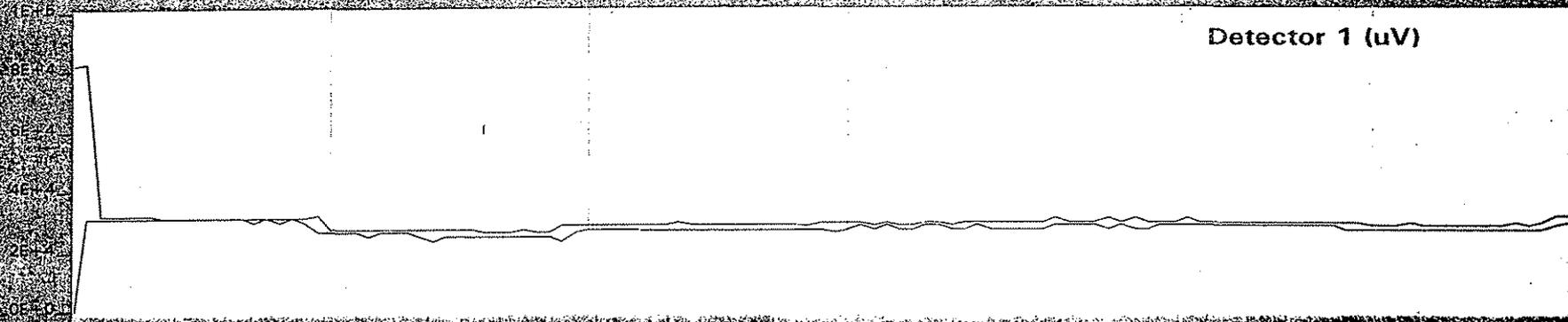
Conductivity (mS/M)



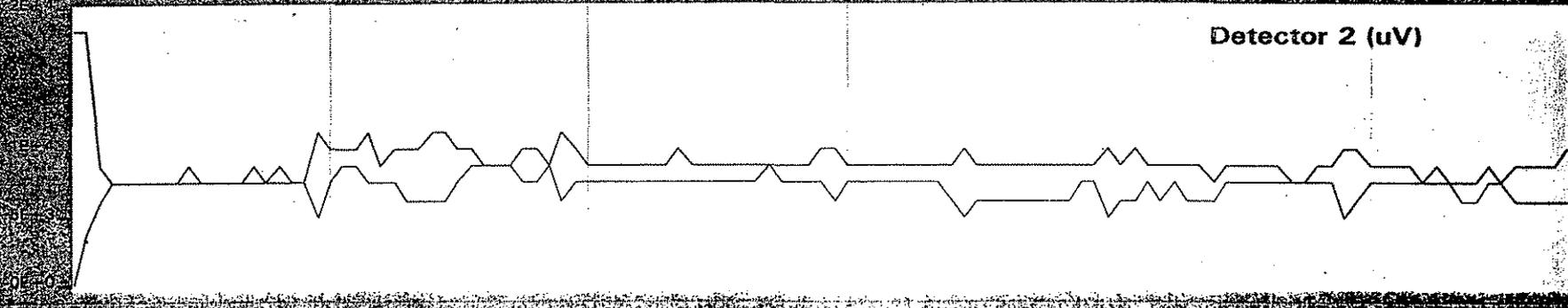
Speed (ft/min)



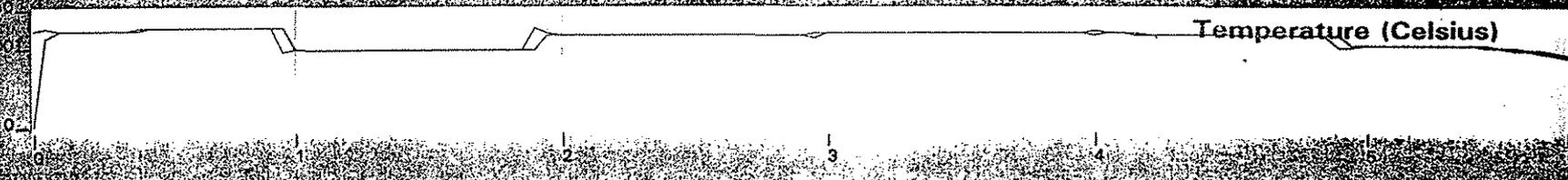
Detector 1 (uV)



Detector 2 (uV)



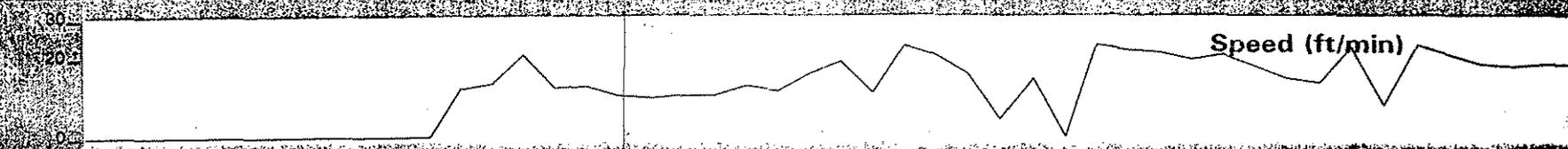
Temperature (Celsius)



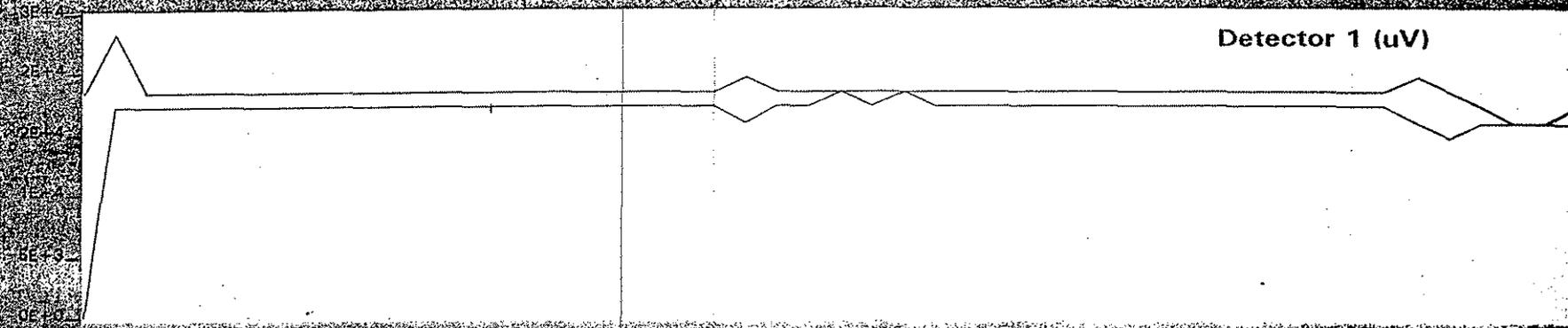
Conductivity (mS/M)



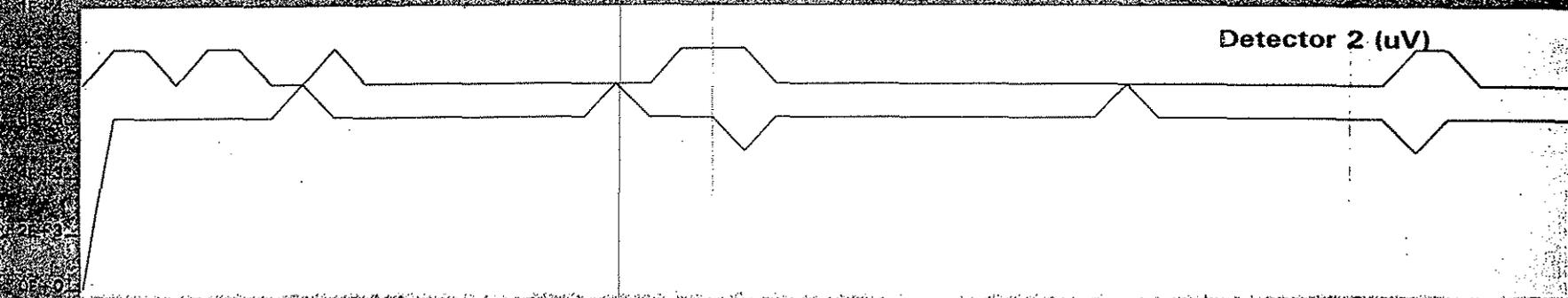
Speed (ft/min)



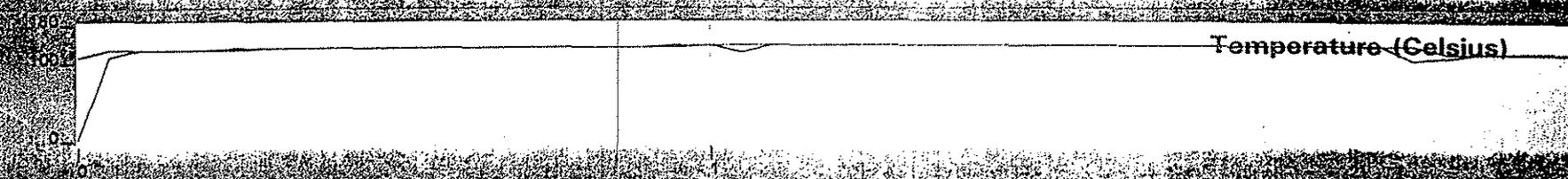
Detector 1 (uV)

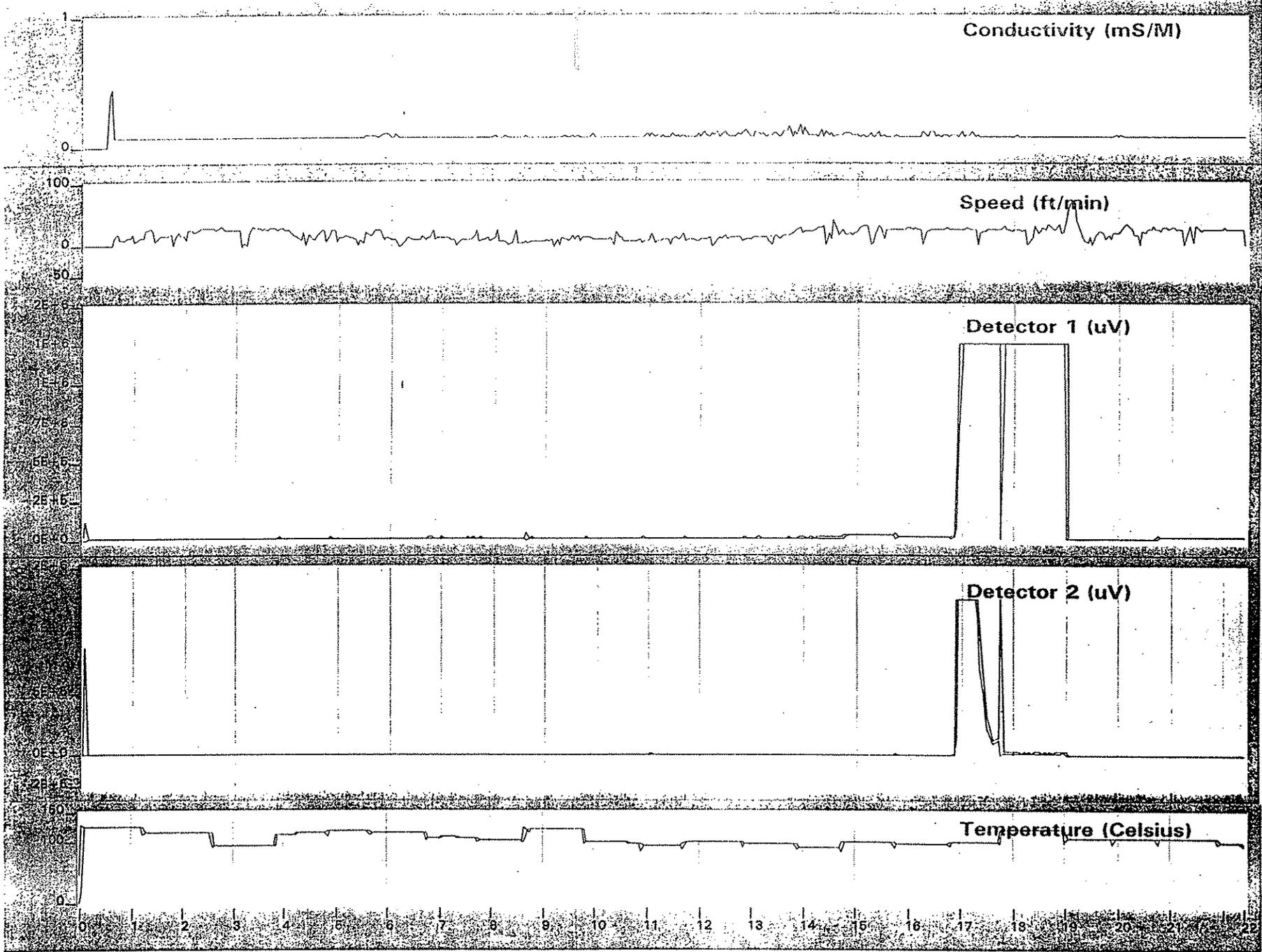


Detector 2 (uV)



Temperature (Celsius)





J: AV 3.D

Conductivity (mS/M)

0.1

40

20

8E

6E

4E

2E

0E

8E

6E

4E

2E

0E

0

100

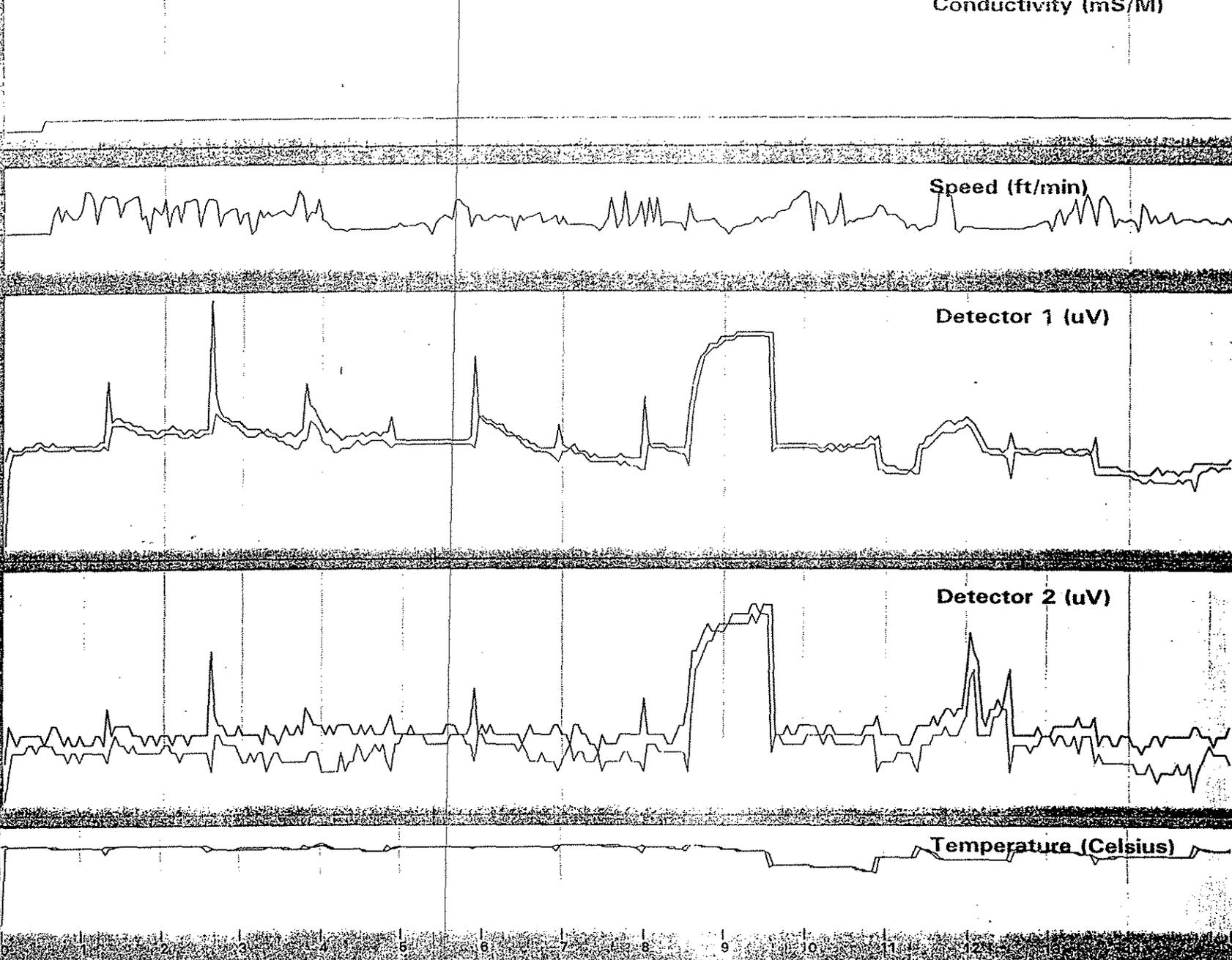
0

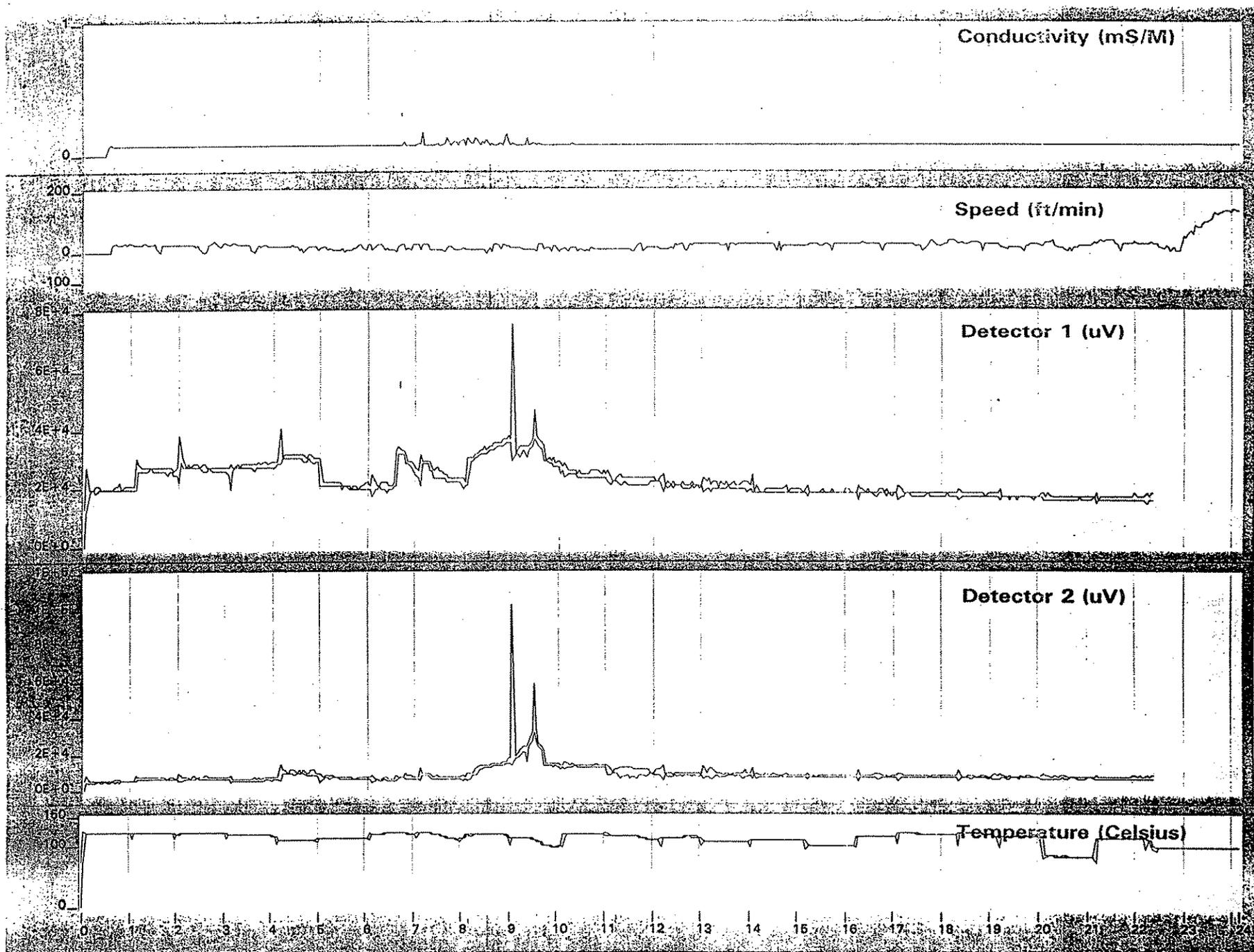
Speed (ft/min)

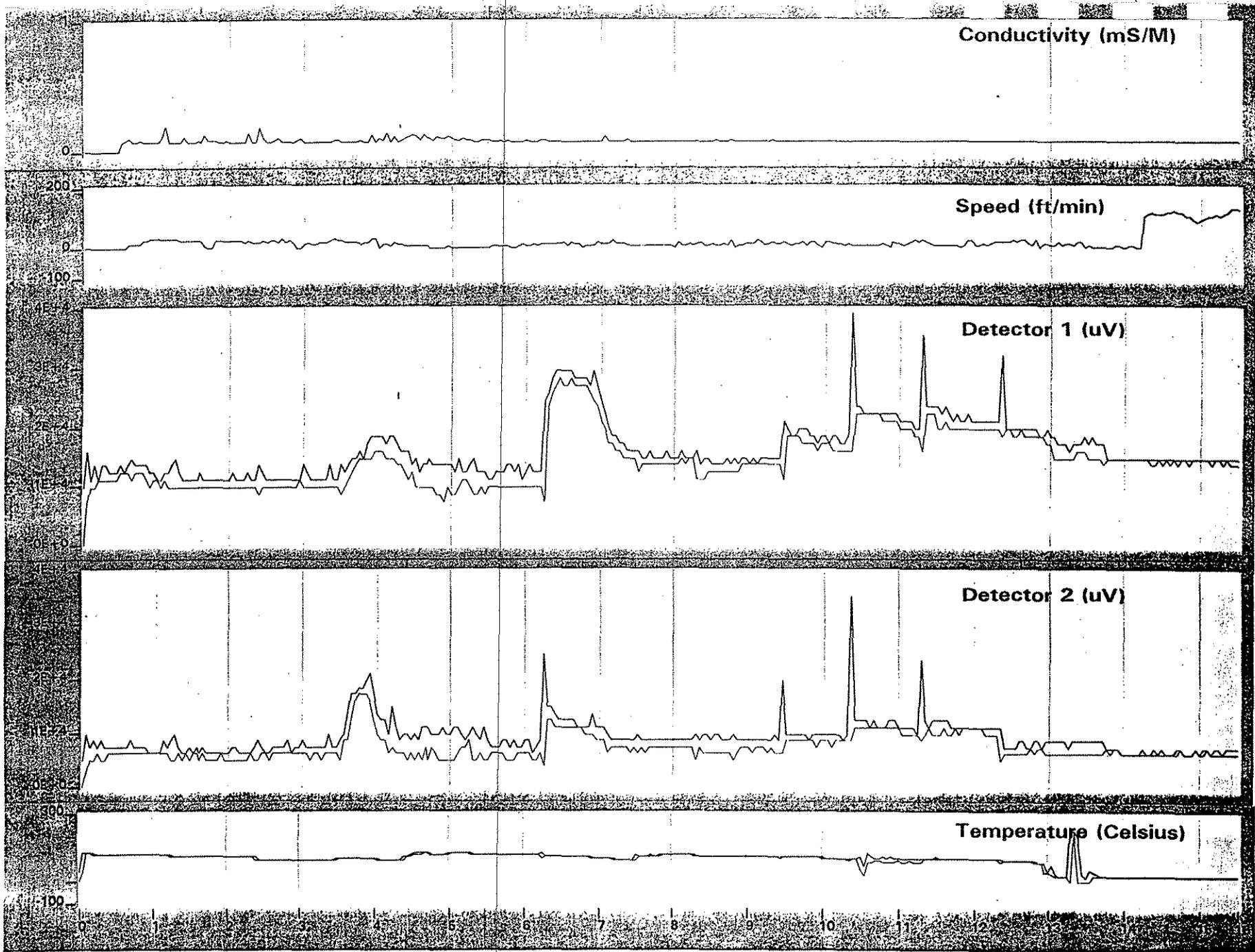
Detector 1 (uV)

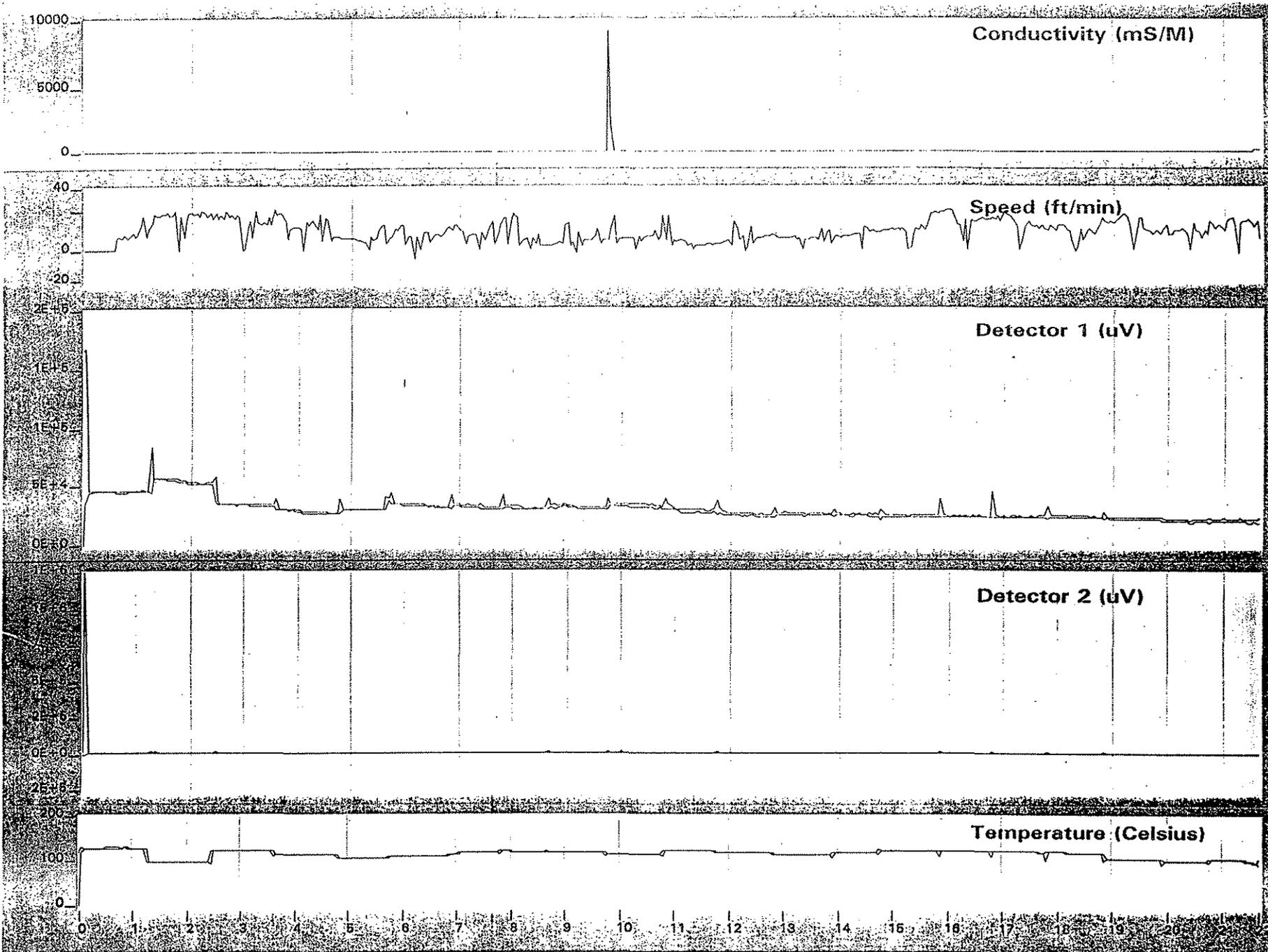
Detector 2 (uV)

Temperature (Celsius)

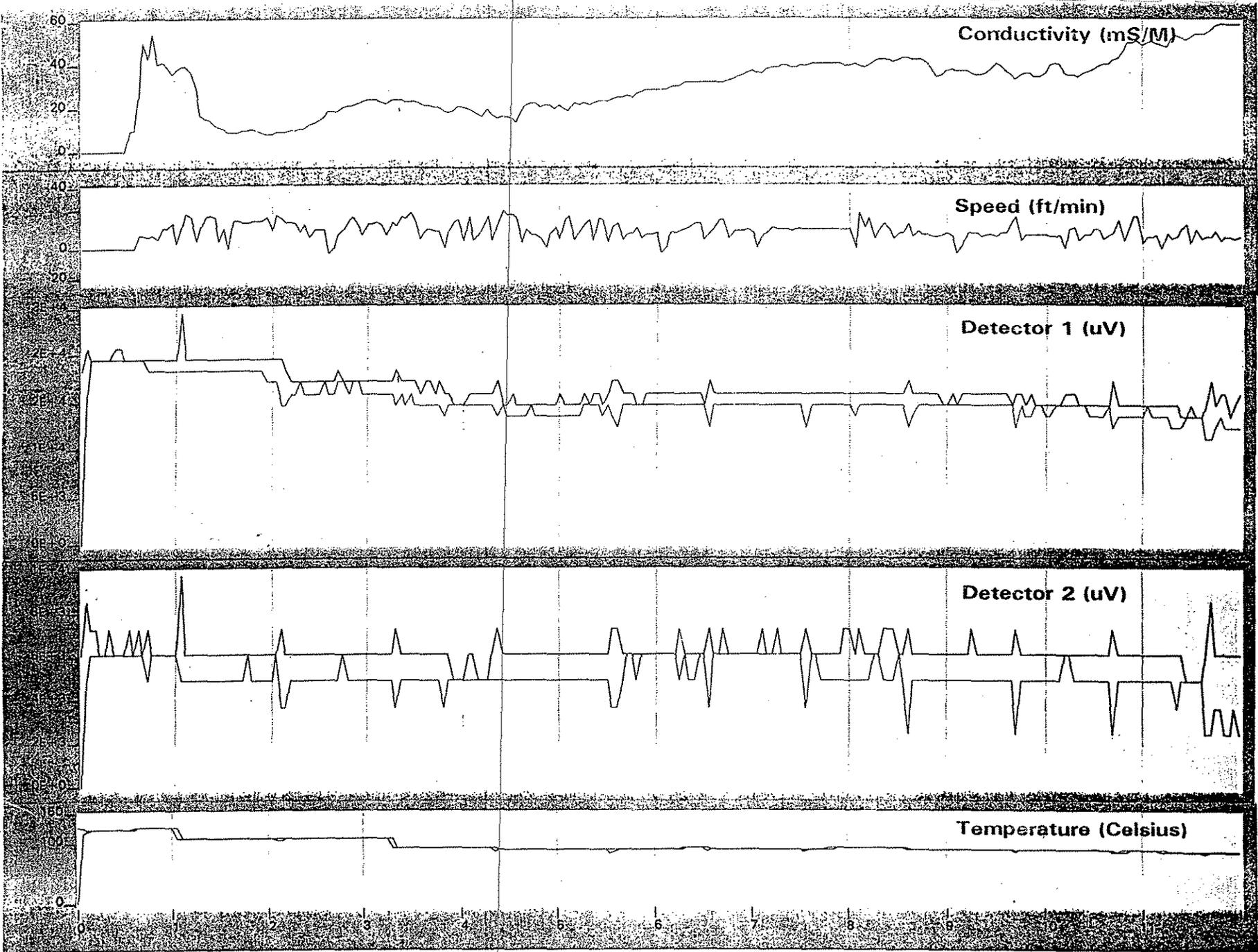


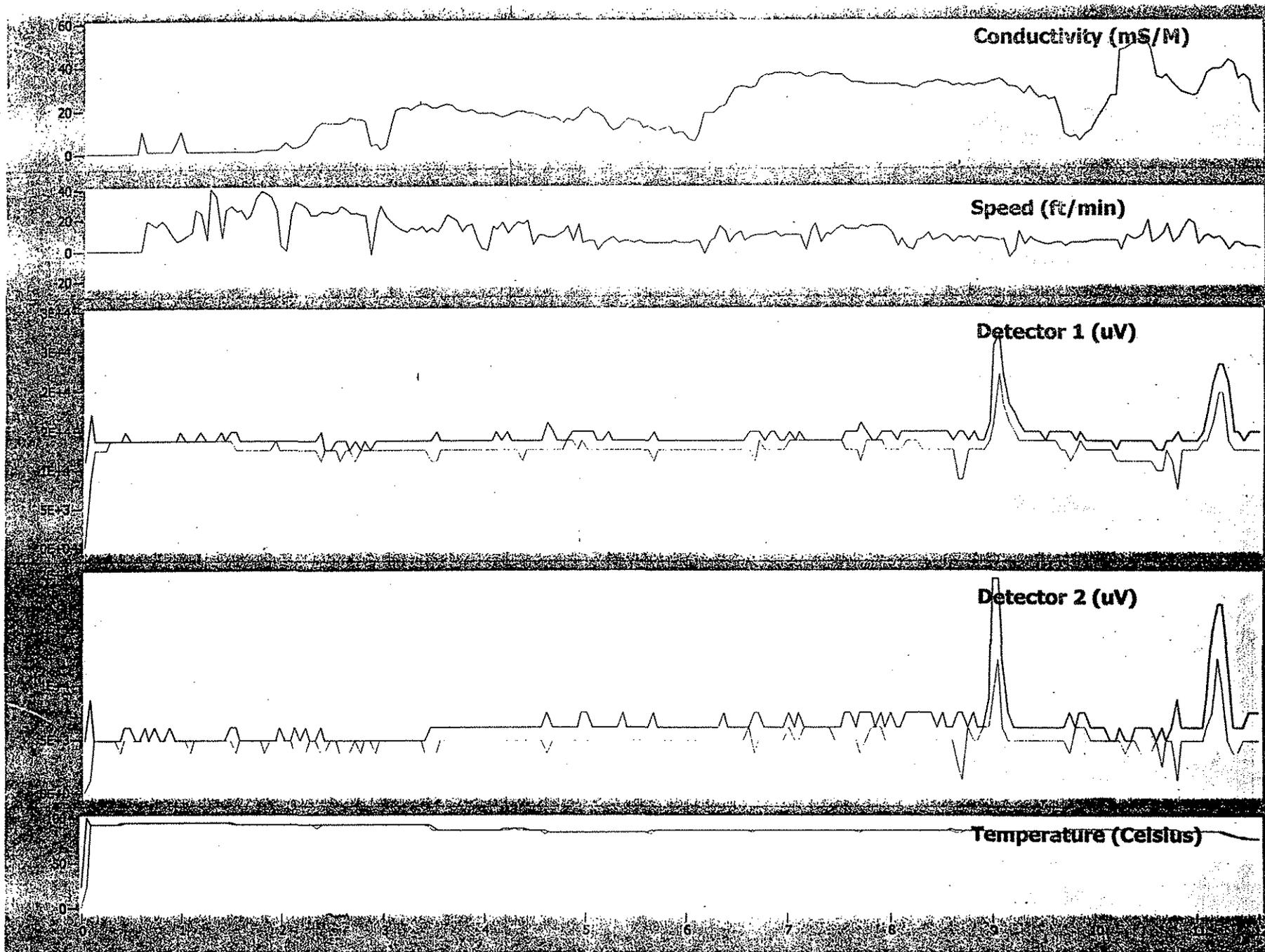


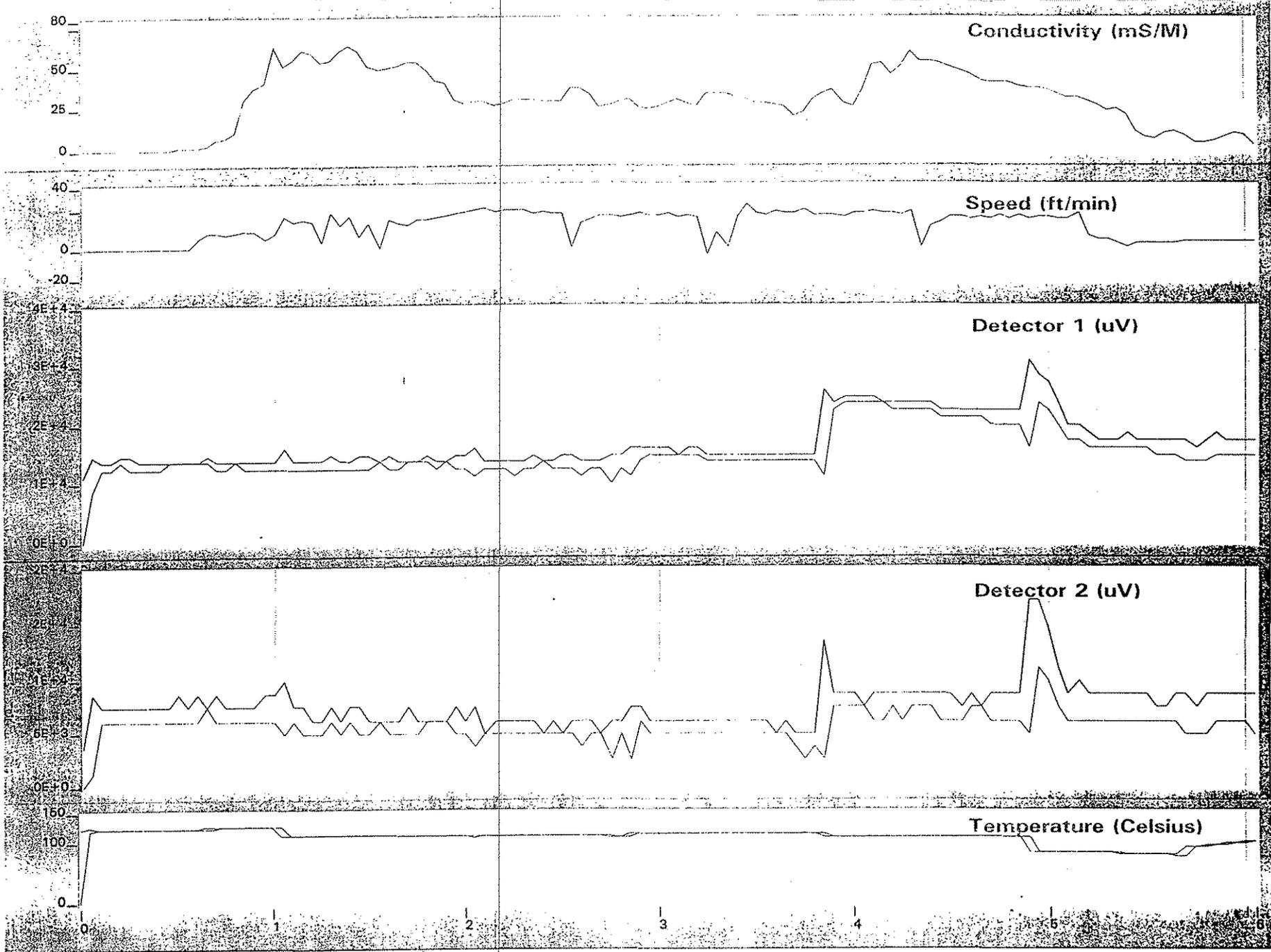




Log: ...AV...7.D







REMOVAL SITE EVALUATION FORM

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

| | | | |
|--|-------------------|-----------------|---------------------------------|
| I. SITE NAME AND LOCATION | | | |
| Name: Community Laundromat Site | | | CERCLIS ID No.: MON000704080 |
| Alias: | | | |
| Address or other Location Identifier: 306 NW 12th Avenue | | | |
| City: Ava | County: Douglas | State: MO | Zip: 65608 |
| Directions to Site: From Springfield, travel east on Interstate Highway 60 to Mansfield, turn south onto State Highway 5. Travel for about 14 miles to Ava, then turn east onto NW 12th Avenue, also known as State Highway 14 and Business Highway 5. Travel east for approximately 0.75 mile. The facility is located on the north side of NW 12th Avenue. | | | |
| Map Attached: <u> </u> | | | |
| II. PROGRAM CONTACTS | | | |
| Requested By: EPA Region VII - Eric Nold, OSC | | | Date of Referral: December 2001 |
| Agency/Office: Enforcement/Fund-Lead Removal Branch (ER&R) | | | |
| Mailing Address: 901 N. 5th Street | | | |
| City: Kansas City | State: KS | Zip: 66101 | |
| Telephone: 913-551-7488 | Fax: 913-551-7948 | | |
| Evaluator: Valerie Wilder, Environmental Specialist | | | |
| Agency/Office: Missouri Department of Natural Resources, Superfund Section | | | |
| Mailing Address: P.O. Box 176 | | | |
| City: Jefferson City | State: MO | Zip: 65102-0176 | |
| Telephone: 573-751-7880 | Fax: 573-751-7869 | | |
| III. REMOVAL SITE EVALUATION CRITERIA [40 CFR 300.410(e)] | | | |
| 1. Is there a release as defined by the NCP? | | | Yes <u>X</u> No <u> </u> |
| Explain: Tetrachloroethylene (PCE) and trichloroethylene (TCE) have been detected on-site in soils and groundwater at levels significantly above background and in exceedance of EPA Soil Screening Levels for Migration to Groundwater and in exceedance of the Maximum Contaminant Levels (MCLs) for drinking water. | | | |
| <i>(A RELEASE Is Defined As Any Spilling, Leaking, Pumping, Pouring, Emitting, Emptying, Discharging, Injecting, Escaping, Leaching, Dumping, Or Disposing Into The Environment (Including The Abandonment Of Barrels, Containers, And Other Closed Receptacles Containing Any Hazardous Substances Or Pollutant Or Contaminant), But Excludes: Workplace Exposures; Engine Exhaust Emissions; Nuclear Releases Otherwise Regulated; And The Normal Application Of Fertilizer. For Purposes Of The NCP, Release Also Means Threat Of Release.)</i> | | | |

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

2. Is the source a facility or vessel as defined by the NCP? Yes X No

Explain:

The source is contaminated subsurface soil on-site. The soil was presumably contaminated due to at least two known spill incidents during dry cleaning operations. One incident occurred when a 5-gallon bucket of sludge containing PCE from the dry cleaning machine, located outside of the main entrance to the facility, was knocked over and the contents spilled out onto the ground. Another spill occurred when the door to the dry cleaning machine was accidentally opened during cleaning and several gallons of dry cleaning fluid containing PCE spilled out onto the floor and flowed out over the edge of building foundation onto the ground on the east side of the facility.

(A FACILITY Is Defined As Any Building, Structure, Installation, Equipment, Pipe Or Pipeline (Including Any Pipe Into A Sewer Or POTW), Well, Pit, Pond, Lagoon, Impoundment, Ditch, Landfill, Storage Container, Motor Vehicle, Rolling Stock, Or Aircraft Or Any Site Or Area, Where A Hazardous Substance Has Been Deposited, Stored, Disposed Of, Or Placed, Or Otherwise Come To Be Located; But Does Not Include Any Consumer Product In Consumer Use Or Any Vessel. A VESSEL Is Defined As Any Description Of Watercraft Or Other Artificial Contrivance Used, Or Capable Of Being Used, As A Means Of Transportation On Water Other Than A Public Vessel.)

3. Does the release involve either a hazardous substance, pollutant or contaminant as defined by the NCP? Yes X No

Explain:

The hazardous substances involved include: PCE, TCE and cis-1,2-DCE.

(A HAZARDOUS SUBSTANCE Means Any Substance, Element, Compound, Mixture, Solution, Hazardous Waste, Toxic Pollutant, Hazardous Air Pollutant, Or Imminently Hazardous Chemical Substance Or Mixture Designated Pursuant To The CWA, CERCLA, SDWA, CAA Or TSCA. The Term Does Not Include Petroleum Products, Natural Gas, Natural Gas Liquids, Liquefied Natural Gas, Synthetic Gas Or Mixtures Of Natural And Synthetic Gas. The Definition Of POLLUTANT Or CONTAMINANT Includes, But Is Not Limited To, Any Element, Substance, Compound, Or Mixture, Including Disease-Causing Agents, Which After Release Into The Environment And Upon Exposure, Ingestion, Inhalation, Or Assimilation Into Any Organism, Either Directly From The Environment Or Indirectly By Ingestion Through Food Chains, Will Or May Reasonably Be Anticipated To Cause Death, Disease, Behavioral Abnormalities, Cancer, Genetic Mutation, Physiological Malfunctions Or Physical Deformations, In Such Organisms Or Their Offspring. The Term Does Not Include Petroleum Products, Natural Gas, Natural Gas Liquids, Liquefied Natural Gas, Synthetic Gas Or Mixtures Of Natural And Synthetic Gas.)

4. Is the release subject to the limitations on response? Yes No X

Explain:

(The LIMITATIONS ON RESPONSE Provisions Of The NCP (40 CFR 300.400(B) States That Removals Shall Not Be Undertaken In Response To A Release: Of A Naturally Occurring Substance In Its Unaltered Or Natural Form; From Products That Are A Part Of The Structure Of, And Result In Exposure Within, Residential Buildings Or Business Or Community Structures; Or Into Public Or Private Drinking Water Supplies Due To Deterioration Of The System Through Ordinary Use.)

5. Does the quantity or concentration of hazardous substances warrant response? Yes X No

Explain:

The concentrations of PCE detected in the subsurface soils on-site range from 0.013 ppm to 12.4 ppm. The primary concern with regards to the levels of PCE are that six of the nine detections are levels in exceedance of the EPA Soil Screening Levels for Migration to Groundwater. The PCE in the contaminated soil is leaching to the groundwater at levels greatly exceeding MCL for PCE. PCE levels in groundwater on-site range from 49.8 ppb to 21,400 ppb. The MCL for PCE is 5 ppb.

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

6. Has a PRP been identified?

Yes X No

Explain:

Mr. Joe Banta is the current operator of the Community Laundromat business and facility, although dry cleaning no longer occurs on-site. The facility at 306 NW 12th Avenue was opened in 1986 and operated under the name Community Laundromat. From 1987 to 1995, dry cleaning operations were conducted at the facility. In 1995, Mr. Banta moved the dry cleaning operations to a different facility (Hill Country Dry Cleaners) located on S. Jefferson street in Ava. At that time, Mr. Banta changed the business name of the 12th Avenue facility from Community Laundromat to the Hill Country Laundromat and Dry Cleaners, which is the current operating name. The only operations on-site today are coin-operated washing machines; dry cleaning is only dropped off at the NW 12th Avenue facility; actual dry cleaning is conducted at the Hill Country Dry Cleaners facility located on S. Jefferson street.

The property on which the 306 NW 12th Avenue facility operates was originally owned by Mr. Randy Barnes. Mr. Barnes leased the facility to Mr. Banta from 1986 to 1997. Mr. John Sutton bought the property from Mr. Barnes in December 1997. Mr. Sutton now leases the facility to Mr. Banta.

IV. CONDITIONS TO WARRANT REMOVAL

1. Is there an actual or potential exposure to hazardous substances, pollutants or contaminants?

Yes X No

Explain:

As a result of groundwater to surface water discharge, PCE, TCE and cis-1,2-DCE from the Community Laundromat site are surfacing in a spring located 0.2 mile southwest of the site. This spring flows into a small wetland area and then into the Prairie Creek tributary, which flows through the city of Ava. The primary risk of exposure to hazardous substance from the Community Laundromat site is from exposure to contaminated water in this spring. The creek in that area is not used for fishing or drinking water, but there is recreational use of the creek by residents of Ava.

2. Is there an actual or a potential threat for contamination of drinking water supplies?

Yes X No

Explain:

There is a potential threat for contamination of drinking water supplies. PCE has been detected in the groundwater of the unconsolidated zone on-site at levels greatly exceeding the MCL. PCE has also been detected above the MCL in the shallow zone of the Ozark Aquifer in a monitoring well near the site. The city of Ava is served by four groundwater wells located within one mile of the site. ~~The nearest well (Well #4) is located less than 500 feet north of the site, although it is upgradient. Two wells are located downgradient of the site within one mile. All four wells have been on quarterly monitoring for VOCs since February 2001, and no VOCs have been detected in any well. Because the aquifer is karst, it is difficult to determine when or if the contaminants from the Community Laundromat site will reach an Ava public drinking water well.~~

3. Are there hazardous substances, pollutants or contaminants in drums, barrels or bulk storage containers?

Yes No X

Explain:

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

4. Are there high levels of hazardous substances, pollutants or contaminants in surface soils? Yes ___ No X

Explain:

The PCE contamination is in the subsurface, over 7 feet below ground surface. Surface soils (0-2 feet) were tested during the Pre-CERCLIS Site Screening. No VOCs were detected in the surface samples.

("High levels" may be determined by streamlined risk assessments, health consultations, state or federal soil screening criteria, and/or Superfund program policies or directives.)

5. Are there conditions on site which may be susceptible to impact from adverse weather conditions? Yes ___ No X

Explain:

The contamination is in the subsurface soils on-site. Adverse weather would not be expected to impact contaminated soil over feet in depth.

6. Is there a threat of fire or explosion? Yes ___ No X

Explain:

PCE contaminated soil is not thought to present a fire or explosion hazard.

7. Is there a potential for other federal or state response mechanisms? Yes ___ No X

If so, identify the appropriate program:

___ RCRA ___ NRC ___ FIFRA ___ UST
___ State VCP ___ Other State Deferral ___ Other Federal (___)

Explain:

Missouri Senate Bill 577 went into effect on August 28, 2000 and established a Dry Cleaning Solvent Environmental Response Trust Fund to provide money for assessment and remediation of solvent releases from dry cleaning facilities. The owner or operator of an active dry cleaning facility is liable for the first \$25,000 of corrective action costs incurred because of a release from an active or abandoned facility. Costs in excess of \$1,000,000 at any one contaminated dry cleaning facility are not eligible for payment. Moneys in the fund can not be accessed until July 1, 2002. The current balance of the fund is only about \$471,000, and no more than 25% of the fund balance can be spent on one site per year. In addition, Missouri Department of Natural Resources has not hired staff to work on the fund. At this time, the Dry Cleaning Fund is not a viable option for assisting in the cleanup of the Community Laundromat site.

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

8. Are there other situations or factors which warrant further Superfund response? Yes X No

Explain:

There are two other Superfund sites adjacent to the Community Laundromat site: the 12th Avenue Solvents site (MON000704015) and the Sentinel Wood Treating Co Inc site (MOD029684438). All three sites are located within the Ava industrial park, and contamination from all three sites is migrating into the groundwater beneath the park. Xylenes and toluene from the 12th Avenue Solvents site, pentachlorophenol from the Sentinel site, and PCE from the Community Laundromat are all commingling in the groundwater, which is discharging to the surface water in the Prairie Creek tributary that flows through the middle of Ava. Cleanup efforts are underway at the 12th Avenue Solvents site and the Sentinel site through Administrative Orders on Consent. The complex nature of addressing three separate source areas all contributing to one groundwater plume make it necessary to closely coordinate removal actions at all three sites.

V. PROPOSED REMOVAL ACTIONS [40 CFR 300.415(d)]

NOTE: The following identifies potential removal actions, which may be determined to be appropriate pending further review and study. The proposed actions should be considered preliminary proposals and are subject to change.

1. Site Security Yes No X

Explain:

There is no site security at this time, however, there is currently no risk of exposure to workers or customers of the dry cleaning facility to the contaminated soils on-site due to the depth of the contamination (over 7 feet deep).

2. Drainage Control Yes No X

Explain:

Runoff control is not an issue with the contaminated soils being present in subsurface soil over 7 feet deep.

3. Stabilization or Removal of Surface Impoundments Yes No X

Explain:

There are no surface impoundments on-site.

4. Capping of Contaminated Soil Yes No X

Explain:

There are no surface soils that are contaminated. The contaminated soil is over 7 feet deep.

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

5. Use of Chemicals to Control / Retard Spread of Contamination Yes X No ___

Explain:

This could be a potential option for preventing the contaminated soil from leaching PCE into the groundwater.

6. Contaminated Soil Excavation Yes X No ___

Explain:

This is also a potential option for removing the soil source of contamination.

7. Removal of Drums, Tanks or Bulk Storage Containers Yes ___ No X

Explain:

**8. Containment, Treatment or Disposal of Hazardous Substances,
Pollutants or Contaminants** Yes X No ___

Explain:

This is a potential option for cleanup of contaminated soils and groundwater.

9. Provide Alternative Water Supplies Yes ___ No X

Explain:

At this time, there are no public or private wells that have been affected. The public wells are on quarterly monitoring for VOCs; no VOCs have been detected to date. The Missouri Department of Health and Senior Services will be conducting private well sampling in the near future.

**VI. REMOVAL SITE EVALUATION DETERMINATION AND REMOVAL PRELIMINARY ASSESSMENT
FINDINGS AND RECOMMENDATIONS**

REMOVAL NOT WARRANTED – REMOVAL SITE EVALUATION TERMINATED

Cite one or more of the criteria from SECTION III. REMOVAL SITE EVALUATION CRITERIA, as the basis for the above determination.

No Release or Threat of Release

Not a Facility or Vessel

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

| | | | |
|---|---|---|--------------------------------------|
| | Not a Hazardous Substance or Pollutant or Contaminant | | Site Subject to Response Limitations |
| | Insufficient Quantity or Concentration | | Willing/Capable PRP Response |
| Comments: | | | |
| X | REMOVAL ACTION RECOMMENDED: ___ Emergency ___ Time-Critical <u>X</u> Non-Time-Critical | | |
| Cite one or more of the conditions or factors from SECTION IV. CONDITIONS TO WARRANT A REMOVAL ACTION, as a basis for recommending that a removal action be conducted. | | | |
| X | Exposure to Hazardous Substances or Pollutants or Contaminants | | Adverse Weather Impacts |
| | Contaminated Drinking Water | | Fire/Explosion Threat |
| X | Contaminated Soil | | No Other Response Mechanism |
| | Drums, Barrels or Containers | X | Other Factors |
| Identify one or more of the removal actions listed in SECTION V. REMOVAL ACTIONS WHICH MAY BE APPROPRIATE, as examples of the types of response actions which are recommended. | | | |
| | Site Security | | Drainage Control |
| | Impoundment Stabilization | | Removal of Drums, Barrels, Etc. |
| | Soil Capping | X | Soil Excavation |
| X | Contain / Treat / Dispose of Wastes | X | Chemical Controls |
| | Alternative Drinking Water Supplies | | |
| Comments: | | | |
| A removal action is warranted at the Community Laundromat site. PCE is leaching from contaminated soil into groundwater at levels significantly above the MCL. There is a potential risk to public and private drinking water wells in the area. To date, no VOCs have been detected in any of Ava's four municipal wells, however the wells will continue to be monitored on a quarterly basis because the extent of the PCE plume has not been fully defined. Additional groundwater sampling may be necessary to fully define the PCE plume and its interconnection with the VOC plume from the Copeland facility. | | | |
| ADDITIONAL REMOVAL SITE EVALUATION RECOMMENDED | | | |
| Cite one or more of the conditions or factors from SECTION IV. CONDITIONS TO WARRANT A REMOVAL ACTION, as the basis for recommending that additional site evaluation be performed. | | | |
| | Exposure to Hazardous Substances or Pollutants or Contaminants | | Adverse Weather Impacts |
| | Contaminated Drinking Water | | Fire/Explosion Threat |
| | Contaminated Soil | | No Other Response Mechanism |

**SUPERFUND REMOVAL SITE EVALUATION
and
REMOVAL PRELIMINARY ASSESSMENT**

| | Drums, Barrels or Containers | | Other Factors |
|--|-------------------------------------|--|---------------------------------|
| Identify one or more of the removal actions listed in SECTION V. REMOVAL ACTIONS WHICH MAY BE APPROPRIATE, as examples of the types of response actions which are recommended. | | | |
| | Site Security | | Drainage Control |
| | Impoundment Stabilization | | Removal of Drums, Barrels, Etc. |
| | Soil Capping | | Soil Excavation |
| | Contain / Treat / Dispose of Wastes | | Chemical Controls |
| | Alternative Drinking Water Supplies | | |

Comments:

VII. ADDITIONAL INFORMATION OR COMMENTS

VIII. CERTIFICATION

Signature: Valerie H. Wilder Date: 4/23/02

Position/Title: Environmental Specialist

Office/Agency: Missouri Department of Natural Resources

