

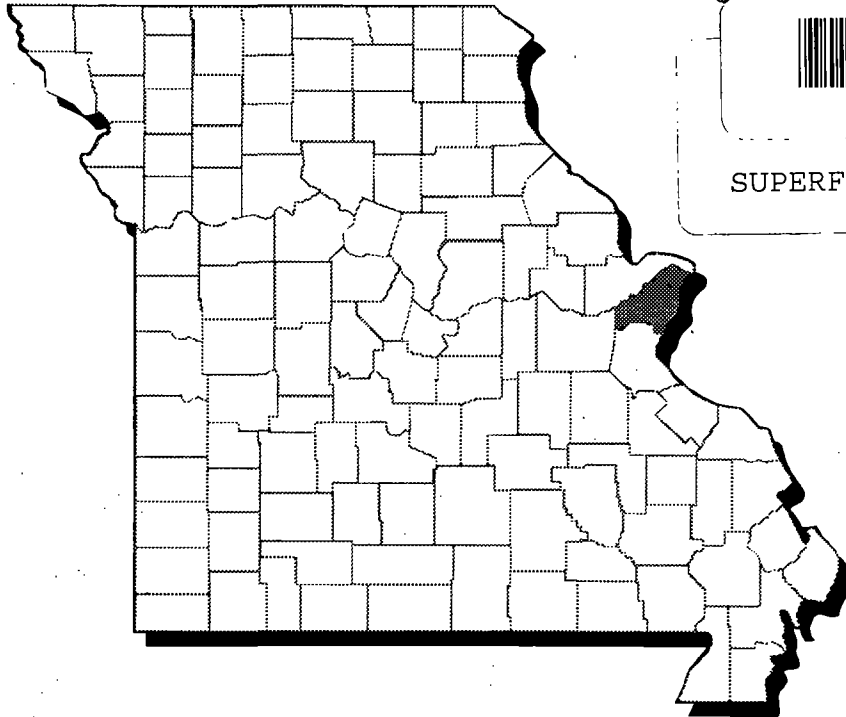
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COMBINED PRELIMINARY ASSESSMENT / SITE INSPECTION REPORT

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808 # 110091

March 28, 2000

Site:	Chicago Heights
ID#:	MOSENO703551
Break:	1.5
Other:	3-28-00




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SUPERFUND RECORDS



Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

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DATE: March 28, 2000

PREPARED BY: Nancy H. Priddy
Missouri Department of Natural Resources

SITE: Chicago Heights Blvd VOC Plume
Overland

EPA ID NUMBER: MOD006283808

C.A. NUMBER: V997381-99

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 (DNR), through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), conducted a Combined Preliminary Assessment/Site Inspection (PA/SI) at the Chicago Heights Blvd VOC Plume site. The Chicago Heights Blvd VOC Plume site is the location of an unidentified groundwater plume of volatile organic compounds (VOCs).

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, to determine the need for additional investigation under CERCLA/SARA or other authority and, if appropriate, support ranking the site using the Hazard Ranking System (HRS) for proposal to the National Priorities List (NPL). The PA/SI was initiated on October 5, 1999. The scope of the investigation included reviewing available file information, a hydrogeologic assessment, a comprehensive target survey, and sampling of environmental media. A site visit took place on November 1, 1999 and a neighborhood meeting was held on November 8, 1999. A sampling event occurred on November 29, 30, and December 1, 1999, with additional sample collection on December 7, 1999.

2.0 SITE DESCRIPTION

2.1 Location

The Chicago Heights Blvd VOC Plume site is located in an area between Meeks Boulevard and Chicago Heights Boulevard in Overland, Missouri. The site is located in the Southeast Quarter (SE 1/4) of the Northeast Quarter (NE 1/4) of Section 31, Township 46 North, Range 6 East in St. Louis County (See Figure 1 in Appendix A) (Reference 3). The geographic coordinates for the site are 38°41'5" N latitude and 90°22'48" W longitude, calculated from the northeast corner of the intersection of Chicago Heights Boulevard and Elmridge Place (Reference 4). To reach the site from

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the junction of U.S. Highway 170 and Page Avenue in Overland, travel west on Page Avenue to Dielman, south on Dielman to Meeks Boulevard, west on Meeks Boulevard to Elmridge Place, and south on Elmridge Place to Chicago Heights Boulevard.

The consistent pattern of climate in St. Louis County is cold winters and long, hot summers. The average temperature in winter is 33° Fahrenheit (F) with an average daily minimum temperature of 24 ° F. In summer, the average temperature is 77° F with an average daily maximum temperature of 87° F (Reference 5, p. 2). The prevailing wind is from the south with an average speed of 9 miles per hour (Reference 6, p. 74). The long-term average annual precipitation is approximately 35 to 36 inches. The 2-year, 24-hour rainfall for the area is approximately 2.51 inches (Reference 7, p. 5-6).

2.2 Site Description

The Chicago Heights Boulevard VOC Plume lies beneath a residential neighborhood that consists of both single family and multi-family dwellings, within an unincorporated segment of Overland. The surface of the site is relatively flat on the south and east, but gently sloping upward toward the northwest. Approximately 35 individual homes and 12 apartment buildings are located in the area above the suspected location of the groundwater plume. Residential yards are mostly grass-covered (Reference 8).

The site area is approximately 15 acres in size. It is generally bounded on the north by Meeks Boulevard, on the east by Werremeyer Place, on the south by a railroad right-of-way, which lies south of Chicago Heights Boulevard, and on the west by a chain-link fence separating the neighborhood from an adjacent business and an open field. The neighborhood lies within a heavily urbanized area, surrounded by various industrial and commercial businesses. An open field lies north and northeast of the site, north of Meeks Boulevard. A metals fabrication facility is situated on the north side of Meeks Boulevard, north and northwest of the site. A group of rental storage units also lies northwest of the site. West of the site lies a taxi service and an open field. The south side of the site is adjacent to railroad tracks and commercial buildings facing Dielman Rock Island Drive, north of the River Des Peres. Additional residences and a neighborhood park lie east of the site area (Reference 8). Figure 2 in Appendix A is a site sketch. Photos of the site area can be found in Appendix D.

2.3 Site History and Previous Investigations

Chlorinated solvents were first discovered in the groundwater beneath the Chicago Heights Boulevard neighborhood in the summer of 1998, during an environmental investigation that was conducted for a nearby hazardous waste site. After additional sampling during the summer of 1999 failed to establish a clear migration route, the Chicago Heights Blvd VOC Plume site was referred to DNR's Hazardous Waste Program (HWP)/Superfund Section's Site Evaluation Unit for further evaluation.

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Although the groundwater in the site area is not used as a drinking water source, the downgradient residences with basements could be subject to vapors from the groundwater that enters the basements or from vapor migration through walls (Reference 9).

Two hazardous waste sites are known to exist in the immediate vicinity of the Chicago Heights Blvd VOC Plume site: the EG&G/Missouri Metals Shaping Company site located north and northwest of the site at 9970 Page Boulevard in Overland, Missouri and the All American Life Insurance Company site located south of the site at 9479 - 9495 Dielman Rock Island Drive in Olivette, Missouri. In addition, area residents have reported that at one time there was an old dump at the south end of Elmridge Place, near the River Des Peres and that an un-named company dumped material in this area (Reference 10).

2.3.1 All American Life Insurance Company

The All American Life Insurance Company site is located south of the Chicago Heights Blvd VOC Plume site, at 9479-9495 Dielman Rock Island Industrial Drive in Olivette, Missouri. The site is 1.75 acres in size and contains one single-story multi-tenant office/warehouse building that was constructed in 1985. The building is 24,000 square feet in size. Asphaltic pavement for parking and building access is present on the south and north sides. Historically, the area was occupied by residences until the area was cleared for commercial development in the 1960s. Apparently, small scale dumping occurred on the property in the mid-1960s (Reference 11, pp. 7-8, 15).

Groundwater sampling was first conducted at this site in May 1996, following a Phase I Environmental Assessment for a real estate transaction. The Phase I report, prepared by Environmental Operations, Inc. and dated January 16, 1996, reported five, partially full, 55-gallon drums of uncertain contents present on site. It also reported the potential for groundwater contamination to exist on the subject site, due to the known chlorinated solvent contamination in the groundwater at the EG&G/Missouri Metals site, which was located approximately 1,000 feet upslope (Reference 11, p. 1). Water samples were collected on May 7, 1996 from two monitoring wells installed in the northwest and northeast corners the site. Analysis revealed petroleum related compounds present in the northwest monitoring well, and chlorinated VOCs present in the northeast monitoring well (117 ppb TCE and 38.1 ppb PCE). Figure 6 in Appendix B is a site sketch of the All American Life Insurance Company site (Reference 12).

The All American Life Insurance Company applied to and was accepted into DNR's Hazardous Substance Environmental Remediation Program, by Letter of Agreement dated October 10, 1996, for the remediation of contaminants under the review and oversight of the DNR (Reference 12). This program is more commonly known as the

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Voluntary Cleanup Program (VCP). Numerous site characterization investigations were conducted at the site by Environmental Solutions, Inc., between November 1996 and June 1998. A conclusion in the Phase II Environmental Site Assessment report, dated March 18, 1997, was that the groundwater flow was southward, and that the PCE and TCE contamination was found only in the groundwater, not in the soil, and appeared to be migrating on-site (Reference 14, p.3). Petroleum related compounds and lead contamination in the soil and groundwater were also found at the site during these investigations. In a letter dated April 11, 1997, DNR/VCP personnel agreed with Environmental Solutions conclusion that groundwater and soil data showed that the PCE, TCE, and cis-1,2-dichloroethylene (cis-1,2-DCE) contaminants in the groundwater were originating off-site at an up gradient source (Reference 15). However, investigation and remediation efforts continued in an effort to address the other contamination on the site. On June 8, 1999, the All American Life Insurance Company officially withdrew for the Voluntary Cleanup Program (Reference 16).

2.3.2 EG&G/Missouri Metals Shaping Company (now Perkin Elmer) (EPA No. MOD006283808) (Reference 17)

The former EG&G/Missouri Metals Shaping Company (now Perkin Elmer) site is a metals fabrication facility located north of the Chicago Heights Blvd VOC Plume site, at 9970 Page Boulevard in Overland. The facility has been in operation since 1957 under various ownership manufacturing aircraft component parts. The site is approximately 3.5 acres in size. Metals and organics contamination was identified in the soil at the site during a Site Inspection in 1988. Volatile organic compounds (VOCs) were first detected in the groundwater at the site during a property transfer audit at the time EG&G acquired the property in 1988. Comprehensive groundwater sampling conducted for EG&G by Groundwater Technology, Inc. in January 1991 reported TCE present at concentrations up to 32 mg/L, PCE at concentrations up to 30 mg/L, and total VOCs at concentrations up to 210 mg/L in the groundwater beneath the site. The DNR proposed the site for the *Registry of Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri* in September 1991. EG&G appealed the proposal and subsequently negotiated a Consent Agreement between EG&G and the DNR for cleanup of the site. The Consent Agreement was finalized in 1994. Various remedial investigations and activities have taken place at the site since 1991; however, until 1998, off-site contamination had not been evaluated.

In January 1998, the DNR expressed concerns over the VOC contaminant levels and the potential for off-site migration. Since the groundwater in the area is not being used for drinking water, the primary concern was the possibility of contaminated groundwater causing vapor migration into nearby homes downgradient of the site. In April 1998, EG&G committed to conducting an off-site investigation to determine if site contaminants had migrated from the EG&G site. Burns and McDonnell Waste

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Consultants, Inc. (BMWCI) conducted off-site soil gas sampling for EG&G in August 1998 and detected chlorinated solvents in the soil south of the site (Reference 18). During that investigation, DNR collected groundwater samples from two of the probe holes. Chlorinated solvents were detected in one of the samples at concentrations as high as 25 ppm TCE (Reference 35). This investigation was followed by indoor air sampling in the basements of four residences in the downgradient neighborhood in November 1998. Although no volatile organic compounds were detected in any of the air samples, TCE was detected at an estimated 4.0 micrograms per liter (ug/L) in one water sample that was collected from a sump in one of the residences (Reference 19).

During July and August 1999, BMWCI conducted an Additional Off-Site Investigation to locate and transect the impacted groundwater plume between the EG&G site and the southern boundary of the residential area located to the south. This investigation included both subsurface soil and groundwater sampling in the residential area that is now the Chicago Heights Blvd VOC Plume site. The sampling report indicated that none of the soil samples from the soil borings contained the VOCs of concern. Piezometric data indicated that the groundwater gradient is generally to the southeast from the EG&G site and across the residential area. Depth to refusal data suggested that the slope of the bedrock surface from the EG&G site and across the residential area is also to the southeast. Groundwater samples from four temporary piezometers located in the southern portion of the residential area contained TCE and PCE; however, the water samples from the other seven piezometers located farther north toward the EG&G site were non-detect for the EG&G site-related contaminants. The report concluded that the contaminants present in the southern portion of the residential area have not migrated from the EG&G site, but have probably come from a separate source. The Figures 1-5 in Appendix B show the sample locations. Tables 1-4 in Appendix B present the sampling results of the Additional Off-Site Investigation (Reference 20).

2.3.3 Other Nearby Facilities

The Phase I Environmental Assessment of the All American Life Insurance Company property identified Patent Scaffolding Inc. as a Resource Conservation Recovery Act (RCRA) generator and UST location, 0.12 miles north of the All American site. A review of DNR files shows that Patent Scaffolding Inc. is located at 1492 Kin-Ark Court, which is just west of the County Cab Company at the northwest corner of the Chicago Heights Blvd site. Patent Scaffolding changed its name to Patent Construction Systems (PCS) approximately six years ago and is a construction equipment rental and scaffolding sales company. Historically, PCS used a dip tank to paint equipment. In November 1995, PCS cleaned out and removed the tank from the site, and made a one-time shipment of 916 pounds of Waste Flammable Liquid. The Hazardous Waste Manifest lists the shipment as Waste Flammable Liquids (Aliphatic & Aromatic Hydrocarbons) (Reference 21). An underground storage tank (UST) was present at this facility from

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1980 until its closure in 1992. Before its removal, the tank held xylene containing paint and paint thinners. There are no records of any releases from this UST in DNR files (Reference 22).

2.4 Waste Characteristics

Chlorinated Solvents

Chlorinated solvents, such as tetrachloroethylene (PCE), trichloroethylene (TCE), and 1,1,1-trichloroethane, is a class of volatile organic compounds encountered at various hazardous waste sites. Chlorinated solvents are man-made compounds that are often used by industry as chemical intermediates, or solvents in the metal finishing, textile processing, and paint industries. Many chlorinated solvents are considered hazardous because they are mutagenic, carcinogenic, or teratogenic (References 23, p. 2; 24, p. 1; 25, p. 1).

Polychlorinated solvents exist as Dense Nonaqueous Phase Liquid (DNAPL). DNAPLs are separate-phase hydrocarbon liquids that are denser than water. DNAPLs can exist in the soil/aquifer matrix in free-phase form or in residual form. When released on the ground's surface, free-phase DNAPLs move downward through the soil matrix under the force of gravity or laterally along the surface of sloping fine-grained stratigraphic units. DNAPL migrates preferentially through small-scale fractures and heterogeneities in the soil. As free-phase DNAPLs move, residual amounts are trapped in pores and/or fractures by capillary forces. Most DNAPLs undergo only limited degradation in the subsurface and persist for long periods of time, while slowly releasing soluble organic constituents to groundwater through dissolution. Dissolution may continue for hundreds of years under natural conditions before the DNAPL is dissipated (Reference 26, p. 1).

Based on the limited data for humans regarding TCE exposure and cancer, and evidence that high doses of TCE can cause cancer in animals, the International Agency for Research on Cancer has determined that TCE is probably carcinogenic to humans. TCE has been nominated for listing in the National Toxicology Program 9th Report on Carcinogens (References 24, p.6; 25, p. 5).

3.0 WASTE/SOURCE SAMPLING

The waste source at the Chicago Heights Blvd VOC Plume site is the undefined groundwater plume of chlorinated solvents that lies beneath the residential area. The plume has migrated to the site from an off-site source. There are several commercial/industrial sites nearby. The EG&G site is a known source of VOC contamination and is suspected to be a contributor to the Chicago Heights Blvd VOC plume.

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3.1 Sample Locations (Reference 27)

In an attempt to determine the location and probable source of the plume of chlorinated solvents in the groundwater, DNR/Environmental Services Program personnel used a track-mounted hydraulic soil probe to install temporary wells at 26 locations throughout the site. Locations were selected based on the results of previous investigation and available access. Previous off-site investigations had detected TCE in the soil and groundwater at the northern border of the Chicago Heights Blvd site. EG&G's Additional Off-Site Investigation had detected PCE and TCE in the groundwater at several locations near the southern border of the Chicago Heights Blvd site; however, no VOCs migration route had been established between these two locations. Previous investigations at both the EG&G and the All American Life Insurance sites had concluded that the groundwater gradient was generally to the southeast. For this investigation, temporary wells were placed on both the north and south sides, and points in between in order to locate the plume. Wells were also placed along the western side of the site in order to intercept potential VOC migration coming from the west. Figure 2 in Appendix A shows the location of all temporary wells. Table 1 in Appendix C presents Temporary Well Information.

Water samples were collected from 12 of the temporary wells during the initial three days of the sampling event, November 29 and 30, and December 1, 1999. The remaining 14 wells did not initially charge enough to collect water samples. The dry wells were left in place until December 7, 1999, when field personnel were able to collect water samples from 10 of the wells. Four of the wells remained dry and could not be sampled. Figure 3 in Appendix A shows the location of all samples collected. Table 2 in Appendix C presents the sample numbers, descriptions and collection locations and collection dates for all samples collected for the PA/SI.

3.2 Analytical Results (Reference 27)

All water samples were analyzed for volatile organic compounds, with a 1 ppb detection limit requested.

The chlorinated solvents PCE, TCE and/or their break-down products dichloroethylene (DCE) and vinyl chloride were detected in the water samples from numerous wells. The highest concentration of PCE was detected in Sample Number 997542 from GW-1, located in the northwest corner of the site. PCE was present in that sample at 716 ppb, along with TCE (367 ppb), total DCE (374.9 ppb) and vinyl chloride (10.6 ppb). The highest concentration of TCE was detected in Sample Number 997554 from GW-9, located near the intersection of Meeks Blvd and Wishart Place. TCE was present in that sample at 1,140 ppb, along with PCE (2.5 ppb), total DCE (150.9 ppb) and 1,1,2-trichloroethane (TCA) (1.7 ppb). Chlorinated solvents were detected at various

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concentrations in six additional wells near the north side of the site. Five additional wells in the center and southern part of the site contained lower levels of the chlorinated solvents.

In addition to chlorinated solvents, very low concentrations of two ketones (2-butanone and 4-methyl-2-pentanone) were detected in numerous well samples, located throughout the site. Also, acetone was detected in one sample and naphthalene was detected in one sample on the western edge of the site.

Analytical results are presented in Table 3 in Appendix C. Figure 4 in Appendix A illustrates the locations of the detected contaminants of concern.

3.3 Hydrogeologic Review (Reference 28)

The HWP's Site Evaluation Unit requested the assistance of HWP's Groundwater Enforcement Unit (GEU) in evaluating the groundwater impacts at the site. GEU personnel reviewed and evaluated the PA/SI sampling results and the results from the previous investigations. The following conclusions are from that evaluation:

1. The GEU stated that the groundwater contamination detected by the ESP in sampling points GW-1, GW-26, GW-2, GW-7, GW-9, GW-8, GW-19, and GW-10 definitely appears to have originated from the EG&G property to the north-northwest. They reviewed the groundwater contaminant data obtained by EG&G from its property, and observed that their plume is in a relatively tight (not dispersing, or fanning out in a wide area) pattern migrating from the northwest to the southeast. The aforementioned ESP sampling points seemed to indicate a continuation of this migration pattern off site into the northern residential area.
2. The GEU stated that the sampling results from the on-site EG&G shallow groundwater investigation and the off-site ESP investigation have indicated that a significant preferential subsurface pathway exists which is strongly influencing groundwater and contaminant migration. The presence of a drainage ditch, creek, or other influencing feature prior to the development of the area, which is now buried, could be the preferential migration pathway. Typically, with other sites experiencing similar VOC contaminated groundwater, the plume disperses, or "fans out," over a much wider area than the relatively narrow migration pattern seen at the EG&G facility and the Chicago Heights residential area. Other explanations for this migration pattern could be the influence of the buried storm water sewers or other buried utility features. Finding the extent of groundwater contamination that has a migration pattern strongly influenced by these features is a "hit and miss" effort. Since any former natural drainageway would not be oriented in a straight line, evenly spaced groundwater sampling patterns could

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indicate two apparent separate contaminated areas that, in reality, were part of the same plume. This could explain why the ESP sampling detected contaminants at GW-19, GW-8, and GW-10, did not detect any contaminants further downgradient at GW-11, but even further downgradient did detect contaminants at GW-12 and GW-13.

3. The GEU observed that given the "hit and miss" sampling scenario explained above in Comment #2 due to the preferential groundwater migration pathway, it is no surprise that EG&G's sampling results did not detect any contaminants in the northern residential area. In fact, EG&G only obtained three samples from the northern half of the entire three block area of concern. The ESP obtained fourteen groundwater samples from the northern half of the residential area. This could explain why the EG&G sampling only indicated contamination on the extreme southern perimeter of the subject area (G-4, B-10, B-11, and B-12). Though highly unlikely, it could be possible that the contaminants detected by EG&G at these four southern sampling points could have originated from a source other than the EG&G property. ESP did detect contaminants in four sampling points due west of the four contaminated EG&G sampling points. ESP sampling points GW-24, GW-23, GW-22, and GW-5 all had very low detections of VOC contaminants. If just one or two of these sampling points yielded a few VOCs below detection limits, it could be concluded that it was a result of laboratory contamination or poor quality control during Geoprobe drilling and sampling. The fact that all four sampling locations are in the same vicinity (southwest corner of the residential area) and yielded low VOC presence would lead one to believe that the detections were representative of groundwater conditions in the area. If there is a low-level contaminant groundwater plume in the southwestern portion of this area, it could have originated from the EG&G facility as well. Any combination of buried storm sewers, a sanitary sewer, cable and/or electrical lines, etc. could have induced flow from EG&G's property to the south along the fence line. Demonstrating that the southern residential area contamination did not originate from the EG&G facility could only be accomplished through the installation of groundwater monitoring wells along the fence line to confirm contaminant presence near the ESP sampling points, and installation of wells on the properties to the west to find this other assumed source area.

4. The GEU observed that the ESP Geoprobe sampling unit generally was pushed deeper than the EG&G sampling unit was pushed. It was originally thought that this may be the reason that the ESP sampling and analysis detected contaminants in certain areas and the EG&G sampling did not. This is because the dense contaminants would tend to migrate along the soil/bedrock interface

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zone and using too shallow a sampling methodology would tend to "miss" the contaminant presence. However, a review of the Geoprobe sampling depths revealed that both parties obtained samples from nearly identical depths in the area of B-7, B-1, and B-6. The ESP did obtain a significantly deeper sample from GW-11 located in what appears to be the middle of the residential area contaminant plume, but the sample was clean. In the southern portion of the residential area, EG&G sampling points B-5 and B-9 were also much shallower than corresponding ESP sample depths (GW-14 and GW-15), but samples from both parties were clean. In the extreme southern residential area where EG&G had four samples with low VOC detections in the groundwater, there were no corresponding ESP sampling points to corroborate evidence of contaminant presence in this area. Basically, the apparent discrepancies between the two parties sampling results are due to the EG&G consultants not sampling sufficiently in the north-northwestern portion of the residential area that adjoins their contaminated property and the ESP not sampling as far to the southeast as EG&G personnel did.

3.4 Wastes/Sources Conclusions

Groundwater contamination from the EG&G site seems to be migrating in a relatively tight pattern off-site into the northern residential area. A significant preferential subsurface pathway exists that is influencing that migration. The VOC plume extends farther to the east than had been found previously.

Contaminants are also present in the southern residential area. It is possible, although highly unlikely, that the contaminants in the southwest corner of the residential area could have originated from a source other than the EG&G site. Any combination of buried storm sewers, a sanitary sewer, cable and/or utility lines could have induced flow from the north to the south. VOC levels along the fence line, on the western border of the site, do not indicate that a significant plume of contaminants is entering the residential area from the west. However, this is not conclusive. Demonstrating that the VOC contamination in the Chicago Heights Boulevard area came from some other source would require installing groundwater monitoring wells in the southwest corner of the site, along the fence line on the west and in the fields west of the site.

One other hazardous waste site nearby with known VOC contamination is the All American Life Insurance Company site on the south; however, the VOC contamination in the groundwater at this site was determined to be migrating to the site from an upgradient source.

4.0 GROUNDWATER PATHWAY

4.1 Hydrogeologic Setting (Reference 7, pp. 2-4)

The Chicago Heights Blvd VOC Plume site is situated within the Dissected Till Plains of the Central Lowland physiographic province. The topography of this area is characterized by a gently rolling surface of hills and plains composed of thick glacial till and loess of Pleistocene age deposited over a surface of consolidated Pennsylvanian- and Mississippian-age bedrock with moderate relief. The bedrock surface generally reflects surface topography.

4.1.1 Stratigraphy (Reference 7, p. 2-3)

Soils at the site are composed of loess and modified loess deposits 16 to 20 feet thick. In some areas the upper few feet consist of fill material that is composed of silty clay, debris, and gravel. The surface soil and/or fill is underlain by 2 to 7 feet of naturally-modified, clay-rich loess. The clay-rich loess grades downward to a silty, modified loess that extends to bedrock. The upper portion of the loess has been altered by urbanization.

The surficial materials are underlain by Pennsylvanian cyclic deposits of the Marmaton Group at a depth of approximately 16 to 20 feet. The Marmaton Group is predominately composed of layered limestone with shale and occasional thin seams of coal or clay. Thickness of the remaining eroded Marmaton Group deposits is approximately 40 feet. Underlying the Marmaton Group is the Pennsylvanian-age Cherokee Group. The Cherokee Group is composed of thinly-bedded shales and unconsolidated clay with minor amounts of sandstone, coal, and limestone. Thickness of the Cherokee Group is approximately 55 feet. The total thickness of all the Pennsylvanian deposits in this area ranges between 95 and 115 feet. The Pennsylvanian bedrock has a hydraulic conductivity between 10^{-5} and 10^{-7} .

The Pennsylvanian cyclic deposits unconformably overlie rocks of the Upper Mississippian System. The shallowest Mississippian unit present is the St. Genevieve Limestone. Beneath the St. Genevieve Limestone lies the St. Louis Limestone and Salem Formations. All three of these formations are predominantly composed of thickly-bedded limestone with small amounts of chert and dolomite. Beneath the Salem Formation lies the Warsaw Formation. The Warsaw Formation is composed primary of shale with lesser amounts of limestone and dolomite. The oldest Mississippian-age unit beneath the site is probably the Chouteau Group (Undifferentiated), a unit distinguished by thin, wavy shale partings. A thin, undifferentiated basal Mississippian sequence may be present, consisting of shale, sandstone, or cherty dolomitic limestone.

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Beneath the Chouteau Group are Devonian, Silurian, Ordovician and Cambrian-age strata that are composed predominately of dolomite, but are divided by several sandstone and shale units. These units extend approximately 3,800 feet below the site to the igneous rocks of the Pre-Cambrian basement.

4.1.2 Aquifers (Reference 7, p. 3)

Perched Aquifer

The surficial layer of mixed soils may experience seasonal saturation. The permeability of the altered loess is moderate. The increased permeability due to the presence of fill material is tempered somewhat by the increased clay content in the upper portion of the loess. The deeper, natural loess soils actually have a slightly higher permeability because of a greater silt composition. The estimated permeability of the loess is 10^{-5} to 10^{-6} cm/sec. The permeability of the fill (if present) is expected to be in the range of 10^{-3} to 10^{-5} cm/sec. Preliminary pump tests at the EG&G site have determined a hydraulic conductivity of 5.52×10^{-3} cm/sec to 5.92×10^{-4} cm/sec for the mixed soils.

Mississippian Aquifer

The main aquifer of concern at this site is the Upper Mississippian regional aquifer. In the St. Louis area, this aquifer consists primarily of the St. Genevieve Limestone, the St. Louis Limestone, and the Salem Formation. The Upper Mississippian aquifer extends from approximately 170 feet to 400-500 feet below the surface. There are no confining beds in the Upper Mississippian aquifer above the Warsaw Formation, and the entire sequence is considered hydrologically interconnected. Wells completed in the Upper Mississippian aquifer are able to produce 12 gallons per minute (GPM). Immediately below the Upper Mississippian units is a relatively thick layer of shale and shaley limestone of the Upper Warsaw Formation that acts as an aquitard. The Lower Mississippian aquifers, and others below it, yield greater amounts of mineralized water with increasing depth. These units are, therefore not used as a drinking water source in the area.

Pennsylvanian Aquifer

The Pennsylvanian cyclic deposits yield very small quantities of highly- mineralized, poor-quality water and are considered to be insignificant as aquifers. There is evidence suggesting that there are (perched) water horizons in or on top of the Pennsylvanian bedrock. These perched water horizons have a higher piezometric head than the water within the Upper Mississippian aquifer, implying a downward vertical gradient. However, significant recharge from the Pennsylvanian to the Mississippian bedrock is not expected. In fact, only minor recharge of the Pennsylvanian units from precipitation at the site is expected. Most precipitation is evapotranspired or becomes surface runoff.

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**4.1.3 Groundwater Flow Direction and Seepage to surface Water Bodies
(Reference 7, p. 3)**

The groundwater surface in both the Pennsylvanian and Upper Mississippian aquifers generally mimics surface topography. After percolating through soils, water resulting from precipitation, follows shallow preferential pathways in the weathered bedrock surface. Shallow, discontinuous fractures also allow water to move vertically to the water table. Once it enters the saturated zone, groundwater moves southeast towards the River des Peres along a hydraulic gradient of approximately 0.023 ft./ft.

A small amount of precipitation is expected to seep through the soils, flow across the top of the Pennsylvanian bedrock surface, and discharge at the River Des Peres.

4.1.4 Karst Features and Aquifer Discontinuities (Reference 7, p. 4)

The bedrock beneath the Chicago Heights site is not considered karst. Karst features are absent, since most of the site is covered with a thin veneer of Pennsylvanian-age siltstone, sandstone and shale. This cover has reduced extensive solution weathering of the upper portion of the Mississippian carbonates.

There are no major groundwater discharge zones within four miles of the site. No aquifer discontinuities affect groundwater flow within four miles of the site.

4.2 Groundwater Targets

Drinking Water

The majority of the population within four miles of the site relies on drinking water supplied by the St. Louis County Water Company, which obtains all its water from surface water intakes on the Missouri and the Meramec Rivers. There are no public water supply wells within four miles of the site (Reference 29).

The Missouri Division of Geology and Land Survey (DGLS) has on record one community well, four non-community public wells and 30 private wells within four miles of the site (Reference 7). Most of these wells are old wells, drilled prior to the county water service starting service in their areas. It is unlikely that many of these wells are still in use. It is known that the one community well at the Maryland Heights School is no longer in use (Reference 29). No information could be found for the five non-community public wells on record and none of them are included in the recent inventories of non-community water systems in St. Louis County (Reference 30, p183). Since verifying the current usage of private drinking water wells is difficult, all 30 private wells are reported here, even though few are expected to be in use. Of these wells, one is located between one-half and one mile, seven are located between one to two miles, 13 are located between two to three miles, and 9 are located between three to four

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miles from the site (Reference 7). At 2.57 persons per household (the average for St. Louis County) (Reference 31, p. 143), this equates to an estimated 77 people possibly using private wells. It appears that these wells were completed in the Upper Mississippian regional aquifer (Reference 7). Table 1, below, presents the estimated population potentially using groundwater for drinking water purposes within distance categories.

The nearest drinking water well on record was drilled in 1936 and is located approximately 0.6 miles northwest (upgradient) of the site. The nearest well downgradient of the site is located approximately 1.7 miles south of the site and was drilled in 1961 (Reference 7).

Distance Category (in miles)	People Served by Public Wells	Number of Private Wells	People Served By Private Wells	Total People Served
0 to ¼	0	0	0	0
> ¼ to ½	0	0	0	0
> ½ to 1	0	1	3	3
> 1 to 2	0	7	18	18
> 2 to 3	0	13	33	33
> 3 to 4	0	9	23	23
Total	0	30	77	77

Vapor From Contaminated Groundwater

A major concern in the Chicago Heights residential neighborhood is the potential for vapors from the VOC contaminated groundwater to enter residences. Although the groundwater is not used as a drinking source in the site area, many residences in the neighborhood have basements that are often wet from seepage. Vapors may also migrate into homes through basement walls. As stated in the site description, Section 2.2 of this report, approximately 35 individual homes and 12 apartment buildings are located in the area above the suspected location of the groundwater plume.

4.3 Sample Locations

No air or water samples were collected from residences during the PA/SI investigation. Air samples had been collected in four residences during off-site investigations by EG&G contractors on November 20, 1998; however, the location and extent of the plume was unknown at that time. DNR personnel originally planned to collect additional

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in-door air and water samples from homes that were determined to be in the path of the plume, as determined during PA/SI investigation. Drought conditions during the summer and autumn prior to PA/SI sampling made collecting those samples impractical. Drought conditions continued though the winter. No target samples were collected.

4.4 Groundwater Conclusions

The threat to human health from drinking water appears minimal. No drinking water wells were sampled. The perched groundwater in the surficial soils at the site is known to contain VOCs; however, this water is not used as a source of drinking water. Any private drinking water wells that may still be in use within four miles of the site appear to draw water from the Mississippian aquifer. There could be some recharge from the contaminated perched water to the Pennsylvanian aquifer; however, recharge from the Pennsylvanian aquifer to the Mississippian aquifer below is not expected. Thirty wells are on record within four miles of the site; however, it is unlikely that many of them are still in use. The nearest downgradient drinking water well on record is located approximately 1.7 miles south of the site.

Residences with basements in the path of the VOC plume are subject to a potential threat from vapors from the contaminated water that enters the basements or from vapor migration through walls. Air and water sampling should be conducted within those basements in the path of the plume, where concentrations are at levels of concern as determined by the Missouri Department of Health.

5.0 SURFACE WATER PATHWAY

5.1 Hydrologic Setting

The Chicago Heights Blvd VOC Plume site is located in a heavily-urbanized area. The natural surface drainage has been substantially altered by development, and drainage is now controlled by an artificial drainage system. Surface water drainage is collected by storm sewers, then discharged to the River des Peres. The average annual run-off in the vicinity of the site is 10.5 inches (Reference 7, pp. 5-6).

The nearest down-slope surface water consists of the upper reaches of the channelized River des Peres. The River des Peres is an intermittent stream that is located 0.1 miles south of the Chicago Heights residential area. The stream flows eastward for approximately 18 miles and is channelized all the way to the Mississippi River. Under most conditions, the River des Peres has a low flow; however, during moderate to heavy precipitation, the flow increases dramatically, due to the heavily-urbanized watershed (Reference 7, p. 5). The portion of the River des Pere that flows south of the site appears to be a drainage ditch. No water was visible in the drainage ditch at the time of the PA/SI site sampling event (Reference 8). USGS Topographic maps indicate

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that flow in the River des Peres is intermittent at least to 2.8 miles downstream from the site (Reference 3). The probable point of entry (PPE) for run-off from the site would be located at this point on the River des Peres, approximately 2.8 miles downstream from the site.

The Federal Emergency Management Flood Insurance Rate Map indicates Chicago Heights Blvd VOC Plume site is in an area of minimal flood hazard (Reference 32).

5.2 Surface Water Targets

Since the PPE is more than two miles from the site, surface water targets were not evaluated for this site.

5.3 Surface Water Conclusions

The threat to human health and the environment from run-off to surface water appears minimal. The site consists of a contaminated groundwater plume that is migrating from off-site. The contaminants are not known to be present in the shallow surface soils. Although seepage of contaminated groundwater may discharge into the intermittent River des Peres south of the site, the PPE is more than two miles downstream from the site.

6.0 SOIL EXPOSURE AND AIR PATHWAYS

6.1 Physical Conditions

Soils at the site have been mapped as the Urban Land Harvester Complex with 2 to 9% slopes. Slope across the site is approximately 1.1%. The Harvester Complex is described as a dark, grayish-brown silt loam with a surface layer about 4 inches thick. Below the surface layer is a 25-inch-thick, multi-colored silt loam. Harvester Complex soils have a moderately-slow permeability, high water capacity, low organic content, and moderate shrink-swell potential. However, the natural surface of the site has been extensively modified by urbanization. The upper 2 to 11-foot-thick layer consists of fill material that is composed of silty clay, debris, and gravel (Reference 7, pp. 2, 6).

The source of contamination at the site is a groundwater plume of VOCs. No waste sources are known to exist on the surface of the site. The areas above the suspected location of the plume include paved streets and sidewalks, homes and apartment buildings, and residential yards. Most yards are grass covered, and include shrubs, trees and some flower gardens that are usual in residential neighborhoods. Many of the yards are fenced. No soil conditions that would be unusual for a residential area are apparent (Reference 8).

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6.2 Soil and Air Targets

1990 Census figures indicate an estimated 690 people live within 0.25 miles of the site. The estimated total population within four miles of the site is 159,545 people. A breakdown of population by distance ring is presented in Table 2, below (Reference 33). There are no sensitive environments on or within 200 feet of the site (Reference 3, 34).

Distance From Site	Population
0 - 1/4 Mile	690
>1/4 - 1/2 Mile	2324
>1/2 - 1 Mile	8,490
>1 Mile - 2 Miles	30,213
>2 Miles - 3 Miles	53,108
>3 Miles - 4 Miles	64,720
Total	159,545

The major concern at this site is that vapors from the VOC contamination in the shallow groundwater might be entering some residences from the subsurface. This exposure route has been discussed within the groundwater pathway Sections 4.2 and 4.5 of this report.

6.3 Soil Sample Locations

No soil samples or outside air samples were collected since surface soil contamination is not a concern at this site.

6.4 Soil Exposure and Air Pathway Conclusions

Soil exposure at the Chicago Heights site appears to pose a negligible threat at this time. Also, the risk from airborne soil particles appears negligible. The site consists of a groundwater plume. There is no known source of contamination in the surface soils to which residents and the nearby population could be exposed. There is a potential threat to some residents from inhaling VOC vapors within residences. That potential was discussed in the groundwater pathway information, within Section 4.0 of this report.

7.0 SUMMARY AND CONCLUSIONS

The Chicago Heights Blvd VOC Plume site consists of a groundwater plume of VOCs beneath a residential neighborhood in St. Louis County, Missouri. Approximately 35 individual homes and 12 apartment buildings are located in the area above plume of VOCs. The neighborhood is in an unincorporated area within the city of Overland. It is a heavily urbanized area, surrounded by various industrial and commercial businesses.

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The site was first identified during an off-site environmental investigation that was conducted for a nearby hazardous waste site. In August 1998, the EG&G/Missouri Metals Shaping Company site (now Perkin Elmer), located northwest of the Chicago Heights Blvd site, conducted off-site sampling under a consent agreement between EG&G and DNR. TCE was discovered in the soil and groundwater south of Meeks Boulevard, at the northern edge of the residential area. TCE was not found in in-door air samples from several homes; however, TCE was present in a water sample collected from a sump in one residential basement. An additional off-site investigation in August 1999 found TCE and PCE present in groundwater in the southern portion of the residential area, along Chicago Heights Boulevard. Those contaminants were not detected in groundwater samples farther north, between the Chicago Heights Blvd location and the VOC plume that had been detected previously. The investigation also found that the groundwater gradient is generally to the southeast from the EG&G site and across the residential area. However, a clear migration route had not been established and the EG&G investigation report concluded that the contaminants present in the Chicago Heights Boulevard location had not migrated from the EG&G site, but had probably come from another source. The Chicago Heights Blvd VOC Plume site was then referred to DNR/HWP's Site Evaluation Unit for further evaluation. Although the groundwater in the area is not used as a source of drinking water, there is concern that the residences with basements could be subject to vapors from groundwater entering the basements or from vapor migration through walls.

PA/SI sampling was designed to determine the probable source and the location of the VOC plume; however, sample collection was complicated by dry conditions. Several of the wells were dry and could not be sampled. Analytical results showed a high concentration of TCE and PCE in wells on the north and low concentrations in wells on the south and in several wells in between; however a number of wells between both areas were non-detect for chlorinated solvents. A hydrogeologic review of the analytical data from PA/SI sampling and previous investigations concluded that groundwater contamination from the EG&G site seems to be migrating in a relatively tight pattern off-site into the northern residential area, and that a significant preferential subsurface pathway exists that is influencing that migration.

It is possible, although highly unlikely, that the contaminants in the southwest corner of the residential area could have originated from a source other than the EG&G site. Any combination of buried storm sewers, a sanitary sewer, cable and/or utility lines could have induced flow from the north to the south. VOC levels along the fence line on the western border of the site do not indicate that a significant plume of contaminants is entering the residential area from the west; however, this is not conclusive. Demonstrating that the VOC contamination in the Chicago Heights Boulevard area

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came from some other source would require installation of monitoring wells in the southwest corner of the site, along the fence line on the west, and in the fields west of the site.

One other nearby hazardous waste site with known VOCs present is the All American Life Insurance Company site, located south and downgradient of the Chicago Heights Blvd site. However, environmental investigations for that site concluded that the groundwater flow was southward, and that the chlorinated solvents in the groundwater at that site were originating off-site, from an upgradient source.

The threat to human health and the environment from surface water, soil exposure and from airborne soil particles appears minimal. Although the groundwater is not known to be used as a source of drinking water in the vicinity of the site, residences with basements in the path of the VOC plume are subject to a potential threat from vapors from the contaminated water that enters the basements or from vapor migration through walls.

8.0 Recommendations

Based on current site conditions and available information, additional investigation under CERCLA authority is warranted. No further investigation of the source of the plume is necessary; however, additional sampling of in-door air in residential basements is warranted for the protection of human health.

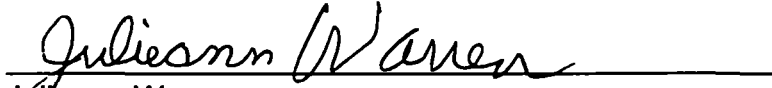
Air and water sampling is recommended for residential basements that are in the vicinity of the plume, where VOC concentrations are present at levels of concern, as determined by the Missouri Department of Health. This sampling should take place during a time of the year when wetter conditions prevail.

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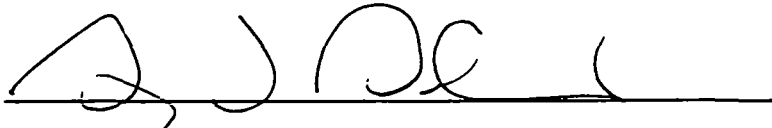
Prepared by:


Nancy H. Priddy
Environmental Specialist
Site Evaluation Unit

Reviewed by:


Julieann Warren
Chief
Site Evaluation Unit

Approved by:


Gary T. Behrms
Chief
Superfund Section

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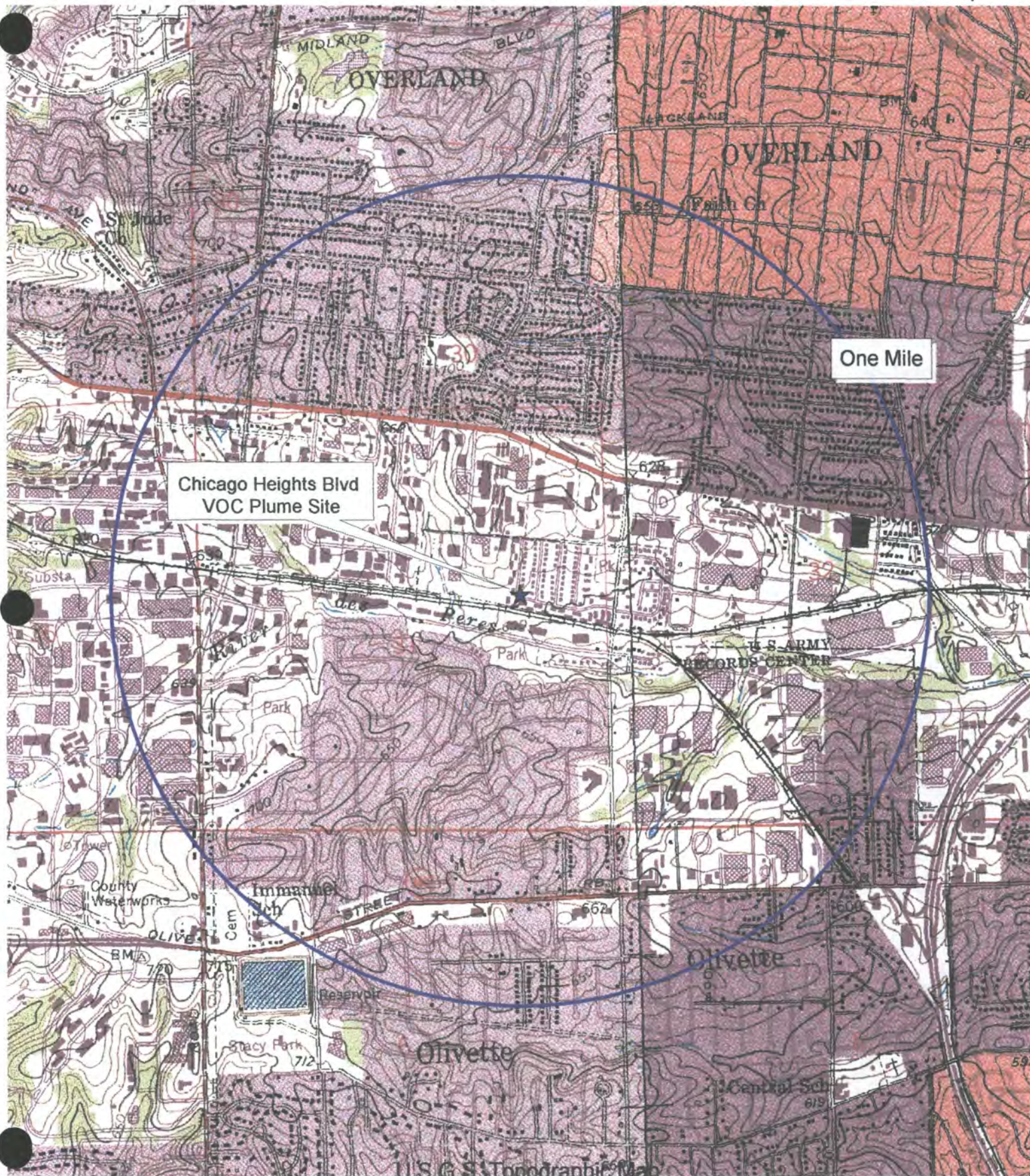
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APPENDIX A

- Figure 1. Site Location Map
- Figure 2. Site Sketch / Well Location Map
- Figure 3. PA/SI Sample Location Map
- Figure 4. PA/SI Sampling Results

Figure 1
Site Location Map
Chicago Heights Blvd VOC Plume
St. Louis County, Missouri



U.S.G.S. Topographic Map
7.5 Minute Series
Creve Coeur and Clayton, Missouri □ Quadrangles, 1993

Site Sketch / Well Location Map
Chicago Heights Blvd VOC Plume Site
Overland, Missouri

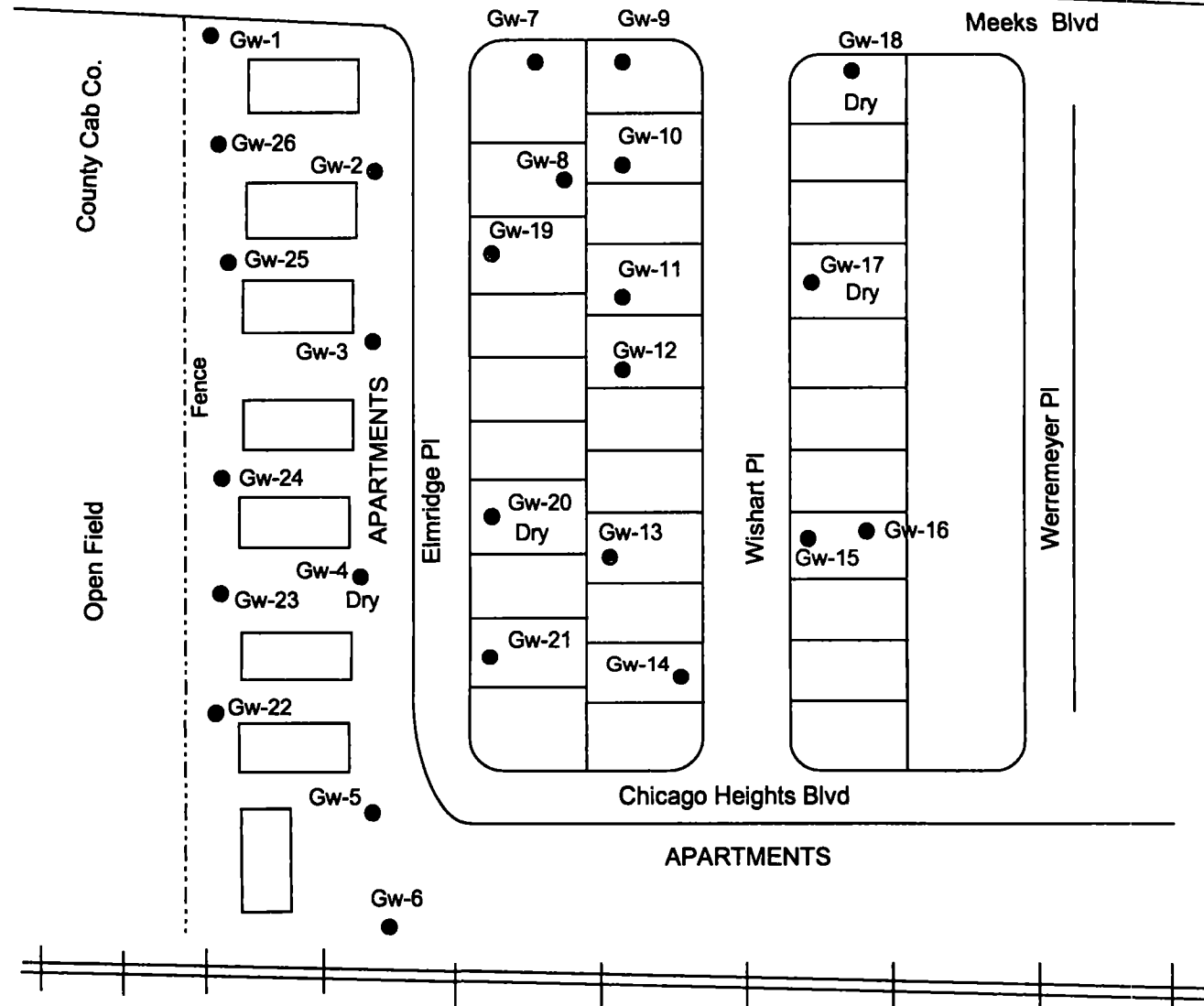


Not to Scale

Rental Storage Units

E G & G
Site

Open Field



County Cab Co.

Open Field

Fence

APARTMENTS

Elmridge Pl

Wishart Pl

Werremeyer Pl

Meeks Blvd

Chicago Heights Blvd

APARTMENTS

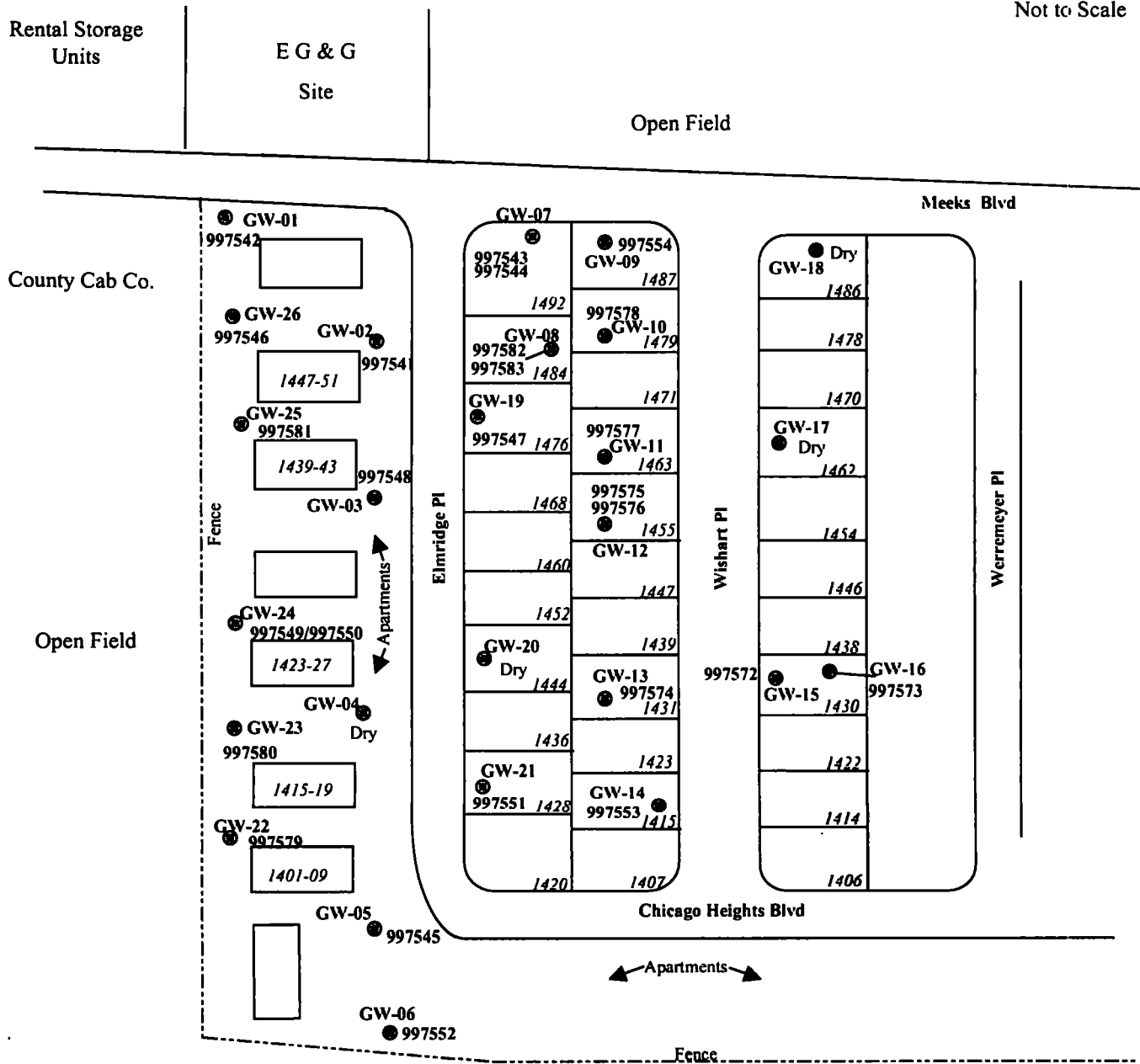
LEGEND

GW - 1 Groundwater well
● location

All American Life
Insurance Site

Site Map Chicago Heights Blvd VOC Plume Site

Chicago Heights Blvd VOC Plume
Overland, Missouri
PA/SI
FIGURE 3



LEGEND	
GW-XX ●	Temporary well location/identification
1415	Property/building address
99XXXX	Sample collected at location indicated

PA/SI Sampling Results
 Chicago Heights Blvd VOC Plume Site
 Overland, Missouri

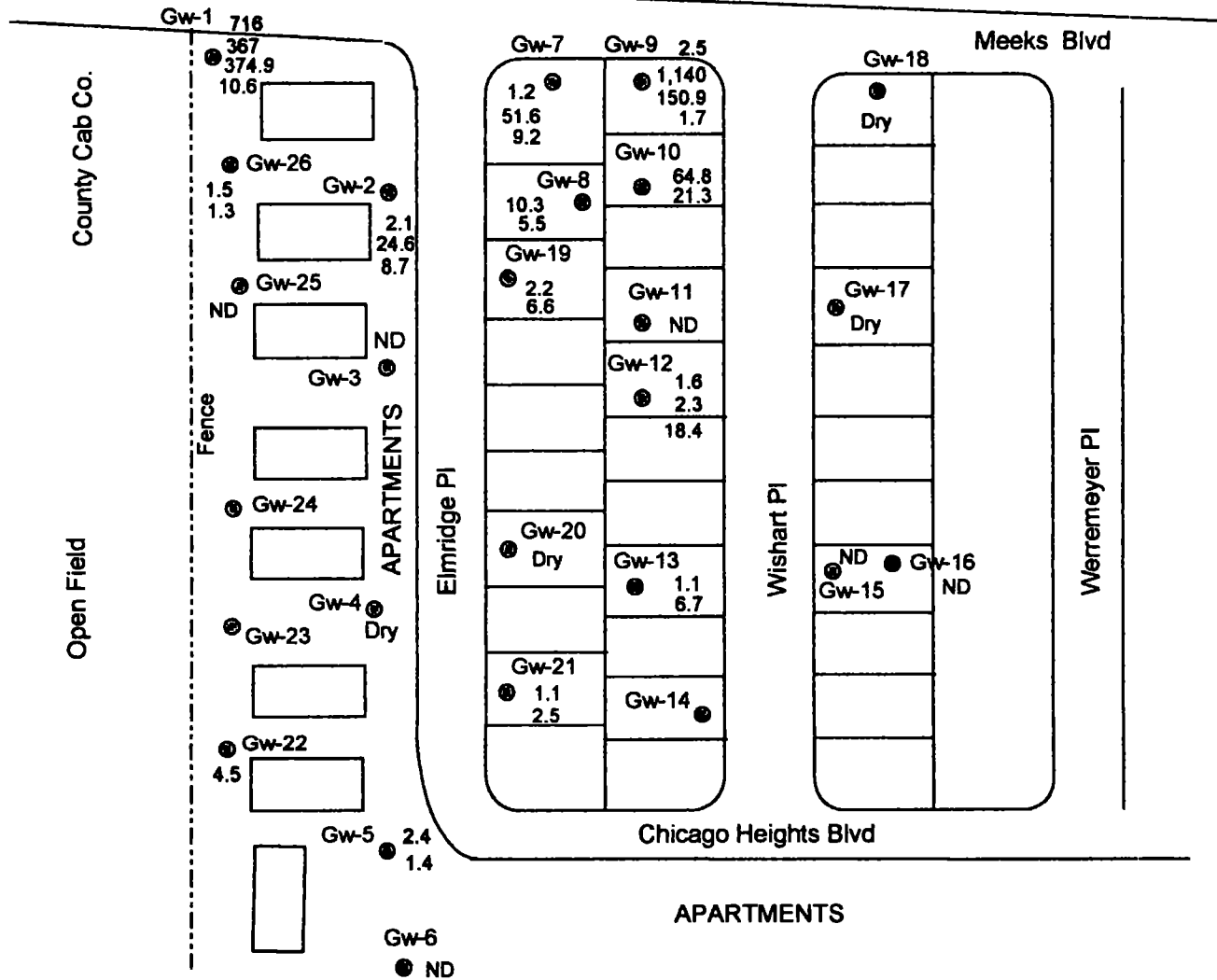


Not to Scale

Rental Storage Units

E G & G
 Site

Open Field



LEGEND

- GW-1 Groundwater well
- location
- 376 Concentration in ug/L
- ND Not Detected

- PCE
- TCE
- DCE - includes cis-1,2-, trans-1,2-, and 1,1-DCE
- Vinyl Chloride
- TCA

All American Life
 Insurance Site

APPENDIX B

Previous Investigations

- Figure 1. Additional Off-Site Investigation for EG&G Missouri Metals Site
- Figure 2. Refusal Depth Contour Map
- Figure 3. Groundwater Contour Map
- Figure 4. TCE in Groundwater - August 1999
- Figure 5. PCE in Groundwater - August 1999
- Table 1. Summary of Depth to Refusal Data
- Table 2. Summary of Water Level Data
- Table 3. Subsurface Soil Sampling Results
- Table 4. Groundwater Sampling Results
- Figure 6. All American Life Insurance Company Site Map

EG&G
SITE

OPEN FIELD

EQUIPMENT
RENTAL
COMPANY

SINGLE FAMILY
RESIDENTIAL DWELLINGS

SB-1
SB-2

MECKS BLVD.

SB-5
SB-4
SB-6
SB-10
SB-12
SB-14

SB-7 SB-8

SB-9
SB-11
SB-13

APARTMENTS

ELMRIDGE PL.

WISHART PL.

WEIRMEYER PL.

WIRACHT PL.

APARTMENTS

KING MEMORIAL
PARK

CHURCH

B-7

B-1

B-8

B-2

B-6

B-9

B-12

B-3

B-5

B-11

B-14

CHICAGO HEIGHTS BLVD.

B-4

B-10

B-13

APARTMENTS

ST. LOUIS SOUTHWESTERN RAILROAD

ALL AMERICAN LIFE INSURANCE SITE

LEGEND



FINAL PIEZOMETER
LOCATION



FINAL BORING LOCATION
(No Piezometer Installed)



PREVIOUS BORING
LOCATION (August 1998)



**Burns
&
McDonnell
Waste
Consultants
Inc**

Figure 1
ADDITIONAL OFF-SITE
INVESTIGATION
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

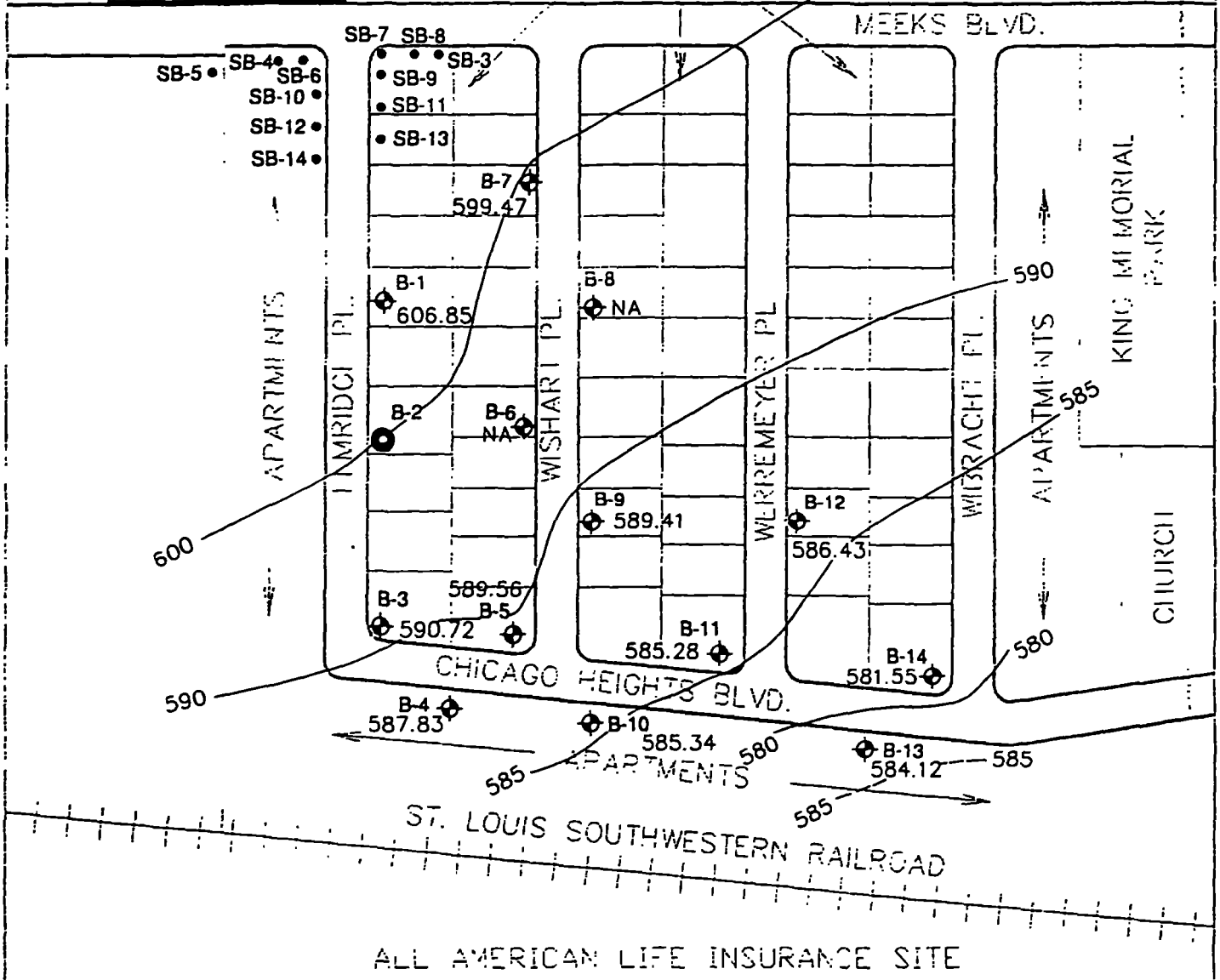
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EG&G
SITE
SB-1
SB-2

OPEN FIELD

SINGLE FAMILY
RESIDENTIAL DWELLING 600

EQUIPMENT
RENTAL
COMPANY



LEGEND

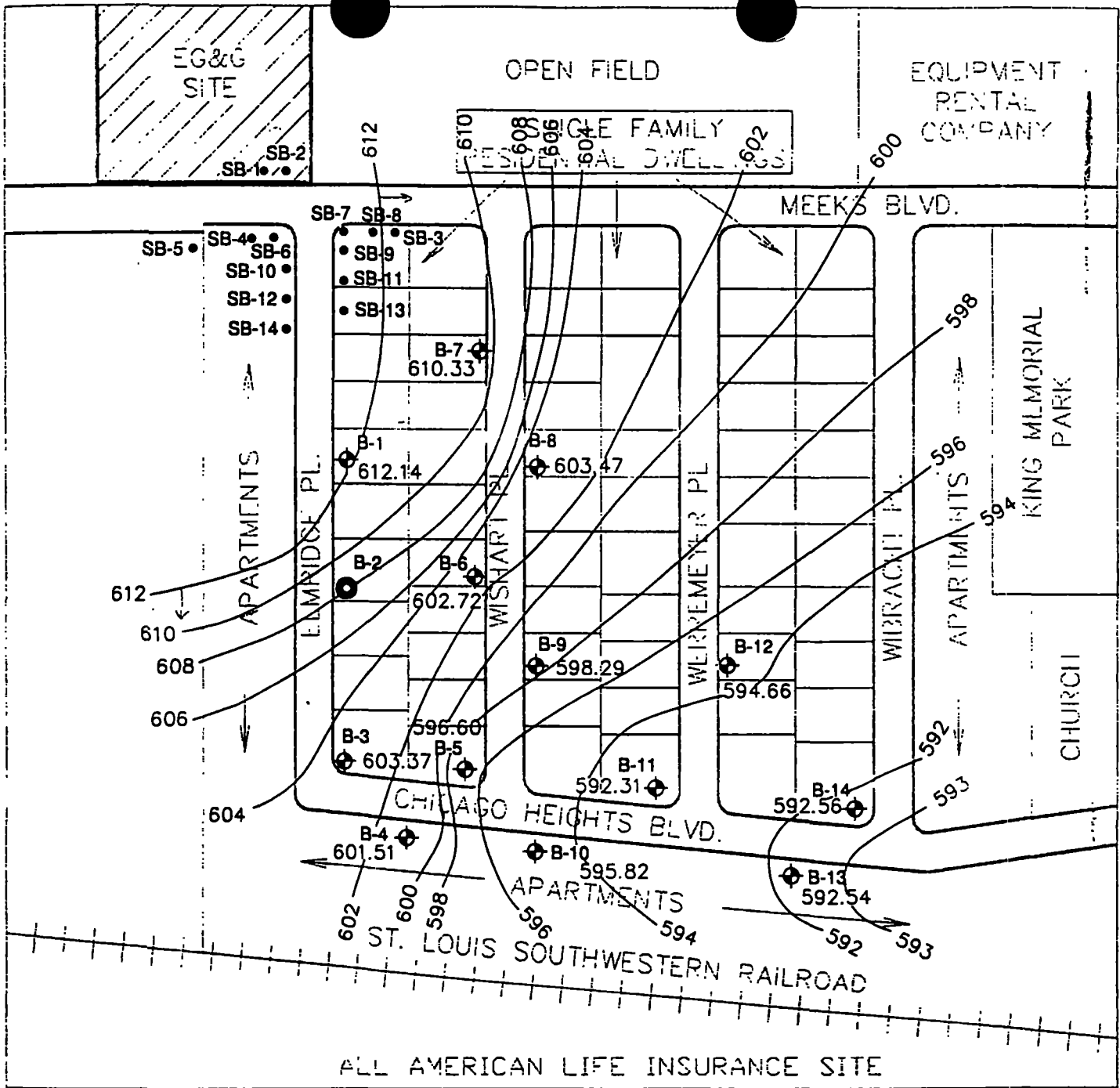
- B-1 FINAL PIEZOMETER LOCATION
- 606.85 REFUSAL DEPTH ELEVATION (Feet Above Sea Level)
- B-2 FINAL BORING LOCATION (No Piezometer Installed)
- SB-2 PREVIOUS BORING LOCATION (August 1998)
- REFUSAL DEPTH CONTOUR








**Burns
&
McDonnell
Waste
Consultants,
Inc**

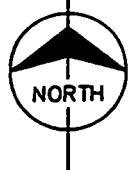
Figure 2
REFUSAL DEPTH
CONTOUR MAP
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

TITAN19131814008ICADDIE&G.DWG



LEGEND

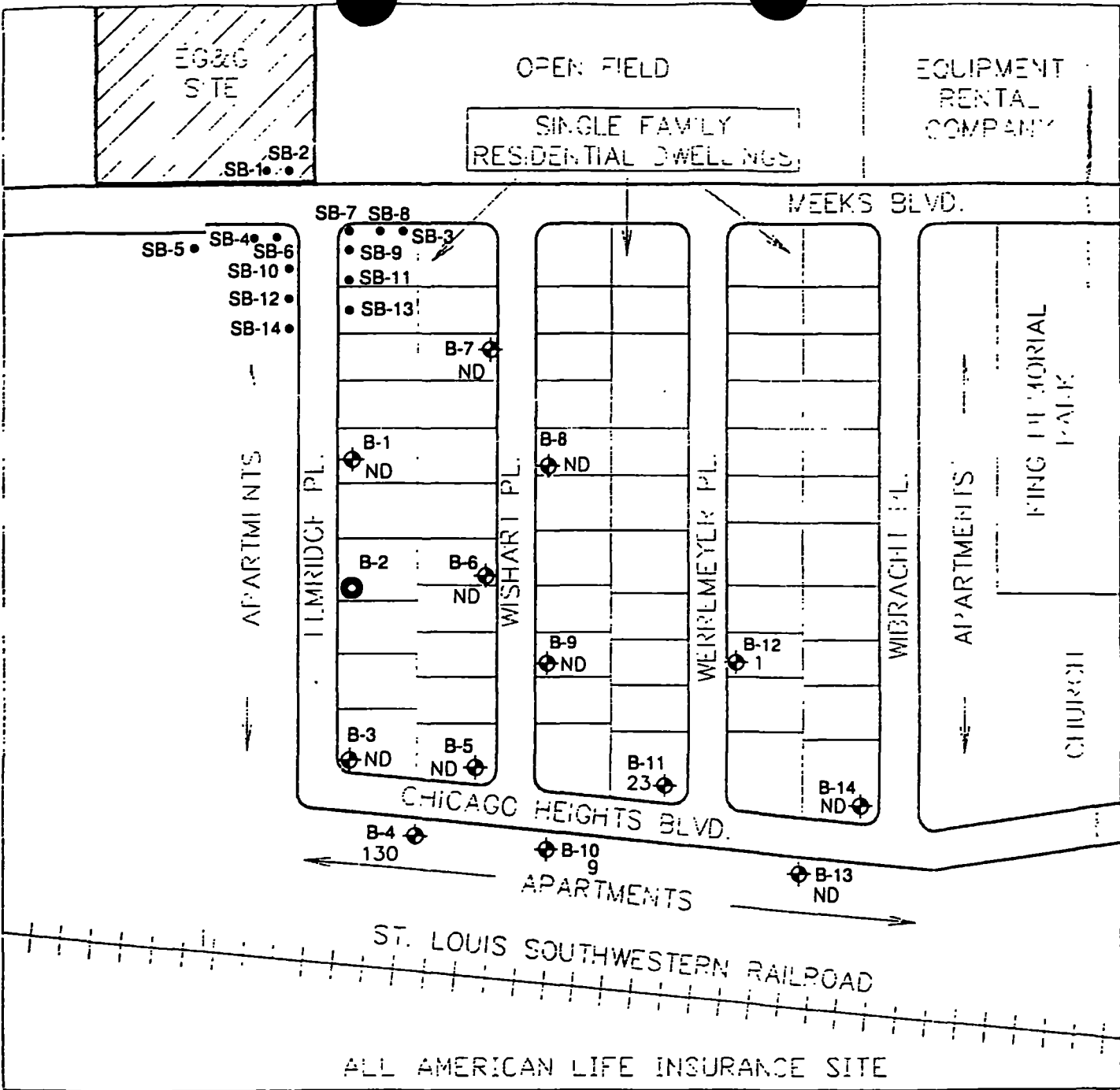
- B-1

FINAL PIEZOMETER LOCATION
- 612.14

PIEZOMETRIC SURFACE ELEVATION (Feet Above Sea Level)
- B-2

FINAL BORING LOCATION (No Piezometer Installed)
- SB-2

PREVIOUS BORING LOCATION (August 1998)
- 612

PIEZOMETRIC SURFACE CONTOUR








**Burns
&
McDonnell
Waste
Consultants,
Inc**

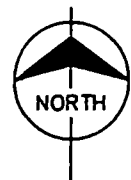
Figure 3
**GROUNDWATER
 CONTOUR MAP
 AUGUST 1999**
 EG&G MISSOURI METALS SITE
 OVERLAND, MISSOURI

TITAN:191319W.CADD:EG&G.DWG



LEGEND

-  B-1 FINAL PIEZOMETER LOCATION
-  130 TCE IN GROUNDWATER CONCENTRATION (ug/L)
-  B-2 FINAL BORING LOCATION (No Piezometer Installed)
-  SB-2 PREVIOUS BORING LOCATION (August 1998)
-  ND NOT DETECTED (Reporting Limit = 1 ug/L)



**Burns
&
McDonnell
Waste
Consultants,
Inc.**

Figure 4
TCE IN
GROUNDWATER
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

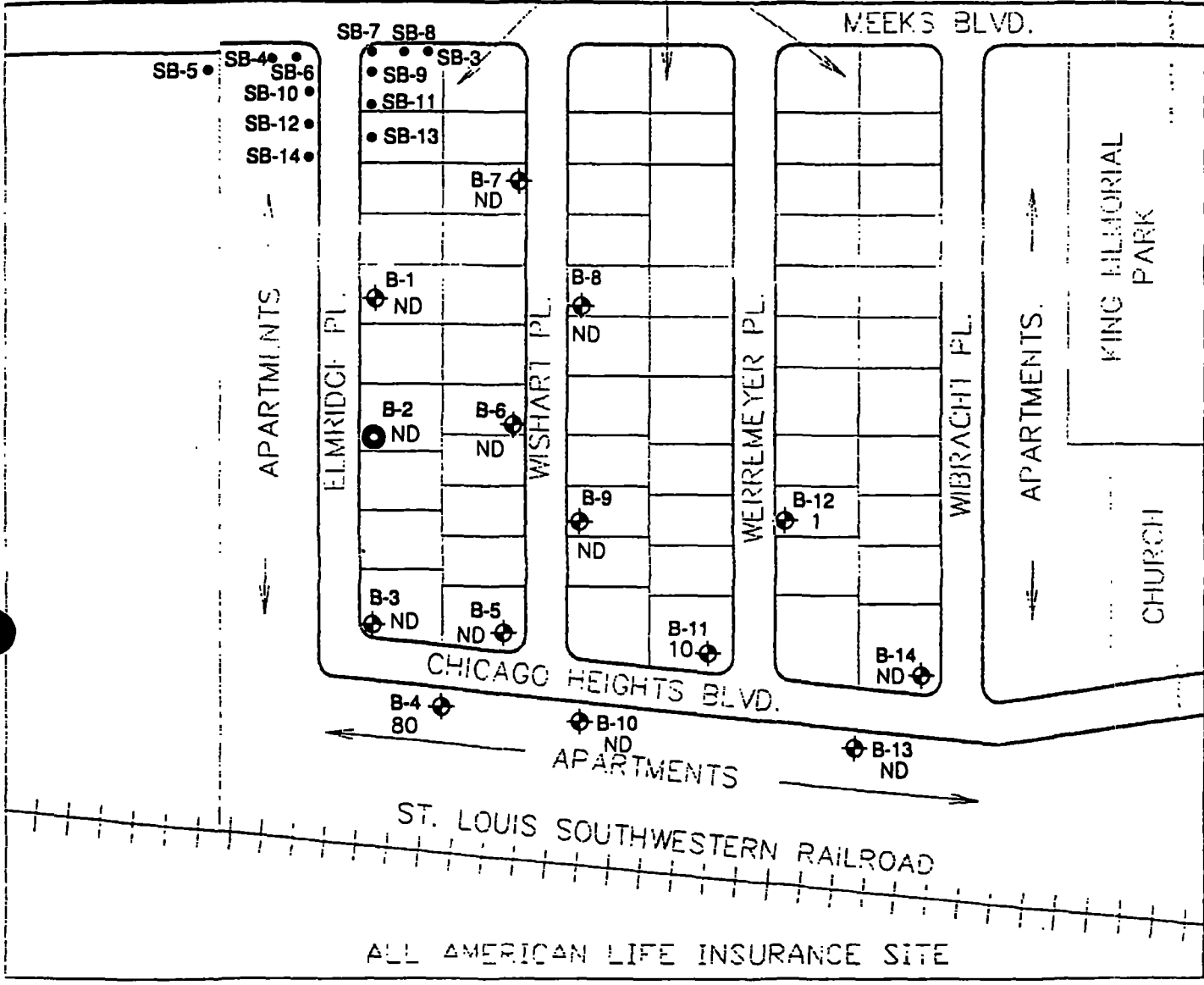
TITAN:19131914006/CADD/EG&G.DWG

EG&G SITE
SB-1 ● SB-2 ●

OPEN FIELD

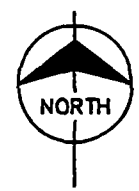
SINGLE FAMILY RESIDENTIAL DWELLINGS

EQUIPMENT RENTAL COMPANY



LEGEND

- B-1 FINAL PIEZOMETER LOCATION
- 80 PCE IN GROUNDWATER CONCENTRATION (ug/L)
- B-2 FINAL BORING LOCATION (No Piezometer Installed)
- SB-2 PREVIOUS BORING LOCATION (August 1998)
- ND NOT DETECTED (Reporting Limit = 1 ug/L)



Burns & McDonnell Waste Consultants, Inc

Figure 5
PCE IN GROUNDWATER
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

TITAN:91319M ADDIEC&G.DWG

Table 1
Summary of Depth to Refusal Data
EG&G Missouri Metals Additional Off-Site Investigation
August 1999

Temporary Piezometer	Date	(A)	Depth to Top of Screen (feet)	(B)	(A)-(B)	Refusal Depth Elevation*
		Casing Rim Elevation (feet)		Total Depth (feet)	Casing Base Elevation (feet)	
B-1	8/13/99	624.88	2.5	18.25	606.63	606.85
B-3	8/13/99	611.37	2.1	20.87	590.50	590.72
B-4	8/13/99	608.83	1.5	21.22	587.61	587.83
B-5	8/13/99	607.59	4.5	18.25	589.34	589.56
B-6	8/13/99	610.22	2.0	NA	NA	NA
B-7	8/13/99	620.43	1.0	21.18	599.25	599.47
B-8	8/13/99	615.47	2.0	NA	NA	NA
B-9	8/13/99	607.34	2.0	18.15	589.19	589.41
B-10	8/13/99	606.37	3.5	21.25	585.12	585.34
B-11	8/13/99	603.31	2.0	18.25	585.06	585.28
B-12	8/13/99	605.78	1.5	19.57	586.21	586.43
B-13	8/13/99	602.15	3.0	18.25	583.9	584.12
B-14	8/13/99	602.58	1.0	21.25	581.33	581.55

Notes

NA - Not Applicable - Refusal was not encountered during boring installation

* - Refusal surface elevation = Casing base elevation + 0.22 feet.

Stainless steel drive points attached to base of casing are 0.22 feet in vertical length.

Table 2
Summary of Water Level Data
EG&G Missouri Metals Additional Off-Site Investigation
August 1999

Temporary Piezometer	Date	(A)	Depth to Top of Screen (feet)	(B)	(A)-(B)	Piezometric Surface Elevation (feet)
		Casing Rim Elevation (feet)		Depth to Water (feet)	Water Surface Elevation (feet)	
B-1	8/13/99	624.88	2.5	12.74	612.14	612.14
B-3	8/13/99	611.37	2.1	8.00	603.37	603.37
B-4	8/13/99	608.83	1.5	7.32	601.51	601.51
B-5	8/13/99	607.59	4.5	10.99	596.60	596.60
B-6	8/13/99	610.22	2.0	7.50	602.72	602.72
B-7	8/13/99	620.43	1.0	10.10	610.33	610.33
B-8	8/13/99	615.47	2.0	12.00	603.47	603.47
B-9	8/13/99	607.34	2.0	9.05	598.29	598.29
B-10	8/13/99	606.37	3.5	10.55	595.82	595.82
B-11	8/13/99	603.31	2.0	11.00	592.31	592.31
B-12	8/13/99	605.78	1.5	11.12	594.66	594.66
B-13	8/13/99	602.15	3.0	9.61	592.54	592.54
B-14	8/13/99	602.58	1.0	10.02	592.56	592.56

Table 3
 Subsurface Soil Sampling Results
 EG&G Additional Off-Site Investigation
 August 1999

Analyte	Units	ASL*	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14
Acetone	ug/Kg		10	ND(10)	52	30	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	14	ND(10)	ND(10)	ND(10)	ND(10)
Vinyl Chloride	ug/Kg		ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Methylene Chloride	ug/Kg	670,000	18	19 B	16	15	13	12	21 B	38 B	44 B	28 B	24 B	20 B	21 B	12 B
1,1-Dichloroethylene	ug/Kg	8,300	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,2-Dichloroethylene (total)	ug/Kg	560,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Trans 1,2-Dichloroethylene	ug/Kg	1,100,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Chloroform	ug/Kg	820,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Trichloroethylene (TCE)	ug/Kg	260,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Tetrachloroethylene (PCE)	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Toluene	ug/Kg	11,000,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,1-Dichloroethane	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,2-Dichloroethane	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,1,2-Trichloroethane	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,1,1-Trichloroethane	ug/Kg	2,000,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Benzene	ug/Kg	170,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Chlorobenzene	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,4-Dichlorobenzene	ug/Kg	2,800,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)

Notes
 ASL* - Any-Soil-Use Soil Level
 B - Analyte detected in method blank possibly below the reporting limit
 ND(5) - Not detected(analyte reporting limit of 5 ug/K)

Table 4
Groundwater Sampling Results
EG&G Additional Off-Site Investigation
August 1999

Contaminant	Units	MCL*	B-1	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14
Acetone	ug/L		ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Vinyl Chloride	ug/L	2	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Methylene Chloride	ug/L	5	22 B	21 B	6 B	8 B	9 B	9 B	8 B	9 B	9 B	9 B	8 B	8 B	ND(1)
1,1-Dichloroethylene	ug/L	7	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2 Dichloroethylene (total)	ug/L	70	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Trans 1,2-Dichloroethylene	ug/L	100	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Chloroform	ug/L	100**	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2	ND(1)	ND(1)	1	ND(1)	ND(1)	ND(1)
Trichloroethylene (TCE)	ug/L	5	ND(1)	ND(1)	130	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	9	23	1	ND(1)	ND(1)
Tetrachloroethylene (PCE)	ug/L		ND(1)	ND(1)	80	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	10	1	ND(1)	ND(1)
Toluene	ug/L	1,000	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,1-Dichloroethane	ug/L		ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2-Dichloroethane	ug/L	5	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,1,2-Trichloroethane	ug/L	5	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,1,1-Trichloroethane	ug/L	200	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Benzene	ug/L	5	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Chlorobenzene	ug/L		ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,4-Dichlorobenzene	ug/L	75	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

Notes

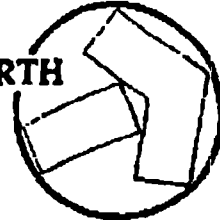
MCL* - Maximum Contaminant Level

** - Total THMs

B - Analyte detected in method blank possibly below the reporting limit

ND(1) - Not detected(analyte reporting limit)

NORTH

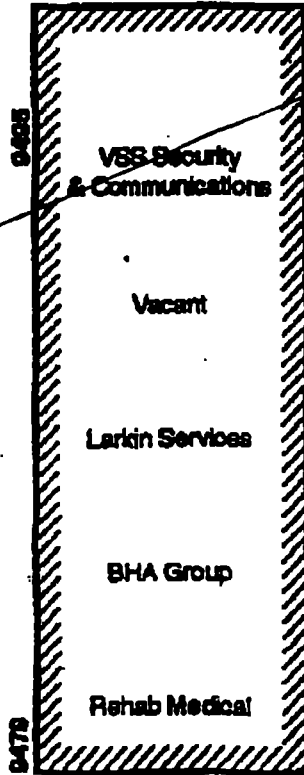
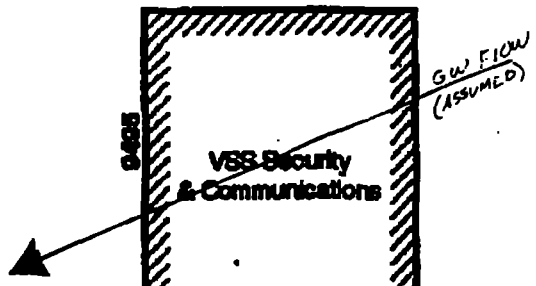


SB/MW-2

Undeveloped Property



Approximate Size
in Feet



Undeveloped Part Area

Dielman Rock Island Drive

River Des Peres

Chicago, Rock Island & Pacific Railroad

Abandoned Apartment Complex

Subject Site



SB/MW-1

LEGEND

- Soil Boring/Monitoring Well Location

SITE LOCATION

9479-9495 Dielman Rock Island Drive
Olivette, Missouri

APPENDIX C

PS/SI Investigations:

Table 1. Temporary Well Information

Table 2. Sample Listing/Descriptions

Table 3. Analytical Results for Groundwater Samples

Chicago Heights Blvd VOC P
 Overland, Missouri
 PA/SI
 TABLE 1

Temporary Well Information

Well Identity	Total Depth – ft (below ground surface)	Depth to Water – ft (below ground surface)	Water Column – ft
GW-01	27.5	25.0	2.5
GW-02	29.2	25.2	4.0
GW-03	25.0	16.2	8.8
GW-04	27.0	Dry	-
GW-05	26.0	16.0	10.0
GW-06	24.0	22.5	1.5
GW-07	25.0	15.0	10.0
GW-08	23.1	10.2	12.9
GW-09	19.5	9.81	9.69
GW-10	18.1	7.4	10.7
GW-11	23.1	8.25	14.85
GW-12	17.0	7.8	9.2
GW-13	20.8	8.0	12.8
GW-14	20.3	9.3	11.0
GW-15	22.2	15.15	7.05
GW-16	20.3	13.0	7.3
GW-17	19.0	Dry	-
GW-18	18.2	Dry	-
GW-19	24.4	8.2	16.2
GW-20	22.0	Dry	-
GW-21	20.7	13.0	6.3
GW-22	17.6	7.7	9.9
GW-23	20.6	16.0	4.6
GW-24	22.7	16.3	6.4
GW-25	17.1	13.4	3.7
GW-26	23.0	20.4	2.6

Chicago Heights Blvd VOC Plume
 Overland, Missouri
 PA/SI
 TABLE 2

Sample Listing/Descriptions

Sample #	Sample Media/Type	Location Collected/Description	Date/Time Collected
990049	QA/QC sample (trip blank)	Analyte-free water prepared at ESP laboratory.	11/28/99
997541	Water grab	Temporary well GW-02 located 6 ft west of the west edge of Elmridge Place and 9 ft south of the south edge of the first (northernmost) parking lot entrance. Sample was heavily turbid and medium brown.	11/29/99 @ 1355
997542	Water grab	Temporary well GW-01, located 125 ft west of the west edge of Elmridge Place and 12 ft south of the south edge of Meeks Blvd. Sample was moderately turbid and colorless.	11/30/99 @ 0740
997543	Water grab	Temporary well GW-07, located 30 ft south of the south edge of Meeks Blvd and 57 ft east of the east edge of Elmridge Place. Sample was heavily turbid and medium brown.	11/30/99 @ 0755
997544	QA/QC sample (duplicate)	Duplicate sample of 997543, entered onto chain-of-custody as "Blind duplicate". Same description as above.	11/30/99 @ 0755
997545	Water grab	Temporary well GW-05, located 12 ft west of the west edge of Elmridge Place and 10 ft south of the south edge of Chicago Heights Blvd. Sample was moderately turbid and light brown.	11/30/99 @ 0815
997546	Water grab	Temporary well GW-26, located 100 ft west of the west edge of Elmridge Place and 50 ft north of the north edge of the building representing 1447-51 Elmridge Place. Sample was clear and colorless.	12/1/99 @ 0826
997547	Water grab	Temporary well GW-19, located at the east edge of Elmridge Place, 10 ft south of the south edge of the driveway at 1476 Elmridge Place. Sample was slightly turbid and light brown.	12/1/99 @ 0845
997548	Water grab	Temporary well GW-03, located 6 ft west of the west edge of Elmridge Place and 6 ft north of the north edge of the second parking lot entrance. Sample was slightly turbid and light brown.	12/1/99 @ 0855
997549	Water grab	Temporary well GW-24, located 105 ft west of the west edge of Elmridge Place and 22 ft north of the building representing 1423-27 Elmridge Place. Sample was slightly turbid and light brown.	12/1/99 @ 0910
997550	QA/QC sample (duplicate)	Duplicate sample of 997549, entered onto chain-of-custody as "Blind duplicate". Same description as above.	12/1/99 @ 0910
997551	Water grab	Temporary well GW-21, located 22 ft west and 12 ft south of the southwest corner of the house at 1428 Elmridge Place. Sample was clear and colorless.	12/1/99 @ 0920
997552	Water grab	Temporary well GW-06, located 125 ft south of the south edge of Chicago Heights Blvd and 27 ft west of the west edge of Elmridge Place. Sample was clear and colorless.	12/1/99 @ 0925
997553	Water grab	Temporary well GW-14, located 12 ft south and 20 ft east of the northeast corner of the carport at 1415 Wishart Place (immediately south of the driveway). Sample was slightly turbid and light brown.	12/1/99 @ 0940
997554	Water grab	Temporary well GW-09, located 12 ft west and 7 ft north of the northwest corner of the house at 1487 Wishart Place. Sample was slightly turbid and light brown.	12/1/99 @ 0950

Chicago Heights Blvd VOC Plume
 Overland, Missouri
 PA/SI
 TABLE 2 (Continued)

Sample Listing/Descriptions

Sample #	Sample Media/Type	Location Collected/Description	Date/Time Collected
997571	QA/QC sample (trip blank)	Analyte-free water prepared at ESP laboratory.	12/7/99
997572	Water grab	Temporary well GW-15, located 20 ft west of the northwest corner of the house at 1430 Wishart Place. Sample was clear and colorless.	12/7/99 @ 0950
997573	Water grab	Temporary well GW-16, located 25 ft east of the northeast corner of the house at 1430 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1000
997574	Water grab	Temporary well GW-13, located 20 ft west and 14 ft south of the southwest corner of the house at 1431 Wishart Place. Sample was initially clear and colorless, but became moderately turbid and light brown during collection.	12/7/99 @ 1015
997575	Water grab	Temporary well GW-12, located 30 ft south and 25 ft west of the southwest corner of the house located at 1455 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1035
997576	QA/QC sample (duplicate)	Duplicate sample of 997575, entered onto chain-of-custody as "Blind duplicate". Same description as above.	12/7/99 @ 1035
997577	Water grab	Temporary well GW-11, located 22 ft west and 7 ft north of the northwest corner of the house at 1463 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1050
997578	Water grab	Temporary well GW-10, located 12 ft north and 1 ft east of the northwest corner of the house at 1479 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1115
997579	Water grab	Temporary well GW-22, located 105 ft west of the west edge of Elmridge Place and 25 ft north of the north side of the building representing 1401-09 Elmridge Place. Sample was clear and colorless.	12/7/99 @ 1135
997580	Water grab	Temporary well GW-23, located 100 ft west of the west edge of Elmridge Place and 55 ft north of the north side of the building representing 1415-19 Elmridge Place. Sample was moderately turbid and light brown.	12/7/99 @ 1145
997581	Water grab	Temporary well GW-25, located 105 ft west of the west edge of Elmridge Place and 28 ft north of the north side of the building representing 1439-43 Elmridge Place. Sample was clear and colorless.	12/7/99 @ 1200
997582	Water grab	Temporary well GW-08, located approximately 25 ft east of the southeast corner of the house at 1484 Elmridge Place. Sample was clear and colorless.	12/7/99 @ 1210
997583	QA/QC sample (duplicate)	Duplicate sample of 997582, entered onto chain-of-custody as "Blind duplicate". Same description as above.	12/7/99 @ 1210

**Table 3. Selected Analytical Results for Groundwater Samples
Chicago Heights Blvd VOC Plume PA/SI
November 29- December 1, 1999, December 7, 1999**

- All values are in parts per billion (ug/L or ppb) unless otherwise noted.
- Shaded values are those above detection limits.
- Bold values are those above the lowest SCDM health-based benchmarks for drinking water.
- SCDM health-based benchmarks for drinking water are included as a basis for comparison, even though the groundwater is not used for a drinking water supply at this site.

Sample # Well #	ANALYTE (And lowest SCDM Benchmark Values)						
	PCE (1.6)	TCE (5.0)	1, 1-DCE (0.14)	Cis-1, 2- DCE (70)	Trans-1, 2-DCE (100)	1, 1, 2- TCA (1.5)	Vinyl Chloride (0.04)
997541 GW-02	<1.0	2.1	<1.0	24.6	<1.0	<1.0	8.7
997542 GW-01	716	367	1.6	369	4.3	<1.0	10.6
997543 GW-7	1.2	51.6	<1.0	9.2	<1.0	<1.0	<2.0
997545 GW-05	2.4	1.4	<1.0	<1.0	<1.0	<1.0	<2.0
997546 GW-26	1.5	1.3	<1.0	<1.0	<1.0	<1.0	<2.0
997547 GW-19	<1.0	<1.0	<1.0	2.2	<1.0	<1.0	3.4
997548 GW-03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997549 GW-24	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997551 GW-21	<1.0	1.1	<1.0	2.4	<1.0	<1.0	<2.0
997552 GW-06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997553 GW-14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997554 GW-09	2.5	1,140	1.9	149	<1.0	1.7	<2.0
997572 GW-15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997573 GW-16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997574 GW-13	1.1	6.7	<1.0	<1.0	<1.0	<1.0	<2.0
997575 GW-12	1.6	2.3	<1.0	18.4	<1.0	<1.0	<2.0
997577 GW-11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997578 GW-10	<1.0	64.8	<1.0	21.3	<1.0	<1.0	<2.0
997579 GW-22	<1.0	4.5	<1.0	<1.0	<1.0	<1.0	<2.0
997580 GW-23	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997581 GW-25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
997582 GW-08	<1.0	10.3	<1.0	5.5	<1.0	<1.0	<2.0

APPENDIX D

Chicago Heights Blvd VOC Plume Site
Photographs 1 - 10



Photo 1. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on November 31, 1999 by Nancy Priddy, Superfund, DNR. View of site area taken from intersection of Chicago Heights Blvd and Elmridge Place, looking north, up Elmridge toward Meeks Boulevard.



Photo 2. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on November 31, 1999 by Nancy Priddy, Superfund, DNR. View of site area from intersection of Chicago Heights Boulevard and Elmridge Place, looking east along Chicago Heights Blvd.



Photo 3. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on November 31, 1999 by Nancy Priddy, Superfund, DNR. View of site area from Chicago Heights Boulevard, looking north, up Wishart Place.



Photo 4. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on November 31, 1999 by Nancy Priddy, Superfund, DNR. Taken from southwest corner of site, looking north along western border of residential area. Apartments are on right.



Photo 5. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on December 1, 1999 by Nancy Priddy, Superfund, DNR. Northwest corner of site, looking south along western border. Fence is on right, obscured by vegetation.



Photo 6. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on December 1, 1999 by Nancy Priddy, Superfund, DNR. Meeks Boulevard along northern border of site. Taken from northwest looking east.



Photo 7. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on December 1, 1999 by Nancy Priddy, Superfund, DNR. Adjacent commercial businesses west of northwest corner of site. Taken from north side of Meeks Boulevard looking southwest.



Photo 8. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on December 1, 1999 by Nancy Priddy, Superfund, DNR. View of industry north of site. Taken from Elmridge Place looking north.



Photo 9. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on December 1, 1999 by Nancy Priddy, Superfund, DNR. View of industry northwest of site. Taken from northwest corner of site looking northwest.



Photo 10. Chicago Heights Blvd VOC Plume site, Overland, MO. Photo taken on December 1, 1999 by Nancy Priddy, Superfund, DNR. Photo taken from south side of Meeks Boulevard looking south along fence line separating residential back yards between Elmridge Place and Wishart Place.

EPA	POTENTIAL HAZARDOUS WASTE SITE TENTATIVE DISPOSITION	REGION VII	SITE NUMBER MO
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File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, D.C. 20460.

I. SITE IDENTIFICATION

A. SITE NAME Chicago Heights Blvd VOC Plume		B. STREET Chicago Heights Blvd & Elmridge Place	
C. CITY Overland, St. Louis County		D. STATE MO	E. ZIP CODE 63132

II. TENTATIVE DISPOSITION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	Mark 'X'	Action Agency			
		EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED - NO HAZARD					
B. INVESTIGATIVE ACTION(S) NEEDED (If yes, complete Section III.)	X		X		
C. REMEDIAL ACTION (If yes, complete Section IV.)					
D. ENFORCEMENT ACTION (If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)					

E. RATIONALE FOR DISPOSITION

Additional sampling of in-door air and water in residential basements is warranted for the protection of human health.

F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION (mo,day,yr)

PA/SI FY 2001

G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL DEVELOPED (mo,day,yr)

H. PREPARER INFORMATION

1. NAME

Nancy H. Priddy

2. TELEPHONE NUMBER

(573) 751-8629

3. DATE (mo., day, & yr.)

03/30/2000

III. INVESTIGATIVE ACTIVITY NEEDED

A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.

Sampling of in-door air and water in residential basements for VOCs.

B. PROPOSED INVESTIGATIVE ACTIVITY (Detailed Information)

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION (mo,day,& yr)	3. TO BE PERFORMED BY (EPA, Contractor, State, Etc.)	4. ESTIMATED MANHOURS	5. REMARKS
a. TYPE OF INSPECTION				
(1) Site Reassessment	FY 2001	State		
(2)				
(3)				
b. TYPE OF MONITORING				
(1)				
(2)				
c. TYPE OF SAMPLING				
(1) In-door air		State		
(2) In-door water seepage		State		

Continued From Front

d. TYPE OF LAB ANALYSIS (1)				
(2)				
e. OTHER (specify)				
(1)				
(2)				

C. ELABORATE ON ANY OF THE INFORMATION PROVIDED IN PART B(on front and above)AS NEEDED TO IDENTIFY ADDITIONAL INVESTIGATIVE WORK.

D. ESTIMATE MANHOURS BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES	1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES
a. EPA		b. STATE <input checked="" type="checkbox"/>	Unknown
c. EPA CONTRACTOR		d. OTHER (specify)	

IV. REMEDIAL ACTIONS

A. SHORT TERM/EMERGENCY ACTIONS (On Site and Off-Site): List all emergency actions needed to bring site under immediate control, e.g., restrict access, provide alternate water supply, etc. See instructions for a list of the actions to be used in the space below.

1. ACTION	2. EST. START DATE mo, day, yr	3. EST. END DATE mo, day, yr	4. ACTION AGENCY EPA, State, Private Party	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	

B. LONG TERM STRATEGY (On Site and Off-Site): List all long term solutions, e.g., excavation, removal, ground water monitoring wells, etc. See instructions for a list of Key Words for each of the actions to be used in the spaces below.

1. ACTION	2. EST. START DATE mo, day, yr	3. EST. END DATE mo, day, yr	4. ACTION AGENCY EPA, State, Private Party	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	
				\$	

C. ESTIMATED MANHOURS AND COST BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL EST. MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES	1. ACTION AGENCY	2. TOTAL EST. MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES
a. EPA			b. STATE		
c. PRIVATE PARTIES			d. OTHER (specify)		

US EPA ARCHIVE DOCUMENT

4-Mile Radius Map
Chicago Heights Blvd VOC Plume Site
St. Louis County, Missouri



U.S.G.S. Topographic Map
7.5 Minute Series
Creve Coeur, Missouri Quadrangle, 1993

U.S.G.S. Topographic Map
7.5 Minute Series
Clayton, Missouri Quadrangle, 1993



LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 4

SITE NAME: Chicago Heights Blvd. VOC Plume CERCLIS #: MO0006283808

AKA: _____ SSID: _____

ADDRESS: Junction of Chicago Heights Blvd. and Elmridge Pl.

CITY: Overland STATE: MO ZIP CODE: 63132

SITE REFERENCE POINT: Northeast corner of intersection

USGS QUAD MAP NAME: Creve Coeur, MO TOWNSHIP: 46 N/S RANGE: 6 E/W

SCALE: 1: 24,000 MAP DATE: 1954 SECTION: 31 SE 1/4 NE 1/4 1/4

MAP DATUM: 1927 1983 ^{Revised 1993} (CIRCLE ONE) MERIDIAN: 5th

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 90° 22' 30" LATITUDE: 38° 37' 30"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 90° 22' 30" LATITUDE: 38° 40' 00"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE LINE TO SITE REF POINT: 197

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A X 0.3304 = 65 . 0888"

C) EXPRESS IN MINUTES AND SECONDS (1"=60"):

1 . 5 . 0888"

D) ADD TO STARTING LATITUDE: 38° 40' 00" + 1° 5' 0888" =

SITE LATITUDE: 38° 41' 5.0888"

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 053

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A X 0.3304 = 17 . 5112"

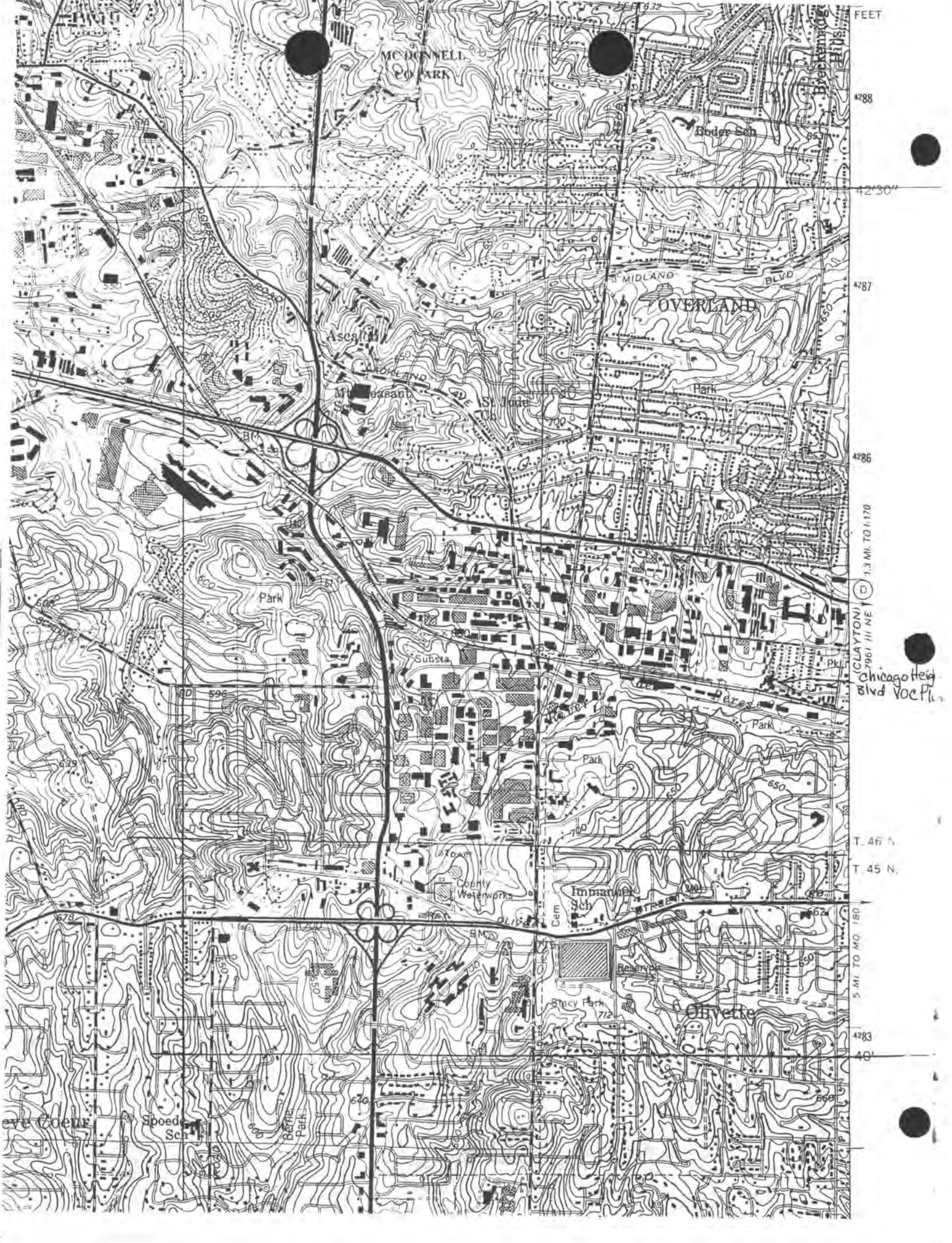
C) EXPRESS IN MINUTES AND SECONDS (1"=60"):

0° 17' 5112"

D) ADD TO STARTING LONGITUDE: 90° 22' 30' 00" + 0° 17' 5112" =

SITE LONGITUDE: 90° 22' 47.5112"

INVESTIGATOR: Nancy A. Priddy DATE: 12/16/99



FEET

4288

42'30"

4287

4286

4285

4284

4283

4282

4281

4280

4279

4278

4277

4276

4275

4274

4273

4272

4271

4270

3.3 MI TO 1170

(CLAYTON)

7961 III NE

D

Chicago Hwy

Bldv Voc Pl

T. 46 N.

T. 45 N.

5 MI TO MO 180

4283

40'

4281

4279

4277

4275

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahford, Director

DIVISION OF GEOLOGY AND LAND SURVEY
P.O. Box 250 111 Fairgrounds Rd. Rolla, MO 65402-0250
(573) 368-2100
FAX (573) 368-2111

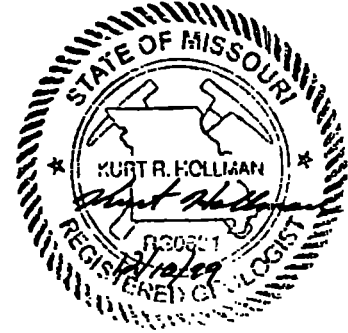
MEMORANDUM

DATE: December 8, 1999

TO: Nancy Priddy, Environmental Specialist
Hazardous Waste Program, DEQ

FROM: Kurt Hollman, Geologist
Geological Survey Program, Environmental Geology Section,
DGLS

RE: Geological Summary for Chicago Heights Preliminary
Assessment/Site Investigation (PA/SI) St. Louis County, Missouri



The geologic summary for the Chicago Heights Site is enclosed.

Please contact me at (573) 368-2129 if you have any questions regarding this report, or if additional information is required.

KH/h

Attachments

RECEIVED

DEC 14 1999

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

GEOLOGICAL SUMMARY FOR THE CHICAGO HEIGHTS PRELIMINARY ASSESSMENT / SITE INVESTIGATION ST. LOUIS COUNTY, MISSOURI

GENERAL CONSIDERATIONS

Information for this report was obtained from records on file at the Missouri Department of Natural Resources / Division of Geology and Land Survey, (MDNR/DGLS), field observations, and data generated during remedial investigations at the EG&G – Missouri Metal Shaping Company and the All American Life Insurance Company.

Site Location

The Chicago Heights site is located in the Southeast Quarter (SE ¼) of the Northeast Quarter (NE ¼) of Section 31, Township 46 North, Range 6 East in St. Louis County, Missouri. Approximate coordinates for the center of the site are 38° 41' 4" north latitude and 90° 22' 42" west longitude.

Background

The Chicago Heights Preliminary Assessment/Site Investigation (PA/SI) is the result of a remedial investigation conducted at the EG&G, former Missouri Metals facility. Trichloroethylene (TCE) and its degradation products are the primary contaminants at the site. TCE and associated degradation products have been detected in the soil and groundwater at the EG&G site and in a residential area adjacent to and downhill from the EG&G site. Contamination has also been detected at the All-American Life Insurance site, which is located 400 feet south of the impacted residential neighborhood. A series of test borings, which included soil and groundwater sampling, were completed across the residential area. The results of this investigative effort did not yield a clear understanding as to the extent or source of the contamination. (Burns & McDonnell, 1992); (Miner, 1996)

Site Description

The Chicago Heights site is located in heavily-urbanized central St. Louis County, in an area generally characterized by gently rolling surface topography. The surface across the site itself is relatively flat-lying near the River des Peres, with a gentle upward slope to the northwest, towards the EG&G facility. Surface elevations across the site range from approximately 645 feet mean sea level (MSL) at the EG&G facility to 600 feet MSL at the southern edge of the Chicago Heights residential area.

Beneath the Chouteau Group are Devonian, Silurian, Ordovician and Cambrian-age strata that are composed predominately of dolomite, but are divided by several sandstone and shale units. These units extend approximately 3,800 feet below the site to the igneous rocks of the Pre-Cambrian basement.

Aquifers

Perched Aquifer

The surficial layer of mixed soils may experience seasonal saturation. The permeability of the altered loess is moderate. The increased permeability due to the presence of fill material is tempered somewhat by the increased clay content in the upper portion of the loess. The deeper, natural loess soils actually have a slightly higher permeability because of a greater silt composition. The estimated permeability of the loess is 10^{-5} to 10^{-6} cm/sec. The permeability of the fill (if present) is expected to be in the range of 10^{-3} to 10^{-5} cm/sec. Preliminary pump tests at the EG&G site have determined a hydraulic conductivity of 5.52×10^{-3} cm/sec to 5.92×10^{-4} cm/sec for the mixed soils. (Burns & McDonnell, Remedial Investigation of the EG&G Missouri Metal Shaping Company, 1992)

Mississippian Aquifer

The main aquifer of concern at this site is the Upper Mississippian regional aquifer. In the St. Louis area, this aquifer consists primarily of the St. Genevieve Limestone, the St. Louis Limestone, and the Salem Formation. The Upper Mississippian aquifer extends from approximately 170 feet to 400-500 feet below the surface. There are no confining beds in the Upper Mississippian aquifer above the Warsaw Formation, and the entire sequence is considered hydrologically interconnected. Wells completed in the Upper Mississippian aquifer are able to produce 12 gallons per minute (GPM). Immediately below the Upper Mississippian units is a relatively thick layer of shale and shaley limestone of the Upper Warsaw Formation that acts as an aquitard. The Lower Mississippian aquifers, and others below it, yield greater amounts of mineralized water with increasing depth. These units are, therefore not used as a drinking water source in the area. (Miller, 1974)

Pennsylvanian Aquifer

The Pennsylvanian cyclic deposits yield very small quantities of highly-mineralized, poor-quality water and are considered to be insignificant as aquifers. There is evidence suggesting that there are (perched) water horizons in or on top of the Pennsylvanian bedrock. These perched water horizons have a higher piezometric head than the water within the Upper Mississippian aquifer, implying a downward vertical gradient. However, significant recharge from the Pennsylvanian to the Mississippian bedrock is not expected. In fact, only minor recharge of the Pennsylvanian units from precipitation at the site is expected. Most precipitation is evapotranspired or becomes surface runoff.

GROUNDWATER PATHWAY

Hydrogeologic Setting

The Chicago Heights site is situated within the Dissected Till Plains of the Central Lowland physiographic province. The topography of this area is characterized by a gently rolling surface of hills and plains composed of thick glacial till and loess of Pleistocene age deposited over a surface of consolidated Pennsylvanian- and Mississippian-age bedrock with moderate relief. The bedrock surface generally reflects surface topography.

Stratigraphic Units

Soils at the site are composed of loess and modified loess deposits 16 to 20 feet thick. The upper 2 to 11-foot-thick layer consists of fill material that is composed of silty clay, debris, and gravel. The fill is underlain by 2 to 7 feet of naturally-modified, clay-rich loess. The clay-rich loess grades downward to a silty, modified loess that extends to bedrock. The upper portion of the loess has been altered by urbanization.

The surficial materials are underlain by Pennsylvanian cyclic deposits of the Marmaton Group at a depth of approximately 16 to 20 feet. The Marmaton Group is predominately composed of layered limestone with shale and occasional thin seams of coal or clay. Thickness of the remaining eroded Marmaton Group deposits is approximately 40 feet. Underlying the Marmaton Group is the Pennsylvanian-age Cherokee Group. The Cherokee Group is composed of thinly-bedded shales and unconsolidated clay with minor amounts of sandstone, coal, and limestone. Thickness of the Cherokee Group is approximately 55 feet. The total thickness of all the Pennsylvanian deposits in this area ranges between 95 and 115 feet. (Goodfield, 1965)

The Pennsylvanian cyclic deposits unconformably overlie rocks of the Upper Mississippian System. The shallowest Mississippian unit present is the St. Genevieve Limestone. Beneath the St. Genevieve Limestone lies the St. Louis Limestone and Salem Formations. All three of these formations are predominantly composed of thickly-bedded limestone with small amounts of chert and dolomite. Beneath the Salem Formation lies the Warsaw Formation. The Warsaw Formation is composed primarily of shale with lesser amounts of limestone and dolomite. The oldest Mississippian-age unit beneath the site is probably the Chouteau Group (Undifferentiated), a unit distinguished by thin, wavy shale partings. A thin, undifferentiated basal Mississippian sequence may be present, consisting of shale, sandstone, or cherty dolomitic limestone. (Howe, 1961); (Thompson, 1986)

Groundwater Flow Direction and Seepage to Surface Water Bodies

A small amount of precipitation is expected to seep through the soils, flow across the top of the Pennsylvanian bedrock surface, and discharge at the River Des Peres.

The groundwater surface in both the Pennsylvanian and Upper Mississippian "aquifers" generally mimics surface topography. After percolating through soils, water resulting from precipitation, follows shallow preferential pathways in the weathered bedrock surface. Shallow, discontinuous fractures also allow water to move vertically to the water table. Once it enters the saturated zone, groundwater moves southeast towards the River des Peres along a hydraulic gradient of approximately 0.023 ft./ft. (Burns & McDonnell, Off-Site Investigations Report, Potentiometric Map, 1999)

Karst Features

The bedrock beneath the Chicago Heights site is not considered karst. Karst features are absent, since most of the site is covered with a thin veneer of Pennsylvanian-age siltstone, sandstone and shale. This cover has reduced extensive solution weathering of the upper portion of the Mississippian carbonates.

Aquifer Discontinuities

There are no major groundwater discharge zones within 4 miles of the site. The groundwater target distance limit is not affected by any aquifer discontinuities.

Structural Features

Paleozoic sedimentary rocks beneath the site dip northeast toward the Illinois Basin at approximately 55 feet per mile (less than 1°). The northern terminus of several gentle fold structures, including the Cheltenham Syncline and the Dupo Anticline, is located approximately 7 miles southeast of the site. The Florissant Dome is located approximately 12 miles north-northwest of the site. (McCracken, 1971).

Travel Time

The travel time value assigned to the approximately 95 to 115 feet of Pennsylvanian bedrock with a hydraulic conductivity between 10^{-5} and 10^{-7} is 15.

Groundwater Targets

The Division of Geology and Land Survey (DGLS) has records of five noncommunity public wells and 30 private wells within 4 miles of the site. Zero wells are located within 0.5 miles of the site. One well is located within 1.0 mile of the site. Eight wells are located between 1 and 2 miles of the site. Fifteen wells are located within 2 to 3 miles of the site. Eleven wells are located within 3 to 4 miles of the site.

The nearest well to the site is a private residential well located approximately 0.6 miles northwest of the site. Since it is an older well, drilled in 1936, and since county water service has been in place for some time, it is unlikely that this well is currently being used as a drinking water source. However, verifying the current usage of private wells is difficult, so all wells on record at DGLS are reported.

SURFACE WATER PATHWAY

Hydrologic Setting

The Chicago Heights site is located in a heavily-urbanized area. The natural surface drainage has been substantially altered by development, and drainage is now controlled by an artificial drainage system. Surface water drainage is collected by storm sewers, then discharged to the River des Peres.

The nearest down-slope surface water consists of the upper reaches of the channelized River des Peres. The River des Peres is located 0.1 miles south of the Chicago Heights residential area. The river flows eastward for approximately 18 miles and is channelized all the way to the Mississippi River, where it enters the river at mile marker 174.

Prior to channelization, the River des Peres could have been classified as a gaining stream. Under most conditions, the River des Peres contains low flow, (less than 10 cubic feet per second (cfs)). During moderate to heavy precipitation, the flow increases dramatically, due to the heavily-urbanized watershed. Discharge volumes can quickly reach 250 cfs. (USGS, Station # 07010030)

There is one small, ephemeral drainage located 250 feet west (upstream) of the site. This drainage enters the River des Peres approximately 0.1 miles south of the site.

Precipitation and Run-on

The long-term average annual precipitation in the vicinity of the site is

approximately 35 to 36 inches per year (1990 Missouri Climatological data).

The 2-year, 24-hour rainfall for the area is approximately 2.51 inches (DGLS/MDNR, Missouri Water Atlas, 1986).

Run-off

The average annual run-off in the vicinity of the site is 10.5 inches. (Skelton, 1971).

Surface Water Targets

Drinking water

Surface water from the River des Peres and its tributaries, is not used as a potable water source within 15 miles downstream of the site.

Fisheries

The River des Peres does not sustain enough flow to be considered a fishery. The River des Peres is channelized for most of its length and, therefore, does not provide the aquatic habitat required to support fish.

SOIL PATHWAY

The natural surface of the site has been extensively modified by urbanization. Soils at the site have been mapped as the Urban Land Harvester Complex with 2 to 9 % slopes. (Slope across the site is approximately 1.1%) The Harvester Complex is described as a dark, grayish-brown silt loam with a surface layer about 4 inches thick. Below the surface layer is a 25-inch-thick, multi-colored silt loam. Harvester Complex soils have a moderately-slow permeability, high water capacity, low organic content, and moderate shrink-swell potential. (Soil Survey of St. Louis County and St. Louis City, Missouri, USDA, 1982)

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Thompson, Paleozoic Succession in Missouri, parts 3 & 4, Report of Investigation, No. 70, DGLS/MDNR, , 1986, 1993.

U.S. Department of Commerce, Rainfall Frequency Atlas of the United States, Technical Paper No. 40, 1961.

U.S. Department of Commerce. The Climatic Atlas of the United States, June 1968, reprinted 1983.

U.S. Geological Survey, Gaging Station #07010030, River des Peres at Page, Page Dale, Missouri.

U.S. Geological Survey, 7 ½ minute topographic quadrangle maps for Creve Cour, MO, 1954 (Photo revised 1968 and 1974), Clayton, MO, 1954 (revised photo 1968 and 1974), Webster Groves, MO, 1954 (revised photo 1968 and 1974).

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Water Well Log in the Vicinity of Missouri Metal Shaping Company on File at DGLS, Rolla, MO.

Table 2: Chicago Heights (PA/SI), St. Louis County, Missouri

Wells located 0.5-1 Miles from the Chicago Heights Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
--------	---------	-------	-----	----	----	----	-----	-----	-----	------	-----	------	-----	-------	---------	-----

0.5-1 Miles

LOGMAIN	003883	440	75	N2	NW	NW	31	46N	6E	668	168	1965 14.36	PRIVATE	AUBUCHOM	OZARK	1
---------	--------	-----	----	----	----	----	----	-----	----	-----	-----	---------------	---------	----------	-------	---

Total number of wells locate 0.5-1 Miles from the Chicago Heights Site 1

1-2 Miles

LOGMAIN	002883	240		SE	SE	SE	24	46N	5E	633			PRIVATE	GRAXE #1	OZARK	
LOGMAIN	003573	210	80	NW	SE	NE	35	46N	5E	583	75	1936	PRIVATE	CRAIG	OZARK	2.3
LOGMAIN	003950	285		NE	SW	NE	35	46N	5E	621	102	1936	PRIVATE	SCHULTZ, AUGUSTA	OZARK	
LOGMAIN	008478	325	63	NE	NW	SE	26	46N	5E	548	31	1943	PRIVATE	PEIRLOW, JULES	OZARK	1.5
LOGMAIN	008825	205	96	NW	SE	SW	24	46N	5E	580	105	1945	PRIVATE	EHLERS	OZARK	1
LOGMAIN	012874	305	72	NW	NE	SE	35	46N	5E	577	75	1954	PRIVATE	TENNANT, JERRY #1	OZARK	5
LOGMAIN	020832	650	234	SW	NE	NW	30	46N	6E	683	200	1962	NON-COMMUNITY	HOLY FAMILY SEMINARY	OZARK	12
LOGMAIN	020852	260	122	N2	NE	NE	7	45N	6E	565	40	1961	PRIVATE	OSTFELD, MARY	OZARK	1

Total number of wells locate 1-2 Miles from the Chicago Heights Site 8 1

2-3 Miles

LOGMAIN	002657	200		NE	SW	NW	35	46N	5E	613		1932	PRIVATE	KLINEFELTER	OZARK	0
LOGMAIN	002721	584	185	NE	NE	NE	20	46N	6E	644		1933	PRIVATE	GUADT, ALBERT	OZARK	1.25
LOGMAIN	002874	210		C	SE	NW	26	46N	6E	633		1934	NON-COMMUNITY	INGARNATE WORD #1	OZARK	
LOGMAIN	004516	405	184	NW	NW	SE	24	46N	5E	649		1937	PRIVATE	GREENSPAN, LOUIS	OZARK	2

Wells located 2-3 Miles from the Chicago Heights Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
LOGMAIN	005286	265	145	NW	NE	NW	2	45N	5E	650	140	1939	PRIVATE	SCHOENESHOEFER, A.J.	OZARK	0.5
LOGMAIN	006082	500	115	SW	NW	NW	27	46N	6E	615	140	-----	NON-COMMUNITY	GERMAN PROTESTANT ORPHAN HOME	OZARK	0.5
LOGMAIN	007451	415	135	NW	NE	SW	24	46N	5E	630	145	1941	PRIVATE	COSTEN, J. B.	OZARK	3
LOGMAIN	008826	195		NE	SE	NE	2	45N	5E	554	50	1945	PRIVATE	SCHMIDT, W. M.	OZARK	15
LOGMAIN	008959	380	283	NE	NE	SW	24	46N	5E	612	145	1945	PRIVATE	YBBOT, WILLIAM	OZARK	
LOGMAIN	009472	565	120	NW	SW	NE	24	46N	5E	582	149	1946	PRIVATE	GAY, G.J.	OZARK	6
LOGMAIN	009472	565	120	NW	SW	NE	24	46N	5E	582	149	1946	PRIVATE	GAY, G.J.	OZARK	2
LOGMAIN	010593	285	55	SE	NW	SE	26	46N	5E	538	60	1948	PRIVATE	TENNANT, J. L.	OZARK	5
LOGMAIN	010594	200	80	NE	SW	NW	35	46N	5E	580	60	1948	PRIVATE	BAUER, D.W.	OZARK	4.5
LOGMAIN	010598	285	70	NW	SE	SW	26	46N	5E	555	60	1948	PRIVATE	HAGEMAN, L.	OZARK	4.5
LOGMAIN	025256	305		NE	SE	NW	26	46N	5E	526		1967	PRIVATE	MORRISON, EARL	OZARK	8
LOGMAIN	025364	140	45	NW	SE	NW	26	46N	5E	506		1967	PRIVATE	MONTGOMERY, MEDFO	OZARK	80

Total number of wells locate 2-3 Miles from the Chicago Heights Site ~~16~~ 13

3-4 Miles

LOGMAIN	009442	775	142	SW	NW	SW	13	46N	5E	595	100	1913	NON-COMMUNITY	JEWISH-SANITARIUM-#1	OZARK	19
LOGMAIN	002746	460	200	NE	NE	SW	26	46N	6E	618		1933	PRIVATE	HEIME, CHARLES	OZARK	1
LOGMAIN	003231	167		NW	SE	SE	14	46N	5E	559			PRIVATE	BOWEN, S.W.	OZARK	
LOGMAIN	003458	600	44	SW	NW	SW	17	45N	6E	536		1935	PRIVATE	WALKER, DAVID	OZARK	20
LOGMAIN	004152	120		C	SW	SW	11	45N	5E	563	35	1937	PRIVATE	COLVIN, WARREN	OZARK	2.5
LOGMAIN	004466	182	132	SW	NE	SE	14	46N	5E	574	97	1937	PRIVATE	RIESER, SYLVESTER	OZARK	12
LOGMAIN	004764	680	115	NE	NE	NW	34	46N	5E	602	100	1938	PRIVATE	MEIER, D. I.	OZARK	15

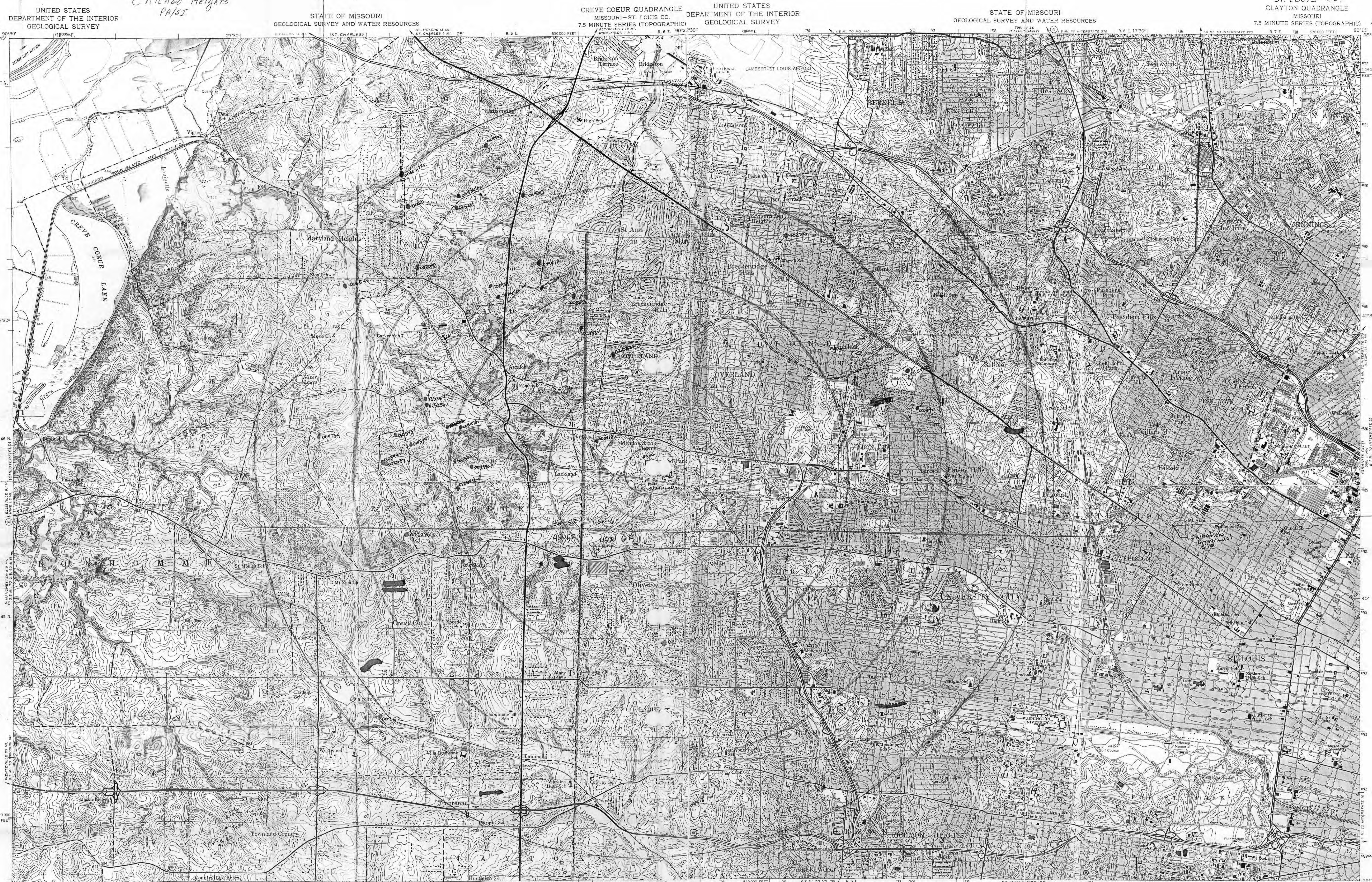
Wells located 3-4 Miles from the Chicago Heights Site

Source	Well ID	Depth	CSG	Q1	Q2	Q3	SEC	TWN	RNG	Elev	SWL	Date	Use	Owner	Aquifer	GPM
LOGMAIN	006111	145		NW	SE	SW	14	46N	5E	528	40	1940	PRIVATE	BROAD	OZARK	25
LOGMAIN	008090	250	126	C	SE	NW	23	46N	5E	595	85	1943	COMMUNITY-PUBLIC	MARYLAND HTS. SCHOOL	OZARK	250
LOGMAIN	024903	592	63	NW	SW	NW	13	46N	5E	592		1966	PRIVATE	MEYER, FRED	OZARK	3
WWIMS	0060677A			SW	SW		14	46N	5E			1991	PRIVATE	KLUSSNER, DAN	OZARK	

Total number of wells locate 3-4 Miles from the Chicago Heights Site 11 9

Chicago Heights
Overland, Miss.
1:50,000
PASI Reference 7, map

Chicago Heights
PASI



Maped by the Geological Survey
Revised by the Army Map Service
Published for civil use by the Geological Survey
Control by USGS and USC&GS
Topography from planimetric surveys by the Geological Survey 1933
Planimetric detail revised from aerial photographs taken 1952
Field check 1954
Polyconic projection, 1927 North American datum
10,000-foot grid based on Missouri coordinate system, east zone
1000-meter Universal Transverse Mercator grid 154, zone 15,
shown in blue
Red tint indicates area in which only landmark buildings are shown

APPROXIMATE MEAN
DECLINATION, 1954

SCALE 1:24,000
CONTOUR INTERVAL 10 FEET
DUTUM TO MEAN SEA LEVEL
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO OR WASHINGTON 25, D. C.
AND BY THE MISSOURI GEOLOGICAL SURVEY, ROLLA, MISSOURI
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION 1957
Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt ———
U.S. Route ——— Interstate Route ——— State Route ———

CREVE COEUR, MO
1:50,000
1954

Maped by the Geological Survey
Revised by the Army Map Service
Published for civil use by the Geological Survey
Control by USGS and USC&GS
Topography from planimetric surveys by the Geological Survey 1933
Planimetric detail revised from aerial photographs taken 1952
Field check 1953-1954
Polyconic projection, 1927 North American datum
10,000-foot grid based on Missouri coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 15,
shown in blue
Red tint indicates areas in which only landmark buildings are shown

APPROXIMATE MEAN
DECLINATION AT CENTER OF SHEET

SCALE 1:24,000
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80229, OR RICHMOND, VIRGINIA 22092
AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION
Heavy-duty ——— Light-duty ———
Medium-duty ——— Unimproved dirt ———
Interstate Route ——— U.S. Route ——— State Route ———

CLAYTON, MO.
1:50,000
1954
PHOTOREVISED 1968 AND 1974
ANS 7461 III NE-SERIES 1479

Abex 1969
PASI

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

MEMORANDUM

DATE: March 29, 1999

TO: Chicago Heights Blvd. VOC Plume Superfund Technical File

FROM: Nancy H. Priddy, Environmental Specialist *NHP*
Site Evaluation Unit, Superfund Section
Hazardous Waste Program

SUBJECT: Site Visit to Chicago Heights Blvd. VOC Plume Site on November 1, 1999

On November 1, 1999, I traveled with Lance Livesay to the Chicago Heights Blvd. site to become acquainted with the site. I made the following observations:

The site is a neighborhood with both single family homes and apartment buildings. Many of the homes have chain-link fencing around the yards. Yards are mostly grass-covered. The site appears relatively flat.

The neighborhood lies within a heavily urbanized area. Various commercial and industrial businesses surround it. An open field lies north and northeast of the site, and of Meeks Boulevard. The EG&G/Missouri Metals Shaping Company site is situated on the north side of Meeks Boulevard, north and northwest of the site. A group of rental storage units also lies northwest of the site. West of the site is the County Cab Company and open fields. The south side of the site is adjacent to railroad tracks and commercial buildings facing Dielman Rock Island Drive, north of the River des Peres. Additional residences and a neighborhood park lie east of the site area. The site area is bounded on the north by Meeks Boulevard; on the east by Werremeyer Place; on the south by a railroad right-of-way, which lies south of Chicago Heights Boulevard; and on the west by a chain-link fence separating the neighborhood from an adjacent business and an open field.

The River des Peres runs south of the site, just south of Dielman Rock Island Drive. There was no water visible in the river when we visited.

NHP:cj



MISSOURI DEPARTMENT OF NATURAL RESOURCES
HAZARDOUS WASTE PROGRAM/SUPERFUND SECTION

Desk Top Review
Decision Form

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 9

Site Name: Chicago Heights Blvd. VOC Plume /Alias(s): _____

Address/Location: West of Dielman Rd. & South of Page Ave.

City: Overland (area is unincorporated) County: St. Louis State: MO

Site Referred By: Lance Livesay

Any Previous Private, State, or Federal Investigations or Assessments?

Yes X No _____ If yes, what: State-lead Consent Agreement Investigation

DECISION:

- 1. Proceed with a Pre-CERCLIS Site Screening to determine CERCLA and /or state eligibility.
- 2. Site CERCLA eligible, proceed with site discovery and further assessment under CERCLA:
 - 2a. Qualifier: High Medium Low
 - 2b. Activity Type: PA SI RSE ESI
 - Other: Combined PA/SI should be done
- 3. Site deferred or being addressed under another state or federal program:
- 4. No Further Assessment Required (NFAR)

DISCUSSION/RATIONALE: This area has been investigated by EG&G under a Consent Agreement. The EG&G site, which is located upgradient of the area, has had numerous investigations since 1987. Investigations were conducted based on alleged releases of degreaser wastes prior to EG&G's acquisition of the facility. The EG&G site has elevated levels of VOCs in the soil and groundwater. The primary VOCs involved are PCE and TCE and their degradation products. Since 1994, semiannual groundwater sampling has been conducted at the site. In January 1998, the DNR expressed concern about migration of contaminated groundwater, which could potentially enter basements and/or cause vapor migration into the basements of nearby homes. In April 1998, EG&G committed to conducting an off-site investigation. The investigation identified off-site contamination. An availability session was held in November 1998 at the St. Luke's African Methodist Episcopal Church. The session was held to update and educate the local community that resides downgradient of the EG&G site and to discuss indoor air sampling. Indoor air sampling was conducted in November 1998 with DNR oversight. Water samples were also collected from sumps in the basements of two homes. No VOCs were detected in the air samples. One water sample from a sump detected TCE at 4 parts per billion, however, this was below the quantitation limit. An additional off-site investigation was conducted in July 1999 to further define the extent and size of the plume of contamination. The plume boundaries need to be identified before any further residential sampling can be done. The four residences that were previously sampled were based solely on their proximity to the site and the suspected migration path of the plume. Results indicated VOC contamination downgradient of the EG&G site, however, the plume location and size is still unknown. In the Additional Off-Site Investigation Report for the EG&G Missouri Metals site, dated September 1999, it is concluded that "the contamination present in the southern portion of the residential area has not migrated from the site located north of the residential area, but has probably advanced from a separate source of contamination". I do not agree with this conclusion. Based on their position, I do not expect EG&G to do additional off-site work. The fact that shallow groundwater contamination exists, the plume is not entirely characterized, and that the area is residential with numerous homes that have basements are the primary reasons for my justification in referring this area/site to the Site Evaluation Unit for further evaluation.

Number of Hours to Complete DTR: 1.5

DTR Conducted by: R. Lance Livesay

Signature: [Signature]

Date: 10/4/99

Site Decision

Approved by: Julieann Warren

Signature: [Signature]

Date: 10-4-99

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahoney, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

MEMORANDUM

DATE: August 20, 1998

TO: EG&G Missouri Metals Superfund Technical File

FROM:  R. Lance Livesay, Environmental Specialist, Registry Unit
Superfund Section, Hazardous Waste Program

SUBJECT: Off-site Sampling at the EG&G Site in Overland, Missouri

I arrived at the EG&G site on August 13, 1998, to observe soil sampling and to assist in collecting split samples as part of the off-site investigation. I met with Heather Pohl and Mat Cox, of Burns & McDonnell (B&M), and the Geoprobe® operator, Tom Bucker, with Petroprobe. Kurt Hollman (DGLS), Karen Cass (HWP), Brian Allen (ESP), and I represented the DNR. The utilities at the intersection of Meeks Blvd. and Elmridge Place had been marked. However, not all gas lines were marked. The lateral lines that connect the gas to the residences were not marked. The utility company never showed up. We started at locations that were clearly marked. We avoided those locations where the gas meters were located.

Soil sampling was conducted near the intersection of Meeks Blvd. and Elmridge Place the entire day of the 13th and half the day on the 14th. An information sheet (Site Information Sheet) was handed out to the residents that live in this area. Ms. Cass got the information out to the public by going door-to-door. This was very successful. Almost all of the residents in the immediate area were contacted. Ms. Cass provided the information sheet along with phone numbers to call if they have any questions. Some residents reported wet basements. One resident from 1484 Elmridge reported that there was a spill or release at the site some 15 years ago. She said there were guys in white suits cleaning it up. None of them were contacted about the spill or release. The resident also stated that there was an old dump at the end of Elmridge, near the River Des Peres and that a company (did not refer to EG&G specifically) dumped material in this area. This was before the houses were there. It was interesting that Tom Bucker, the Geoprobe® operator, also indicated that he was aware of an old dump at the end of Elmridge Place. He said the dump was in the area of Dielman and Rock Island Road, which is south of the site, before the River Des Peres. This should be investigated. I will likely refer this to the Site Evaluation Unit.

Attached is a map of the soil sample locations. Some locations were modified based on field conditions and results of the screening. The following table lists all sample locations, depths, results, and other information. They were close to completing the screening when I had to return to Jefferson City to turn in the DNR split samples. They were at SB-4 (not included in table) when I left. Mr. Hollman remained to observe the sampling.

From the results of the PID screening, the area of impact is in a northwest-to-southeast trend. A storm sewer line running east-west on Meeks Blvd. and running north-south on Elmridge Place is likely playing a significant role in potential contaminant/vapor migration. The PID results will be confirmed in approximately two weeks. The locations with the highest PID readings were SB-8, 9, and 12. The zones of impact range from six feet to twenty-four feet below ground surface. The downgradient basements would be within this zone. Two subsurface structures, a manhole for a water usage meter and a water cleanout pipe, demonstrated positive PID readings at 52.8 and 24.0 parts per million, respectively.

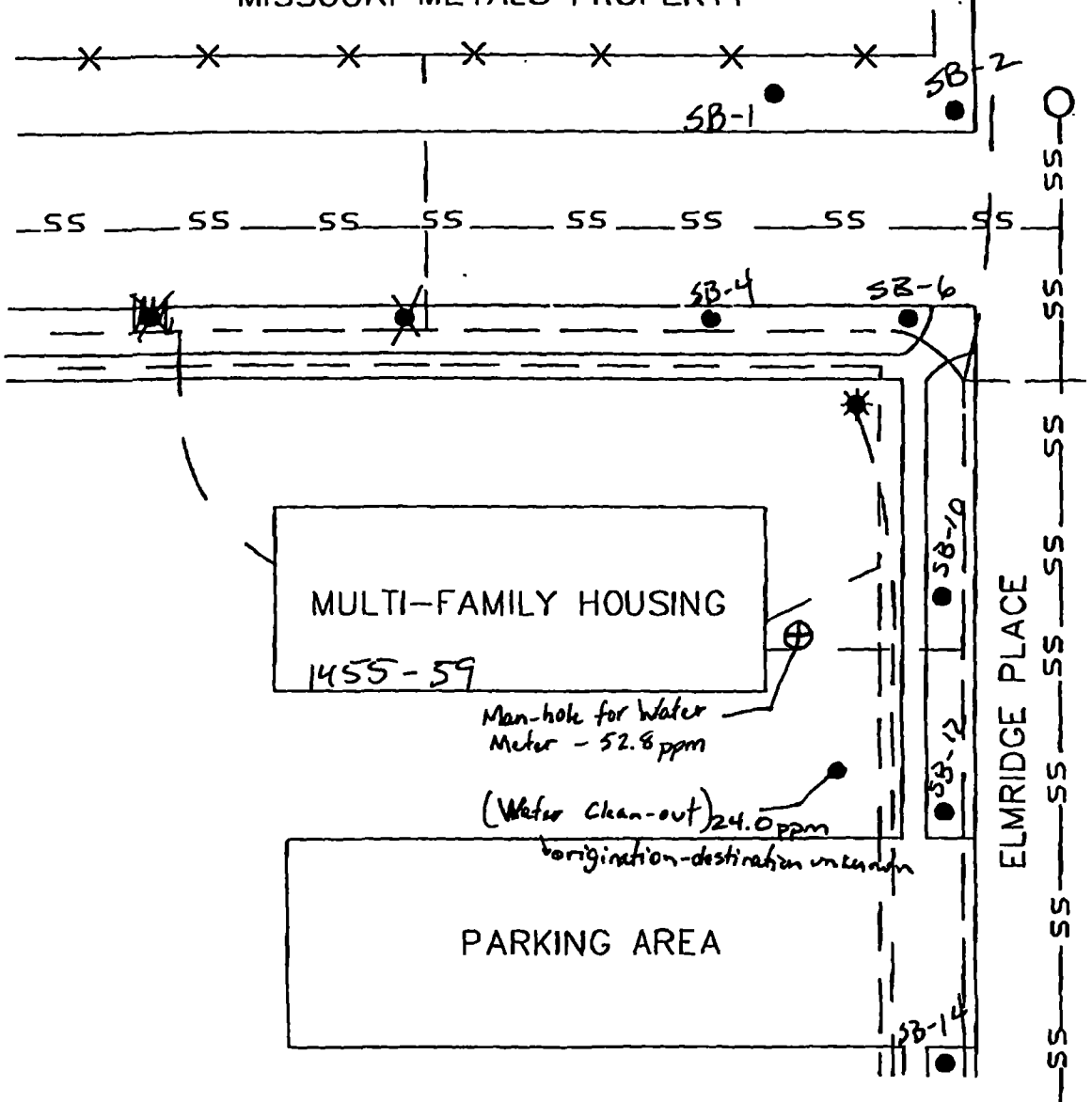
Soil Screening Data - EG&G Missouri Metals Site – Overland, Missouri

Date	Sample Location	Screened Depths with PID Result									
		6'	8'	10'	12'	14'	16'	18'	20'	22'	24'
8/13/98	SB-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND*
8/13/98	SB-10	1210	-	185	-	-	-	-	-	-	-
8/13/98	SB-12	1876	6296	440	-	-	-	-	-	-	-
8/13/98	SB-14	435	112	NR	-	-	-	-	-	-	-
8/13/98	SB-7	19.5	15.1	1.0	1.6	5.1	21.4	8.9	0.5	3.4*	-
8/13/98	SB-1	-	ND	2.0	ND	27	44.7	-	-	-	-
8/13/98	SB-2	-	-	>2000	-	70	36	6.0	90	5.0	3.0(23)*
8/13/98	SB-8	337	214	296	447	4800	8513	68(19*)	-	-	-
8/14/98	SB-9	>2000	>2000 (3554)	>2000 (5078)	>2000 (5254)	>2000 (4989)	1366	-	-	-	-
8/14/98	SB-11	33	73	34	-	-	-	-	-	-	-
8/14/98	SB-13	52	19	NR	-	-	-	-	-	-	-
8/14/98	SB-3	735	134	51	91	-	-	-	-	-	-

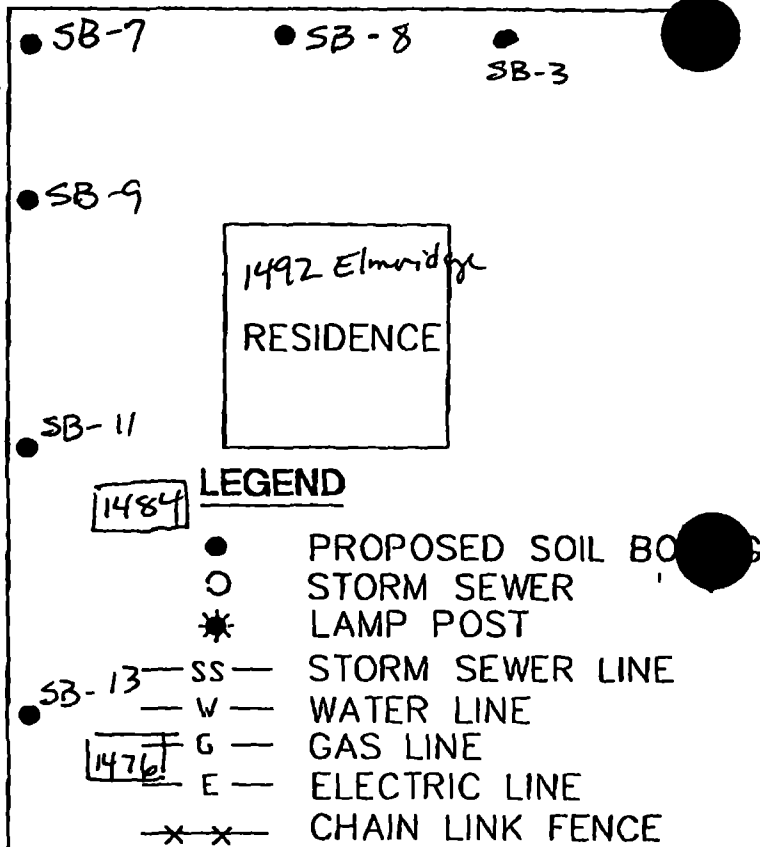
PID results in parts per million
 ND = non-detect
 (-) = not sampled
 NR = no recovery
 * = Depth that refusal was encountered

A total of six samples were submitted for volatile organic analysis: three soil samples, two groundwater samples, and one trip blank. A two-week turn-around was requested. The samples collected by Burns & McDonnell will also be analyzed on a two-week turn-around time frame. They collected a soil sample from the segment that exhibited the highest PID reading. They also collected samples from borings that exhibited non-detect PID readings.

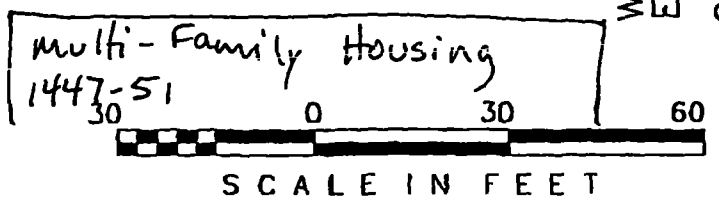
MISSOURI METALS PROPERTY



MEEKS BLVD.



LEGEND



Burns
&
McDonnell
Waste
Consultants
Inc.

Figure 1
OFF-SITE INVESTIGATION
SOIL GAS SURVEY
EG&G KT AEROFAB
ST. LOUIS, MISSOURI

USLIFE REALTY CORPORATION

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 11

1355 River Bend Drive/Suite 100 • Dallas TX 75247 4930 • 214 637 4500

R E C E I V E D

AUG 26 1996

May 15, 1996

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

Via
Federal Express

Dan Wofsey, Esq.
Sonnenschein, Nath & Rosenthal
One Metropolitan Square
Suite 3000
St. Louis, Missouri 63102

Re: 9479-9495 Dielman Rock Island Industrial Drive
Olivette, St. Louis County, Missouri
Environmental Reports

Dear Dan:

Per our conversation, enclosed is a copy of a Phase I report from Environmental Operations, Inc. dated January 16, 1996 and a copy of certain groundwater test results from the EG&G Missouri Metals site.

Very truly yours,

W. R. East

William R. East, Jr.
Vice President-Counsel

WRE:lb

Enclosures

RECEIVED

JAN 18 1996

PORTFOLIO MGMT. DEPT. DALLAS
USLIFE REAL ESTATE SERVICES

ENVIRONMENTAL
OPERATIONS, Inc.

ENVIRONMENTAL CONSULTING AND REMEDIATION

757 South Second Street St. Louis, MO 63102-1617

314/436-0370

FAX 314/436-2900

1-800-879-8442

January 16, 1996

200
Tim
Harrington

Project #8771

Ms. Alice Thompson
U.S. Life Real Estate Services
1355 River Road - Suite 100
Dallas, Texas 75247-4930

Ms. Thompson:

The following is to transmit the results of Environmental Operations, Inc.'s Project #8771; Phase I Environmental Assessment Services for U.S. Life Real Estate Services. This assessment was completed on the property located at 9479-9495 Dielman Rock Island Industrial Drive, in Olivette, St. Louis County, Missouri.

Any questions concerning this report should be directed to Susan Small or Chad Vanderbeck at #314-436-0370.

Respectfully submitted,

Susan G. Small

Susan G. Small
Geological Engineer

R. C. Vanderbeck

R. C. Vanderbeck
Environmental Specialist

SGS/RV:alk

Enclosures

8 St. Louis -
Alice Thompson
314-4

Small's
plan
miss

① 1-15-96

① show
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②

B total price

close up with -
reprinted - also page

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GLOSSARY

EXECUTIVE SUMMARY

Environmental Operations, Inc. performed a Phase I Environmental Site Assessment of a property located at 9479-9495 Dielman Rock Island Industrial Drive in Olivette, St. Louis County, Missouri, in conformance with the scope and limitations of American Society for Testing Materials (ASTM) Practice E 1527 and the *Scope of Work/Tasks* outlined in Environmental Operations, Inc.'s Project #8771. Any exceptions to or deletions from these practices are outlined in the *Assumptions and Limiting Conditions* section of this report. This assessment revealed no evidence of recognized environmental conditions in connection with the property, except for the following:

- In sections of the building, two-foot by four-foot suspended acoustical ceiling tiles appear to be exposed to air erosion within a non-ducted return air plenum. It is unlikely these ceiling tiles contain asbestos due to the recent development of the building in 1986. Due to the potential health hazard related to these conditions, samples of the ceiling tiles should be collected and analyzed for asbestos content, prior to any major renovations, demolition, or deterioration of the ceiling tiles.
- Five 55 gallon partially full drums were noted at the rear (northside) of the subject property. The contents of these drums is believed to be used motor oil and possibly herbicides. However, no information has been made available to confirm this assessment. These drums should be removed from the property and disposed of properly. Costs associated with the removal and disposal of these drums would be \$5,000.00 to \$10,000.00.
- EG & G/Missouri Metals, a Missouri Registry Log (SPL) site located approximately 1,000 feet upslope from the subject property, was found to have significant groundwater contamination related to releases of chlorinated solvents over a period of 40 years. No offsite testing has been conducted to determine the extent of offsite migration. The potential exists for groundwater contamination to exist on the subject property. A subsurface investigation could be conducted to assess this potential. Costs associated with this qualitative type of investigation would cost between \$3,000.00 to \$4,500.00.

PROPERTY DESCRIPTION *Continued*

• *VSS Security & Communications*, located at 9493 Dielman Rock Island Industrial Drive, the westernmost occupant of the building, designs and installs security systems for residential, commercial and law enforcement properties. VSS Security and Communications utilizes the office and warehouse space for administration purposes, storage of equipment, and for installation of security systems in law enforcement vehicles. VSS Security and Communications has occupied the subject building for approximately one and one-half years and currently occupies 3,000 ft² of the subject building.

Minor improvements to the site include asphaltic pavement for parking and building access on the south and north sides of the building.

Potable Water is supplied by St. Louis County Water, which receives its water from the Missouri River via the Hog Hollow Pumping Station located at Hog Hollow Road in Chesterfield, Missouri. Sanitary waste water is received and treated by the Metropolitan Sewer District (MSD).

Adjacent properties include:

North: Chicago, Rock Island & Pacific Railroad, then an abandoned apartment complex;

East: a multi-tenant office-warehouse building, occupied by; Schindler Elevator Corporation; LaClair General Contractors; NaCom; Video Source;

South: Dielman Rock Island Drive (two-lane), then River des Peres and a park area;

West: an undeveloped snow covered field.

See *Appendix A, Property Description and History* for additional information.

PROPERTY HISTORY**INTERVIEWS WITH AREA OCCUPANTS AND AUTHORITIES**

According to Mike Bathe, Maintenance Personnel with Trammell Crow Company, the subject building has been managed by Trammell Crow Company for only a few weeks. Current occupants of the building stated AMCI managed the subject property prior to this time. Mr. Bathe was unfamiliar with any USTs located on the subject property. Current occupants of the building were unaware of any USTs, hazardous material spills or industrial use on the subject property.

Mr. Jerry Leigh, President of AMCI and prior property manager, stated AMCI managed the subject property from 1986 through December 1, 1995. He stated the first tenant occupied the building July 1, 1986. According to Mr. Leigh the five 55-gallon drums currently located at the rear (northside) of the building are the responsibility of Larkin Services, a current occupant. Mr. Leigh also stated he believes the contents of these drums are used motor oils, with the possibility of one drum being herbicides. These drums are further discussed in the *Hazardous Materials Management* section of this report. Mr. Leigh was unaware of any other current or prior environmental problems at the subject property. Mr. Leigh was unaware of any current or prior USTs, hazardous material spills, or industrial use on the subject property.

PROPERTY HISTORY

INTERVIEWS WITH AREA OCCUPANTS AND AUTHORITIES *continued*

Olivette Fire Marshal Mel Huff was contacted in conjunction with this assessment. Mr. Huff has been with the Olivette Fire Department for at least 30 years. Mr. Huff stated that the subject site area was occupied by residential development until the late 1960's when the area was cleared for commercial development. Mr. Huff was unaware of any environmental problems associated with the subject site during his 30 years with the department.

ST. LOUIS COUNTY ASSESSOR

Information obtained from the St. Louis County Assessor's Office indicates that the structure occupying the subject site is a multi-tenant warehouse, and was constructed in 1985. The subject property is listed as 1.745 acres.

STREET DIRECTORIES REVIEW

Haines and Polk's St. Louis County Directories were reviewed for the years 1993, 1989, 1985, 1980, 1975, 1970, 1965, 1961, 1955, 1953, 1946, 1939 and 1936 for the subject site and surrounding properties. Neither Dielman Rock Island Industrial Drive nor Industrial Road are listed prior to 1980. Chicago Heights, directly north of Dielman Rock Island Industrial Drive, consisted of only residential listings in the directories reviewed. The street directories revealed the following information concerning the subject site:

ADDRESS	DATE	OCCUPANTS
9479 Dielman Rock Island Industrial Drive	1993 1989	Sports Collectibles Bridges Electric Bridges Mech. Incorporated Hand Rehab Lamar Construction
9481 Dielman Rock Island Industrial Drive	1993 1989	Rehab Medical Black River Technology
9483 Dielman Rock Island Industrial Drive	1993 1989	Barefoot Grass Lawn CA Closet Company
9485 Dielman Rock Island Industrial Drive	1993-89	Insurance Placement
9487 Dielman Rock Island Industrial Drive	1989	Jewish Hospital Program Work Entry Program
9491 Dielman Rock Island Industrial Drive	1989	Vacant

In addition, Colorado Avenue, which was located on the north section of the subject site from at least the 1930's until the late 1950's, was listed in the 1955 and 1953 street directories. The directories indicated several residences in the vicinity of the subject site, as well as a resident by the name of Tim Porter, whose profession is listed as "trucking". Colorado Avenue was not listed in any other directories reviewed.

SITE INSPECTION

HAZARDOUS MATERIALS MANAGEMENT *continued*

Fifteen to Twenty batteries used on motorized wheel chairs were noted in the Rehab Medical warehouse area. No leakage from these batteries was noted on the day of the inspection. According to Rehab Medical no filling or maintenance on the batteries is conducted at the subject site. Additionally, a relatively low supply (fifteen to twenty batteries) is stored on site. These batteries would not be expected to represent a significant environmental liability to the subject property.

Isolated containers (quart size and one to five gallon capacities) of cleaning supplies, paint, chemical deodorizers, body solvent, motor oil, brake fluid, and antifreeze were noted in the storage and maintenance areas throughout the building. The type and quantity of materials noted would be considered typical for this facility's use and management. No evidence of previous or imminent releases from these containers was noted on the day of the site inspection.

No other discolorations, odors, sheens, or stressed vegetation were noted within the building or on the property which may have indicated significant releases of hazardous materials from this or adjoining sites. However, it should be noted the majority of the unpaved property was snow covered obscuring the ground surface.

As discussed in the *Aerial Photograph Review and Property History Summary* sections of this report, apparent small scale dumping was noted on the subject property in 1966. The area surrounding the subject property during that time was primarily residential with no known industrial type use of the property. A small trucking company may have been located in the area of the subject property in the 1950's. Local Authorities were unfamiliar with this property in the 1950's and 1960's. No evidence of this dumping was noted on more recent aerial photographs or the site inspection. Based upon this information and due to the primarily residential nature of the immediately surrounding area in the 1960's, this prior small scale dumping would not be expected to represent a significant environmental liability to the subject property.

As discussed in the *Review of State Files* section of this report, EG & G/Missouri Metals, a surrounding property, was identified as a Missouri Registry Log (SPL) site. EG & G/Missouri Metals property is located at 9970 Page Boulevard, with the southmost portion of their property located approximately 1,000 feet north and upgradient of the subject property. As previously outlined, EG & G/Missouri Metals, a manufacturer of aircraft parts since the mid-1950's, has entered into a Consent Agreement with MDNR which includes assessment and groundwater monitoring of the site for five years. According to Julie Warren, with the MDNR Hazardous Waste Division, they are currently one and one-half years into the five year program. As previously stated, groundwater monitoring wells are located on EG & G/Missouri Metals property. The most recent testing, which occurred in May 1995, found elevated levels of chlorinated solvents, including; tetrachloroethene, trichloroethene, dichloroethene, and vinyl chloride. According to information received, no offsite monitoring has been conducted to determine the extent of offsite migration, if any.

DRAFT

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 12

**ENVIRONMENTAL
OPERATIONS, INC.***ENVIRONMENTAL CONSULTING AND REMEDIATION*

757 South Second Street

St. Louis, MO 63102-1617

314/436-0370

FAX 314/436-2900

May 14, 1996**Project #9323**

Mr. Steve Hutkin
Hutkin Development Company
425 New Ballas
St. Louis, Missouri 63141

RE: Report for Monitoring Well Installation
and Sample Analyses
9479-9495 Dielman Rock Island Drive
Olivette, Missouri

Dear Mr. Hutkin:

The following serves as Environmental Operations, Inc.'s report for the installation of groundwater monitoring wells and groundwater sampling and analysis at the above referenced property.

The purpose of this investigation was to determine whether onsite groundwater has been impacted by volatile organic compounds (VOC) from a potential upgradient and off site source.

PROCEDURES AND METHODOLOGY

On May 6, 1996, Environmental Operations, Inc. advanced two soil borings onsite using a rotary auger drill rig. Soil boring #1 (SB-1) was advanced to a depth of 27 feet below ground surface (bgs) at the northeast corner of the property. SB-2 was advanced to 16 feet bgs at the northwest corner of the property. The relative locations of these soil borings are shown on the attached Site Plan (Drawing A).

Soil samples were collected using split spoon samplers at 5 foot intervals. The samples were field scanned for volatile organic compounds using a photoionization detector (PID). PID scan results and subsurface soil descriptions are given on the Soil Boring Logs included as *Appendix A*. Chemical analysis of soil samples was not performed as part of this scope of work.

May 14, 1996

Project #9323

Subsurface soil in the northeastern corner of the property (SB-1) appeared to be 'native' silty clays covered by asphalt pavement. Soil in the northwestern portion of the property (SB-2) appeared to be fill material (concrete, brick, tires, glass, etc..) to an approximate depth of 11 feet bgs where silty clay was encountered. Groundwater was encountered at approximately 5 feet bgs in both soil borings.

Although no significant PID results were recorded from SB-2, a strong odor and green to black discolorations were noted from the soil samples. SB-1 exhibited no field evidence (PID results, odor and color) of soil contamination.

A temporary groundwater monitoring well was installed in each soil boring. These wells were installed using 2 inch polyvinyl-chloride (PVC) screens (10 feet), bottoms and riser, and silica sand as a filter pack with a bentonite cap. Monitoring well #1 (MW-1) was installed in SB-1 to a depth of 27 feet bgs. MW-2 was installed in SB-2 to a depth of 15 feet bgs. Following installation, the wells were developed by removing approximately three well volumes of groundwater using dedicated disposable bailers. The wells were then covered and allowed to set overnight.

On May 7, 1996, one well volume of groundwater was removed from each of the wells and groundwater samples were collected using the dedicated bailers. The samples were collected in pre-cleaned glassware, labelled and retained on ice for transport to an off site laboratory (Teklab, Inc. in Collinsville, Illinois).

Groundwater samples from both wells were analyzed for VOCs using USEPA Test Method 8260. Groundwater from MW-2 was additionally analyzed for total petroleum hydrocarbons (TPH) using USEPA Test Method 8015 - Missouri modified OA2. A copy of the complete laboratory data report is included as *Appendix B*. The results of laboratory analyses are summarized in the following table:

Analysis		9323-MW1	9323-MW2
VOCs ppb	Trichloroethene	117	-
	Tetrachloroethene	38.1	-
	1-Chlorobutane	-	19.0
	Benzene	-	2.3
	Toluene	-	12.7
	Ethylbenzene	-	10.6
	Xylenes	-	41.8
	1,3,5-Trimethylbenzene	-	11.7
	1,2,4-Trimethylbenzene	-	24.6
	Napthalene	-	25.8
TPH-OA2 ppm	Diesel	N/A	-
	Kerosene		-
	Mineral Spirits		-
	Motor Oil		-
	Miscellaneous (diesel)		5.7
	Miscellaneous (motor oil)		42.0

- Not detected above detection limit

N/A Not analyzed

May 14, 1996

Project #9323

DISCUSSION

Elevated concentrations (117 ppb and 38.1 ppb) of chlorinated VOCs (trichloroethene and tetrachloroethene, respectively) were detected in the groundwater sample collected from 9323-MW1. These concentrations exceed the maximum contaminant levels (5 ppb for both trichloroethene and tetrachloroethene) established by the USEPA for drinking water. No other VOCs were detected above the detection limits for 9323-MW1.

Analysis of the groundwater sample collected from 9323-MW2 revealed elevated levels (47.7 ppm) of miscellaneous petroleum hydrocarbons. Additionally, VOCs associated with petroleum products were also found to be present in MW2. No chlorinated compounds were detected above the detection limits in MW2.

Groundwater occurred at relatively shallow depths (approximately 5 feet bgs) onsite. Groundwater collected from MW2 was observed to contain a rainbow colored sheen as well as a significant petroleum odor. Groundwater collected from MW1 revealed no sheen or significant odors.

Although groundwater flow was not evaluated during this scope of work, groundwater onsite is expected to follow the surface topography. The general topography of the subject property suggests a southerly flow of groundwater towards the River des Peres. The river is located approximately 75 feet to the south of the subject property.

CONCLUSIONS

Based on the findings of this limited investigation, two types of groundwater contamination exist onsite.

The source of chlorinated compounds in MW1 is not known. However, based on surface topography, expected groundwater flow direction, and information regarding past and present use of the subject property, these chlorinated compounds are likely the result of migration from an upgradient, off site source.

Monitoring well #2 revealed elevated concentrations of petroleum related compounds. The source of this contamination is not known. However, the presence of strong petroleum odors, groundwater sheens, and non-native fill material in this area suggests that a local source is likely.

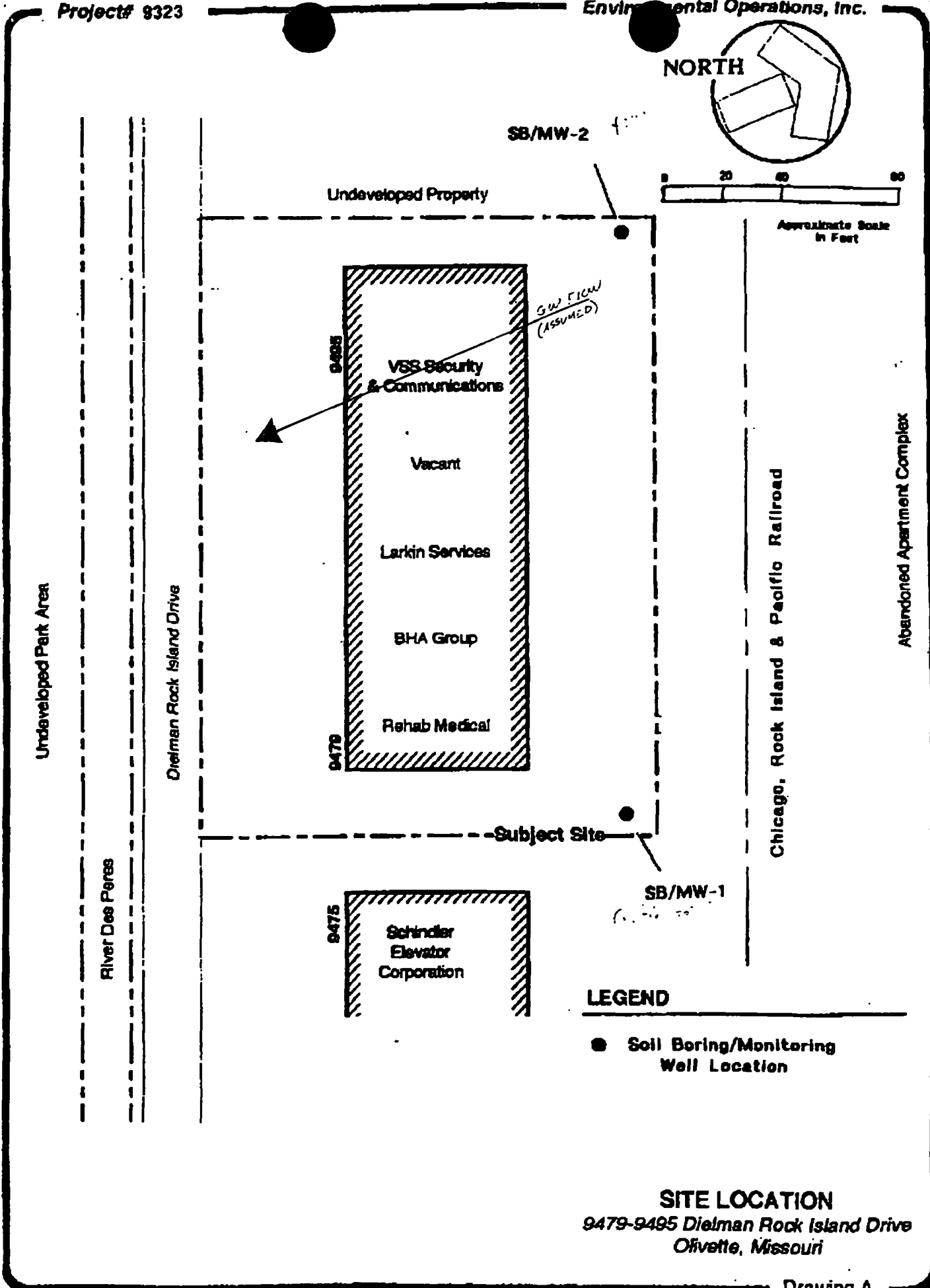
If you have any questions or require additional information, please feel free to call Tim Hippensteel or me at (314) 436-0370.

Sincerely,



Michael McGuire
Environmental Geologist

attachments:



US EPA ARCHIVE DOCUMENT

LEGEND

- Soil Boring/Monitoring Well Location

SITE LOCATION

9479-9495 Dielman Rock Island Drive
Olivette, Missouri

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • David A. Shorr, Director

DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

OCT 15 1996

Mr. Jimmy W. Long
Vice President
All American Life Insurance Company
6363 Forest Park Road
Dallas, TX 73235-5400

Subject: Environmental Remediation Oversight Letter of Agreement

Dear Mr. Long:

Your site has been accepted into the Hazardous Substance Environmental Remediation Program for the remediation of contaminants under the review and oversight of the Missouri Department of Natural Resources (department).

This letter serves as an agreement between the department and All American Life Insurance Company (All American) regarding the department's review of documents and oversight of remediation of hazardous substances at the All American property located at 9479-9493 Dielman Rock Island Industrial, St. Louis, Missouri.

A \$1,000 initial deposit to be used for document review and oversight expenses incurred by the department must accompany the fully completed agreement. The deposit may be in the form of a cashier's check payable to the Missouri Department of Natural Resources, or an irrevocable letter of credit issued by a Missouri bank.

The department's document review and oversight costs will include personnel and expense costs, plus indirect costs as per subparagraphs (8)(A)1 and 2 of 10 CSR 25-15.010 (copy attached).

Once the \$200 application fee and the \$1,000 deposit have been expended, any further department expenses will be billed quarterly, with the option to bill monthly, as per the attached sample. Because of the limited scope of work envisioned under this Letter of Agreement, accounting details above the level of the attached sample will not be provided by the department. Disputes arising from the review and oversight costs will be handled in accordance with 10 CSR 25-15.010(8)(C).

In the event review and oversight costs do not meet or exceed the funds on deposit, the department will refund, within sixty (60) days of the close of the project, all the funds remaining in excess of the actual costs.

A Phase I environmental site assessment, along with a copy of all existing and relevant reports and supporting documentation, or other information concerning any other site assessments, investigations, sample collections and sample analyses that have not previously been provided to the department shall be submitted with this signed agreement or within ninety (90) days following acceptance of this Letter of Agreement.

The department agrees to review all existing and relevant environmental documents received to determine if remediation for the site is necessary to meet state standards. If remediation is needed, and you desire the department's oversight and participation, you must develop a Remedial Action Plan for cleanup of the site. The Remedial Action Plan must be approved by the department prior to implementation and shall include work plans, safety plans, testing protocols, and appropriate monitoring plans. Oversight by the department will be in accordance with the provisions of the Remedial Action Plan. A Notification of Completion Letter will be issued by the department director upon successful completion of the Remedial Action Plan.

The owner(s)/authorized agent shall allow the department access to the site for purposes of overseeing the implementation of the Remedial Action Plan, including sampling at the site; conducting investigations relating to soil and groundwater contamination at, beneath, or near the site; and observing and monitoring the progress of the work.

During the investigation and remediation of this site, you shall submit quarterly progress reports to the department on forms furnished by the department.

All American may terminate this Letter of Agreement at any time for any reason by giving written notice, via certified mail, to the department. The department may terminate this Letter of Agreement for cause, which includes the grounds set forth in Section 260.569.3 RSMo. Only those costs incurred by the department prior to the effective date of any termination of this Letter of Agreement shall be recoverable by the department under this agreement.

All American shall hold the department harmless for any claims (including, but not limited to, claims for property damage or personal injury) arising from activities of All American that are reviewed or overseen under this Letter of Agreement.

This Letter of Agreement is not and shall not be construed as an admission by All American of any liability under 10CSR 25-15.010 or any other law or as a waiver of any defense to such liability. This Letter of Agreement is not and shall not be construed as a waiver, release or settlement of claims the department may have against All American or any other person, or as a waiver of any enforcement authority the department may have with respect to All American or the property.

Letter of Agreement to Mr. Jimmy W. Long
Page 3

If determined to be necessary, the preparation and submittal of any permit applications are your responsibility as participant. The processing and review of permit applications, awarded by the department and which may be necessary for work conducted under this agreement, are not subject to the time limits established for the Voluntary Cleanup Program.

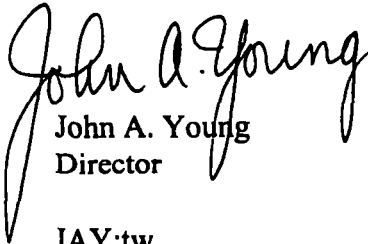
If the terms of this Letter of Agreement are acceptable, please execute this Letter of Agreement by signing in the space provided on page four and return, along with the \$1,000 deposit. Checks should be made payable to the Missouri Department of Natural Resources and sent to:

Mr. Jim Belcher, Chief
Hazardous Substance Environmental Remediation Section
Hazardous Waste Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

The department appreciates your interest in the Hazardous Substance Environmental Remediation Program and looks forward to working with you.

Sincerely,

DIVISION OF ENVIRONMENTAL QUALITY


John A. Young
Director

JAY:tw

Enclosures

Letter of Agreement to Mr. Jimmy W. Long
Page 4

Accepted and agreed to this 25th day of September, 19 96, in the State of Texas,
County of Dallas

Owner(s) Signature: ALL AMERICAN LIFE INSURANCE COMPANY

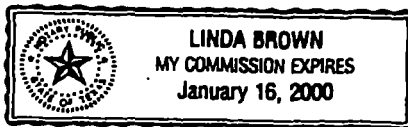
Jimmy W. Long
(Signature)
Janice Bailey
(Signature)

Jimmy W. Long, Vice President
(Print name)

Janice Bailey, Assistant Secretary
(Print name)

NOTARY PUBLIC:

Linda Brown



My commission expires

If signed by an authorized agent, please indicate relationship to owner(s), work title, address, and telephone number.

As owner(s) agent, I certify that I am fully authorized to enter into the terms and conditions of this Letter of Agreement and to bind the owner(s) I represent to this agreement.

(Authorized Agent signature)

(Print name)

(Relationship to owner(s))

()

(Telephone number)

(Address)

NOTARY PUBLIC:

My commission expires

Report

ES Report # ESA-97/1663

RE

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 14

MAP

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

PHASE II ENVIRONMENTAL SITE ASSESSMENT

of

**All American Life Insurance Company Property
at
9479 - 9495 Dielman Rock Island Drive
Olivette, Missouri 63102**

Prepared For:

**Missouri Department of Natural Resources
Hazardous Waste Program
Voluntary Cleanup Section
P.O. Box 176
Jefferson City, Missouri 65102**

ES JOB # 400.095B

March 18, 1997

Prepared By:

Terry L. Miner

Terry L. Miner

Manager, Geological & Petroleum Services

Lynn P. Smith

Lynn P. Smith

Geological Field Technician

Phase II Environmental Site Assessment

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INTRODUCTION:

In response to the Missouri Department of Natural Resources' request, Environmental Solutions, Inc. (ES) conducted an extended Phase II Environmental Site Assessment on Friday, February 14, 1997 at 9479 -9495 Dielman Rock Island Drive in Olivette, Missouri. The additional site investigation work was approved by the Voluntary Cleanup Program (VCP) of the Missouri Department of Natural Resources (MDNR). This assessment was performed to further define the environmental condition of the subject site. As requested, ES recorded the daily depth to water readings from Monday, February 10 through Monday, February 24 for the three monitoring wells at the site. This data was used to create the attached piezometric surface maps. This report contains the details of this project.

BACKGROUND:

Between Monday, November 18, and Monday, November 25, 1996, ES conducted the initial Phase II site characterization at the subject site. The findings are detailed in ES Report ESLR-96/1193. The initial Phase II included installing 10 soil borings along the north side of the property, collecting soil samples for analysis, installing three monitoring wells and collecting groundwater samples for analysis. During sampling, ES encountered very low levels of contamination, except for naphthalene and waste oils, at the western edge of the subject property. There are low levels of chlorinated solvent and benzene, toluene, ethylbenzene, and xylene (BTEX) contamination along the northeastern side of the property. The overall extent and level of contamination encountered during the initial Phase II investigation was low and did not appear to warrant a cleanup at that time. Additional Phase II sampling along the southern, eastern and western boundaries of the subject site, the subject of this report, was requested by the VCP.

SUBSURFACE SOIL SAMPLING COLLECTION & ANALYSIS:

Subsurface soil sampling was conducted on Friday, February 14, 1997. Under the supervision of an ES field technician, the Geo Probe subcontractor completed 8 soil probes (B1-b to B8-b) using a van-mounted hydraulic Geo Probe soil sampling rig. Samples were obtained in four feet intervals, except for samples from borehole B8-b which were obtained in two feet intervals. Depths ranged from 11.5 feet to 16 feet below ground surface (bgs). The material encountered during sampling was gravel and construction debris fill, gravelly clay, clay, and chert and limestone rock, which is the same type of material encountered in the initial Phase II investigation. (See attached field logs for detailed descriptions.) Probing and sampling equipment was decontaminated before and between each borehole. When encountered, groundwater samples were collected. Groundwater was encountered at depths from approximately 5.0 to 9.0 feet bgs in boreholes B1-b, B3-b, B6-b. No groundwater was encountered at boreholes B2-b, B4-b, B5-b, B7-b and B8-b.

ES collected groundwater samples in 40 milliliter glass vials with hydrochloric preservative and in 1

liter glass bottles. The soil samples were field screened on-site with a Flame Ionization Detector (FID). Based on field observations and project objectives, ES selected soil samples which were discolored, odorous and/or exhibited high FID readings for analysis. ES packed the soil samples in pre-cleaned, 4-ounce, wide-mouth glass containers with Teflon-lined lids. The soil and groundwater samples were placed in coolers with ice to preserve them at 4 degrees Celsius and shipped to Keystone Laboratories, Inc. in Kansas City, Missouri. Both soil and groundwater samples were analyzed for Volatile Organic Compounds (VOC) using EPA Method 8260 and for Total Petroleum Hydrocarbons (TPH) using Iowa Method 8015(OA2). (See attached laboratory reports.)

FINDINGS:

Soil

The analytical results from this investigation indicate that there are no detectable levels of solvent contamination in the soil collected from boreholes B1-b through B8-b. (See Figure 1 for boring locations.) In boreholes B1-b (11.0 ppm), B4-b (119.0 ppm), B5-b (32.0 ppm), B6-b (87.0 ppm), and B7-b (11.0 ppm) there are low levels of TPH contamination. (See Table 1 and attached laboratory reports.) These levels, while detectable, are generally well below clean-up specifications for TPH contamination and for a site of this type. There is very slight solvent contamination in water collected from boreholes B3-b and B6-b. (See Table 2.) These numbers are not substantial, and the impact on the subject property appears to be limited.

Groundwater

During soil sampling, groundwater with very slight solvent contamination was encountered in boreholes B3-b and B6-b. Borehole B1-b has no detectable levels of contamination. Tetrachloroethylene (PCE) contamination was in B3-b (6.63 ppb). Trichloroethylene (TCE) contamination was encountered in B3-b (13.4 ppb) and B6-b (2.79 ppb). Benzene (12.3 ppb), chlorobenzene (1.59 ppb), cis-1,2 dichloroethylene (1.58 ppb), ethylbenzene (2.16 ppb), toluene (9.58 ppb) total xylene (2.87 ppb) and TPH (0.9ppm) contamination exists in B6-b. (See Table 2.)

Hydrogeology

Between Monday, February 10 and Monday, February 24, 1997, ES obtained daily depth to water readings from the three monitoring wells, MW1 through MW3, at the subject site. The depth to water was measured with an electric water depth indicator. The data obtained during this period was used to construct the daily piezometric surface maps attached to this report. (See Figures 4 -13.) These maps indicate that the direction of groundwater flow is the same as in the initial Phase II report, southward towards the river. Monitoring wells MW1 through MW3 have a difference of less than approximately 0.05 feet between the water levels. (See Figures 4 - 13). In addition, there is also a small difference of approximately 0.5 feet between the levels in MW2 and MW3.

The surface of the site is nearly level, however, groundwater was measured at a depth of 5 to 6 feet bgs. The piezometric surface maps show that the direction of groundwater flow is towards the Des Peres River. The hydraulic gradient of the water surface is 0.05 feet per foot.

CONCLUSIONS:

Considering the analytical results show that the soil in the sample areas is not contaminated with solvents, the solvent contaminated groundwater collected from boreholes B3-b and B6-b suggests that the source of the solvent contamination is migrating down gradient through the groundwater. The results of this extended site assessment indicate that there are very low levels of TPH contamination in the soil from boreholes B1-b, B4-b, B5-b, B6-b and B7-b. Below are some conclusions that can be drawn:

- 1) The low levels of PCE and TCE contamination found in B3-b and B6-b appear to be migrating from the north side of the property. During the initial Phase II investigation, groundwater collected from monitoring well MW-3, which is located on the north side of the property, exhibited low levels of PCE and TCE contamination, also. The direction of groundwater flow is southward, and the appearance of PCE and TCE is only found in the groundwater. Moreover, the levels of solvent contamination are very low and only appear in the groundwater, not the soil. This supports the hypothesis that the PCE and TCE is migrating on-site. This should not pose a problem with MDNR since the concentration of the solvent contamination is low.
- 2) The source of the TPH contamination is most likely west or northwest of the sampling location.
- 3) The overall extent and level of contamination on this site does not appear to warrant cleanup at this time.

If you have any questions regarding this site characterization, please contact me at (314) 863-9801.

TLM:ips

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • David A. Shorr, Director

DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

April 11, 1997

Mr. Frank H. Hackmann
Sonnenschein, Nath & Rosenthal
One Metropolitan Square, Suite 3000
St. Louis, MO 63102

RE: All American Life Insurance Property, Dielman Rock Island Drive, St. Louis, Missouri

Dear Mr. Hackmann:

Having further discussed the site investigation information for the above-referenced site with you and Mr. Terry Miner of Environmental Solutions, Inc., and having also discussed the matter with Mr. Jim Belcher, Chief of the Voluntary Cleanup Program (VCP), I have come to the following conclusions regarding the site:

1. The ground water and soil data shows that contaminants in ground water, in the form of perchloroethylene (PCE), trichloroethylene (TCE), and cis-1,2-dichloroethylene, are originating off-site at an up gradient source. The benzene contamination detected in ground water on the site is probably also originating at an up gradient, off-site source, though likely not from the same source as the chlorinated solvents. Based on the data we have at this time, the VCP will not require that All American Life Insurance remediate nor further investigate the contaminated ground water detected beneath the site.

However, because PCE, TCE, and benzene concentrations in site ground water exceed the applicable site cleanup standards, the VCP is requiring that a deed restriction be placed in the property chain of title to ensure that the contaminated ground water does not become an exposure source. The deed restriction will, at a minimum, prohibit the installation of production wells on the property and the excavation of soil below the saturated zone.

2. The contaminated soil in the northwest portion of the property, associated with sampling points eight and ten (from the November 1996 investigation), will require remediation. Contamination associated with this area is largely petroleum, with total petroleum hydrocarbons (TPH) detected at concentrations of 2,130 parts per million (ppm) in boring number eight, and 2,886 ppm detected in boring number ten (the hydrocarbons in boring number eight were in the waste oil range while those in boring number ten were mostly in the waste oil range, with a minor percentage in the diesel fuel range). Most likely, the

Mr. Frank H. Hackmann
April 11, 1997
Page 2

contamination source is fill materials placed on the site, although this is not a certainty. If the contamination is associated with fill materials, it is likely that the contaminated materials continue off-site to the west. Nevertheless, because the TPH concentrations considerably exceed the site cleanup standard of 500 ppm (as determined by my completion of the Tanks Section's matrix), and because the contamination is accessible, the VCP feels that remediation of the contaminated soil and fill material is warranted.


A remedial action plan (RAP) explaining how the contamination in the northwest portion of the site will be remediated should be submitted to the VCP for approval before remediation of the area begins. The RAP must explain how the contamination will be remediated and, if the contaminated materials are excavated, how and where the materials will be disposed of. Also, a verification sampling plan (including a quality assurance/quality control section), to include an explanation of field screening methodologies that will be used during remediation, must be submitted as a part of the RAP.

3. The area of contamination in the northwest portion of the property most likely continues to the south of boring eight. The contaminated area may be delineated in one of two ways: By placing borings south of boring eight before remediation begins, or by delineating the extent of contamination as remediation proceeds (this is only appropriate if the materials are to be excavated). If the latter option is chosen, both field screening and laboratory analyses of samples will be required by the VCP to ensure the horizontal and vertical extents of the contaminated area are adequately delineated.
4. Referring to my April 3, 1997, letter to you, please provide a response to item number three on page two of the letter.

Please provide a response to this letter at your earliest convenience. Should you have questions or comments regarding the letter, please contact me at your convenience at (573)526-2738.

Sincerely,

HAZARDOUS WASTE PROGRAM


Timothy Chibnall
Environmental Specialist
Voluntary Cleanup Section

TC:tc

c: Mr. Terry Miner, Environmental Solutions, Inc.

Administrative Offices • P.O. Box 4828 • Houston, TX 77210
800-362-9878 • FAX 713-831-3701

JUN 18 1999

June 8, 1999

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

CERTIFIED MAIL #P 217 547 397 AND REGULAR MAIL

Mr. Jim Belcher
Hazardous Substance Environmental Remediation Section
Hazardous Waste Program
Missouri Department of Natural Resources
PO Box 176
Jefferson City MO 65102

Subject: Voluntary Cleanup Site #8884
All American Life Insurance, Olivette MO

Dear Mr. Belcher:

Please consider this notification that All American Life Insurance Company, the owner of the referenced property, has decided at this time to withdraw from the Voluntary Cleanup Program. We appreciate your efforts on this project; however, recent developments indicate that we are unlikely to reach a successful resolution. As required by the Environmental Remediation Oversight Letter of Agreement, please send any final invoices for oversight to

American General Realty Advisors, Inc., as agent for
All American Life Insurance Company
Attention: Kelly Kroiss
2929 Allen Parkway, A36-02
Houston, Texas 77019

Thank you for your assistance.

Sincerely,

CAW


Rembert Owen, Jr.
Real Estate Investment Officer

cc: Ned Graber, Esq.
George Polydoros, Jr., Esq.
Kelly Kroiss
S. Lee Moreland
Cary Coonce-Vogt

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 18

September 11, 1998

Mr. R. Lance Livesay
Environmental Specialist
Hazardous Waste Program
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176

Post-It® Fax Note 7671

To <i>LANCE Livesay</i>	From
Co./Dept.	Co.
Phone #	Phone #
Fax #	Fax #

EG&G Missouri Metals Site
Offsite Investigation Data
91-319-4-006/EGGKTA

Dear Mr. Livesay:

Enclosed is a summary sheet with analytical results of the geoprobe soil sampling conducted near the Missouri Metals Site on August 13 and 14, 1998. Also attached for your information is a Site drawing showing approximate sampling locations.

Thank you for a copy of MDNR analytical results for soil sample SB-2. As we discussed, we look forward to receiving analytical data from the remaining five samples collected and analyzed by MDNR. Please call me at (816) 822-3317 if you have questions.

Sincerely

William A. Weis
Project Manager

cc: Jack Healy, EG&G
Bob Stone, EG&G

RECEIVED

SEP 11 1998

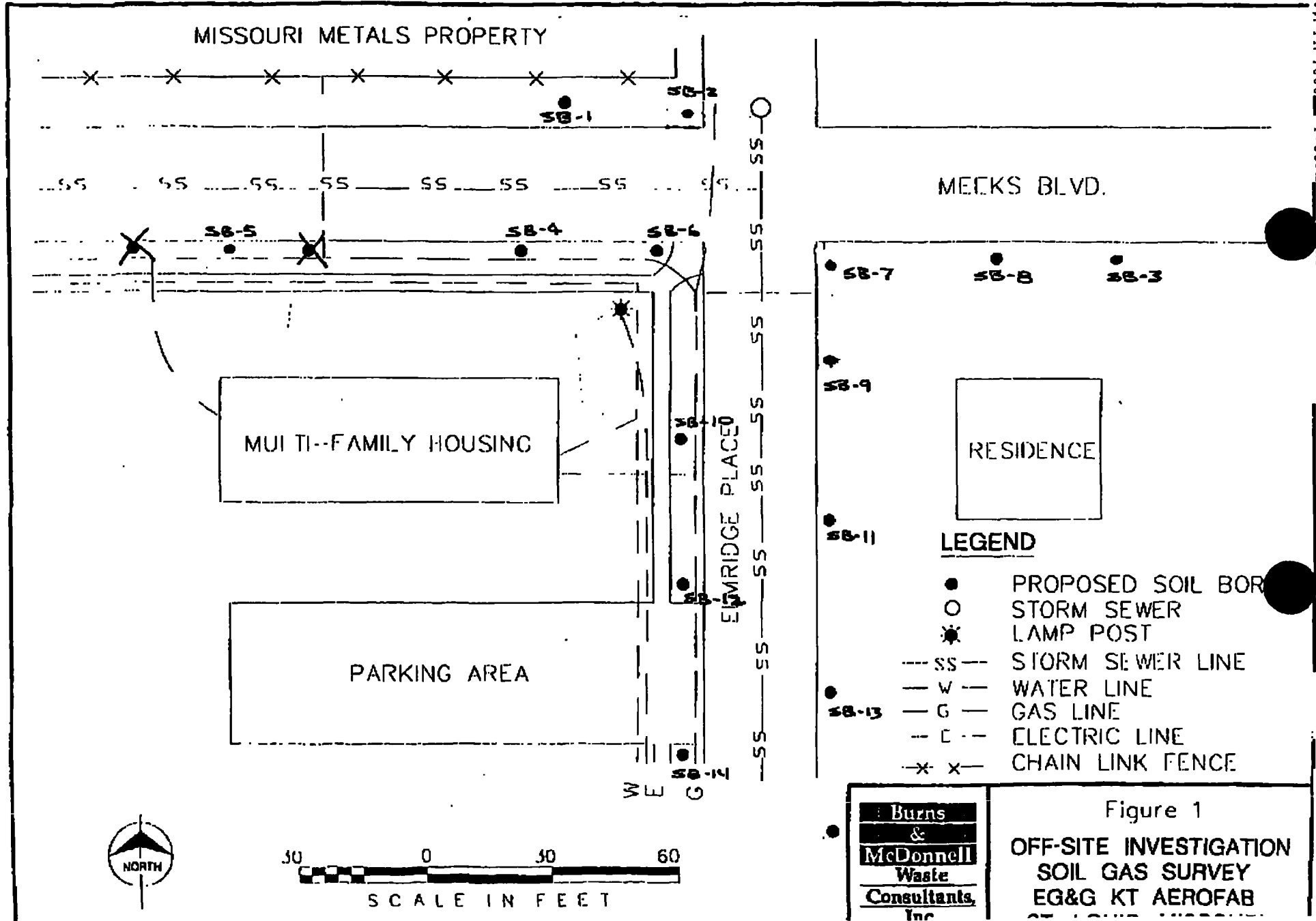
HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

Off-Site Soil Sampling Analytical Results EG&G/ Missouri Metals Site

Parameter	Units	Sampling Location-Depth						
		SB1-16'	SB2-10'	SB3-6'	SB4-12'	SB5-10'	SB6-22'	SB7-6'
Acetone	ug/kg	U (5.0)	U (5.0)	U (5.0)	27	U (5.0)	U (5.0)	U (5.0)
Methylene Chloride	ug/kg	17	8	9	9	10	11	7
Tetrachloroethene	ug/kg	U (5.0)	54	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)
Trichloroethene	ug/kg	U (5.0)	U (5.0)	67	U (5.0)	U (5.0)	U (5.0)	U (5.0)
Cis-1,2-Chloroethene	ug/kg	U (5.0)	7	6	12	U (5.0)	U (5.0)	U (5.0)
Total 1,2-Dichloroethene	ug/kg	U (5.0)	7	7	12	U (5.0)	U (5.0)	U (5.0)

Parameter	Units	Sampling Location-Depth						
		SB8-16'	SB9-12'	SB10-6'	SB11-8'	SB12-8'	SB13-6'	SB14-6'
Acetone	ug/kg	U (5.0)	U (5.0)	U (5.0)	13	U (5.0)	U (5.0)	69
Methylene Chloride	ug/kg	130	6	13	13	18	13 B	12
Tetrachloroethene	ug/kg	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)
Trichloroethene	ug/kg	1900	U (5.0)	U (5.0)	U (5.0)	16	U (5.0)	U (5.0)
Cis-1,2-Chloroethene	ug/kg	290	U (5.0)	U (5.0)	U (5.0)	27	6	U (5.0)
Total 1,2-Dichloroethene	ug/kg	290	U (5.0)	U (5.0)	U (5.0)	29	6	U (5.0)
1,4-Dichlorobenzene	ug/kg	120	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)
1,2-Dichlorobenzene	ug/kg	56	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)

B - Parameter detected in laboratory blank sample, likely laboratory contaminant
 U - Undetected at the quantitation limit shown in parentheses
 PID - Photoionization Detector
 ug/kg - microgram per kilogram or parts per billion
 nd - not detected
 ppm - parts per million



**Burns
&
McDonnell
Waste
Consultants,
Inc**

Figure 1
OFF-SITE INVESTIGATION
SOIL GAS SURVEY
EG&G KT AEROFAB

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

McL Carnahan, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

December 22, 1998

Mr. L. Steven Goldblatt
Green, Schaaf & Jacobson, P.C.
Attorneys at Law
Suite 700, Pierre Laclede Center
7733 Forsyth Blvd.
St. Louis, MO 63105

RE: Indoor Air and Water Sample Results

Dear Mr. Goldblatt:

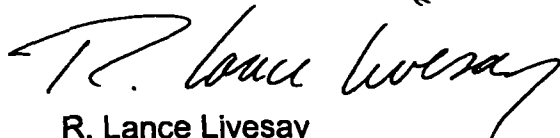
Enclosed, please find copies of the indoor air and water (from sump) sample results. These results are from samples collected on November 20, 1998, from residential basements downgradient of the EG&G Missouri Metals site. The air and water samples were collected by Burns & McDonnell Waste Consultants, Incorporated, and analyzed by Southwest Laboratory of Oklahoma, Incorporated.

The results for all the air samples for all volatile organic compounds analyzed were less than the detection limit or non-detect. One of the two water samples indicated an estimated detection of trichloroethene at 4.0 micrograms per liter (parts per billion). All other volatile organic compounds analyzed were less than the detection limit or non-detect. This level of trichloroethene detected should not be a concern at this time.

If you have any questions regarding the sample results or the EG&G site in general, please contact me at (573) 751-8629.

Sincerely,

HAZARDOUS WASTE PROGRAM

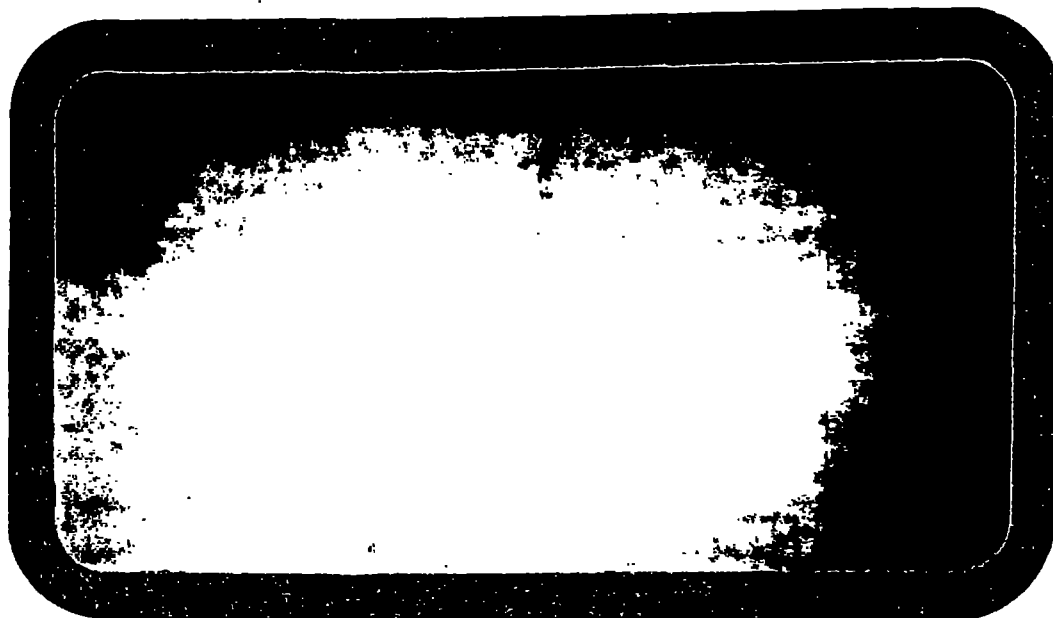


R. Lance Livesay
Environmental Specialist

RLL:ln

Enclosures

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 20



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SEP 29 1999

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

Burns	Waste
&	Consultants,
McDonnell	Inc.

ENGINEERS-GEOLOGISTS-SCIENTISTS - 100% EMPLOYEE-OWNED

**ADDITIONAL OFF-SITE INVESTIGATION REPORT
EG&G MISSOURI METALS
OVERLAND, MISSOURI**

SEPTEMBER 1999

**Project No.
91-319-4-006**

**Burns & McDonnell Waste Consultants, Inc.
Engineers-Geologists-Scientists
Fenton, Missouri
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APPENDICES

Appendix A	Boring Logs
Appendix B	Laboratory Analytical Reports

1.0 INTRODUCTION AND BACKGROUND INFORMATION

This Additional Off-Site Investigation Report summarizes field events conducted July 14 through August 13, 1999 in the residential area located south of the EG&G Missouri Metals Site (Site). The Site is located at 9970 Page Boulevard in Overland, Missouri. EG&G Missouri Metals (EG&G) retained Burns & McDonnell Waste Consultants, Inc. (BMWCI) to conduct an additional off-site subsurface investigation to locate and transect the impacted groundwater plume between the Site and the southern boundary of the residential area located south of the Site. The investigation included both subsurface soil and groundwater sampling. The off-site properties included in this investigation are primarily private residences; however, most of the field activities were performed within the street(s) right of way in the residential area. A site map depicting the area of concern for the additional off-site investigations is presented as Figure 1.

A previous off-site investigation, conducted by BMWCI in August 1998, included soil sampling in the northwestern portion of the residential area. The results of the prior soil sampling in that portion of the residential area (located immediately south of the Site) indicated contaminant concentrations below regulatory cleanup guidelines for soil.

No groundwater sampling was performed during the August 1998 investigation.

* * * * *

2.0 INVESTIGATION ACTIVITIES

Site investigation activities were initiated on July 14, 1999, and included subsurface soil sampling, temporary piezometer installation, and groundwater sampling. The following sections detail the activities associated with each phase of the investigation. Analytical results are discussed in Section 3.0. An overall additional off-site investigation summary is included in Section 4.0.

2.1 Soil Sampling

BMWCI personnel and Petro-Probe Investigations, Inc. (Petro-Probe) of St. Charles, Missouri mobilized to the Site on July 14, 1999 to conduct direct-push sampling of soil and groundwater at the off-site residential area. A direct-push sampling device was used to extract soil cores at 14 locations across the off-site area (see Figure 1). The borings (B-1 through B-14) were generally completed to depth of refusal or 20 feet below ground surface (bgs), whichever was encountered first. However, boring B-2 was completed to a depth of 12 feet bgs, and boring B-3 was completed to a depth slightly beyond 20 feet bgs. Depth to refusal data is summarized in Table 1, and the refusal depth elevations are depicted on Figure 2. Depth to refusal is defined as the depth at which the boring can no longer be advanced by direct-push methodology. Depth to refusal is used as an estimation of depth to bedrock, but may be a definitive determination since refusal may occur on other objects such as large rock fragments and buried debris.

Groundwater was encountered during the direct-push soil sampling at boring locations B-2, B-4, B-6, B-8, and B-11. Groundwater encountered at B-2 is assumed to be perched groundwater. Groundwater was not encountered during soil sampling at the remaining borings but did accumulate in temporary piezometers installed after the completion of the soil borings.

A BMWCI geologist logged the subsurface material in the borings and screened these materials for volatile organic compounds (VOCs) using a head space method with a calibrated photoionization detector (PID). PID readings ranged from 0 to 2.4 parts per million (ppm). Copies of the boring logs are included as Appendix A.

One soil sample was collected from each boring just above the groundwater interface. The soil samples were placed in laboratory-cleansed jars, cooled to 4 degrees Celsius, and delivered under written chain-

of-custody procedures to American Technical & Analytical Services, Inc. (ATAS) of St. Louis, Missouri for VOCs analysis. All direct-push soil samples were analyzed according to Environmental Protection Agency (EPA) Method 8260.

Excess soil core and decontamination water generated during the subsurface soil sampling activities were stored on-site in Department of Transportation approved 55-gallon drums. Analytical tests will be performed on composite samples taken from each of the drums. The results of the analytical tests will indicate the proper method of disposal of the drums and their contents. Plastic geoprobe core liners, PPE, and other incidental waste generated during the investigation was stored in plastic trash bags and disposed as general solid waste.

The subsurface soil sampling results are summarized in Table 3. The laboratory reports are included as Appendix B. All analytical results are discussed in Section 3.0.

2.2 Temporary Piezometer Installation

Following boring completion, a one-inch inside diameter, polyvinyl chloride (PVC) temporary, piezometer with 12, 15, or 18 feet, depending upon total depth of borehole, of 0.010-inch slot PVC screen was installed from the bottom of the boring to approximately one to three-feet above grade. The temporary piezometers were installed with a sand filter and bentonite surface seal. The elevations of the piezometers were surveyed in the field by BMWCI personnel. Elevations were measured from the top of casing of each piezometer using an on-site monitoring well as a known elevation datum.

A piezometer was not installed at boring location B-2, due to the presence of perched groundwater at shallow depths (approximately 4 feet). The introduction of shallow perched water to a piezometer at B-2 would not allow a representative groundwater sample from the aquifer of concern to be obtained.

2.3 Groundwater Sampling

BMWCI personnel performed groundwater sampling of the temporary piezometers in the off-site residential area on July 15 through July 20, 1999. Groundwater sampling activities included measuring groundwater levels, developing temporary piezometers, and collecting groundwater samples from boring locations B-1 and B-3 through B-14. The depth to groundwater was measured in each piezometer using a

water level indicator. Groundwater elevation data generated from final groundwater levels is summarized in Table 2. Laboratory reports are included as Appendix B. Groundwater elevations are depicted on Figure 3. Temporary piezometers were abandoned in compliance with MDNR requirements.

Following installation, groundwater was removed from the temporary piezometers using ¾-inch outside diameter, polyethylene, disposable, bailers. The piezometers were developed by removing at least five casing volumes of groundwater, when sufficient groundwater was present. Groundwater levels were measured no less than 24 hours after well development to allow for aquifer stabilization. The static groundwater elevation in each piezometer was measured using a decontaminated water level indicator prior to groundwater sample collection. Prior to sampling, piezometers were also purged of three volumes of groundwater or until dry. Purge water was stored on-site in Department of Transportation approved 55-gallon drums. Analytical tests will be performed on composite samples taken from each of the drums. The results of the analytical tests will indicate the proper method of disposal of the drums and their contents.

Sampling personnel wore new, disposable gloves during the collection of each sample to prevent cross-contamination. Groundwater samples from each piezometer location were transferred to labeled sample vials, packed in a cooler with ice, and hand-delivered under written chain-of-custody procedures to ATAS for VOCs analysis using EPA Method 8010.

* * * * *

3.0 INVESTIGATION RESULTS

Soil and groundwater samples were collected at the Site during the July 1999 off-site investigation. Laboratory analyses were completed by ATAS. Copies of the analytical reports are included as Appendix B.

3.1 Subsurface Soil Samples

Subsurface soil samples were collected from 14 locations across the off-site area and analyzed as described in Section 2.0. None of the 14 subsurface soil samples indicated VOCs concentrations in excess of ASL. Concentrations of acetone and methylene chloride were detected below the ASL for several of the soil samples. However, these two chemicals are commonly attributed to laboratory contamination. Methylene chloride was detected in the method blank for 9 of the 14 samples further indicating potential laboratory contamination. Analytical results for the subsurface soil samples are summarized in Table 3.

3.2 Groundwater Samples

Groundwater samples were collected from temporary piezometers at boring locations B-1 and B-3 through B-14. Groundwater analytical data indicates that the trichloroethylene (TCE) concentrations in sample locations B-4, B-10, and B-11 exceed the maximum contaminant level (MCL) of 5 micrograms per liter ($\mu\text{g/l}$). All samples indicating concentrations above MCLs were collected from locations proximate to the All American Life Insurance Company hazardous waste site bordering the residential area approximately 320 feet to the south. TCE concentrations exceeding the MCL ranged from 9 $\mu\text{g/l}$ in B-10 to 130 $\mu\text{g/l}$ in B-4. Concentrations of tetrachloroethylene (PCE) were detected for sample locations B-4 (80 $\mu\text{g/l}$) and B-11 (10 $\mu\text{g/l}$). However, no MCL values have been established for PCE in the clean-up assessment for this off-site investigation. Concentrations of TCE in groundwater are displayed in Figure 4. Concentrations of PCE in groundwater are displayed in Figure 5. Analytical results for the groundwater samples are summarized in Table 4.

In addition to the TCE detections, the concentrations of methylene chloride detected in groundwater samples from sample locations B-1 and B-3 through B-13 exceed the MCL concentration for methylene chloride of 5 µg/l. However, these concentrations are likely attributed to laboratory contamination as indicated by the detection of methylene chloride in both the trip blank and the method blanks. The methylene chloride concentrations in the trip blank and the method blanks were 9 and 1 µg/l, respectively. All other analyte detections were below the associated MCL values.

* * * * *

4.0 SUMMARY

Additional off-site investigation activities completed in July and August 1999 at the residential area located south of the Site included the collection of subsurface soil samples from 14 locations and groundwater samples from 13 temporary piezometers. The subsurface soil sample data indicates that the subsurface soil above the groundwater surface has not been impacted by VOCs. The groundwater sample data indicates that the groundwater has been impacted by VOCs in an isolated area in the southern portion of the residential area. These findings suggest the presence of an additional source of contamination other than the EG&G Missouri Metals Site.

Soil samples were collected at the off-site area at depths ranging from 3 to 15 feet bgs using direct-push methodology. The soil sample analytical data (Table 1) indicates that soil contamination at this residential area is minimal and does not exceed ASL values.

Piezometric data obtained in August 1999 indicates that the groundwater gradient is generally to the southeast from the Site and across the residential area. Depth to refusal data suggests that slope of the bedrock surface from the Site and across the residential area is also to the southeast.

Sample locations B-4, B-10, and B-11 are the only locations indicating VOC impacted groundwater. None of the sample locations indicate VOC impacted soil. Seven groundwater sample locations are located to the north and west of locations B-4, B-10, and B-11 and exhibit no contaminant concentrations above MCL values. These findings indicate that the contamination present in the southern portion of the residential area has not migrated from the Site located north of the residential area, but has probably advanced from a separate source of contamination.

* * * * *

TABLES

Table 1
Summary of Depth to Refusal Data
EG&G Missouri Metals Additional Off-Site Investigation
August 1999

Temporary Piezometer	Date	(A)	Depth to Top of Screen (feet)	(B)	(A)-(B)	Refusal Depth Elevation* (feet)
		Casing Rim Elevation (feet)		Total Depth (feet)	Casing Base Elevation (feet)	
B-1	8/13/99	624.88	2.5	18.25	606.63	606.85
B-3	8/13/99	611.37	2.1	20.87	590.50	590.72
B-4	8/13/99	608.83	1.5	21.22	587.61	587.83
B-5	8/13/99	607.59	4.5	18.25	589.34	589.56
B-6	8/13/99	610.22	2.0	NA	NA	NA
B-7	8/13/99	620.43	1.0	21.18	599.25	599.47
B-8	8/13/99	615.47	2.0	NA	NA	NA
B-9	8/13/99	607.34	2.0	18.15	589.19	589.41
B-10	8/13/99	606.37	3.5	21.25	585.12	585.34
B-11	8/13/99	603.31	2.0	18.25	585.06	585.28
B-12	8/13/99	605.78	1.5	19.57	586.21	586.43
B-13	8/13/99	602.15	3.0	18.25	583.9	584.12
B-14	8/13/99	602.58	1.0	21.25	581.33	581.55

Notes

NA - Not Applicable - Refusal was not encountered during boring installation

* - Refusal surface elevation = Casing base elevation + 0.22 feet.

Stainless steel drive points attached to base of casing are 0.22 feet in vertical length.

Table 2
Summary of Water Level Data
EG&G Missouri Metals Additional Off-Site Investigation
August 1999

Temporary Piezometer	Date	(A)	Depth to Top of Screen (feet)	(B)	(A)-(B)	Piezometric Surface Elevation (feet)
		Casing Rim Elevation (feet)		Depth to Water (feet)	Water Surface Elevation (feet)	
B-1	8/13/99	624.88	2.5	12.74	612.14	612.14
B-3	8/13/99	611.37	2.1	8.00	603.37	603.37
B-4	8/13/99	608.83	1.5	7.32	601.51	601.51
B-5	8/13/99	607.59	4.5	10.99	596.60	596.60
B-6	8/13/99	610.22	2.0	7.50	602.72	602.72
B-7	8/13/99	620.43	1.0	10.10	610.33	610.33
B-8	8/13/99	615.47	2.0	12.00	603.47	603.47
B-9	8/13/99	607.34	2.0	9.05	598.29	598.29
B-10	8/13/99	606.37	3.5	10.55	595.82	595.82
B-11	8/13/99	603.31	2.0	11.00	592.31	592.31
B-12	8/13/99	605.78	1.5	11.12	594.66	594.66
B-13	8/13/99	602.15	3.0	9.61	592.54	592.54
B-14	8/13/99	602.58	1.0	10.02	592.56	592.56

Table 3
Subsurface Soil Sampling Results
EG&G Additional Off-Site Investigation
August 1999

Analyte	Units	ASL*	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14
Acetone	ug/Kg		10	ND(10)	52	30	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	14	ND(10)	ND(10)	ND(10)	ND(10)
Vinyl Chloride	ug/Kg		ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Methylene Chloride	ug/Kg	670,000	18	19 B	16	15	13	12	21 B	38 B	44 B	28 B	24 B	20 B	21 B	12 B
1,1-Dichloroethylene	ug/Kg	8,300	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,2-Dichloroethylene (total)	ug/Kg	560,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Trans 1,2-Dichloroethylene	ug/Kg	1,100,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Chloroform	ug/Kg	820,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Trichloroethylene (TCE)	ug/Kg	260,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Tetrachloroethylene (PCE)	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Toluene	ug/Kg	11,000,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,1-Dichloroethane	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,2-Dichloroethane	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,1,2-Trichloroethane	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,1,1-Trichloroethane	ug/Kg	2,000,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Benzene	ug/Kg	170,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Chlorobenzene	ug/Kg		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
1,4-Dichlorobenzene	ug/Kg	2,800,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)

Notes

ASL* - Any-Soil-Use Soil Level

B - Analyte detected in method blank possibly below the reporting limit

ND(5) - Not detected(analyte reporting limit of 5 ug/K)

**Table 4
Groundwater Sampling Results
EG&G Additional Off-Site Investigation
August 1999**

Contaminant	Units	MCL*	B-1	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14
Acetone	ug/L		ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Vinyl Chloride	ug/L	2	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Methylene Chloride	ug/L	5	22 B	21 B	6 B	8 B	9 B	9 B	8 B	9 B	9 B	9 B	8 B	8 B	ND(1)
1,1-Dichloroethylene	ug/L	7	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2 Dichloroethylene (total)	ug/L	70	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Trans 1,2-Dichloroethylene	ug/L	100	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Chloroform	ug/L	100**	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2	ND(1)	ND(1)	1	ND(1)	ND(1)	ND(1)
Trichloroethylene (TCE)	ug/L	5	ND(1)	ND(1)	130	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	9	23	1	ND(1)	ND(1)
Tetrachloroethylene (PCE)	ug/L		ND(1)	ND(1)	80	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	10	1	ND(1)	ND(1)
Toluene	ug/L	1,000	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,1-Dichloroethane	ug/L		ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2-Dichloroethane	ug/L	5	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,1,2-Trichloroethane	ug/L	5	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,1,1-Trichloroethane	ug/L	200	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Benzene	ug/L	5	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
Chlorobenzene	ug/L		ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,4-Dichlorobenzene	ug/L	75	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

Notes

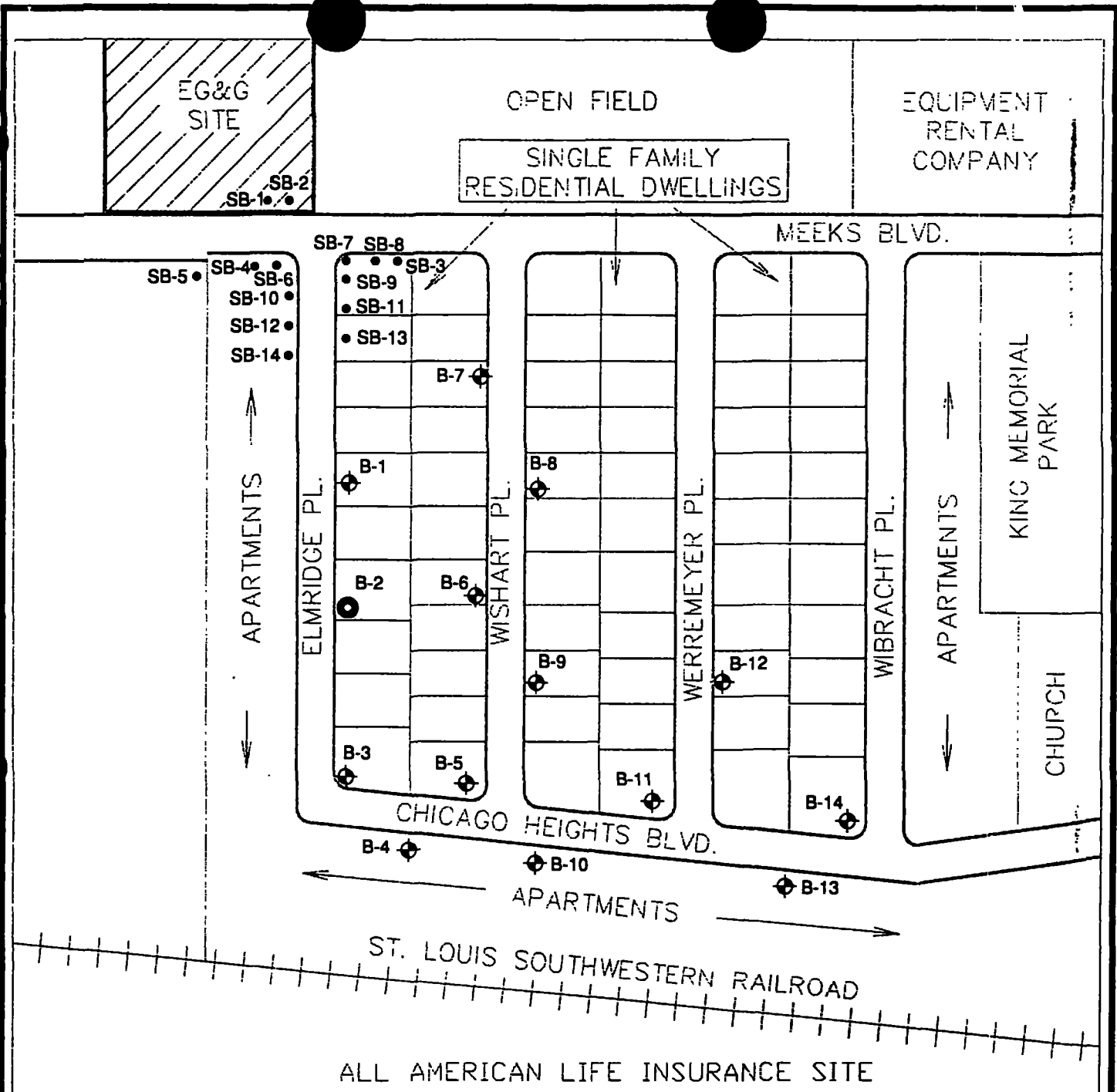
MCL* - Maximum Contaminant Level

** - Total THMs




B - Analyte detected in method blank possibly below the reporting limit

ND(1) - Not detected(analyte reporting limit)

FIGURES



LEGEND

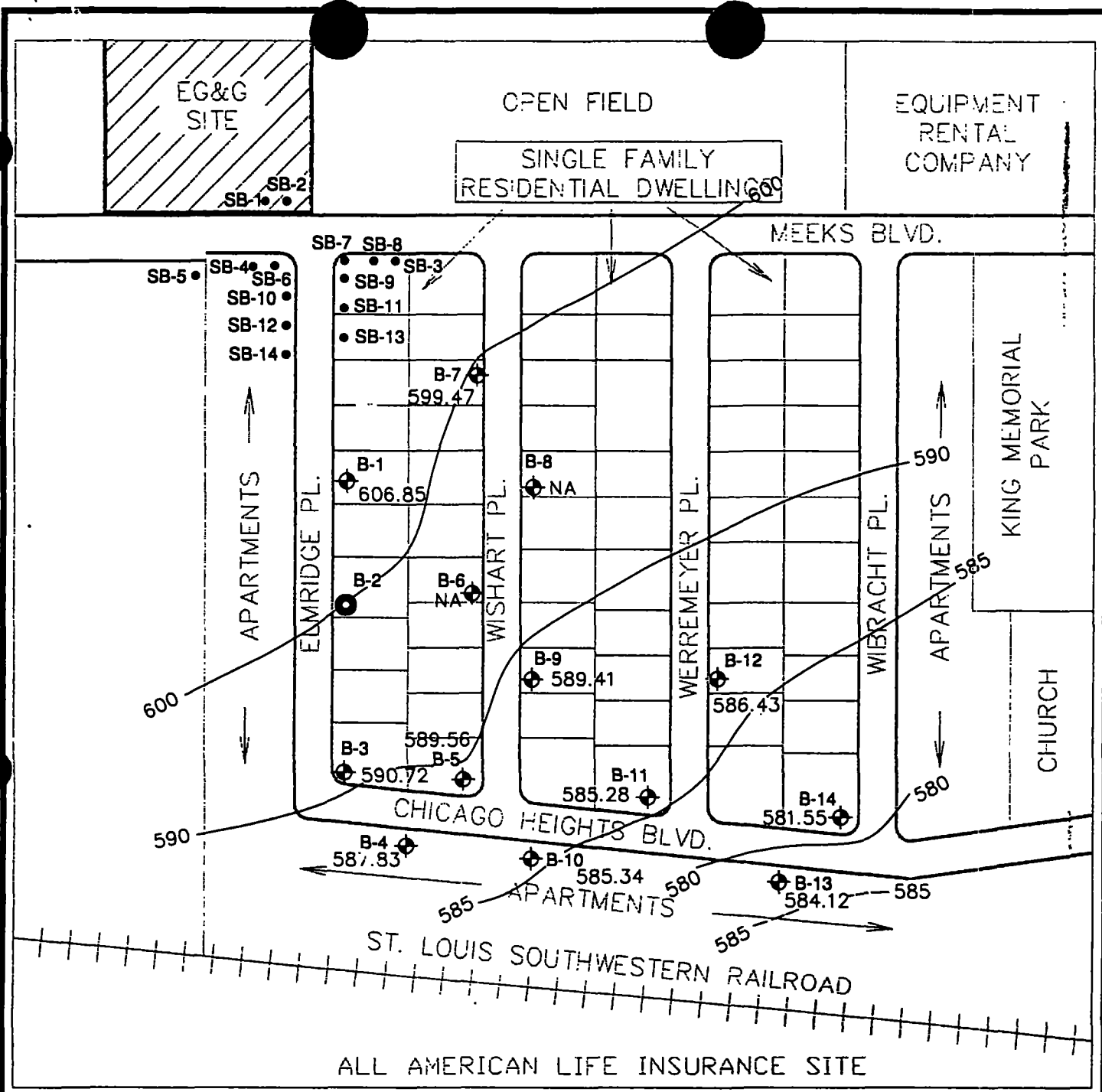
- B-1  FINAL PIEZOMETER LOCATION
- B-2  FINAL BORING LOCATION (No Piezometer Installed)
- SB-2  PREVIOUS BORING LOCATION (August 1998)



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Figure 1
ADDITIONAL OFF-SITE
INVESTIGATION
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

TITAN:91319M ADD:EG&G.DWG



LEGEND

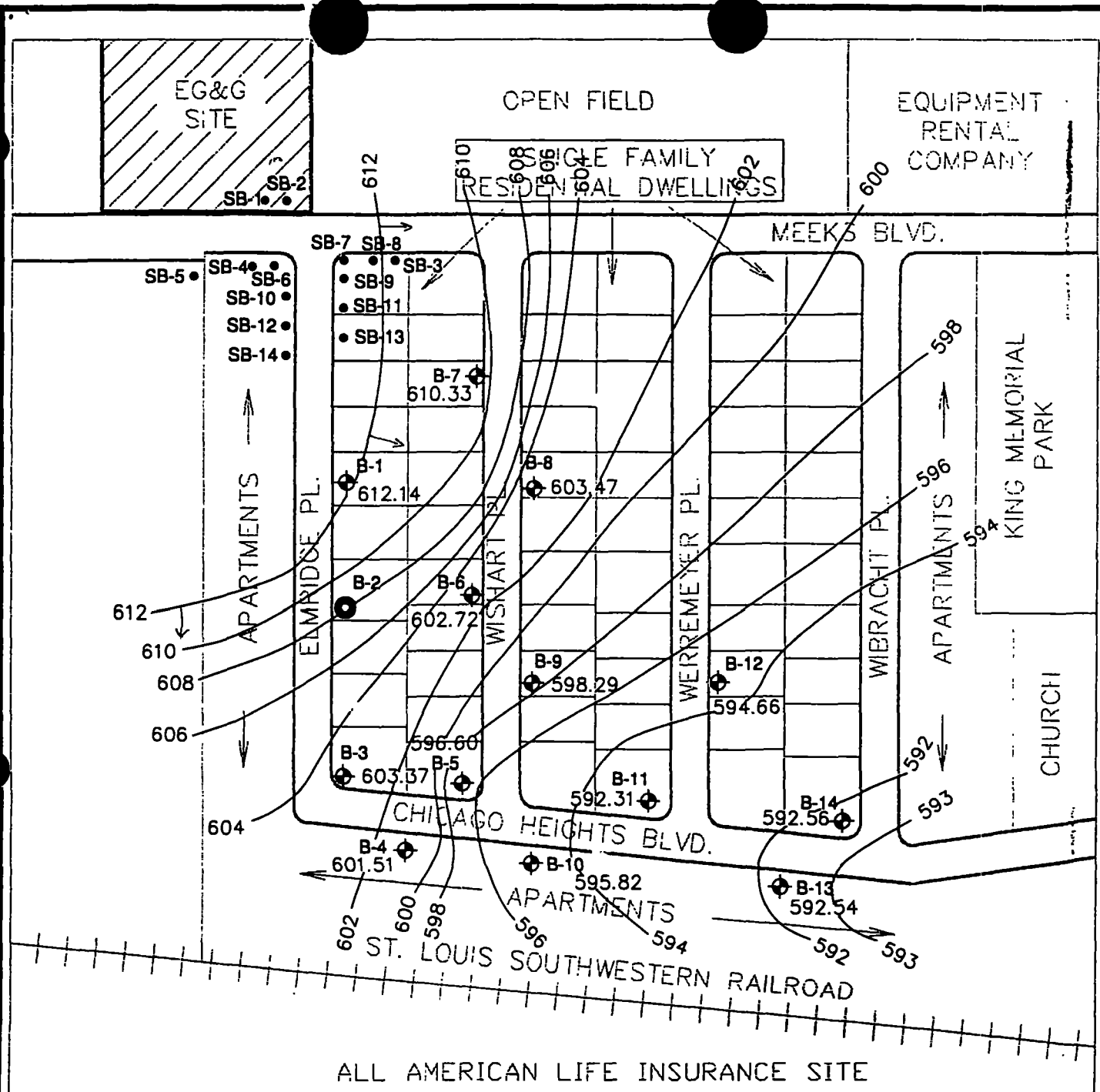
- B-1 FINAL PIEZOMETER LOCATION
- 606.85 REFUSAL DEPTH ELEVATION (Feet Above Sea Level)
- B-2 FINAL BORING LOCATION (No Piezometer Installed)
- SB-2 PREVIOUS BORING LOCATION (August 1998)
- 600 REFUSAL DEPTH CONTOUR








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Figure 2
REFUSAL DEPTH
CONTOUR MAP
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

TITAN:1913191 CADD:EG&G.DWG



LEGEND

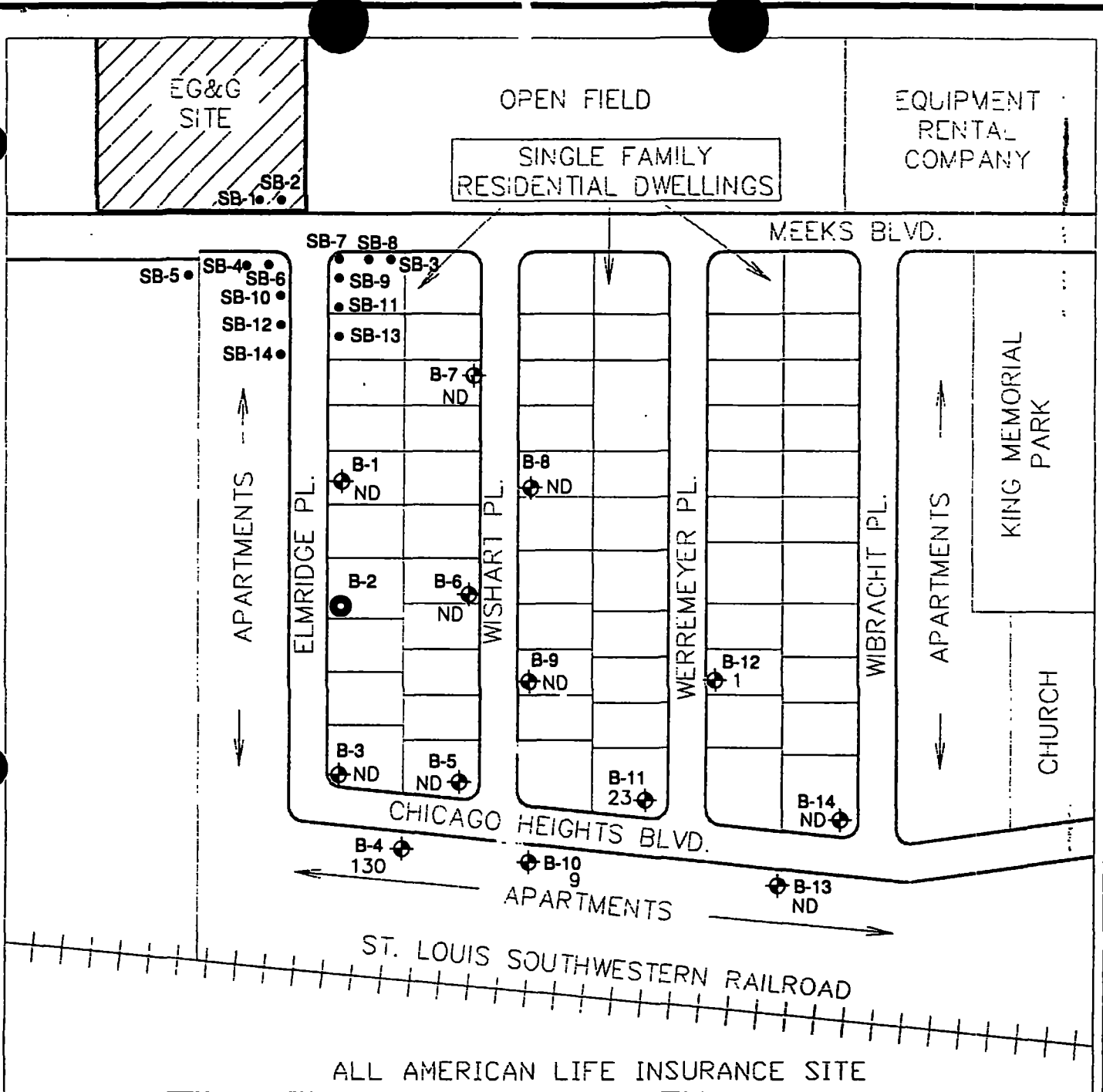
-  B-1 FINAL PIEZOMETER LOCATION
-  612.14 PIEZOMETRIC SURFACE ELEVATION (Feet Above Sea Level)
-  B-2 FINAL BORING LOCATION (No Piezometer Installed)
-  SB-2 PREVIOUS BORING LOCATION (August 1998)
-  612 PIEZOMETRIC SURFACE CONTOUR








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Figure 3
GROUNDWATER
CONTOUR MAP
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI

TITAN:91318M ADDEG&G.DWG



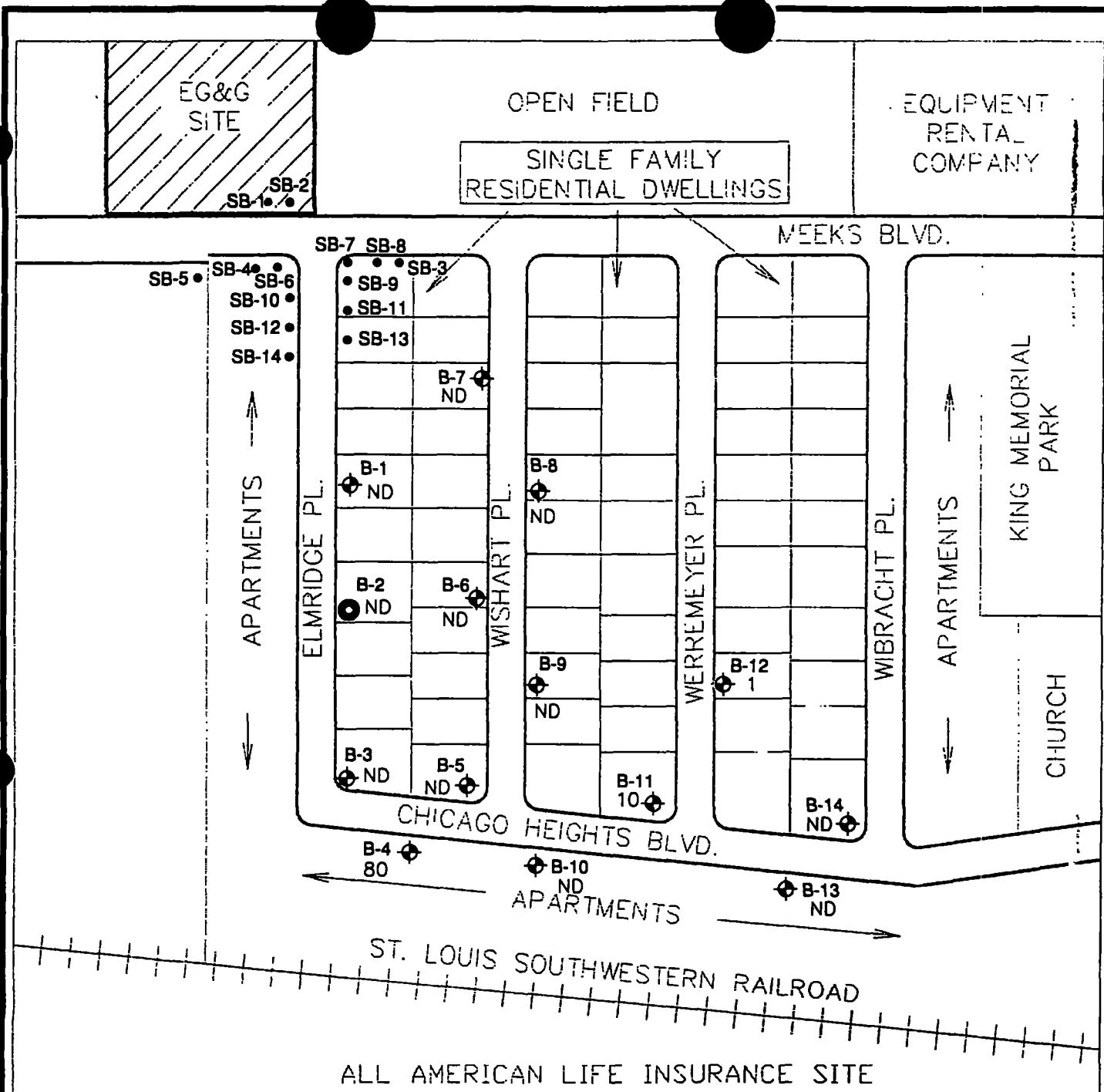
LEGEND

- B-1  FINAL PIEZOMETER LOCATION
- 130  TCE IN GROUNDWATER CONCENTRATION (ug/L)
- B-2  FINAL BORING LOCATION (No Piezometer Installed)
- SB-2  PREVIOUS BORING LOCATION (August 1998)
- ND  NOT DETECTED (Reporting Limit = 1 ug/L)



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Inc.**

Figure 4
TCE IN
GROUNDWATER
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI



LEGEND

- B-1 FINAL PIEZOMETER LOCATION
- 80 PCE IN GROUNDWATER CONCENTRATION (ug/L)
- B-2 FINAL BORING LOCATION (No Piezometer Installed)
- SB-2 PREVIOUS BORING LOCATION (August 1998)
- ND NOT DETECTED (Reporting Limit = 1 ug/L)



Burns & McDonnell Waste Consultants, Inc

**Figure 5
PCE IN
GROUNDWATER
AUGUST 1999
EG&G MISSOURI METALS SITE
OVERLAND, MISSOURI**

TITAN:913194 ADD:EG&G.DWG

APPENDIX A
Soil Boring Logs

Drilling Log

Project Name EG 6		Project Number 91-319-4-006		Boring Number B-1	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 17.5'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	17.5'	0	5	—
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/14/99		To —		Field Observer (s) John Heemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, dry, non plastic, with rootlets	CL			0815		0	0	0	
2	Silty-clay, stiff, damp, medium plasticity, yellowish-brown (104R-5/6)	CL		4' / 4'			0	0	0	
3							HSC 3': 0			
4							0	0	0	
5				4' / 4'	0820		0	0	0	
6							0	0	0	
7	becomes mottled						HSC 7': 0			
8					0825		0	0	0	
9							0	0	0	
10	clayey-silt, medium stiff, medium plasticity, damp, light-yellowish-brown (104R-6/4)	MT					0	0	0	
11							HSC 11': 1.7			
12	becomes moist						0	0	0	
13	becomes & stiff				0840		0	0	0	
13	clayey-silt, medium, med. plasticity, damp			4' / 4'	0935		0	0	0	
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG							Boring Number B-1			
Project Number 71-319-4-006							Page 2 of 2			
							Date 7/14/99			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15	becomes medium stiff becomes soft						0	0	0	
16							0	0	0	
17				2.5' 2.5'	0.12 0.84		0	0	0	
18	Reached refusal @ 17.5ft.									stopped @ 17.5'
19	Set temp. piezo (18')									
20	from 17.5' to 1.5' also ags. Set 15' of screen in sand w/ bentonite surface seal screened interval = 2.5' - 17.5' Submitt Sample B-1-11' to lab for VOC Analysis									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-2	
Ground Elevation		Location Overland, MO		Page 1 of 1	
Air Monitoring Equipment PID				Total Footage 12'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	12'	0	3	—
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/14/99		To —		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, dry, ----- white gravel (Fill) holding water	CL			0908		0	0	0	
2		FILL		1.5'	1/4'					
4	----- Coarse, ^{wet} damp, sand	FILL			0913		0	0	0	perched water in fill zone
5						1.5'	1/4'			
6	Fill, wet (perched water) gravel and coarse sand with some brick fragments									
7										
8										
9										
10										
11										
11	----- Silty-clay, stiff, med. plasticity, damp, yellowish-brown	CL								
12										
13	stop probing @ 12 ft. will not set piezo. due to perched water		Submit Sample B-2-5ft. to laboratory for VOC Analysis							
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-3	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 20.13'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	20.13'	0	5	—
Drilling Company Petro-Probe			Order (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/14/99		To —		Field Observer (s) John Heschmann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, dry to damp, with rootlets, light olive-brown (2.5YR-5/3)	CL		4' 1/4'	1006		0	0	0	Permission obtained by Lancel. of MDMR to relocate borehole in private property
2							0	0	0	
3	Gravelly, dry, fill zone	FILL					HSE 3.5':2.4			
4	Silty-clay, stiff, trace to med. plasticity, damp, very dark gray (5Y-3/1) becomes mottled with iron oxide staining and becomes medium plastic	CL		4' 1/4'	1006		0	0	0	
5							0	0	0	
6							0	0	0	
7							HSE @ 70':2.4			
8							0	0	0	
9					1010		0	0	6	
10	Clayey-silt, median stiff, gray (10YR-6/1) medium plasticity, damp, with iron oxide and MnO ₂ staining. becomes moist	MH		3.5' 1/4'			0	0	0	
11							HSE @ 11':2.4			
12							0	0	0	
13					1020		0	0	0	
14							0	0	0	

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

							Boring Number B-3				
Project Name EGG							Page 2 of 2				
Project Number 91-319-4-006							Date 7/14/99				
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels	
							BZ	BH	S		
15	becomes mottled with more FeO ₂ staining and MnO ₂ deposits	MH					0	0	0		
16							0	0	0		
17						1030		0	0		0
18						3.5' /4'		0	0		0
19							0	0	0	next probe went 0.5" and hit refusal	
20							0	0	0		
21	Encountered refusal at 20'1.5" at 1050										
22	Set 18' of screen and 3' of riser with sand filter and bentonite surface seal.										
23											
24											
	Submit Sample B-3-3.5 ft. to laboratory for VOC analysis										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-4	
Ground Elevation		Location Over land, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 19.5'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	19.5'	0	5	—
Drilling Company Petro-Probe			Order (s) Tom Brucker		
Drilling Rig Truck mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/14/99		To —		Field Observer (s) John Hesemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, clay to damp, with rootlets.	CL			1010 1110		0	0	0	
2	Gravelly fill zone	FILL		4' 1/4'			0	0	0	
3	Silty-clay, medium stiff, medium plastic, damp, dark brown (10YR-3/3)	CL					HSE 3:0			
4					1015 1115		0	0	0	
5										
6	becomes heavily FeO stained			4' 1/4'			0	0	0	
7	Clayey-silt, stiff, med. plasticity, damp, gray (10YR-4/1)						HSE 7:0			
8	with FeO and MnO ₂ staining.	MH					0	0	0	
9					1022 1122		0	0	0	
10				3.5' 1/4'			0	0	0	
11							HSE 11:0			
12							0	0	0	
13				4' 1/4'	1036 1130		0	0	0	
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG						Boring Number B-4				
Project Number 91-319-4-006						Page 2 of 2				
						Date 7/14/99				
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15		MH					0	0	0	
16							0	0	0	
17				4.5'			0	0	0	
18	becomes wet @ 17.5'			4.5'			0	0	0	▽
19	becomes damp to moist @ 19'						0	0	0	
20	Encountered refusal @ 19.5'						0	0	0	
	Set 18' screen and 3' of riser with sand filter and bentonite surface seal.									
	Submit sample B-4-3 ft. to laboratory for VOC analysis									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006	Boring Number B-5
Ground Elevation		Location Overland, MO	Page 1 of 2
Air Monitoring Equipment PID		Total Footage 16.5'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage
Push-Probe	2"	16.5'	0
Drilling Company Petro-Probe		Driller (s) Tom Brucker	
Drilling Rig Truck-mounted Geo-Probe		Type of Sampler 2" sampler with acetate liners	
Date 7/14/99	To —	Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, dry, with rootlets, dark brown (10YR-3/3)	CL		3.5'	1/4'		0	0	0	
2							0	0	0	
3							H5@3':0			
4							0	0	0	
5	becomes damp, trace to med. plasticity, with FeO and MnO ₂ staining, brown (10YR-5/3)			3.5'	1/4'		0	0	0	
6							0	0	0	
7							H5@7':0			
8							0	0	0	
9	clayey-silt, med. stiff, med. plasticity, moist, gray (10YR-6/1) with FeO and MnO ₂ staining	MH		3.5'	1/4'		0	0	0	
10							0	0	0	
11							H5@11':0			
12							0	0	0	
13				4'	1/4'		0	0	0	
14							0	0	0	

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name <i>EGG</i>							Boring Number <i>B-5</i>			
Project Number <i>91-319-4-006</i>							Page <i>2</i> of <i>2</i>			
							Date <i>7/14/99</i>			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15	<i>becomes stiff</i>	<i>MH</i>					<i>0</i>	<i>0</i>	<i>0</i>	
16				<i>.5/5</i>	<i>1317</i>		<i>145@15'</i>	<i>0</i>	<i>0</i>	
17	<i>Encountered refusal @ 16.5 ft.</i>									
18	<i>Set 12 ft. of screen and 6 ft. of riser with sand filter and bentonite surface seal.</i>									
19										
20	<i>Submit Sample B-5-11 ft. to laboratory for VOC analysis.</i>									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-6	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 20'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	20'	0	5	-
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck Mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/14/99		To -		Field Observer (s) Teresa Tamburello	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty clay with roots, glass, Some brick,	CL		4 1/4'	1350		0	0	0	
2							0	0	0	
3	Silty clay, damp, trace plasticity, FeO staining	CL					HSE@3':0			
4	stiff 10YR-4/4				1352		0	0	0	
5				2 1/2 1/4'	1353		0	0	0	
6							0	0	0	
7	becomes more plastic, more FeO staining						HSE@7':0			
8					1401		0	0	0	
9				4/4			0	0	0	
10	Clayey silt, stiff, damp, medium plastic, FeO stained, 10YR-7/4	MH					HSE@11':0			
11							0	0	0	
12					1410		0	0	0	
13							0	0	0	
14							HSE@15':0			

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG							Boring Number B-6			
Project Number 91-319-4-006							Page 2 of 2			
							Date 7/14/99			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15	becomes wet, highly plastic (1.0)	MH		4 1/4			6	0	0	SZ
16	becomes damp, medium plastic						0	0	0	
17	becomes soft			4 1/4	1715		0	0	0	
18							0	0	0	
19	becomes stiff						HS@ 19':0			
20	<p>Stop Probing @ 20 ft.</p> <p>SET 18 ft of screen and 3 ft of riser with sand filter and bentonite surface seal</p> <p>Submit sample B-6 - 3 ft. to laboratory for VOC analysis.</p>									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-7	
Ground Elevation		Location Aerland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 19'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	19'	0	5	-
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/14/99		To -		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay fill, stiff, non plastic, dry, with gravel and rootlets, very dark grayish-brown (2.5Y-3/2)	CL		4' 1/4'	1445		0	0	0	
2							0	0	0	
3							H5e3: 0			
4	Silty-clay, stiff, med. plasticity, damp, light olive-brown (2.5Y-5/6)	CL			1450		0	0	0	
5							0	0	0	
6	Clayey-silt, stiff, med. plasticity, damp, light gray (10YR-7/2), with FeO and Mn O ₂ staining becomes moist	MH		4' 1/4'	1455		0	0	0	
7							H5e7: 0			
8							0	0	0	
9				4' 1/4'	1502		0	0	0	
10							0	0	0	
11							H5e11: 0			
12							0	0	0	
13							0	0	0	
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

							Boring Number <i>B-7</i>			
Project Name <i>EGG</i>							Page <i>2</i> of <i>2</i>			
Project Number <i>91-319-4-006</i>							Date <i>7/14/99</i>			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15		<i>MH</i>					<i>0</i>	<i>0</i>	<i>0</i>	
16					<i>1515</i>		<i>0</i>	<i>0</i>	<i>0</i>	
17	<i>becomes very stiff with some rock fragments</i>			<i>3'/3'</i>			<i>0</i>	<i>0</i>	<i>0</i>	
18							<i>0</i>	<i>0</i>	<i>0</i>	
19	<i>Encountered refusal @ 19 ft.</i>						<i>0</i>	<i>0</i>	<i>0</i>	
20	<i>Set 18' of screen and 3' of riser with sand filter and bentonite surface seal.</i>									
	<i>Submit sample B-7-15 ft. to laboratory for VOC analysis.</i>									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-8	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 20'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	20'	0	5	-
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liner		
Date 7/15/99		To -		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non- <u>plastic</u> , dry, brown (10YR-4/3) with rootlets	CL			0720		0	0	0	
	gravelly fill layer	FILL								
2	-----			4' / 4'			0	0	0	
3	Silty-clay, stiff, non- <u>plastic</u> , dry, dark grayish-brown (10YR-4/2)	CL					HSE#3:0			
4	with FeO staining				0725		0	0	0	
5										
6	becomes damp, med. plasticity			3.5' / 4'			0	0	0	
7							HSE#7:0			
8	-----						0	0	0	
9					0730		0	0	0	
10	thin, wet, brick layer			4' / 4'			0	0	0	
11	clayey-silt, med. stiff, med. plasticity, damp, light yellowish-brown (10YR-4/4),	MH					HSE#11:0			
12	with FeO staining						0	0	0	
13	becomes wet				0737		0	0	0	V
14	becomes damp			3' / 4'						

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name <u>EGG</u>							Boring Number <u>B-8</u>			
Project Number <u>91-312-4-006</u>							Page <u>2</u> of <u>2</u>			
							Date <u>7/15/99</u>			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15		MH					0	0	0	water coming out of rods
16					0745		145	@ 15'	0	
17			6" / 4'				—			
18							—			
17							—			
20	<p>Complete probing @ 20 ft.</p> <p>Set 18' of screen and 3' of riser with sand filter and bentonite surface seal.</p> <p>Submit Sample B-8-7ft. to laboratory for VOC analysis</p>									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-317-4-006		Boring Number B-9	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 17.2'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	17.2'	0	5	—
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liners		
Date 7/15/99		To —		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, trace plasticity, damp, brown (10YR-4/3) w/ rootlets <u>Gravelly Fill layer</u>	CL Fill			0:25		0	0	0	
2	Silty-clay, stiff, med. plasticity, damp, dark grayish-brown (10YR-4/2)	CL		3 1/4'			0	0	0	
3							HS @ 3': 0			
4							0	0	0	
5	becomes light yellowish-brown (10YR-6/4)				0:30		0	0	0	
6				4 1/4'			0	0	0	
7							HS @ 7': 0			
8	Clayey-silt, med. stiff, med. plasticity, damp, light yellowish-brown (10YR-6/4)	MH			0:35		0	0	0	
9	with FeO staining and some roots						0	0	0	
10				4 1/4'			0	0	0	
11							HS @ 11': 0			
12	becomes soft, damp to moist				0:42		0	0	0	
13				4 1/4'			0	0	0	
14	becomes med. stiff						0	0	0	

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG							Boring Number B-9			
Project Number 91-319-4-006							Page 2 of 2			
							Date 7/15/99			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15		MH					0	0	0	
16							Hse 15' : 0			
17				6" 11'	0855		0	0	0	
18	Encountered refusal @ 17.2'									
19	Set 15' of screen and 3' of riser with sand filter and bentonite surface seal.									
20	Submit Sample B-9 - 3ft. to laboratory for VOC analysis.									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-317-4006		Boring Number B-10	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 18.5'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	18.5'	0	5	—
Drilling Company Petro-Probe			Driller (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liner		
Date 7/15/99		To —		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, dry, brown (10YR-4.5), w/ rootlets Gravel, brick, sand (Sewer Fill)	CL FILL					0	0	0	
2				3.5			0	0	0	
3				4'			NO	HS		
4							0	0	0	
5	Silty-clay, stiff, medium plasticity, damp, grayish-brown (10YR-5/2) with FeO and MnO2 staining	CL		4'			0	0	0	
6				4'			0	0	0	
7							HS @ 7': 0			
8							0	0	0	
9	Clayey-silt, medium stiff, med. plasticity, damp, light olive-gray (5YR-6/2) w/ FeO staining.	MH		3.5'			0	0	0	
10				4'			0	0	0	
11							HS @ 11': 0			
12							0	0	0	
13				3 1/4'			0	0	0	
14							0	0	0	

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG							Boring Number B-10			
Project Number 91-319-4-006							Page 2 of 2			
							Date 7/15/99			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15	becomes heavily FeO stained	MH					0	0	0	
16						198		0	0	
17	Silty-clay, very stiff, mod. plasticity damp, brownish-yellow (15R-6), with rock fragments	CL					0	0	0	
18								0	0	
19	Encountered refusal at 18.5'									
20	Set 15 ft. of screen and 6 ft. of riser with sand filter and bentonite surface seal. Submit sample B-10-11 ft. to laboratory for VOC analysis.									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-11	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 17'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	17'	0	5	-
Drilling Company Petro-Probe			Order (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liner		
Date 7/15/99		To ---		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, clay brown (104R-4/3) w/ rootlets	CL			1052		0	0	0	
2	Gravelly, brick and sand fill (sewer fill)	FILL		4 1/4			0	0	0	
3	Silty-clay, stiff, med. plasticity, damp, grayish-brown (104R-5/2) with FeO and MnO2 staining	CL					Hse 3':0			
4							0	0	0	
5	Clayey-silt, medium stiff, med. plasticity, damp, grayish-brown (104R-5/2) with Fe light olive-gray (54R-4/2) w/ FeO staining	MH		3 1/4	1058		0	0	0	
6							0	0	0	
7							Hse 7':0			
8							0	0	0	
9	becomes soft and moist				1105		0	0	0	
10				4 1/4			0	0	0	
11	becomes medium stiff and damp						Hse 11':0			
12							0	0	0	
13	becomes soft and wet			4 1/4	1110		0	0	0	▽
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

							Boring Number <i>B-11</i>			
Project Name <i>EGG</i>							Page <i>2</i> of <i>2</i>			
Project Number <i>91-319-4-006</i>							Date <i>7/15/99</i>			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15-	<i>becomes damp and med. stiff.</i>	<i>MH</i>					<i>0</i>	<i>0</i>	<i>0</i>	
16-	<i>becomes stiff</i>		<i>well</i>				<i>0</i>	<i>0</i>	<i>0</i>	
17-				<i>1' / 1'</i>	<i>1118</i>		<i>0</i>	<i>0</i>	<i>0</i>	
18	<p><i>Encountered Refusal at 17'</i></p> <p><i>Set 15' of screen and 3' of riser with sand filter and bentonite surface seal</i></p> <p><i>Submit Sample B-11-11ft. to laboratory for VOC analysis.</i></p>									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-00c		Boring Number B-12	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 19.5'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	19.5'	0	5	—
Drilling Company Petro-Probe			Order (s) Tom Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liner		
Date 7/15/99		To —		Field Observer (s) John Hesemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff to very stiff, trace plasticity, dry to damp, light gray (10YR-7½) with rootlets and FeO staining	CL		4' /4'	1258		0	0	0	
2					1318		0	0	0	
3										
4										
5	Clayey-silt, medium stiff, medium plasticity, damp, light brownish-gray (2.5YR-6½) with FeO and MnO ₂ staining	MH		4' /4'	1322					
6							0	0	0	
7										
8										
9	very heavily FeO stained with some rock fragments.			35' /4'	1326		0	0	0	
10							0	0	0	
11										
12										
13				4' /4'	1332		0	0	0	
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG							Boring Number B-12			
Project Number 91-319-4-006							Page 2 of 2			
							Date 7/15/99			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15	becomes heavily FeO stained						0	0	0	
16							45e/15': 0			
17	Very heavily FeO stained	M4			1340		0	0	0	
18							0	0	0	
19							45e/19': 0			
20	Encountered refusal at 19.5'						0	0	0	
	Set 18' of screen and 3' of riser with sand filter and bentonite surface seal.									
	Submit sample B-12-15 ft. to laboratory for VOC analysis									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4-006		Boring Number B-13	
Ground Elevation		Location Overland, MO		Page 1 of 2	
Air Monitoring Equipment PID				Total Footage 18'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage	No. Of Samples	No. Of Core Boxes
Push-Probe	2"	18'	0	5	—
Drilling Company Petro-Probe			Driller (s) Tom M Brucker		
Drilling Rig Truck-mounted Geo-Probe			Type of Sampler 2" sampler with acetate liner		
Date 7/15/99		To —		Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	Silty-clay, stiff, non-plastic, dry, gravelly fill material with rootlets	CL			1412		0	0	0	
2	Silty-clay, stiff, non-plastic, damp to dry, strong brown (7.5YR-5/8) with FeO staining	CL		2 1/4'			0	0	0	
3							Hse3:0			
4							0	0	0	
5					1418		—	—		
6	becomes damp and medium stiff			0			—	—	—	
7							—	—	—	
8							—	—	—	
9							—	—	—	
10					1422		0	0	0	
11				4 1/4'			0	0	0	
12							Hse11:0	0	0	0
13				3 1/4'	1435		0	0	0	
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name EGG							Boring Number B-13			
Project Number 91-319-4-006							Page 2 of 2			
							Date 7/15/99			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15		CL					0	0	0	
16	Clayey silt, med. stiff, med. plasticity, damp, light brownish-gray (2.5 PR - 6/3), with FeC staining	MH		2' 2'	1440		0	0	0	
17							HS@15': 0			
18	Encountered refusal at 18'						0	0	0	
19	<p>Set 15' of screen and 3' of riser with sand filter and bentonite surface seal.</p> <p>Submit Sample B-13-15ft. to laboratory for VOC and analysis.</p>									

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log

Project Name EGG		Project Number 91-319-4006	Boring Number B-14
Ground Elevation		Location Overland, MO	Page 1 of 2
Air Monitoring Equipment PID		Total Footage 19'	
Drilling Type	Hole Size	Overburden Footage	Bedrock Footage
Push Probe	2"	19'	0
Drilling Company Petro-Probe		Driller (s) Tom Brucker	
Drilling Rig Truck-mounted Geo-Probe		Type of Sampler 2" sampler with acetate liner	
Date 7/15/99	To -	Field Observer (s) John Heseemann	

Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
1	silty-clay, stiff, non-plastic, dry to damp, brown (10YR-5/3) with FeO staining	CL		4' 4'	1526		0	0	0	
2							0	0	0	
3							Hse 3':			
4							0	0	0	
5	Clayey-silt, med. stiff, med. plasticity, damp to moist, light brownish-gray (2.5YR-6/2)	MH		4' 4'	1532		0	0	0	
6							0	0	0	
7							Hse 7':			
8							0	0	0	
9				3' 4'	1538		0	0	0	
10							0	0	0	
11							Hse 11':			
12							0	0	0	
13	becomes soft			4' 4'	1545		0	0	0	
14										

BZ=Breathing Zone BH=Bore Hole S=Sample

Drilling Log Continuation

Project Name <i>EGG</i>							Boring Number <i>B-14</i>			
Project Number <i>91-319-4-006</i>							Page <i>2</i> of <i>2</i>			
							Date <i>7/15/99</i>			
Depth (feet)	Description	Class	Blow Count	Recov.	Run/Time	Sample Desig.	PID (ppm)			Remarks/ Water Levels
							BZ	BH	S	
15	becomes dry to damp and very stiff	<i>MH</i>					0	0	0	
16							<i>Use 15':</i>			
17	becomes soft and moist				<i>3'</i>	<i>1:50</i>	0	0	0	
18	becomes stiff, dry to damp				<i>3'</i>		0	0	0	
19							0	0	0	
20	Refusal encountered at 19 ft. Set 18' of screen and 3' of riser with sand filter and bentonite surface seal Submit - sample B-14 - 7 ft. to laboratory for VOC analysis.									

BZ=Breathing Zone BH=Bore Hole S=Sample

APPENDIX B
Laboratory Analytical Reports

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

August 6, 1999

Matt Ballance
Burns & McDonnell Waste Consultants, Inc.
17 Cassens Court
Fenton, MO 63026

RE: ATAS #27198.01-#27198.06
#91-319-4-006 - EGG

Dear Mr. Ballance:

Enclosed are the analytical reports for the samples received in our laboratory on July 19, 1999.

If, in your review, you should have any questions or require additional information, please call me at (314) 434-4570.

Thank you for choosing ATAS for your analytical needs.

Sincerely,



Ruseal Brewer
Project Manager

Enclosures

RB/jp

ATAS

"Professional Commitment"

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719801HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27198.01
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-1 GW-1

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	22 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 97 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 104 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719801HV (713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27198.02
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-3 GW-3

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	21 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND
SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%)		100 %
SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%)		110 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719801HV(713)

DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27198.03
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-6 GW-6

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	9 B
1,1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 96 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 108 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2719801HV(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : WATER
 ATAS # : 27198.04
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-7 GW-7

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	9 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 101 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 104 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2719801HV(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : WATER
 ATAS # : 27198.05
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-8 GW-8

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	8 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	2
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND
SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%)		91 %
SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%)		73 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719801HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27198.06
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : TB

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	9 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 99 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 95 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719801HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : METHOD BLANK
 DATE SUBMITTED: 07-19-99
 DATE ANALYZED : 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	1
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND
SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE	(72-119%)	106 %
SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE	(71-123%)	119 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: WATER
 DATE ANALYZED: 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY

REPORT DATE: 08-06-99

LABORATORY CONTROL SPIKE / LABORATORY CONTROL SPIKE DUPLICATE

COMPOUND	LCS PERCENT RECOVERY	LCSD PERCENT RECOVERY	RELATIVE PERCENT DIFFERENCE
CHLOROMETHANE	109	108	<1
VINYL CHLORIDE	116	116	<1
BROMOMETHANE	106	109	5
CHLOROETHANE	116	116	<1
triCl, Fl-METHANE	118	118	<1
1,1-DICHLOROETHENE	108	108	<1
METHYLENE CHLORIDE	91	88	<1
t-1,2-DICHLOROETHENE	112	108	<1
1,1-DICHLOROETHANE	111	108	<1
1,2-DICHLOROETHENE	112	108	<1
CHLOROFORM	111	105	5
1,1,1-TRICHLOROETHANE	111	108	<1
CARBON TETRACHLORIDE	114	110	4
1,2-DICHLOROETHANE	118	114	4
TRICHLOROETHENE	108	107	5
1,2-DICHLOROPROPANE	112	108	<1
Br, diCl METHANE	112	108	<1
2-CLETHYL VINYL ETHER	118	114	4
c-1,3-diCl PROPENE	120	114	4
t-1,3-DICHLOROPROPENE	121	117	4
1,1,2-TRICHLOROETHANE	114	112	4
TETRACHLOROETHENE	109	100	<1
diBr, Cl METHANE	112	112	<1
CHLOROBENZENE	111	110	<1
BROMOFORM	108	111	<1
1,1,2,2-TETRACHLOROETHANE	122	122	<1
1,3-DICHLOROBENZENE	110	108	<1
1,4-DICHLOROBENZENE	109	108	<1
1,2-DICHLOROBENZENE	112	109	<1

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
 17 Cassens Court
 St. Louis, Missouri 63026
 Phone: (314) 305-0077 Fax: (314) 326-8295

Laboratory ATAS
 Address 875 Fee Fee Rd.
 City/State/Zip Maryland Hts., MO 63043
 Telephone (314) 434-4570

Document Control No:

Lab. Reference No. or
 Episode No.:

Attention: Matt Ballance

Project Number: 91-319-4-006 Project Name: ELG

Site, Group, or SWMU Name:

Sample Type

Matrix

Sample Number

Sample Location

Material Sampled

Sample Collected

Liquid

Solid

Gas

Composite

Grab

Parcel Number

Analysis
VOCs - EPA
 Method 8010

WB
 7-20-99
 BA

Quantity
 (sq. ft. or linear)

Sample Point	Sample Designator	Sample Location	Material Sampled	Sample Collected		Liquid	Solid	Gas	Composite	Grab	Parcel Number	Analysis	Quantity
				Date	Time								
1	GW-1		Groundwater	7/14/99	1110	X				X	2	X	27198.61
B-3	GW-3				1230								02
B-6	GW-6				1245								03
B-7	GW-7				1310								04
B-8	GW-8				1320								05
B-15	GW-15				1330					X			
TB						X							06

Sampler (signature): [Signature]

Special Instructions:

5.7°

Sampler (signature):

Received By: [Signature]

Relinquished By: [Signature]
 1. (signature):

Date/Time

Relinquished By: [Signature]
 (signature):

Date/Time
7-14-99 1530

Condition of Shipping Container:
 Good Fair Poor

Ice Present in Container:
 Yes No

Relinquished By:
 2. (signature):

Date/Time

Relinquished By:
 (signature):

Date/Time

Comments:

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

August 6, 1999

Matt Ballance
Burns & McDonnell Waste Consultants, Inc.
17 Cassens Court
Fenton, MO 63026

RE: ATAS #27199.01-#27199.08
#91-319-4-006 - EGG

Dear Mr. Ballance:

Enclosed are the analytical reports for the samples received in our laboratory on July 20, 1999.

If, in your review, you should have any questions or require additional information, please call me at (314) 434-4570.

Thank you for choosing ATAS for your analytical needs.

Sincerely,



Ruseal Brewer
Project Manager

Enclosures

RB/jp

ATAS

"Professional Commitment"

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2719901HV(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : WATER
 ATAS # : 27199.01
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-5 GW-5

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl,Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	8 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br,diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr,Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 101 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 101 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.02
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-9 GW-9

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	9 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 101 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 89 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.03
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-10 GW-10

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl,Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	9 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	9
1,2-DICHLOROPROPANE	1	ND
Br,diCl METHANE	1	ND
2-CLETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr,Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLORO BENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLORO BENZENE	1	ND
1,4-DICHLORO BENZENE	1	ND
1,2-DICHLORO BENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 102 %
 SURROGATE RECOVERY: 2-BROMOCHLORO BENZENE (71-123%) 93 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.04
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-11 GW-11

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	9 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	1
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	23
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	10
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 96 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 88 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.05
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-12 GW-12

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl,Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	8 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	1
1,2-DICHLOROPROPANE	1	ND
Br,diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	1
diBr,Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 92 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 88 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.06
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-13 GW-13

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl,Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	8 B
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br,diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr,Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND
SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%)		95 %
SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%)		88 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN

B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.07
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-14 GW-14

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl,Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	ND
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br,diCl METHANE	1	ND
2-CEETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr,Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 86 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 84 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : 27199.08
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-31-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-15 GW-15

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	ND
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CLETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND
SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%)		92 %
SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%)		88 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2719901HV(713)
 DATE : 08-06-99

SAMPLE MATRIX : WATER
 ATAS # : METHOD BLANK
 DATE SUBMITTED: 07-20-99
 DATE ANALYZED : 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	1
1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
c-1,2-DICHLOROETHENE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-CHLOROETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
1,2-DIBROMOETHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
1,1,2,2-TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 106 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 119 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: WATER
 DATE ANALYZED: 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY

REPORT DATE: 08-06-99

LABORATORY CONTROL SPIKE / LABORATORY CONTROL SPIKE DUPLICATE

COMPOUND	LCS PERCENT RECOVERY	LCSD PERCENT RECOVERY	RELATIVE PERCENT DIFFERENCE
CHLOROMETHANE	109	108	<1
VINYL CHLORIDE	116	116	<1
BROMOMETHANE	106	109	5
CHLOROETHANE	116	116	<1
triCl, Fl-METHANE	118	118	<1
1,1-DICHLOROETHENE	108	108	<1
METHYLENE CHLORIDE	91	88	<1
t-1,2-DICHLOROETHENE	112	108	<1
1,1-DICHLOROETHANE	111	108	<1
1,2-DICHLOROETHENE	112	108	<1
CHLOROFORM	111	105	5
1,1,1-TRICHLOROETHANE	111	108	<1
CARBON TETRACHLORIDE	114	110	4
1,2-DICHLOROETHANE	118	114	4
TRICHLOROETHENE	108	107	5
1,2-DICHLOROPROPANE	112	108	<1
Br,diCl METHANE	112	108	<1
2-CEETHYL VINYL ETHER	118	114	4
c-1,3-diCl PROPENE	120	114	4
t-1,3-DICHLOROPROPENE	121	117	4
1,1,2-TRICHLOROETHANE	114	112	4
TETRACHLOROETHENE	109	100	<1
diBr,Cl METHANE	112	112	<1
CHLOROENZENE	111	110	<1
BROMOFORM	108	111	<1
1,1,2,2-TETRACHLOROETHANE	122	122	<1
1,3-DICHLOROENZENE	110	108	<1
1,4-DICHLOROENZENE	109	108	<1
1,2-DICHLOROENZENE	112	109	<1

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
 17 Cassens Court
 St. Louis, Missouri 63026
 Phone: (314) 305-0077 Fax: (314) 326-8295
 Attention: *Matt Ballance*

Laboratory *ATAS*
 Address *875 Fee Fee Rd.*
 City/State/Zip *Maryland Hts., MO 63043*
 Telephone *(314) 434-4570*

Document Control No:
 Lab. Reference No. or Episode No.:

Project Number: *91-319-4006* Project Name: *EGG*

Site, Group, or SWMU Name:

Sample Type
 Matrix
 Composite
 Grab
 Parcel Number
 Analysis *VOCs - EPA Method 8010*
 LM
 7-20-99
 SA
 Quantity (sq. ft. or linear)

Sample Number		Sample Location	Material Sampled	Sample Collected		Liquid	Solid	Gas	Composite	Grab	Parcel Number	Analysis	Quantity (sq. ft. or linear)
Sample Point	Sample Designator			Date	Time								
	<i>GW-5</i>		<i>Groundwater</i>	<i>7/20/99</i>	<i>0840</i>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<i>2</i>	<i>VOCs - EPA Method 8010</i>	<i>2799.01</i>
<i>D-9</i>	<i>GW-9</i>				<i>0900</i>								<i>02</i>
<i>B-10</i>	<i>GW-10</i>				<i>0850</i>								<i>03</i>
<i>B-11</i>	<i>GW-11</i>				<i>0910</i>								<i>04</i>
<i>B-12</i>	<i>GW-12</i>				<i>0915</i>								<i>05</i>
<i>B-13</i>	<i>GW-13</i>				<i>0935</i>								<i>06</i>
<i>B-14</i>	<i>GW-14</i>				<i>0940</i>								<i>07</i>
<i>B-15</i>	<i>GW-15</i>				<i>1000</i>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<i>2</i>	<i>VOCs - EPA Method 8010</i>	<i>08</i>

Sampler (signature): *[Signature]*

Special Instructions:

Sampler (signature): *[Signature]* Received By: *[Signature]* *B.90*

Relinquished By: *[Signature]* (signature): *1050* Date/Time: *7-20-99 1050* Relinquished By: *[Signature]* (signature): *[Signature]* Date/Time: *7-20-99 1050*

Condition of Shipping Container: Good Fair Poor Ice Present in Container: Yes No

Relinquished By: *[Signature]* (signature): *[Signature]* Date/Time: *[Signature]*

Comments:

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

August 6, 1999

Matt Ballance
Burns & McDonnell Waste Consultants, Inc.
17 Cassens Court
Fenton, MO 63026

RE: ATAS #27182.01-#27182.15
#91-319-4-006 - EGG

Dear Mr. Ballance:

Enclosed are the analytical reports for the samples received in our laboratory on July 16, 1999.

If, in your review, you should have any questions or require additional information, please call me at (314) 434-4570.

Thank you for choosing ATAS for your analytical needs.

Sincerely,


Ruseal Brewer
Project Manager

Enclosures .

RB/jp

ATAS

"Professional Commitment"

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-23-99
 ATAS # : 27182.01 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-1 S-1
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	10	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
METHYLENE CHLORIDE	5	18	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 108% BROMOFLUOROBENZENE(74-121) 118%
 1,2-DICHLOROETHANE-D4(70-121) 84%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
 RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
 ATAS # : 27182.02 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-2 S-2
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
METHYLENE CHLORIDE	5	19 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 95% BROMOFLUOROBENZENE (74-121) 92%
 1,2-DICHLOROETHANE-D4 (70-121) 91%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
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 VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
 17 CASSENS COURT
 FENTON, MO 63026
 ATTN: MATT BALLANCE

REPORT: 2718201VO (713)

DATE : 08-06-99

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-23-99
 ATAS # : 27182.03 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-3 S-3
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	52	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
METHYLENE CHLORIDE	5	16	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 115% BROMOFLUOROBENZENE (74-121) 118%
 1,2-DICHLOROETHANE-d4 (70-121) 85%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
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 VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO (713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-23-99
 ATAS # : 27182.04 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-4 S-4
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	30	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
METHYLENE CHLORIDE	5	15	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 108% BROMOFLUOROBENZENE(74-121) 93%
 1,2-DICHLOROETHANE-D4(70-121) 88%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
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CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-23-99
 ATAS # : 27182.05 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-5 S-5
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
METHYLENE CHLORIDE	5	.13	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 105% BROMOFLUOROBENZENE (74-121) 109%
 1,2-DICHLOROETHANE-D4 (70-121) 83%

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CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-23-99
 ATAS # : 27182.06 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-6 S-6
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	12	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 109% BROMOFLUOROBENZENE(74-121) 114%
 1,2-DICHLOROETHANE-D4(70-121) 83%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
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CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
 ATAS # : 27182.07 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-7 S-7
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
VINYLENE CHLORIDE	5	21 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 101% BROMOFLUOROBENZENE(74-121) 100%
 1,2-DICHLOROETHANE-D4(70-121) 95%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
 RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO (713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
 ATAS # : 27182.08 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-8 S-8
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	FETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
METHYLENE CHLORIDE	5	38 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 108% BROMOFLUOROBENZENE (74-121) 101%
 1,2-DICHLOROETHANE-d4 (70-121) 100%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
 RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
 ATAS # : 27182.09 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-9 S-9
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	44 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 106% BROMOFLUOROBENZENE(74-121) 96%
 1,2-DICHLOROETHANE-D4(70-121) 126% *

* = VALUES OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
 RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-28-99
 ATAS # : 27182.10 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-10 S-10
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	14	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	28 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 101% BROMOFLUOROBENZENE(74-121) 98%
 1,2-DICHLOROETHANE-D4(70-121) 92%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
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 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-28-99
 ATAS # : 27182.11 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-11 S-11
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
VINYLENE CHLORIDE	5	24 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 100% BROMOFLUOROBENZENE(74-121) 104%
 1,2-DICHLOROETHANE-D4(70-121) 98%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
 RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-28-99
 ATAS # : 27182.12 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-12 S-12
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	20 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 100% BROMOFLUOROBENZENE(74-121) 103%
 1,2-DICHLOROETHANE-D4(70-121) 96%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
 RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
 ATAS # : 27182.13 PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : B-13 S-13
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	21 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 98% BROMOFLUROBENZENE (74-121) 98%
 1,2-DICHLOROETHANE-L-D4 (70-121) 77%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
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 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
17 CASSENS COURT
FENTON, MO 63026
ATTN: MATT BALLANCE

REPORT: 2718201VO (713)
DATE : 08-06-99

SAMPLE MATRIX : SOIL
ATAS # : 27182.14
DATE SUBMITTED: 07-16-99
METHOD REF. : SW846-8260B, EPA METHODOLOGY

DATE ANALYZED: 07-27-99
PROJECT # : 91-319-4-006 - EGG
SAMPLE ID : B-14 S-14

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	12 B	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 95% BROMOFLUOROBENZENE (74-121) 96%
1,2-DICHLOROETHANE-D4 (70-121) 81%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
17 CASSENS COURT
FENTON, MO 63026
ATTN: MATT BALLANCE

REPORT: 2718201VO(713)
DATE : 08-06-99

SAMPLE MATRIX : SOIL
ATAS # : METHOD BLANK
DATE SUBMITTED: 07-16-99
METHOD REF. : SW846-8260B, EPA METHODOLOGY

DATE ANALYZED: 07-23-99
PROJECT # : 91-319-4-006 - EGG
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>		<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>		<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND		TOLUENE	5	ND	
XYLENE (TOTAL)	5	ND		trans-1,3-DICHLOROPROPENE	5	ND	
DICHLORODIFLUOROMETHANE	10	ND		1,1,2-TRICHLOROETHANE	5	ND	
CHLOROMETHANE	10	ND		TETRACHLOROETHENE	5	ND	
VINYL CHLORIDE	10	ND		1,3-DICHLOROPROPANE	5	ND	
BROMOMETHANE	10	ND		2-HEXANONE	10	ND	
CHLOROETHANE	10	ND		DIBROMOCHLOROMETHANE	5	ND	
TRICHLOROFLUOROMETHANE	10	ND		1,2-DIBROMOETHANE	5	ND	
1,1-DICHLOROETHENE	5	ND		CHLOROENZENE	5	ND	
ACETONE	10	ND		1,1,1,2-TETRACHLOROETHANE	5	ND	
IODOMETHANE	10	ND		ETHYLBENZENE	5	ND	
CARBON DISULFIDE	5	ND		STYRENE	5	ND	
ETHYLENE CHLORIDE	5	ND		BROMOFORM	5	ND	
trans-1,2-DICHLOROETHENE	5	ND		ISOPROPYLBENZENE	5	ND	
METHYL TERT-BUTYL ETHER	10	ND		1,1,2,2-TETRACHLOROETHANE	5	ND	
1,1-DICHLOROETHANE	5	ND		BROMOBENZENE	5	ND	
VINYL ACETATE	10	ND		1,2,3-TRICHLOROPROPANE	5	ND	
2,2-DICHLOROPROPANE	5	ND		n-PROPYLBENZENE	5	ND	
cis-1,2-DICHLOROETHENE	5	ND		2-CHLOROTOLUENE	5	ND	
2-BUTANONE	10	ND		1,3,5-TRIMETHYLBENZENE	5	ND	
BROMOCHLOROMETHANE	5	ND		4-CHLOROTOLUENE	5	ND	
CHLOROFORM	5	ND		TERT-BUTYLBENZENE	5	ND	
1,1,1-TRICHLOROETHANE	5	ND		1,2,4-TRIMETHYLBENZENE	5	ND	
CARBON TETRACHLORIDE	5	ND		sec-BUTYLBENZENE	5	ND	
1,1-DICHLOROPROPENE	5	ND		1,3-DICHLOROENZENE	5	ND	
BENZENE	5	ND		p-ISOPROPYLTOLUENE	5	ND	
1,2-DICHLOROETHANE	5	ND		1,4-DICHLOROENZENE	5	ND	
TRICHLOROETHENE	5	ND		n-BUTYLBENZENE	5	ND	
1,2-DICHLOROPROPANE	5	ND		1,2-DICHLOROENZENE	5	ND	
DIBROMOMETHANE	5	ND		1,2-DIBROMO-3-CHLOROPROPANE	5	ND	
BROMODICHLOROMETHANE	5	ND		1,2,4-TRICHLOROENZENE	5	ND	
cis-1,3-DICHLOROPROPENE	5	ND		HEXACHLOROBUTADIENE	5	ND	
4-METHYL-2-PENTANONE	10	ND		NAPHTHALENE	5	ND	
1,2,3-TRICHLOROENZENE	5	ND					

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 96% BROMOFLUROBENZENE(74-121) 92%
1,2-DICHLOROETHANE-D4(70-121) 86%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : SOIL
 DATE ANALYZED : 07-23-99
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 08-06-99

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	27182.01	27182.01	RPD	QC	ADVISORY
	MS % REC.	MSD % REC.		RPD	LIMITS
1,1-DICHLOROETHENE	43	49	13	28	43-151
DICHLOROETHENE	70	70	0	7	45-137
BENZENE	79	79	0	12	57-143
TOLUENE	117	109	7	16	41-147
CHLOROBENZENE	95	92	3	7	58-134

* = VALUES OUTSIDE OF ADVISORY LIMITS

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VO(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
 ATAS # : METHOD BLANK PROJECT # : 91-319-4-006 - EGG
 DATE SUBMITTED: 07-16-99 SAMPLE ID : METHOD BLANK
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	10	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,3,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 91% BROMOFLUOROBENZENE(74-121) 88%
 1,2-DICHLOROETHANE-D4(70-121) 83%

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 ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : SOIL
DATE ANALYZED : 07-27-99
METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 08-06-99

LABORATORY CONTROL SAMPLE RECOVERY

<u>COMPOUND</u>	<u>LCS % REC.</u>
1,1-DICHLOROETHENE	110
TRICHLOROETHENE	100
BENZENE	98
TOLUENE	88
CHLOROBENZENE	96

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
17 CASSENS COURT
FENTON, MO 63026
ATTN: MATT BALLANCE

REPORT: 2718201VO(713)

DATE : 08-06-99

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-27-99
ATAS # : METHOD BLANK PROJECT # : 91-319-4-006 - EGG
DATE SUBMITTED: 07-16-99 SAMPLE ID : METHOD BLANK
METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>	<u>VOLATILES</u>	<u>R.L.</u>	<u>RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	14	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROBENZENE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROBENZENE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROBENZENE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8 (81-117) 101% BROMOFLUOROBENZENE (74-121) 106%

1,2-DICHLOROETHANE-D4 (70-121) 102%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.
ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : SOIL
DATE ANALYZED : 07-27-99
METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 08-06-99

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

<u>COMPOUND</u>	<u>LCS % REC.</u>	<u>LCSD % REC.</u>	<u>RPD</u>	<u>QC RPD</u>	<u>ADVISORY LIMITS</u>
1,1-DICHLOROETHENE	80	84	5	22	64-128
TRICHLOROETHENE	100	104	4	24	69-115
BENZENE	104	108	4	21	77-118
TOLUENE	102	100	2	21	77-118
CHLOROBENZENE	100	102	2	21	81-109

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC.
17 CASSENS COURT
FENTON, MO 63026
ATTN: MATT BALLANCE

REPORT: 2718201VO(713)

DATE : 08-06-99

SAMPLE MATRIX : SOIL DATE ANALYZED: 07-28-99
ATAS # : METHOD BLANK PROJECT # : 91-319-4-006 - EGG
DATE SUBMITTED: 07-16-99 SAMPLE ID : METHOD BLANK
METHOD REF. : SW846-8260B, EPA METHODOLOGY

RESULTS REPORTED IN ug/Kg OR Parts Per Billion (PPB)

<u>VOLATILES</u>		<u>R.L. RESULTS</u>	<u>VOLATILES</u>		<u>R.L. RESULTS</u>
TOTAL-1,2-DICHLOROETHENE	5	ND	TOLUENE	5	ND
XYLENE (TOTAL)	5	ND	trans-1,3-DICHLOROPROPENE	5	ND
DICHLORODIFLUOROMETHANE	10	ND	1,1,2-TRICHLOROETHANE	5	ND
CHLOROMETHANE	10	ND	TETRACHLOROETHENE	5	ND
VINYL CHLORIDE	10	ND	1,3-DICHLOROPROPANE	5	ND
BROMOMETHANE	10	ND	2-HEXANONE	10	ND
CHLOROETHANE	10	ND	DIBROMOCHLOROMETHANE	5	ND
TRICHLOROFLUOROMETHANE	10	ND	1,2-DIBROMOETHANE	5	ND
1,1-DICHLOROETHENE	5	ND	CHLOROBENZENE	5	ND
ACETONE	10	ND	1,1,1,2-TETRACHLOROETHANE	5	ND
IODOMETHANE	10	ND	ETHYLBENZENE	5	ND
CARBON DISULFIDE	5	ND	STYRENE	5	ND
ETHYLENE CHLORIDE	5	17	BROMOFORM	5	ND
trans-1,2-DICHLOROETHENE	5	ND	ISOPROPYLBENZENE	5	ND
METHYL TERT-BUTYL ETHER	10	ND	1,1,2,2-TETRACHLOROETHANE	5	ND
1,1-DICHLOROETHANE	5	ND	BROMOBENZENE	5	ND
VINYL ACETATE	10	ND	1,2,3-TRICHLOROPROPANE	5	ND
2,2-DICHLOROPROPANE	5	ND	n-PROPYLBENZENE	5	ND
cis-1,2-DICHLOROETHENE	5	ND	2-CHLOROTOLUENE	5	ND
2-BUTANONE	10	ND	1,3,5-TRIMETHYLBENZENE	5	ND
BROMOCHLOROMETHANE	5	ND	4-CHLOROTOLUENE	5	ND
CHLOROFORM	5	ND	TERT-BUTYLBENZENE	5	ND
1,1,1-TRICHLOROETHANE	5	ND	1,2,4-TRIMETHYLBENZENE	5	ND
CARBON TETRACHLORIDE	5	ND	sec-BUTYLBENZENE	5	ND
1,1-DICHLOROPROPENE	5	ND	1,3-DICHLOROETHANE	5	ND
BENZENE	5	ND	p-ISOPROPYLTOLUENE	5	ND
1,2-DICHLOROETHANE	5	ND	1,4-DICHLOROETHANE	5	ND
TRICHLOROETHENE	5	ND	n-BUTYLBENZENE	5	ND
1,2-DICHLOROPROPANE	5	ND	1,2-DICHLOROETHANE	5	ND
DIBROMOMETHANE	5	ND	1,2-DIBROMO-3-CHLOROPROPANE	5	ND
BROMODICHLOROMETHANE	5	ND	1,2,4-TRICHLOROBENZENE	5	ND
cis-1,3-DICHLOROPROPENE	5	ND	HEXACHLOROBUTADIENE	5	ND
4-METHYL-2-PENTANONE	10	ND	NAPHTHALENE	5	ND
1,2,3-TRICHLOROBENZENE	5	ND			

QA/QC SURROGATE RECOVERIES

TOLUENE-d8(81-117) 98% BROMOFLUOROBENZENE(74-121) 100%
1,2-DICHLOROETHANE-D4(70-121) 90%

B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.

RL = REPORTING LIMIT; DEFINED AS THE PRACTICAL QUANTITATION LIMIT PLUS ANY DILUTION, POSITIVE VALUES BELOW THIS LIMIT WERE NOT REPORTED.

ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : SOIL
 DATE ANALYZED : 07-28-99
 METHOD REF. : SW846-8260B, EPA METHODOLOGY

REPORT DATE: 08-06-99

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	27182.10	27182.10	RPD	QC	ADVISORY
	MS % REC.	MSD % REC.		RPD	LIMITS
1,1-DICHLOROETHENE	75	74	1	28	43-151
DICHLOROETHENE	99	102	3	7	45-137
BENZENE	100	100	0	12	57-143
TOLUENE	95	95	0	16	41-147
CHLOROBENZENE	97	99	2	7	58-134

* = VALUES OUTSIDE OF ADVISORY LIMITS

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VH(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : WATER
 ATAS # : 27182.15
 DATE SUBMITTED: 07-16-99
 DATE ANALYZED : 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : B-4 GW-4

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	5	ND
VINYL CHLORIDE	5	ND
BROMOMETHANE	5	ND
CHLOROETHANE	5	ND
triCl, Fl-METHANE	5	ND
1,1-DICHLOROETHENE	5	ND
METHYLENE CHLORIDE	5	6 B
t-1,2-DICHLOROETHENE	5	ND
1,1-DICHLOROETHANE	5	ND
CHLOROFORM	5	ND
1,1,1-TRICHLOROETHANE	5	ND
CARBON TETRACHLORIDE	5	ND
1,2-DICHLOROETHANE	5	ND
TRICHLOROETHENE	5	130
1,2-DICHLOROPROPANE	5	ND
Br, diCl METHANE	5	ND
2-CHLOROETHYL VINYL ETHER	5	ND
c-1,3-diCl PROPENE	5	ND
t-1,3-DICHLOROPROPENE	5	ND
1,1,2-TRICHLOROETHANE	5	ND
TETRACHLOROETHENE	5	80
diBr, Cl METHANE	5	ND
CHLOROBENZENE	5	ND
BROMOFORM	5	ND
TETRACHLOROETHANE	5	ND
1,3-DICHLOROBENZENE	5	ND
1,4-DICHLOROBENZENE	5	ND
1,2-DICHLOROBENZENE	5	ND

SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%) 100 %
 SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%) 114 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

CLIENT: BURNS & McDONNELL WASTE CONSULTANTS, INC. REPORT: 2718201VH(713)
 17 CASSENS COURT
 FENTON, MO 63026 DATE : 08-06-99
 ATTN: MATT BALLANCE

SAMPLE MATRIX : WATER
 ATAS # : METHOD BLANK
 DATE SUBMITTED: 07-16-99
 DATE ANALYZED : 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY
 PROJECT : #91-319-4-006 - EGG
 SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION (PPB)

COMPOUND	REPORTING LIMIT (ug/L)	AMOUNT FOUND (ug/L)
CHLOROMETHANE	1	ND
VINYL CHLORIDE	1	ND
BROMOMETHANE	1	ND
CHLOROETHANE	1	ND
triCl, Fl-METHANE	1	ND
1,1-DICHLOROETHENE	1	ND
METHYLENE CHLORIDE	1	1
t-1,2-DICHLOROETHENE	1	ND
1,1-DICHLOROETHANE	1	ND
CHLOROFORM	1	ND
1,1,1-TRICHLOROETHANE	1	ND
CARBON TETRACHLORIDE	1	ND
1,2-DICHLOROETHANE	1	ND
TRICHLOROETHENE	1	ND
1,2-DICHLOROPROPANE	1	ND
Br, diCl METHANE	1	ND
2-ETHYL VINYL ETHER	1	ND
c-1,3-diCl PROPENE	1	ND
t-1,3-DICHLOROPROPENE	1	ND
1,1,2-TRICHLOROETHANE	1	ND
TETRACHLOROETHENE	1	ND
diBr, Cl METHANE	1	ND
CHLOROBENZENE	1	ND
BROMOFORM	1	ND
TETRACHLOROETHANE	1	ND
1,3-DICHLOROBENZENE	1	ND
1,4-DICHLOROBENZENE	1	ND
1,2-DICHLOROBENZENE	1	ND
SURROGATE RECOVERY: 2-BROMO-1-CHLOROPROPANE (72-119%)		106 %
SURROGATE RECOVERY: 2-BROMOCHLOROBENZENE (71-123%)		119 %

* = OUTSIDE OF QC LIMITS ON BOTH ORIGINAL AND RERUN
 B = ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.
 ND = NOT DETECTED ABOVE REPORTING LIMIT

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX: WATER
 DATE ANALYZED: 07-30-99
 METHOD REF. : SW846-8010, EPA METHODOLOGY

REPORT DATE: 08-06-99

LABORATORY CONTROL SPIKE / LABORATORY CONTROL SPIKE DUPLICATE

COMPOUND	LCS PERCENT RECOVERY	LCSD PERCENT RECOVERY	RELATIVE PERCENT DIFFERENCE
CHLOROMETHANE	109	108	1
VINYL CHLORIDE	116	116	0
BROMOMETHANE	106	109	3
CHLOROETHANE	116	116	1
triCl, Fl-METHANE	118	118	0
1,1-DICHLOROETHENE	108	108	0
METHYLENE CHLORIDE	91	88	3
t-1,2-DICHLOROETHENE	112	108	3
1,1-DICHLOROETHANE	111	108	3
CHLOROFORM	111	105	6
1,1,1-TRICHLOROETHANE	111	108	3
CARBON TETRACHLORIDE	114	110	4
1,2-DICHLOROETHANE	118	114	3
TRICHLOROETHENE	108	107	1
1,2-DICHLOROPROPANE	112	108	4
Br, diCl METHANE	112	108	3
2-CLETHYL VINYL ETHER	118	114	4
c-1,3-DICHLOROPROPENE	120	114	4
t-1,3-diCl PROPENE	121	117	3
1,1,2-TRICHLOROETHANE	114	112	2
TETRACHLOROETHENE	109	110	1
diBr, Cl METHANE	112	112	1
CHLOROBENZENE	111	110	1
BROMOFORM	108	111	2
TETRACHLOROETHANE	122	122	0
1,3-DICHLOROBENZENE	110	108	1
1,4-DICHLOROBENZENE	109	108	0
1,2-DICHLOROBENZENE	112	109	2

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
 17 Cassens Court
 St. Louis, Missouri 63026
 Phone: (314) 305-0077 Fax: (314) 326-8295

Laboratory ATAS
 Address 875 Fee Fee Rd.
 City/State/Zip Maryland Hts., MD, 63043
 Telephone (314) 434-4570

Document Control No:

Lab. Reference No. or
 Episode No.:

Attention: Matt Ballance

Telephone (314) 434-4570

Project Number: 91-319-4-006 Project Name: EGG

Site, Group, or SWMU Name:

Sample Type

Sample Number		Sample Location	Material Sampled	Sample Collected		Matrix			Composite	Grab	Parcel Number	Analysis	VOCs EPA Method 8260	VOCs EPA Method 8100	SOD	Quantity (sq. ft. or linear)
Sample Point	Sample Designator			Date	Time	Liquid	Solid	Gas								
B-1	S-1	11 ft.	Soil	7/14/99	0930		X			1	X				27132.01	
B-2	S-2	5 ft.			0915		X								02	
B-3	S-3	3.5 ft.			1005		X								03	
B-4	S-4	3 ft.			1112		X								04	
B-5	S-5	11 ft.			1308		X								05	
B-6	S-6	3 ft.			1350		X								06	
B-7	S-7	15 ft.			1510		X								07	
B-8	S-8	7 ft.		7/15/99	0728		X								08	
B-9	S-9	3 ft.			0828		X								09	
B-10	S-10	11 ft.			1002		X								10	
B-11	S-11	11 ft.			1108		X								11	
B-12	S-12	15 ft.			1335		X								12	
B-13	S-13	15 ft.			1438		X								13	
B-14	S-14	7 ft.			1535		X								14	
B-4	GW-4		Water	7/16/99	1015	X			X				X		15	

Sampler (signature): [Signature]

Special Instructions:

1.9°C

Sampler (signature):

Relinquished By: [Signature]

Date/Time 7/16/99 1335

Relinquished By: [Signature]

Date/Time 7-16 1335

Condition of Shipping Container: Good Fair Poor

Ice Present in Container: Yes No

Relinquished By: [Signature]

Date/Time

Relinquished By: [Signature]

Date/Time

Comments:

September 11, 1998

Mr. R. Lance Livesay
Environmental Specialist
Hazardous Waste Program
Missouri Department of Natural Resource
P.O. Box 176
Jefferson City, MO 65102-0176

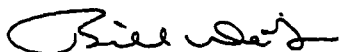
EG&G Missouri Metals Site
Offsite Investigation Data
91-319-4-006/EGGKTA

Dear Mr. Livesay:

Enclosed is a summary sheet with analytical results of the geoprobe soil sampling conducted near the Missouri Metals Site on August 13 and 14, 1998. Also attached for your information is a Site drawing showing approximate sampling locations.

Thank you for a copy of MDNR analytical results for soil sample SB-2. As we discussed, we look forward to receiving analytical data from the remaining five samples collected and analyzed by MDNR. Please call me at (816) 822-3317 if you have questions.

Sincerely



William A. Weis
Project Manager

cc: Jack Healy, EG&G
Bob Stone, EG&G

Post-it® Fax Note	7671	Date	# of pages ▶ 3
To	LANCE Livesay	From	
Co./Dept.		Co.	
Phone #		Phone #	
Fax #		Fax #	

Off-Site Soil Sampling Analytical Results EG&G/ Missouri Metals Site

Parameter	Units	Sampling Location-Depth						
		SB1-16'	SB2-10'	SB3-6'	SB4-12'	SB5-10'	SB6-22'	SB7-6'
Acetone	ug/kg	U (5.0)	U (5.0)	U (5.0)	27	U (5.0)	U (5.0)	U (5.0)
Methylene Chloride	ug/kg	17	8	9	9	10	11	7
Tetrachloroethene	ug/kg	U (5.0)	54	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)
Trichloroethene	ug/kg	U (5.0)	U (5.0)	67	U (5.0)	U (5.0)	U (5.0)	U (5.0)
Cis-1,2-Chloroethene	ug/kg	U (5.0)	7	6	12	U (5.0)	U (5.0)	U (5.0)
Total 1,2-Dichloroethene	ug/kg	U (5.0)	7	7	12	U (5.0)	U (5.0)	U (5.0)

Parameter	Units	Sampling Location-Depth						
		SB8-16'	SB9-12'	SB10-6'	SB11-8'	SB12-8'	SB13-6'	SB14-6'
Acetone	ug/kg	U (5.0)	U (5.0)	U (5.0)	13	U (5.0)	U (5.0)	69
Methylene Chloride	ug/kg	130	6	13	13	18	13 B	12
Tetrachloroethene	ug/kg	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)
Trichloroethene	ug/kg	1900	U (5.0)	U (5.0)	U (5.0)	16	U (5.0)	U (5.0)
Cis-1,2-Chloroethene	ug/kg	290	U (5.0)	U (5.0)	U (5.0)	27	6	U (5.0)
Total 1,2-Dichloroethene	ug/kg	290	U (5.0)	U (5.0)	U (5.0)	29	6	U (5.0)
1,4-Dichlorobenzene	ug/kg	120	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)
1,2-Dichlorobenzene	ug/kg	56	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)	U (5.0)

B - Parameter detected in laboratory blank sample, likely laboratory contaminant

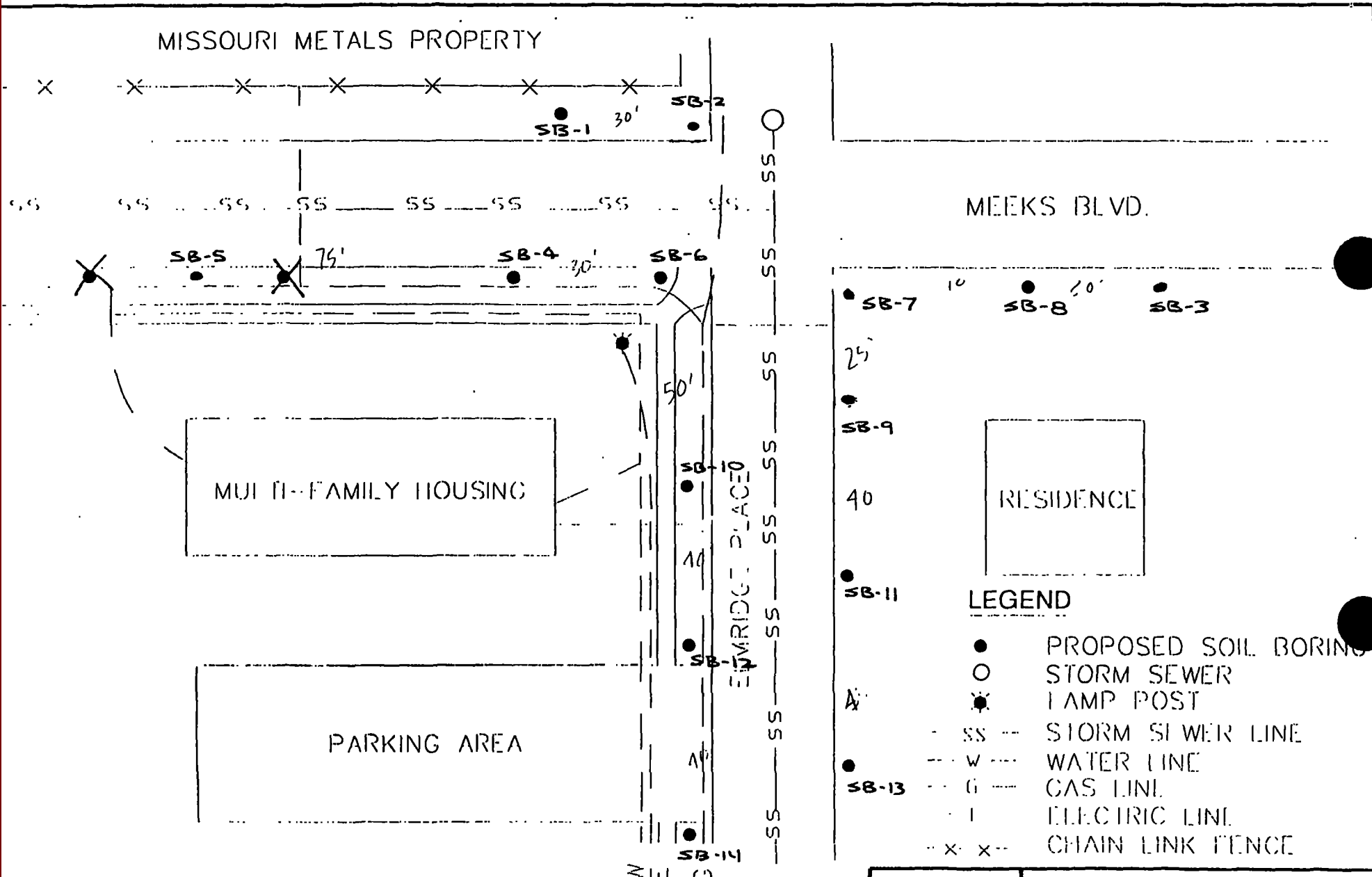
U - Undetected at the quantitation limit shown in parentheses

PID - Photoionization Detector

ug/kg - microgram per kilogram or parts per billion

nd - not detected

ppm - parts per million



**Burns
&
McDonnell
Waste
Consultants,
Inc.**

Figure 1
OFF-SITE INVESTIGATION
SOIL GAS SURVEY
EG&G KT AEROFAB
ST. LOUIS, MISSOURI

Summary of Analytical Results

Volatile Organic Compound (VOC) results from the off-site investigation indicate the presence of compounds potentially related to the EG&G/Missouri Metals Property at off-site locations. The suspected chemical released from the Missouri Metals Facility, tetrachloroethene (PCE), was detected in one sample (SB-2) located near the southern Site boundary. Potential degradation products of PCE, trichloroethene (TCE) and cis-1,2-dichloroethene (1,2-DCE), were also detected in off-site soils. The 1,2-DCE and TCE detections were primarily at sampling points along Meek Boulevard.

The highest levels of TCE detected in off-site soil, 1900 $\mu\text{g/l}$, was detected in a soil sample obtained from a depth of 16 feet from SB-8, which is located southeast of the Site along the south side of Meek Blvd. Low levels of TCE were also detected in soil samples from SB-12 (27 $\mu\text{g/l}$), SB-13 (6 $\mu\text{g/l}$), and SB-3 (67 $\mu\text{g/l}$). TCE was not reported in the other 10 soil samples analyzed by the laboratory.

Cis-1,2-dichloroethene was detected in SB-2 (7 $\mu\text{g/l}$), SB-3 (6 $\mu\text{g/l}$), SB-4 (12 $\mu\text{g/l}$), SB-8 (290 $\mu\text{g/l}$), SB-12 (27 $\mu\text{g/l}$), and SB-13 (6 $\mu\text{g/l}$).

Other VOCs detected in off-site soil samples were 1,4-dichlorobenzene, 1,2-dichlorobenzene, acetone and methylene chloride.

- **Methylene Chloride**

Methylene chloride is a common laboratory contaminant and was detected in each of the samples at similar levels. Methylene chloride was also detected in one laboratory method blank. Based on the data, methylene chloride detected in the soil samples is most likely related to laboratory contamination.

- **Acetone**

Acetone was detected in only 3 samples, SB-4, SB-11, and SB-14. Two of the detections were at sampling locations on Elmridge Place. PCE and degradation products of this chemical were not detected at these locations. Acetone is also identified by the USEPA as a common laboratory contaminant. However, acetone was not detected in any method blanks and the analytical laboratory, ATAS, reports acetone contamination is not a common problem at their facility. Based on the data and information obtained from the laboratory, the acetone detections are believed to likely reflect actual chemical levels in off-site soil.

Acetone was seldom detected at any Site sampling point, although low levels of acetone were reported in groundwater samples from GMW-2, GMW-7, GMW-8, and GMW-11 on individual occasions. Detections of acetone in samples from GMW-7, GMW-8, and GMW-11 were not supported by analysis of duplicate samples by a second laboratory and were assumed to represent laboratory contamination. Acetone has not been considered a Site-related contaminant based on historic data.

Based on the general absence of acetone in Missouri Metals Site samples and the

occurrence of this chemical primarily at locations where potential Site-related chemicals were not detected, the source of acetone along Elmridge Place appears unrelated to the Missouri Metals Site. Acetone is a common solvent with a relatively low toxicity. Acetone can be present in many household cleaning, cosmetic (nail polish remover), automotive, and paint removal products. Natural sources of acetone also exist. The landfill reportedly nearby could be a source of acetone.

- **1,4 Dichlorobenzene**

1,4 Dichlorobenzene has been used principally over the last 20 years as a space deodorant for toilets and refuse containers and as a fumigant. Historically 1,4-dichlorobenzene was detected in Site groundwater once at monitoring wells MW-5 and MW-8. However, detections in groundwater from Monitoring Well MW-8 were not confirmed by duplicate sample analyses by a second laboratory. 1,2 Dichlorobenzene has never been detected on the Missouri Metals Site. These constituents were detected at SB-8, the location having the highest levels of potential Site-related chemicals, TCE and cis-1,2-dichloroethene. Based on this historical information, the detection of 1,4 dichlorobenzene and 1,2 dichlorobenzene would not be expected to be related to the Missouri Metals Site. However, the occurrence of these compounds with potential Site-related chemicals will make identification of an alternative source more difficult.

Field Screening Results

Laboratory analytical results are not always consistent with the field organic vapor measurements obtained from the Site area. The highest levels of volatile vapors and soil VOC were detected in samples from SB-8. Analytical testing of soil samples did not detect contamination at SB-5 and SB-6, locations where volatile vapors were not detected in the soil samples. However, samples from other locations where field measurements indicated high VOC levels were not supported by analytical data. Laboratory analysis of samples from SB-9 and SB-10 did not indicate contamination although VOC measurements from these borings (>2000 and 1163 ppm, respectively) indicated the presence of volatile organic chemicals.

Potential reasons for the failure to detect VOCs in samples with elevated field PID measurements are VOC losses during sampling handling or the presence of volatile compounds which were not detected by the laboratory analytical method. The volatility of these chemicals can make VOC levels difficult to accurately quantify in soil and groundwater samples. Most VOCs have a low soil adsorption potential limiting their potential to remain within the soil matrix. This characteristic has been well documented and was a concern to the MDNR prior to the start of this investigation. The MDNR is likely to attribute differences in field and laboratory data to this potential problem.

Another potential concern is the possibility that VOCs unrelated to the Site may be present in soil beneath the off-site area. This concern is increased by historical information provided by residents that the neighborhood may be located above a former landfill area. This concern is supported by the acetone detections along the southern portion of Elmridge Place. Although acetone may be present in many products used at the Site, this chemical has not been identified as a significant contaminant of concern in soil and groundwater samples from the Missouri

Metals Site.

Conclusions

Field and analytical data indicate the potential exists that chemicals from the Missouri Metals Site are present in the shallow soil vapor in the residential area downgradient of the Site. Chemical migration from the Site would be expected to be greatest along the top of bedrock and in the shallow bedrock in the direction of bedrock slope. Groundwater flow and bedrock slope in the Site area is believed to be toward the southeast. The high levels of chlorinated compounds detected at sampling point SB-8 is currently assumed to reflect contaminant migration along the bedrock surface downgradient of the Site. Off-site sources of contamination could also be contributing to contaminant levels in this bedrock low area.

Data from this investigation poses concern that VOC vapors could potentially reach nearby residences. Based on the detection of potential Site related chemicals in the off-site soil, MDNR is expected to approach EG&G to request off-site monitoring in basements of adjacent homes. If performed, the VOC study must be capable of detecting specific VOCs. Due to the possible presence of a landfill in the neighborhood, the air sampling method must be capable of determining the difference between potential site-related compounds and VOCs not associated with the Site.

Past MDNR decisions regarding the Site have been based on the presumption that contaminant migration, if occurring is at depth and vapor migration is prevented by the tight clay soil encountered on the Missouri Metals property. This off-site data indicates significantly more fill off-site than encountered on the Missouri Metals property and the possibility of vapor migration to residences. This data could be utilized to recalculate the HRS score for the Site assuming an air exposure pathway. Manipulation of air exposure pathway numbers could be used to propose the Site for work under the Superfund program.

Shallow contamination in other locations may reflect contamination from other sources, vapor migration from the Site or disposal locations for the Missouri Metals facility prior to EG&G ownership. Early MDNR reports suggest chemical wastes may have been disposed of on the southern portion of the Missouri Metals property in the past. Based on the large amount of fill encountered immediately south of the Missouri Metals property, it is uncertain whether this area was filled by the City of past facility operators. Although evidence of free product contamination was not encountered during this screening investigation, the possibility also exists that past owners disposed of chemicals at locations off the current property.

The presumption that Site chemicals have migrated off-site is also expected to pose concerns to MDNR. Based on past discussions, MDNR may request EG&G to characterize the migrational characteristics of subsurface contamination from the Site. Contaminant migration from the Site has always assumed to occur primarily along the top of bedrock or more permeable layers within the upper bedrock. Movement through the bedrock is viewed as posing a low exposure risk, but evaluating migration extent through the bedrock can be costly. If determined appropriate to conduct, off-site extent investigations should focus on the soil profile rather than assess bedrock conditions. The groundwater pathway has not been identified as a significant exposure route at

this Site.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
HAZARDOUS WASTE PROGRAM
SMALL QUANTITY GENERATOR
INSPECTION RECORD AND CHECKLIST

Chicago Heights Blvd VOC Plume
Overland Missouri
MOD006283808
PA/SI Reference 21

S

SQG-INSP

ONLY FOR FACILITIES THAT GENERATE/ACCUMULATE < 1000 Kg (2,200 lbs. or approximately, 5 drums)

NAME <i>Patent Construction System</i>		DATE <i>1/3/97</i>	EPA ID NUMBER <i>MO D985807361</i>
ADDRESS <i>1492 Kin - Ark Corb</i>		RR NO —	MO ID NUMBER <i>020935</i>
CITY <i>Olivette</i>	NUMBER OF EMPLOYEES <i>30</i>	YEARS AT SITE <i>24 years</i>	TELEPHONE NUMBER <i>997-7520</i>
FACILITY REPRESENTATIVE(S), TITLE(S) <i>Steve Lutker, Foreman</i>			
DESCRIPTION OF THE FACILITY'S OPERATIONS AND PLANT			

Patent Construction Systems (PCS) changed their name from Patent Scaffolding about three years ago. The facility operates Monday through Friday, 8 am - 5 pm and consists of one L shaped building and a fenced lot. PCS is a construction equipment rental and scaffolding sales company. Waste generating activities such as painting and changing of oil are currently contracted out. PCS used a dip tank to paint equipment until November 1995 when the metal tank was cleaned out and removed from the site. The waste paint generated was shipped as hazardous waste (HW) on Nov. 16, 1995. The facility has no plans to generate HW in the future and therefore it is recommended that PCS write a letter to place their HW numbers on inactive status.

WASTE STREAMS				
	DESCRIBE EACH WASTE STREAM GENERATED INCLUDING THE PRODUCTION PROCESS	GENERATION RATE	EPA ID NUMBER	DISPOSITION
1.	<i>Waste Flammable Liquid one time shipment - cleanout of paint tank</i>	<i>916 pounds</i>	<i>D001</i>	
2.				
3.				
4.				
5.				

CHECK ALL THAT APPLY (Specify if possible)

<input type="checkbox"/> NPDES Permit	<input type="checkbox"/> Lead/Acid Batteries	<input type="checkbox"/> POTW _____
<input type="checkbox"/> Septic Tank	<input type="checkbox"/> H.W. Burner/Blender/Marketer	<input type="checkbox"/> Solid Waste Landfill _____
<input type="checkbox"/>	<input type="checkbox"/> Precious Metal Reclamation	<input type="checkbox"/> Waste Water Pretreatment _____

HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 Pitch) typewriter.)

Form Approved OMB No 2050-0039. Expires 9-30-84

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No MOD985807361	Manifest Document No 00001	2 Page 1 of 2	Information in the shaded areas is required by State Law
3 Generator's Name and Mailing Address Patent Scaffolding 1492 Kimark Ct. Overland, MO 63132			A. Missouri Manifest Document Number 0 2 0 4 3 5 0001		
4 Generator's Phone (314) 997-7520			B. G.S.I. (Gen. See Address) SAME		
5 Transporter 1 Company Name SAFETY-KLEEN CORP.		6 US EPA ID Number MOD095486312		C. MO Transporter's ID H-1273/P181903 EL	
7 Transporter 2 Company Name SAFETY-KLEEN CORP.		8 US EPA ID Number ILD984908202		D. Transporter's Phone 314-441-0104	
9 Designated Facility Name and Site Address SAFETY-KLEEN CORP. 3700 LAGRANGE RD. SMITHFIELD, KY 40068			10 US EPA ID Number KYD053348108		E. MO. Transporter's ID H-1273 P-39296 IL
			F. Transporter's Phone 618-398-6918		G. State Facility's ID 921103000 RRKY02
			H. Facility's Phone 502-845-2453		
11 US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER) RQ Waste Flammable Liquids, N.O.S. (Aliphatic & Aromatic Hydrocarbons) 3 UN1953 PG III (D001)(ERG #27)			12 Containers 03	13 Total Quantity 916	14 Unit Wt/Vol P EPA WASTE CODE D001 STATE
					EPA WASTE CODE STATE
					EPA WASTE CODE STATE
					EPA WASTE CODE STATE
J Additional Descriptions for Materials Listed Above			K Handling Code (Facility Use Only)		
a. CONTROL #2503150-1/#381211 SG- 1.000			Interim a. S01	Final b. MOD1	Comments c. T63
b.			c.		
c.			d.		
d.					
15 Special Handling Instructions and Additional Information 5-160-03-1160 IL TRANS ID: IL-1123 SKDOT # A: 3004 24 HR. EMERG. RESP. #1-708-888-4660 IF UNDELIVERABLE, RETURN TO GENERATOR.					
16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name TIM TUCEK		Signature <i>Tim Tucek</i>		Month Day Year 11/16/95	
17 Transporter 1 Acknowledgement of Receipt of Materials			Date:		
Printed/Typed Name Brent Turquist		Signature <i>Brent Turquist</i>		Month Day Year 11/16/95	
18 Transporter 2 Acknowledgement of Receipt of Materials			Date:		
Printed/Typed Name PAT TEUCHING		Signature <i>Pat Teuching</i>		Month Day Year 11/17/95	
19 Discrepancy Indication Space					
20 Designated Facility Owner or Operator Certification of receipt and handling of hazardous materials covered by this manifest except as noted in item 15					
Printed/Typed Name PAT TEUCHING		Signature <i>Pat Teuching</i>		Month Day Year 11/17/95	



Chicago Heights Blvd Plume
Overland, Missouri
MOD006283808
PA/SI Reference 22

JAN 17 1992

Remediation Services, Inc.

January 13, 1992

St Louis
UT 0007857

1

OWC4483

Mr. Gordon Ackley
UST Coordinator
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri, 65102

RE: *Patent Scaffolding, Inc*
Underground Storage Tank *OWC4483 UT0007857*
1492 Kin-Ark Court - St. Louis, Missouri

Dear Mr. Ackley:

Remediation Services, Inc. (RSI) has received a notice to proceed to remove (1) 1,200 gallon underground storage tank at the above mentioned address. The tank previously held Xylene containing paint and paint thinners.

RSI would like to mobilize on the removal as soon as possible. The final date would be coordinated with the Missouri DNR St. Louis Office.

Attached is a copy of the Notification for Underground Storage Tanks form along with a copy of our check in the amount of \$100.00 which has already been sent to MODNR on December 5, 1991. This should already be registered. I had failed to attach this written request previously, so I am submitting copies. Your office already has the originals. Please issue a date for this work to proceed at the above referenced location.

The removal of the tank will follow the guidelines established in the Missouri Department of Natural Resources tank removal and closure guidance dated June 1, 1990. In addition, the activities will follow accepted construction industry standards for the removal and closure of underground storage tanks.

If there are any questions regarding the removal of this tank, please do not hesitate to contact me at (314) 567-5300.

Sincerely,

Cindy K. Smith
Operations Coordinator

Attachments

11401 Moog Drive • St. Louis, MO 63146 • (314) 567-5300 • FAX (314) 567-6903

REGISTRATION CORRECTIONS/UPDATE FORM

6-7-96

PLEASE CORRECT ANY WRONG INFORMATION
AND SUPPLY NEW INFORMATION

12-10-91

COMPANY NAME

PATENT SCAFFOLDING, INC

OWNER ID

OW04483

NEW/CORRECT NAME

ADDRESS

1492 KIN-ARK COURT
ST LOUIS, MO 63132

NEW/CORRECT ADDRESS

COUNTY

ST LOUIS

NEW/CORRECT COUNTY

PHONE

314/997/7520

NEW/CORRECT PHONE

OWNER TYPE

OWNER CLASS

P- - - -

PN

NEW/CORRECT OWNER TYPE

- | | | |
|---------------------------------------|--------------------------------------|--|
| <input type="checkbox"/> CURRENT | <input type="checkbox"/> LOCAL GOV'T | <input type="checkbox"/> STATE GOV'T |
| <input type="checkbox"/> PRIVATE/CORP | <input type="checkbox"/> FORMER | <input type="checkbox"/> FEDERAL GOV'T |
| <input type="checkbox"/> UNCERTAIN | | |

NAME AND TITLE OF OWNER'S AUTHORIZED REPRESENTATIVE

SIGNATURE

TITLE

DATE

TIMOTHY TUCEK

OPER MNGR

12/05/91

REGISTRATION CORRECTIONS/UPDATE FORM

PLEASE CORRECT ANY WRONG INFORMATION
AND SUPPLY NEW INFORMATION

12/10/91

FACILITY NAME

PATENT SCAFFOLDING, INC

FACILITY ID

UT0007857

NEW/CORRECT FACILITY NAME

ADDRESS

1492 KIN-ARK COURT
ST LOUIS, MO 63132

OWNER ID

OW04483

NEW/CORRECT ADDRESS

ADMIN. FEE PAID

100

COUNTY

ST LOUIS

REG. FEE PAID

75

NEW/CORRECT COUNTY

LATITUDE/LONGITUDE

NEW/CORRECT LATITUDE/LONGITUDE

CONTACT PERSON

TIMOTHY TUCEK

NEW/CONTACT CONTACT PERSON

CONTACT PERSON TITLE

OPER MNGR

NEW/CORRECT CONTACT PERSON TITLE

CONTACT PERSON PHONE

314/997/7520

NEW/CORRECT CONTACT PERSON PHONE

REGISTRATION CORRECTIONS/DATE FORM

PLEASE CORRECT ANY WRONG INFORMATION
AND SUPPLY NEW INFORMATION

TANK ID	DNR TANK ID	FACILITY ID	OWNER ID
1	1	UT0007857	OW04483
NEW/CORRECT TANK ID	NEW/CORRECT DNR TANK ID		

STATUS OF TANK

R

FEE STATUS

N

NEW/CORRECT STATUS OF TANK

- CURRENTLY IN USE
- TEMPORARILY OUT OF USE
- PERMANENTLY CLOSED IN PLACE
- REMOVED FROM THE GROUND

DATE OF INSTALLATION

~~75~~ 80

CORRECT/NEW DATE OF INSTALLATION

TANK CAPACITY

1200 GALLONS

CORRECT/NEW TANK CAPACITY

_____ GALLONS

MATERIAL OF TANK CONSTRUCTION

S.

CORRECT/NEW MATERIAL OF TANK CONSTRUCTION

- STEEL
- FIBERGLASS REINFORCED PLASTIC (FRP)
- FRP CLAD STEEL
- UNKNOWN
- OTHER PLEASE SPECIFY _____

TANK INTERNAL PROTECTION

DATE OF INSTALLATION OF LINING

U.

CORRECT/NEW TANK INTERNAL PROTECTION

- INTERIOR LINING
- NONE
- UNKNOWN
- OTHER PLEASE SPECIFY _____

TANK EXTERNAL PROTECTION

DATE INSTALLED IF DIFFERENT FROM TANK

U.

CORRECT/NEW TANK EXTERNAL PROTECTION

- CATHODIC PROTECTION
- PAINTED, EG. ASPHALTIC
- FIBERGLASS REINFORCED PLASTIC (FRP)
- NONE
- UNKNOWN
- OTHER PLEASE SPECIFY _____

SPILL PREVENTION

TANK ID: 1 DNR TANK ID: 1 FACILITY ID: UT0007857 OWNER ID: OW04483

CORRECT/NEW SPILL PREVENTION

YES

OVERFILL PROTECTION

FILL LEVEL, AS PERCENT OF FULL SHUTOFF

CORRECT/NEW OVERFILL PROTECTION

CORRECT/NEW FILL LEVEL, AS PERCENT OF FULL SHUTOFF

- AUTOMATIC SHUTOFF @ 95%
- FLOW RESTICTOR @ 90%
- ALARM @ 90%
- 30 MIN FLOW RESTRICTOR
- 1 MIN. ALARM
- AUTOMATIC SHUTOFF
- NOT REQUIRED, FILLS OF 25 OR LESS
- NONE(FOR TANKS INSTALLED BEFORE 12/22/88)

PIPING CONSTRUCTION AND PROTECTION

DATE OF PROTECTION UPGRADE IF NOT INSTALL WITH TANK

N.

CORRECT/NEW PIPING CONSTRUCTION AND PROTECTION

CORRECT/NEW DATE

- BARE STEEL
- GALVANIZED STEEL
- FIBERGLASS REINFORCED PLASTIC (FRP)
- CATHODIC PROTECTION
- UNKNOWN
- OTHER PLEASE SPECIFY _____

PIPE RELEASE DETECTION

CORRECT/NEW PIPE RELEASE DETECTION

- GOURND WATER MONITORING
- VAPOR MONITORING
- INTERSTITIAL MONITORING
- LINE LEAK DETECTION/TIGHTNESS TEST
- UNKNOWN
- OTHER, PLEASE SPECIFY _____

SUBSTANCE CURRENTLY OR LAST STORED

H.O-XYLENE CONT PNT & PNT

CORRECT/NEW SUBSTANCE CURRENTLY OR LAST STORED

- DIESEL
- KEROSENE
- GASOLINE, INCLUDING BLENDS
- USED OIL
- HAZARDOUS SUBSTANCE
NAME OF SUBSTANCE _____
- CHEMICAL ABSTRACT SERVICE (CAS) NO
- MIXUTRE OF SUBSTANCES
- UNKNOWN
- OTHER, PLEASE SPECIFY _____

INFORMATION FOR TANKS PERMANETLY CLOSED

DATE LASTED USED ~~03/02/92~~ 1/13/92 - notice

6/91

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 27

JAN 13 2000

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

**Preliminary Assessment/Site Inspection
Sampling Report**

**Chicago Heights Boulevard VOC Plume Site
Overland, Missouri
St. Louis County**

**November 29-December 1, 1999
December 7, 1999**

Prepared For:

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Prepared By:

Missouri Department of Natural Resources
Division of Environmental Quality
Environmental Services Program

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1.0 Introduction

As authorized under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986, the Missouri Department of Natural Resources (MDNR), Hazardous Waste Program (HWP), Site Evaluation Unit is conducting a Combined Preliminary Assessment/Site Inspection (PA/SI) on the Chicago Heights Boulevard VOC Plume site. The PA/SI is investigating the threat to human health and the environment posed by the site. The MDNR, HWP requested the MDNR, Environmental Services Program (ESP) prepare and implement a sampling plan as part of the PA/SI. The scope of the field work included installing temporary wells and collecting groundwater samples to determine the types and concentrations of hazardous substances on-site, the migration route for any contaminants detected, and a potential source for any contaminants detected.

On November 29, 1999, ESP Environmental Specialists Brian Allen, Ken Hannon, and Doug Thompson traveled to the site to conduct field activities. HWP Environmental Specialists Nancy Priddy and Lance Livesay were also present and provided input on boring locations. A majority of the field activities were conducted from November 29, 1999, through December 1, 1999. ESP personnel returned to the site on December 7, 1999, to complete field activities. Information learned from field observations and sampling will be used by the HWP in scoring the site's potential as a hazardous waste site under the CERCLA Hazard Ranking System.

2.0 Site Information

2.1 Location

The Chicago Heights Boulevard VOC Plume site is located in an unincorporated segment of St. Louis County, immediately south of Overland, MO. The site is generally bounded by Meeks Boulevard to the north, Elmridge Place to the west, Werremeyer Place to the east, and Chicago Heights Boulevard to the south. The geographic coordinates representing the site boundaries are indicated below.

Location	Latitude	Longitude
Northwest corner – intersection of Meeks Blvd. & Elmridge Pl.	+38.686644	-90.380415
Northeast corner – intersection of Meeks Blvd. & Werremeyer Pl.	+38.686325	-90.378706
Southwest corner – intersection of Chicago Heights Blvd. & Elmridge Pl.	+38.684675	-90.380903
Southeast corner – intersection of Chicago Heights Blvd. & Werremeyer Pl.	+38.684230	-90.379276

2.2 Description

The Chicago Heights Boulevard VOC Plume site is located within a primarily residential area consisting of both multi-family and single family dwellings. The site is surrounded by various industrial and commercial businesses and lies within an unincorporated segment of St. Louis County.

2.3 History/Contaminants of Concern

As part of previous environmental investigations conducted of a nearby property known as EG&G Missouri Metals (EG&G), chlorinated solvents were discovered present in the groundwater beneath a residential area located just south of the EG&G property, now known as the Chicago Heights Boulevard VOC Plume site. In an effort to determine whether EG&G was the source of the groundwater contamination in the residential area, several soil borings were conducted and subsequent soil and groundwater samples collected. A clear migration route was not demonstrated in the previous investigations and the possibility of another source for the contamination indicates further investigation is required.

The contaminants of concern consist, primarily, of tetrachloroethene (PCE) and trichloroethene (TCE), along with their breakdown products.

Refer to the HWP site files for more in-depth information regarding previous investigations conducted in the area.

3.0 Methods

3.1 Field Procedures

A health and safety briefing was conducted on-site and personnel read and signed the site-specific health and safety plan prior to initiating field activities.

Missouri One-Call was notified of proposed field activities prior to ESP personnel arriving on-site, and all applicable underground utilities were marked.

All sample locations and descriptions were noted in a bound field logbook and locations noted on a site map. ESP personnel determined global positioning system (GPS) coordinates of all temporary well/sample locations, which are presented in Table 2.

3.1.1 Temporary well installation

As specified in the sampling plan, a track-mounted hydraulic soil probe was deployed and used to install temporary wells at 26 locations. Personnel installed each well by advancing an expendable solid point, attached to 2 1/8-inch drive pipe until refusal was encountered.

Once the final depth was reached, one 3-ft section of clean, prepacked well screen was lowered and attached to the expendable point at the bottom of each boring using clean ½-inch PVC riser sections. Subsequent riser sections were added until the top of each temporary well was at least flush with the ground surface. Personnel then retracted the drive pipe, exposing the prepacked well screen to groundwater.

Refer to Table 3 for information recorded on each temporary well.

3.1.2 Groundwater sampling

After allowing water columns to stabilize, personnel determined the depth to water and total depth of each temporary well, relative to the ground surface. Clean ¼-inch diameter polyethylene tubing was then inserted into each temporary well. The tubing was attached to a peristaltic pump and used to retrieve water to the ground surface. If enough water volume was available, personnel evacuated each temporary well until the water cleared significantly prior to sample collection. Sample containers were then filled directly from the tubing.

Initially, personnel collected three 40-ml vials for each sample to accommodate field screening efforts and, potentially, laboratory analyses. Eventually, field screening efforts were abandoned and personnel collected two 40-ml vials for each sample for laboratory analyses only. Refer to the Observations section for further discussion regarding alterations made in the field to the sampling plan.

3.1.3 Field GC screening

A field portable Photovac[®] 10S Plus PID gas chromatograph was transported to the site and used to screen several water samples for volatile organic contaminants. The samples were analyzed in the field following the manufacturer's procedures for the calibration, maintenance, and analyses of samples.

3.1.4 Temporary well abandonment

All temporary well locations were properly abandoned using hydrated bentonite chips. The temporary wells were registered with the Division of Geology and Land Survey's Wellhead Protection Section.

3.2 Sample Quantity

A total of 22 water grab samples (not including QA/QC samples) were collected during the sampling event. Refer to Table 1 for the identity, location, date, and time of each sample collected and Appendix A (site map) for the sample locations relative to the site.

3.3 Analyses Requested

All samples were submitted for volatile organics analyses, with a 1 part per billion detection limit requested.

3.4 Chain-of-Custody

All samples received a numbered label and the corresponding number was entered onto a chain-of-custody form indicating the location, date and time of collection, and analytes requested. Samples were stored and transported on ice in coolers. ESP field personnel maintained custody of the samples until relinquishing them to a sample custodian at the state's environmental laboratory within the Environmental Services Program in Jefferson City for analyses. As requested, copies of the chain-of-custodies were forwarded to HWP personnel under separate cover.

4.0 Data Quality

To help ensure precise, accurate, representative, complete, and comparable data were achieved, all field work and analyses were conducted in accordance with the Quality Assurance Project Plan for Pre-Remedial Site Assessments dated June 30, 1999, and Ongoing. Unless otherwise noted in this sampling report, ESP field personnel utilized standard operating procedures established within the ESP, Field Services Section for all samples collected.

4.1 Field Methods

Clean disposable nitrile gloves were worn by sampling personnel and clean equipment was utilized for each separate sample collected to minimize the possibility of cross-contamination.

Field personnel noted all observations, sample locations, descriptions, and methods in a bound field logbook.

4.2 Field Decontamination

Clean sampling equipment was used for each separate sample collection, therefore, no field decontamination of sampling equipment was required.

4.3 Quality Assurance/Quality Control Samples

4.3.1 Trip blank

Two trip blanks consisting of analyte-free water were prepared in the laboratory, taken to the field, and accompanied samples collected and transported back to the laboratory (one for each of two separate mobilizations to the site). Each trip blank received a numbered label, was entered onto the chain-of-custody form, and submitted for volatile organics analyses.

4.3.2 Duplicate (collocated) samples

Four duplicate water grab samples were collected during field activities. The duplicate samples were collected alongside their true samples using the same equipment and technique as for the true sample. Each duplicate sample received a numbered label, was submitted for the same analytes as its true sample, and identified on the chain-of-custody as "Blind duplicate".

5.0 Investigation Derived Wastes (IDW)

Disposable personal protective equipment and disposable sampling equipment were handled as solid waste and properly disposed. IDW generated during well evacuation was discharged to the ground away from each temporary well.

6.0 Observations

The weather throughout the initial three-day sampling event was generally clear with temperatures reaching into the low-to-mid 30s on each day of sampling. Winds ranged from light and variable for the first two days of field work to becoming westerly at 5-10 miles per hour on the final day.

The sampling plan had proposed installing approximately 40 temporary wells on-site. Due to difficulties encountered with locating underground utilities, personnel were required to amend the number of wells installed.

Initially, field screening with a portable GC was employed in an attempt to guide the direction of subsequent temporary well locations. As a result of encountering slow recharge and low water volumes in a majority of the wells, and subsequent time constraints, field screening proved too impractical and was abandoned midway through the field activities.


Of the 26 temporary wells installed, 14 wells did not initially charge enough to collect water samples. A decision was made to keep several of these wells in place and allow more time for the wells to charge. ESP personnel returned to the site on Tuesday, December 7, 1999, to assess water levels in the previously determined dry wells. Ten of the temporary wells had charged enough to collect a sample on the return visit. The remaining four were found to be dry and were abandoned.

7.0 Reporting

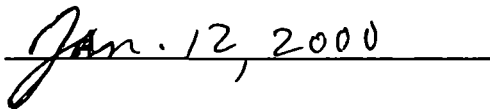
Please refer to Appendix B for analytical results of samples collected.

PA/SI Sampling Report
Chicago Heights Boulevard VOC Plume Site
November 29-December 1, 1999 and December 7, 1999
Page 6

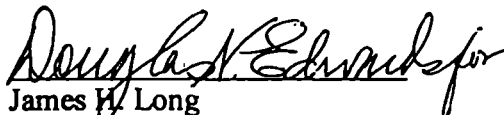
Submitted by:


Brian J. Allen
Environmental Specialist
Superfund/RCRA Unit
Environmental Services Program

Date:



Approved by:


James H. Long
Director
Environmental Services Program

JHL:ba...

c: Nancy Priddy, Environmental Specialist, HWP
Bob Eck, Regional Director, SLRO

TABLES
Chicago Heights Boulevard VOC Plume Site
Overland, Missouri

Table 1
Sample Listing/Descriptions

Sample #	Sample Media/Type	Location Collected/Description	Date/Time Collected
990049	QA/QC sample (trip blank)	Analyte-free water prepared at ESP laboratory.	11/28/99
997541	Water grab	Temporary well GW-02 located 6 ft west of the west edge of Elmridge Place and 9 ft south of the south edge of the first (northernmost) parking lot entrance. Sample was heavily turbid and medium brown.	11/29/99 @ 1355
997542	Water grab	Temporary well GW-01, located 125 ft west of the west edge of Elmridge Place and 12 ft south of the south edge of Meeks Blvd. Sample was moderately turbid and colorless.	11/30/99 @ 0740
997543	Water grab	Temporary well GW-07, located 30 ft south of the south edge of Meeks Blvd and 57 ft east of the east edge of Elmridge Place. Sample was heavily turbid and medium brown.	11/30/99 @ 0755
997544	QA/QC sample (duplicate)	Duplicate sample of 997543, entered onto chain-of-custody as "Blind duplicate". Same description as above.	11/30/99 @ 0755
997545	Water grab	Temporary well GW-05, located 12 ft west of the west edge of Elmridge Place and 10 ft south of the south edge of Chicago Heights Blvd. Sample was moderately turbid and light brown.	11/30/99 @ 0815
997546	Water grab	Temporary well GW-26, located 100 ft west of the west edge of Elmridge Place and 50 ft north of the north edge of the building representing 1447-51 Elmridge Place. Sample was clear and colorless.	12/1/99 @ 0826
997547	Water grab	Temporary well GW-19, located at the east edge of Elmridge Place, 10 ft south of the south edge of the driveway at 1476 Elmridge Place. Sample was slightly turbid and light brown.	12/1/99 @ 0845
997548	Water grab	Temporary well GW-03, located 6 ft west of the west edge of Elmridge Place and 6 ft north of the north edge of the second parking lot entrance. Sample was slightly turbid and light brown.	12/1/99 @ 0855
997549	Water grab	Temporary well GW-24, located 105 ft west of the west edge of Elmridge Place and 22 ft north of the building representing 1423-27 Elmridge Place. Sample was slightly turbid and light brown.	12/1/99 @ 0910
997550	QA/QC sample (duplicate)	Duplicate sample of 997549, entered onto chain-of-custody as "Blind duplicate". Same description as above.	12/1/99 @ 0910
997551	Water grab	Temporary well GW-21, located 22 ft west and 12 ft south of the southwest corner of the house at 1428 Elmridge Place. Sample was clear and colorless.	12/1/99 @ 0920
997552	Water grab	Temporary well GW-06, located 125 ft south of the south edge of Chicago Heights Blvd and 27 ft west of the west edge of Elmridge Place. Sample was clear and colorless.	12/1/99 @ 0925
997553	Water grab	Temporary well GW-14, located 12 ft south and 20 ft east of the northeast corner of the carport at 1415 Wishart Place (immediately south of the driveway). Sample was slightly turbid and light brown.	12/1/99 @ 0940
997554	Water grab	Temporary well GW-09, located 12 ft west and 7 ft north of the northwest corner of the house at 1487 Wishart Place. Sample was slightly turbid and light brown.	12/1/99 @ 0950

Table 1 (continued)
Sample Listing/Descriptions

Sample #	Sample Media/Type	Location Collected/Description	Date/Time Collected
997571	QA/QC sample (trip blank)	Analyte-free water prepared at ESP laboratory.	12/7/99
997572	Water grab	Temporary well GW-15, located 20 ft west of the northwest corner of the house at 1430 Wishart Place. Sample was clear and colorless.	12/7/99 @ 0950
997573	Water grab	Temporary well GW-16, located 25 ft east of the northeast corner of the house at 1430 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1000
997574	Water grab	Temporary well GW-13, located 20 ft west and 14 ft south of the southwest corner of the house at 1431 Wishart Place. Sample was initially clear and colorless, but became moderately turbid and light brown during collection.	12/7/99 @ 1015
997575	Water grab	Temporary well GW-12, located 30 ft south and 25 ft west of the southwest corner of the house located at 1455 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1035
997576	QA/QC sample (duplicate)	Duplicate sample of 997575, entered onto chain-of-custody as "Blind duplicate". Same description as above.	12/7/99 @ 1035
997577	Water grab	Temporary well GW-11, located 22 ft west and 7 ft north of the northwest corner of the house at 1463 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1050
997578	Water grab	Temporary well GW-10, located 12 ft north and 1 ft east of the northwest corner of the house at 1479 Wishart Place. Sample was clear and colorless.	12/7/99 @ 1115
997579	Water grab	Temporary well GW-22, located 105 ft west of the west edge of Elmridge Place and 25 ft north of the north side of the building representing 1401-09 Elmridge Place. Sample was clear and colorless.	12/7/99 @ 1135
997580	Water grab	Temporary well GW-23, located 100 ft west of the west edge of Elmridge Place and 55 ft north of the north side of the building representing 1415-19 Elmridge Place. Sample was moderately turbid and light brown.	12/7/99 @ 1145
997581	Water grab	Temporary well GW-25, located 105 ft west of the west edge of Elmridge Place and 28 ft north of the north side of the building representing 1439-43 Elmridge Place. Sample was clear and colorless.	12/7/99 @ 1200
997582	Water grab	Temporary well GW-08, located approximately 25 ft east of the southeast corner of the house at 1484 Elmridge Place. Sample was clear and colorless.	12/7/99 @ 1210
997583	QA/QC sample (duplicate)	Duplicate sample of 997582, entered onto chain-of-custody as "Blind duplicate". Same description as above.	12/7/99 @ 1210

Table 2
GPS Coordinates

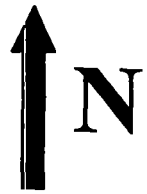
Temporary Well Location	Decimal Degrees		UTM Coordinates	
	Latitude	Longitude	Northing	Easting
GW-01	+38.686750	-90.380583	4285273	727834
GW-02	+38.686250	-90.379944	4285219	727891
GW-03	+38.685639	-90.379944	4285150	727892
GW-04	+38.685083	-90.380389	4285088	727856
GW-05	+38.684333	-90.381028	4285002	727803
GW-06	+38.683806	-90.381056	4284945	727803
GW-07	+38.686389	-90.380111	4285232	727877
GW-08	+38.686333	-90.379722	4285230	727911
GW-09	+38.686583	-90.379444	4285256	727934
GW-10	+38.686306	-90.380222	4285227	727939
GW-11	+38.686028	-90.379417	4285196	727938
GW-12	+38.685750	-90.379389	4285164	727941
GW-13	+38.685639	-90.379361	4285152	727943
GW-14	+38.684694	-90.379472	4285047	727938
GW-15	+38.685083	-90.378639	4285092	728008
GW-16	+38.686083	-90.378917	4285204	727981
GW-17	+38.685583	-90.378972	4285147	727977
GW-18	+38.686639	-90.378750	4285263	727994
GW-19	+38.686111	-90.380028	4285203	727885
GW-20	+38.685444	-90.379972	4285126	727891
GW-21	+38.685000	-90.379861	4285080	727903
GW-22	+38.685000	-90.380556	4285077	727842
GW-23	+38.685194	-90.380389	4285100	727856
GW-24	+38.685778	-90.381083	4285162	727794
GW-25	+38.686722	-90.380056	4285270	727881
GW-26	+38.686694	-90.380167	4285267	727870

Table 3
Temporary Well Information

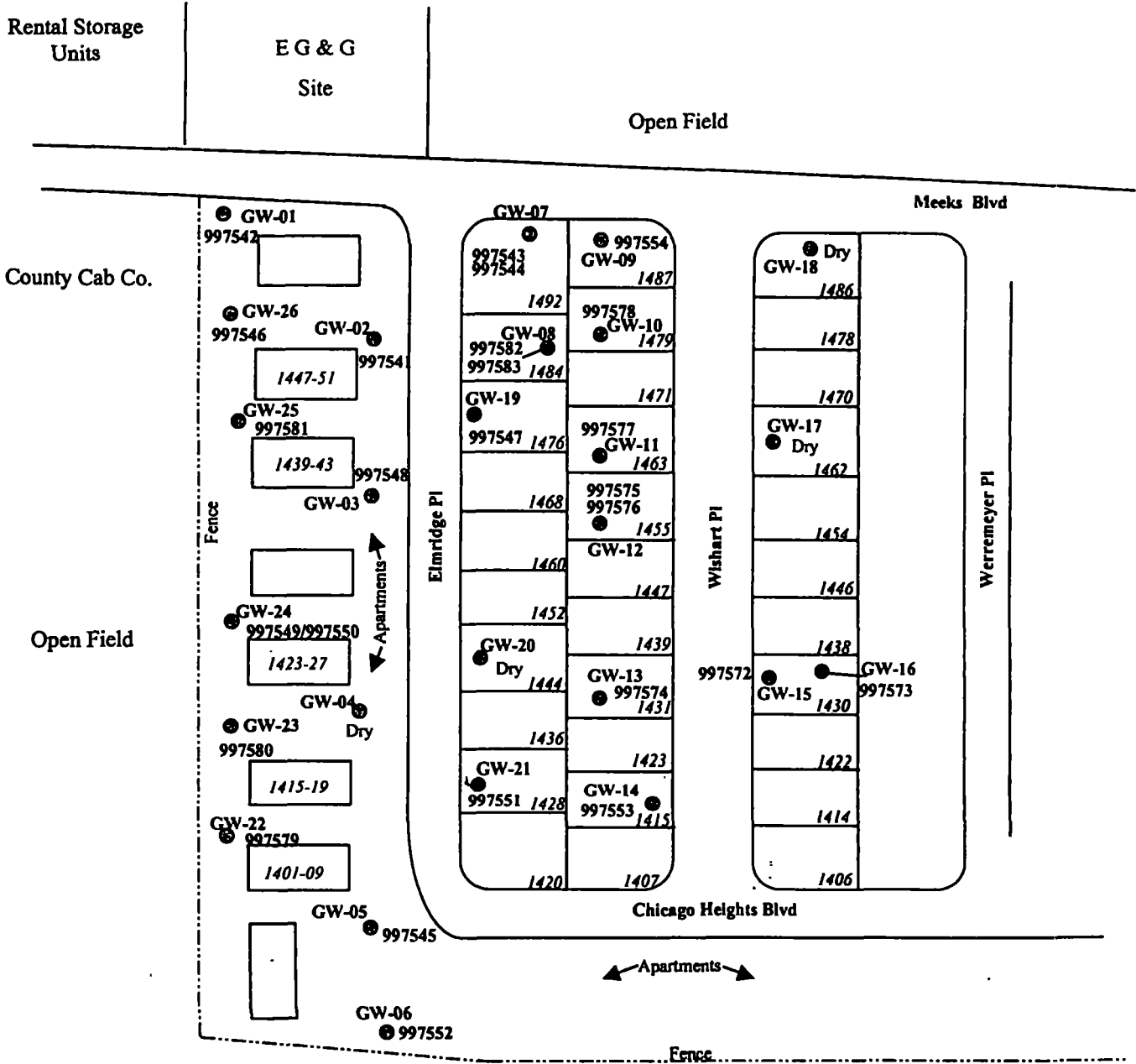
Well Identity	Total Depth – ft (below ground surface)	Depth to Water – ft (below ground surface)	Water Column – ft
GW-01	27.5	25.0	2.5
GW-02	29.2	25.2	4.0
GW-03	25.0	16.2	8.8
GW-04	27.0	Dry	-
GW-05	26.0	16.0	10.0
GW-06	24.0	22.5	1.5
GW-07	25.0	15.0	10.0
GW-08	23.1	10.2	12.9
GW-09	19.5	9.81	9.69
GW-10	18.1	7.4	10.7
GW-11	23.1	8.25	14.85
GW-12	17.0	7.8	9.2
GW-13	20.8	8.0	12.8
GW-14	20.3	9.3	11.0
GW-15	22.2	15.15	7.05
GW-16	20.3	13.0	7.3
GW-17	19.0	Dry	-
GW-18	18.2	Dry	-
GW-19	24.4	8.2	16.2
GW-20	22.0	Dry	-
GW-21	20.7	13.0	6.3
GW-22	17.6	7.7	9.9
GW-23	20.6	16.0	4.6
GW-24	22.7	16.3	6.4
GW-25	17.1	13.4	3.7
GW-26	23.0	20.4	2.6

APPENDIX A
Site Map
Chicago Heights Boulevard VOC Plume Site
Overland, Missouri

Site Map Chicago Heights Blvd VOC Plume Site



Not to Scale



LEGEND	
GW-XX ●	Temporary well location/identification
1415	Property/building address
99XXXX	Sample collected at location indicated

APPENDIX B
Analytical Results
Chicago Heights Boulevard VOC Plume Site
Overland, Missouri

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahtow, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997575
 Lab Number: 99-D3273

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by:	BRIAN ALLEN, ESP
Sampling Location:	CHICAGO HEIGHTS BLVD VOC PLUME SITE
Sample Description:	WATER GRAB OF GW-12
County:	ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 8/99	8260
Bromomethane	< 5.0 ug/L	12/ 8/99	8260
Chloroethane	< 5.0 ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Acetone	< 20.0 ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
2-Butanone	< 5.0 ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	18.4 ug/L	12/ 8/99	8260
Chloroform	< 1.0 ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 8/99	8260
Benzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
Trichloroethene	2.3 ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 8/99	8260
2-Hexanone	< 2.0 ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Toluene	< 1.0 ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	1.2 ug/L	12/ 8/99	8260
Tetrachloroethene	1.6 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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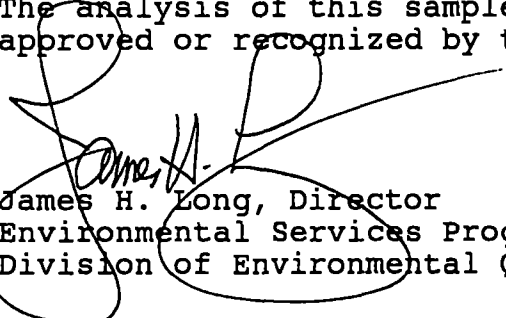
Lab Number: 99-D3273

Sample Number: 997575

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahi-si, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997574
 Lab Number: 99-D3272

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by:	BRIAN ALLEN, ESP
Sampling Location:	CHICAGO HEIGHTS BLVD VOC PLUME SITE
Sample Description:	WATER GRAB OF GW-13
County:	ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	< 20.0	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	6.7	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	1.1 ug/L	12/ 8/99	8260
Tetrachloroethene	1.1 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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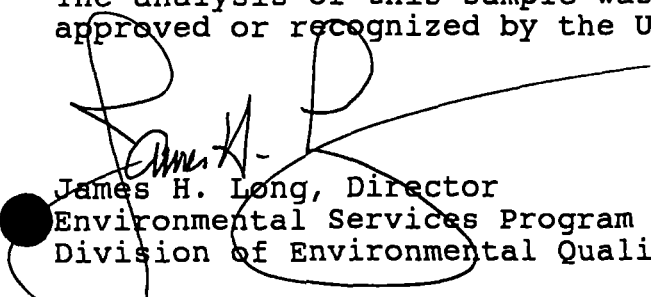
Lab Number: 99-D3272

Sample Number: 997574

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

s: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997573
 Lab Number: 99-D3271

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF GW-16
 County: ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	< 20.0	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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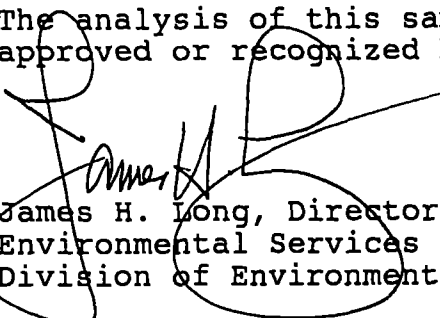
Lab Number: 99-D3271

Sample Number: 997573

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997572
Lab Number: 99-D3270

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by:	BRIAN ALLEN, ESP
Sampling Location:	CHICAGO HEIGHTS BLVD VOC PLUME SITE
Sample Description:	WATER GRAB OF GW-15
County:	ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	< 20.0	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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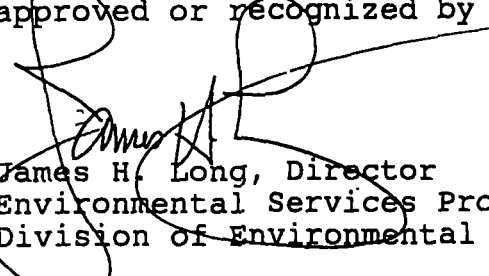
Lab Number: 99-D3270

Sample Number: 997572

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfoud, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997571
 Lab Number: 99-D3269

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by:	BRIAN ALLEN, ESP
Sampling Location:	CHICAGO HEIGHTS BLVD VOC PLUME SITE
Sample Description:	TRIP BLANK
County:	ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	< 20.0	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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Lab Number: 99-D3269

Sample Number: 997571

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997554
 Lab Number: 99-D3226

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-09	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	1.9 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	< 5.0 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	149 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	1,140 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	1.7 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.5 ug/L	12/ 2/99	8260
Tetrachloroethene	2.5 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

Lab Number: 99-D3226

Sample Number: 997554

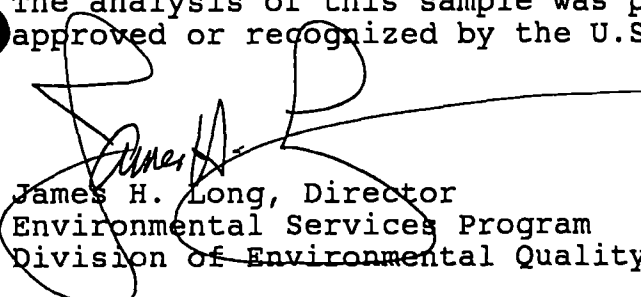
December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

VOA Comments:

A 1:10 dilution was analyzed on 12/3/99 to quantitate TCE.

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.



James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahlowd, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997553
 Lab Number: 99-D3225

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF TEMP. WELL GW-14
 County: ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	< 5.0 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Unit	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.8	ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0	ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0	ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0	ug/L	12/ 2/99	8260
Total Xylenes	< 2.0	ug/L	12/ 2/99	8260
Styrene	< 1.0	ug/L	12/ 2/99	8260
Bromoform	< 1.0	ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0	ug/L	12/ 2/99	8260
Iodomethane	< 5.0	ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0	ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0	ug/L	12/ 2/99	8260
Propionitrile	< 20.0	ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0	ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0	ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0	ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0	ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0	ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0	ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0	ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0	ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0	ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0	ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0	ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0	ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0	ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0	ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Dibromomethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0	ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0	ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0	ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0	ug/L	12/ 2/99	8260
Bromobenzene	< 1.0	ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0	ug/L	12/ 2/99	8260

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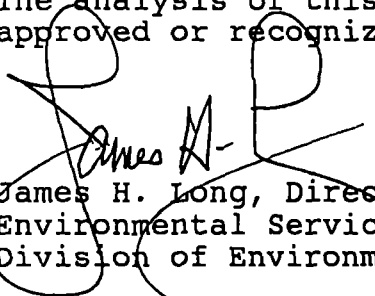
Lab Number: 99-D3225

Sample Number: 997553

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfouz, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997552
 Lab Number: 99-D3224

Reported To: BRIAN ALLEN
 Affiliation: ESP
 Project Code: 4069/9192
 Report Date: 12/10/99
 Date Collected: 12/ 1/99
 Date Received: 12/ 2/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF TEMP. WELL GW-06
 County: ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	< 5.0 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
oluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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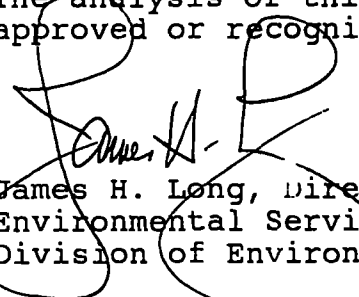
Lab Number: 99-D3224

Sample Number: 997552

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahtoss, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997551
 Lab Number: 99-D3223

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-21	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	5.8 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	2.4 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	1.1 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.2 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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Lab Number: 99-D3223

Sample Number: 997551

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahlow, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997550
 Lab Number: 99-D3222

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99

Gw-24

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: BLIND REPLICATE
 County: ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 2/99	8260
Bromomethane	< 5.0	ug/L	12/ 2/99	8260
Chloroethane	< 5.0	ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Acetone	< 20.0	ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
2-Butanone	6.2	ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Chloroform	< 1.0	ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 2/99	8260
Benzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
Trichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 2/99	8260
2-Hexanone	< 2.0	ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
oluene	< 1.0	ug/L	12/ 2/99	8260

Analysis Performed	Results	Unit	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	4.0	ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0	ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0	ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0	ug/L	12/ 2/99	8260
Total Xylenes	< 2.0	ug/L	12/ 2/99	8260
Styrene	< 1.0	ug/L	12/ 2/99	8260
Bromoform	< 1.0	ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0	ug/L	12/ 2/99	8260
Iodomethane	< 5.0	ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0	ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0	ug/L	12/ 2/99	8260
Propionitrile	< 20.0	ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0	ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0	ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0	ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0	ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0	ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0	ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0	ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0	ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0	ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0	ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0	ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0	ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0	ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0	ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Dibromomethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0	ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0	ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0	ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0	ug/L	12/ 2/99	8260
Bromobenzene	< 1.0	ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0	ug/L	12/ 2/99	8260

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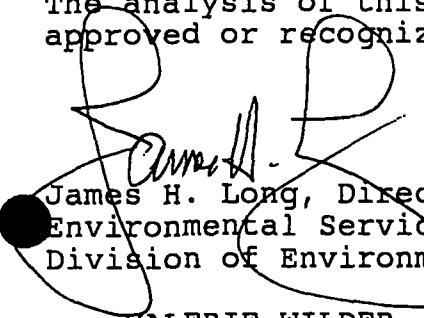
Lab Number: 99-D3222

Sample Number: 997550

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

McJ. Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997549
 Lab Number: 99-D3221

Reported To: BRIAN ALLEN
 Affiliation: ESP
 Project Code: 4069/9192

Report Date: 12/10/99
 Date Collected: 12/ 1/99
 Date Received: 12/ 2/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF TEMP. WELL GW-24
 County: ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	6.0 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	3.1 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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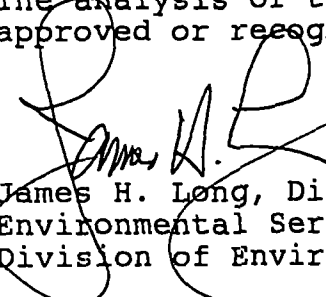
Lab Number: 99-D3221

Sample Number: 997549

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997548
 Lab Number: 99-D3220

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF TEMP. WELL GW-03
 County: ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 2/99	8260
Bromomethane	< 5.0	ug/L	12/ 2/99	8260
Chloroethane	< 5.0	ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Acetone	< 20.0	ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
2-Butanone	< 5.0	ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Chloroform	< 1.0	ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 2/99	8260
Benzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
Trichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 2/99	8260
2-Hexanone	< 2.0	ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Toluene	< 1.0	ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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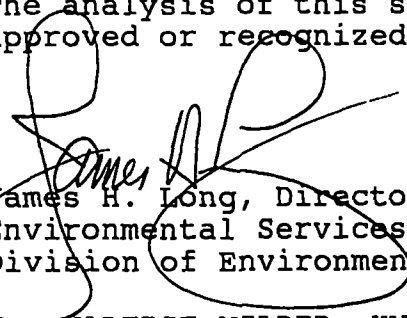
Lab Number: 99-D3220

Sample Number: 997548

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

C: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997547
 Lab Number: 99-D3219

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-19	
County: ST. LOUIS	

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 2/99	8260
Vinyl Chloride	3.4	ug/L	12/ 2/99	8260
Bromomethane	< 5.0	ug/L	12/ 2/99	8260
Chloroethane	< 5.0	ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Acetone	< 20.0	ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
2-Butanone	6.6	ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	2.2	ug/L	12/ 2/99	8260
Chloroform	< 1.0	ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 2/99	8260
Benzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
Trichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 2/99	8260
2-Hexanone	< 2.0	ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Toluene	< 1.0	ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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Lab Number: 99-D3219

Sample Number: 997547

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997546
 Lab Number: 99-D3218

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 1/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-26	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	6.3 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	1.3 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Unit	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.4	ug/L	12/ 2/99	8260
Tetrachloroethene	1.5	ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0	ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0	ug/L	12/ 2/99	8260
Total Xylenes	< 2.0	ug/L	12/ 2/99	8260
Styrene	< 1.0	ug/L	12/ 2/99	8260
Bromoform	< 1.0	ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0	ug/L	12/ 2/99	8260
Iodomethane	< 5.0	ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0	ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0	ug/L	12/ 2/99	8260
Propionitrile	< 20.0	ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0	ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0	ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0	ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0	ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0	ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0	ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0	ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0	ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0	ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0	ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0	ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0	ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0	ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0	ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Dibromomethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0	ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0	ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0	ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0	ug/L	12/ 2/99	8260
Bromobenzene	< 1.0	ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0	ug/L	12/ 2/99	8260

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Lab Number: 99-D3218

Sample Number: 997546

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	1.1 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfoud, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997545
Lab Number: 99-D3217

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 11/30/99
Project Code: 4069/9192	Date Received: 12/ 2/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF TEMP. WELL GW-05
 County: ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	5.5 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	1.4 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.1 ug/L	12/ 2/99	8260
Tetrachloroethene	2.4 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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Lab Number: 99-D3217

Sample Number: 997545

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997544
 Lab Number: 99-D3216

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 11/30/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: BLIND DUPLICATE	
County: ST. LOUIS	

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 2/99	8260
Bromomethane	< 5.0	ug/L	12/ 2/99	8260
Chloroethane	< 5.0	ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Acetone	< 20.0	ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
2-Butanone	< 5.0	ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	9.4	ug/L	12/ 2/99	8260
Chloroform	< 1.0	ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 2/99	8260
Benzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
Trichloroethene	48.6	ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 2/99	8260
2-Hexanone	< 2.0	ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Toluene	< 1.0	ug/L	12/ 2/99	8260

Analysis Performed	Results	Unit	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.5	ug/L	12/ 2/99	8260
Tetrachloroethene	5.0	ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0	ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0	ug/L	12/ 2/99	8260
Total Xylenes	< 2.0	ug/L	12/ 2/99	8260
Styrene	< 1.0	ug/L	12/ 2/99	8260
Bromoform	< 1.0	ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0	ug/L	12/ 2/99	8260
Iodomethane	< 5.0	ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0	ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0	ug/L	12/ 2/99	8260
Propionitrile	< 20.0	ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0	ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0	ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0	ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0	ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0	ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0	ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0	ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0	ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0	ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0	ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0	ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0	ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0	ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0	ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Dibromomethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0	ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0	ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0	ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0	ug/L	12/ 2/99	8260
Bromobenzene	< 1.0	ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0	ug/L	12/ 2/99	8260

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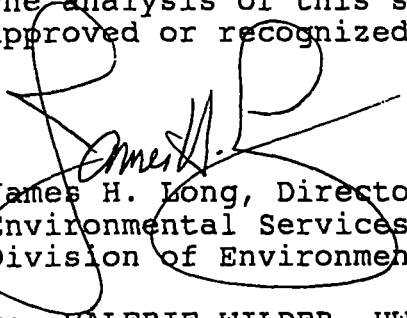
Lab Number: 99-D3216

Sample Number: 997544

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997543
 Lab Number: 99-D3215

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 11/30/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-07	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	< 5.0 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	9.2 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	51.6 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	1.2 ug/L	12/ 2/99	8260
Tetrachloroethene	1.2 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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Lab Number: 99-D3215

Sample Number: 997543

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997542
 Lab Number: 99-D3214

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 11/30/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-01	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 2/99	8260
Vinyl Chloride	10.6 ug/L	12/ 2/99	8260
Bromomethane	< 5.0 ug/L	12/ 2/99	8260
Chloroethane	< 5.0 ug/L	12/ 2/99	8260
1,1-Dichloroethene	1.6 ug/L	12/ 2/99	8260
Acetone	< 20.0 ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	4.3 ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
2-Butanone	6.5 ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	369 ug/L	12/ 2/99	8260
Chloroform	< 1.0 ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 2/99	8260
Benzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 2/99	8260
Trichloroethene	367 ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 2/99	8260
2-Hexanone	< 2.0 ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Toluene	< 1.0 ug/L	12/ 2/99	8260

Analysis Performed	Results	Unit	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	< 1.0	ug/L	12/ 2/99	8260
Tetrachloroethene	716	ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0	ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0	ug/L	12/ 2/99	8260
Total Xylenes	< 2.0	ug/L	12/ 2/99	8260
Styrene	< 1.0	ug/L	12/ 2/99	8260
Bromoform	< 1.0	ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0	ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0	ug/L	12/ 2/99	8260
Iodomethane	< 5.0	ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0	ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0	ug/L	12/ 2/99	8260
Propionitrile	< 20.0	ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0	ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0	ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0	ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0	ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0	ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0	ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0	ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0	ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0	ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0	ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0	ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0	ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0	ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0	ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Dibromomethane	< 1.0	ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0	ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0	ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0	ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0	ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0	ug/L	12/ 2/99	8260
Bromobenzene	< 1.0	ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0	ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0	ug/L	12/ 2/99	8260

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Lab Number: 99-D3214

Sample Number: 997542

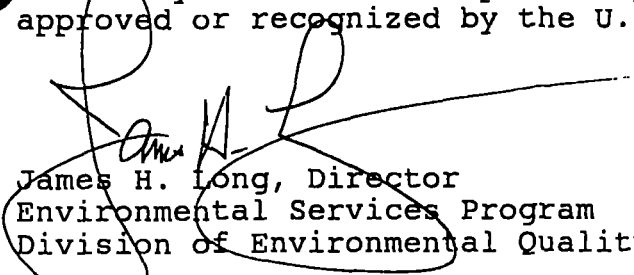
December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

VOA Comments:

A 1:5 dilution was analyzed on 12/2/99 to quantitate Tetrachloroethene.

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997541
 Lab Number: 99-D3213

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 11/29/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF TEMP. WELL GW-02	
County: ST. LOUIS	

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 2/99	8260
Vinyl Chloride	8.7	ug/L	12/ 2/99	8260
Bromomethane	< 5.0	ug/L	12/ 2/99	8260
Chloroethane	< 5.0	ug/L	12/ 2/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
Acetone	< 20.0	ug/L	12/ 2/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 2/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 2/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 2/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
2-Butanone	7.3	ug/L	12/ 2/99	8260
cis-1,2-Dichloroethene	24.6	ug/L	12/ 2/99	8260
Chloroform	< 1.0	ug/L	12/ 2/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 2/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 2/99	8260
Benzene	< 1.0	ug/L	12/ 2/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 2/99	8260
Trichloroethene	2.1	ug/L	12/ 2/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 2/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 2/99	8260
2-Hexanone	< 2.0	ug/L	12/ 2/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99	8260
Toluene	< 1.0	ug/L	12/ 2/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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Lab Number: 99-D3213

Sample Number: 997541

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 990049
 Lab Number: 99-D3212

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 11/28/99
Project Code: 4069/9192	Date Received: 12/ 2/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: TRIP BLANK	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0	ug/L	12/ 2/99 8260
Vinyl Chloride	< 2.0	ug/L	12/ 2/99 8260
Bromomethane	< 5.0	ug/L	12/ 2/99 8260
Chloroethane	< 5.0	ug/L	12/ 2/99 8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 2/99 8260
Acetone	< 20.0	ug/L	12/ 2/99 8260
Carbon Disulfide	< 1.0	ug/L	12/ 2/99 8260
Methylene Chloride	< 20.0	ug/L	12/ 2/99 8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 2/99 8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99 8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 2/99 8260
2-Butanone	< 5.0	ug/L	12/ 2/99 8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 2/99 8260
Chloroform	< 1.0	ug/L	12/ 2/99 8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 2/99 8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 2/99 8260
Benzene	< 1.0	ug/L	12/ 2/99 8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 2/99 8260
Trichloroethene	< 1.0	ug/L	12/ 2/99 8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 2/99 8260
Bromodichloromethane	< 1.0	ug/L	12/ 2/99 8260
2-Hexanone	< 2.0	ug/L	12/ 2/99 8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 2/99 8260
Toluene	< 1.0	ug/L	12/ 2/99 8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 2/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 2/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 2/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 2/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 2/99	8260
Total Xylenes	< 2.0 ug/L	12/ 2/99	8260
Styrene	< 1.0 ug/L	12/ 2/99	8260
Bromoform	< 1.0 ug/L	12/ 2/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 2/99	8260
Iodomethane	< 5.0 ug/L	12/ 2/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 2/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 2/99	8260
Propionitrile	< 20.0 ug/L	12/ 2/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 2/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 2/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 2/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 2/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 2/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 2/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 2/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 2/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 2/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 2/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 2/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 2/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 2/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 2/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 2/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 2/99	8260
Dibromomethane	< 1.0 ug/L	12/ 2/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 2/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 2/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 2/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 2/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 2/99	8260
Bromobenzene	< 1.0 ug/L	12/ 2/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 2/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260

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Lab Number: 99-D3212

Sample Number: 990049

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 2/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 2/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 2/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 2/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 2/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 2/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 2/99	8260
Naphthalene	< 1.0 ug/L	12/ 2/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 2/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahfouz, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997576
 Lab Number: 99-D3274

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Gw-12

Sample Collected by:	BRIAN ALLEN, ESP
Sampling Location:	CHICAGO HEIGHTS BLVD VOC PLUME SITE
Sample Description:	BLIND DUPLICATE
County:	ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	< 20.0	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	16.7	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	1.6	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	1.6 ug/L	12/ 8/99	8260
Tetrachloroethene	1.1 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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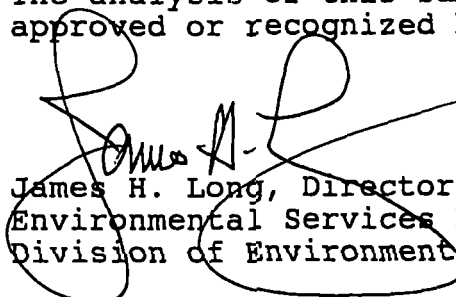
Lab Number: 99-D3274

Sample Number: 997576

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahiuski, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997577
 Lab Number: 99-D3275

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by:	BRIAN ALLEN, ESP
Sampling Location:	CHICAGO HEIGHTS BLVD VOC PLUME SITE
Sample Description:	WATER GRAB OF GW-11
County:	ST. LOUIS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	< 20.0	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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Lab Number: 99-D3275

Sample Number: 997577

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997578
 Lab Number: 99-D3276

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF GW-10
 County: ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 8/99	8260
Bromomethane	< 5.0 ug/L	12/ 8/99	8260
Chloroethane	< 5.0 ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Acetone	< 20.0 ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
2-Butanone	< 5.0 ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	21.3 ug/L	12/ 8/99	8260
Chloroform	< 1.0 ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 8/99	8260
Benzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
Trichloroethene	64.8 ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 8/99	8260
2-Hexanone	< 2.0 ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Toluene	< 1.0 ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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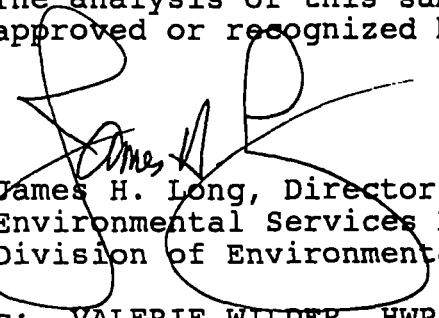
Lab Number: 99-D3276

Sample Number: 997578

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997579
 Lab Number: 99-D3277

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99

Sample Collected by: BRIAN ALLEN, ESP
 Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE
 Sample Description: WATER GRAB OF GW-22
 County: ST. LOUIS

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 8/99	8260
Bromomethane	< 5.0 ug/L	12/ 8/99	8260
Chloroethane	< 5.0 ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Acetone	< 20.0 ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
2-Butanone	< 5.0 ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Chloroform	< 1.0 ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 8/99	8260
Benzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
Trichloroethene	4.5 ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 8/99	8260
2-Hexanone	< 2.0 ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Toluene	< 1.0 ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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Lab Number: 99-D3277

Sample Number: 997579

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997580
 Lab Number: 99-D3278

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF GW-23	
County: ST. LOUIS	

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 20.0	ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0	ug/L	12/ 8/99	8260
Bromomethane	< 5.0	ug/L	12/ 8/99	8260
Chloroethane	< 5.0	ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Acetone	27.1	ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0	ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0	ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0	ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
2-Butanone	< 5.0	ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0	ug/L	12/ 8/99	8260
Chloroform	< 1.0	ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0	ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0	ug/L	12/ 8/99	8260
Benzene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0	ug/L	12/ 8/99	8260
Trichloroethene	< 1.0	ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0	ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0	ug/L	12/ 8/99	8260
2-Hexanone	< 2.0	ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0	ug/L	12/ 8/99	8260
Toluene	< 1.0	ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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Lab Number: 99-D3278

Sample Number: 997580

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997581
 Lab Number: 99-D3279

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF GW-25	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 8/99	8260
Bromomethane	< 5.0 ug/L	12/ 8/99	8260
Chloroethane	< 5.0 ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Acetone	< 20.0 ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
2-Butanone	< 5.0 ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Chloroform	< 1.0 ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 8/99	8260
Benzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
Trichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 8/99	8260
2-Hexanone	< 2.0 ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Toluene	< 1.0 ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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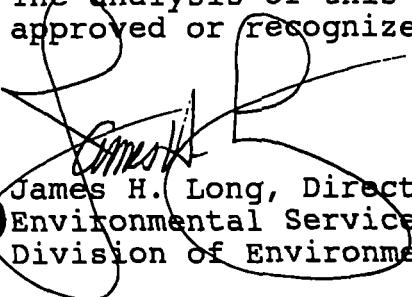
Lab Number: 99-D3279

Sample Number: 997581

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997582
 Lab Number: 99-D3280

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: WATER GRAB OF GW-08	
County: ST. LOUIS	

Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 8/99	8260
Bromomethane	< 5.0 ug/L	12/ 8/99	8260
Chloroethane	< 5.0 ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Acetone	< 20.0 ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
2-Butanone	< 5.0 ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	5.5 ug/L	12/ 8/99	8260
Chloroform	< 1.0 ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 8/99	8260
Benzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
Trichloroethene	10.3 ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 8/99	8260
2-Hexanone	< 2.0 ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Toluene	< 1.0 ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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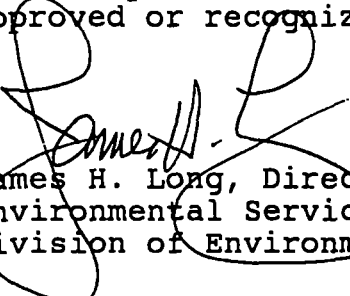
Lab Number: 99-D3280

Sample Number: 997582

December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahtosh, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 997583
 Lab Number: 99-D3281

Reported To: BRIAN ALLEN	Report Date: 12/10/99
Affiliation: ESP	Date Collected: 12/ 7/99
Project Code: 4069/9192	Date Received: 12/ 7/99
Sample Collected by: BRIAN ALLEN, ESP	
Sampling Location: CHICAGO HEIGHTS BLVD VOC PLUME SITE	
Sample Description: BLIND DUPLICATE	
County: ST. LOUIS	

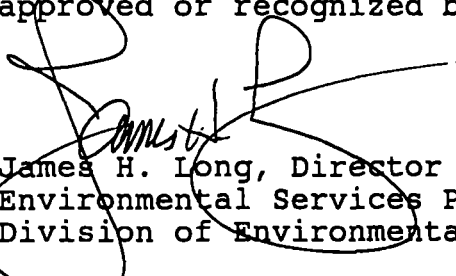
Analysis Performed	Results	Analyzed	Method
VOA Results:			
Chloromethane	< 20.0 ug/L	12/ 8/99	8260
Vinyl Chloride	< 2.0 ug/L	12/ 8/99	8260
Bromomethane	< 5.0 ug/L	12/ 8/99	8260
Chloroethane	< 5.0 ug/L	12/ 8/99	8260
1,1-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
Acetone	< 20.0 ug/L	12/ 8/99	8260
Carbon Disulfide	< 1.0 ug/L	12/ 8/99	8260
Methylene Chloride	< 20.0 ug/L	12/ 8/99	8260
Methyl Tert-Butyl Ether	< 2.0 ug/L	12/ 8/99	8260
trans-1,2-Dichloroethene	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
2-Butanone	< 5.0 ug/L	12/ 8/99	8260
cis-1,2-Dichloroethene	5.2 ug/L	12/ 8/99	8260
Chloroform	< 1.0 ug/L	12/ 8/99	8260
1,1,1-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
Carbon Tetrachloride	< 1.0 ug/L	12/ 8/99	8260
Benzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichloroethane	< 1.0 ug/L	12/ 8/99	8260
Trichloroethene	9.4 ug/L	12/ 8/99	8260
1,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromodichloromethane	< 1.0 ug/L	12/ 8/99	8260
2-Hexanone	< 2.0 ug/L	12/ 8/99	8260
Trans-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Toluene	< 1.0 ug/L	12/ 8/99	8260

Analysis Performed	Results	Analyzed	Method
CIS-1,3-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
1,1,2-Trichloroethane	< 1.0 ug/L	12/ 8/99	8260
4-Methyl-2-Pentanone	< 1.0 ug/L	12/ 8/99	8260
Tetrachloroethene	< 1.0 ug/L	12/ 8/99	8260
Dibromochloromethane	< 1.0 ug/L	12/ 8/99	8260
Chlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Ethylbenzene	< 1.0 ug/L	12/ 8/99	8260
Total Xylenes	< 2.0 ug/L	12/ 8/99	8260
Styrene	< 1.0 ug/L	12/ 8/99	8260
Bromoform	< 1.0 ug/L	12/ 8/99	8260
1,1,2,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,4-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Diethyl Ether	< 20.0 ug/L	12/ 8/99	8260
Iodomethane	< 5.0 ug/L	12/ 8/99	8260
Acrylonitrile	< 2.0 ug/L	12/ 8/99	8260
Allyl Chloride	< 1.0 ug/L	12/ 8/99	8260
Propionitrile	< 20.0 ug/L	12/ 8/99	8260
Methacrylonitrile	< 1.0 ug/L	12/ 8/99	8060
Methyl Acrylate	< 10.0 ug/L	12/ 8/99	8260
Tetrahydrofuran	< 5.0 ug/L	12/ 8/99	8260
1-Chlorobutane	< 1.0 ug/L	12/ 8/99	8260
Chloroacetonitrile	< 2.0 ug/L	12/ 8/99	8260
2-Nitropropane	< 1.0 ug/L	12/ 8/99	8260
Methylmethacrylate	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropanone	< 2.0 ug/L	12/ 8/99	8260
Ethyl Methacrylate	< 1.0 ug/L	12/ 8/99	8260
t-1,4-Dichloro-2-butene	< 1.0 ug/L	12/ 8/99	8260
Pentachloroethane	< 1.0 ug/L	12/ 8/99	8260
Hexachloroethane	< 1.0 ug/L	12/ 8/99	8260
Nitrobenzene	< 10.0 ug/L	12/ 8/99	8260
Dichlorodifluoromethane	< 1.0 ug/L	12/ 8/99	8260
Trichlorofluoromethane	< 5.0 ug/L	12/ 8/99	8260
2,2-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
Bromochloromethane	< 1.0 ug/L	12/ 8/99	8260
1,1-Dichloropropene	< 1.0 ug/L	12/ 8/99	8260
Dibromomethane	< 1.0 ug/L	12/ 8/99	8260
1,3-Dichloropropane	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromoethane	< 1.0 ug/L	12/ 8/99	8260
1,1,1,2-Tetrachloroethane	< 1.0 ug/L	12/ 8/99	8260
Isopropylbenzene	< 1.0 ug/L	12/ 8/99	8060
1,2,3-Trichloropropane	< 1.0 ug/L	12/ 8/99	8260
n-Propylbenzene	< 1.0 ug/L	12/ 8/99	8260
Bromobenzene	< 1.0 ug/L	12/ 8/99	8260
2-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
4-Chlorotoluene	< 1.0 ug/L	12/ 8/99	8260
1,3,5-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260

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Lab Number: 99-D3281
Sample Number: 997583
December 10, 1999

Analysis Performed	Results	Analyzed	Method
tert-Butylbenzene	< 2.0 ug/L	12/ 8/99	8260
1,2,4-Trimethylbenzene	< 1.0 ug/L	12/ 8/99	8260
sec-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
p-isopropyltoluene	< 1.0 ug/L	12/ 8/99	8260
n-Butylbenzene	< 1.0 ug/L	12/ 8/99	8260
1,2-Dibromo-3-Chloroprop	< 1.0 ug/L	12/ 8/99	8260
1,2,4-Trichlorobenzene	< 1.0 ug/L	12/ 8/99	8260
Hexachlorobutadiene	< 2.0 ug/L	12/ 8/99	8260
Naphthalene	< 1.0 ug/L	12/ 8/99	8260
1,2,3-Trichlorobenzene	< 2.0 ug/L	12/ 8/99	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: VALERIE WILDER, HWP



Mel Carnahan, Governor • Stephen M. Mahfood, Director

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

MEMORANDUM

DATE: February 8, 2000

TO: Nancy Priddy, Site Evaluation Unit
Superfund Section, Hazardous Waste Program

FROM: *RWM* Robert Murphy, P.E., Groundwater Unit
Permits Section, Hazardous Waste Program

THROUGH: Julie Warren, Chief, Site Evaluation Unit
Superfund Section, Hazardous Waste Program

SUBJECT: Chicago Heights Boulevard VOC Plume Site Evaluation

I have reviewed the file material for the Chicago Heights Boulevard VOC plume site and the neighboring EG&G Missouri Metals (EG&G) reports on behalf of the Groundwater Unit per Julie Warren's request. I focused my review to form an opinion as to where the VOC contaminants detected in the Chicago Heights residential area may have originated/migrated from and what preferential subsurface groundwater flow features may exist in the area. I have drawn the following conclusions from my review:

- 1) The groundwater contamination detected by the ESP in sampling points GW-1, GW-26, GW-2, GW-7, GW-9, GW-8, GW-19, and GW-10 definitely appears to have originated from the EG&G property to the north-northwest. I reviewed the groundwater contaminant data obtained by EG&G from its property, and their plume is in a relatively tight (not dispersing, or fanning out in a wide area) pattern migrating from the northwest to the southeast. The aforementioned ESP sampling points seem to indicate a continuation of this migration pattern off site into the northern residential area.
- 2) The sampling results from the on-site EG&G shallow groundwater investigation and the off-site ESP investigation have indicated that a significant preferential subsurface pathway exists which is strongly influencing groundwater and contaminant migration. The presence of a drainage ditch, creek, or other influencing feature prior to the development of the area, which is now buried, could be the preferential migration pathway. Typically, with my RCRA sites

experiencing similar VOC contaminated groundwater, the plume disperses, or "fans out," over a much wider area than the relatively narrow migration pattern seen at the EG&G facility and the Chicago heights residential area. Other explanations for this migration pattern could be the influence of the buried storm water sewers or other buried utility features. Finding the extent of groundwater contamination that has a migration pattern strongly influenced by these features is a "hit and miss" effort. Since any former natural drainageway would not be oriented in a straight line, evenly spaced groundwater sampling patterns could indicate two apparent separate contaminated areas that, in reality, were part of the same plume. This could explain why the ESP sampling detected contaminants at GW-19, GW-8, and GW-10, did not detect any contaminants further downgradient at GW-11, but even further downgradient did detect contaminants at GW-12 and GW-13.

- 3) Given the "hit and miss" sampling scenario explained above in Comment #2 due to the preferential groundwater migration pathway, it is no small surprise that EG&G's sampling results did not detect any contaminants in the northern residential area. In fact, EG&G only obtained three samples from the northern half of the entire three block area of concern. The ESP obtained fourteen groundwater samples from the northern half of the residential area. This could explain why the EG&G sampling only indicated ^{contaminants} ~~sampling~~ on the extreme southern perimeter of the subject area (B-4, B-10, B-11, and B-12). Though highly unlikely, I suppose it is possible that the contaminants detected by EG&G at these four southern sampling points could have originated from a source other than the EG&G property. EG&G may bring up the fact that the ESP did detect contaminant presence in four sampling points due west of the four contaminated EG&G sampling points. ESP sampling points GW-24, GW-23, GW-22, and GW-5 all had very low detections of VOC contaminants. If just one or two of these sampling points yielded a few VOCs below detection limits, I could conclude that it was a result of laboratory contamination or poor quality control during Geoprobe drilling and sampling. The fact that all four sampling locations are in the same vicinity (southwest corner of the residential area) and yielded low VOC presence would lead me to believe that the detections were representative of groundwater conditions in the area. If there is a low-level contaminant groundwater plume in the southwestern portion of this area, it could have originated from the EG&G facility as well. Any combination of buried storm sewers, a sanitary sewer, cable and/or electrical lines, etc. could have induced flow from EG&G's property to the south along the fence line. If EG&G still maintains that the southern residential area contamination did not originate from their facility, they should be requested to prove it. This could only be the installation of groundwater monitoring wells along the accomplished through

fence line to confirm contaminant presence near the ESP sampling points, and installation of wells on the vacant lot to the west and/or the County Cab Company property to find this other assumed source area.

- 4) In discussions with Lance Livesay of your section, I learned that the ESP sampling personnel generally pushed deeper with the Geoprobe sampling unit than the EG&G sampling unit (based on Lance's actual field observations). I had originally thought that this may be the reason that the ESP sampling and analysis detected contaminants in certain areas and the EG&G sampling did not. This is because the dense contaminants would tend to migrate along the soil/bedrock interface zone and using too shallow a sampling methodology would tend to "miss" the contaminant presence. However, a review of the Geoprobe sampling depths revealed that both parties obtained samples from nearly identical depths in the area of B-17, B-1, and B-6. The ESP did obtain a significantly deeper sample from GW-11 located in what appears to be the middle of the residential area contaminant plume, but the sample was clean. In the southern portion of the residential area, EG&G sampling points B-5 and B-9 were also much shallower than corresponding ESP sample depths (GW-14 and GW-15), but samples from both parties were clean. In the extreme southern residential area where EG&G had four samples with low VOC detections in the groundwater, there were no corresponding ESP sampling points to corroborate evidence of contaminant presence in this area. Basically, the apparent discrepancies between the two parties sampling results are due to the EG&G consultants not sampling sufficiently in the north-northwestern portion of the residential area that adjoins their contaminated property and the ESP not sampling as far to the southeast as EG&G personnel did.

To summarize, there are still three main "gray" areas with regard to site characterization that need to be further evaluated by EG&G. These include:

- Determining what preferential pathways are controlling primary shallow contaminated groundwater flow south of EG&G's property. Searching for aerial photographs of the region which may help identify the orientation of former drainage ways towards the River Des Peres away from the current site of EG&G could prove to be a valuable source of information.
- Confirmation that a shallow groundwater contaminant plume actually exists in the southwestern portion of the residential area, just east of the open field along the fence line. Confirmation of such a plume can only be accomplished through additional groundwater sampling in the area.

Memo to Nancy Priddy, Site Evaluation Unit
February 8, 2000
Page 4

- Determining the full horizontal extent of the groundwater contaminant plume emanating from EG&G's property east of Wishart Place and south of Meeks Boulevard. EG&G did not attempt to sample in this area and the ESP sampling points did not yield sufficient water. This determination can only be made after additional Geoprobe sampling and/or installation and sampling of new groundwater monitoring wells in the area. Sufficient "clean" groundwater samples from this area would back up the assumption that the contamination from EG&G's property is migrating along a preferential pathway along a relatively narrow pattern.

If you have any questions regarding my conclusions or assumptions regarding the ESP and EG&G groundwater investigations, feel free to call me at 1-1970.

RWM:bi

DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality

TELEPHONE OR CONFERENCE RECORD

FILE: Chicago Heights VOC Plume
Superfund Technical File

DATE: March 9, 2000

TELEPHONE:

Incoming ()
Outgoing (X)

CONFERENCE:

Field ()
Office ()

SUBJECT: Two Calls Regarding Drinking Water in Chicago Heights Blvd. Site Area

PERSONS INVOLVED:

NAME

Nancy H. Priddy
Bob Chitwood, Customer Service Supervisor

Judy Zahner, Secretary to Head Principal

REPRESENTING

DNR/HWP/Superfund
St. Louis County Water Co.,
Central District
Pattonville Heights Middle
School

SUMMARY OF CONVERSATION:

I made two phone calls to verify information regarding the drinking water sources in the vicinity of the Chicago Heights Blvd. VOC Plume site.

I asked Ms. Judy Zahner about the community well listed in the DGLS report as being between three and four miles from the site, and belonging to the Maryland Heights School. She told me that schools are connected to the county water supply. The Maryland Heights schools have merged with the Pattonville schools. The old Maryland Heights school at that location became the administration building after the new school was built quite some time ago. Since then, the administration building has been razed. There is no longer any building or well at that location.

Mr. Bob Chitwood confirmed that the St. Louis County Water Company, Central District, serves the residents in the site area. He is aware of a few wells still in use in the area. When a customer is connected to the county water supply, any existing well must be properly closed out. If we have specific addresses, he could look them up to see if they are county water supply customers.

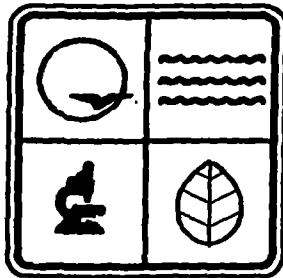
3/9/2000

Date of Signature


Nancy H. Priddy
Environmental Specialist

NHP:cj

INVENTORY OF MISSOURI PUBLIC WATER SYSTEMS 1999



Missouri Department of Natural Resources
Division of Environmental Quality

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KEY TO CODES AND ABBREVIATIONS

AVG DLY CONSUMP	=	Average Daily Consumption
M.G.D.	=	Million Gallons per Day
Mg/L	=	Milligrams per Liter
OPER LVL	=	Operator Level
		A - Requires a minimum of six years experience.
		B - Requires a minimum of four years experience.
		C - Requires a minimum of two years experience.
		D - Requires a minimum of one year experience.
		E - Requires no previous experience.
		X - Exempt from certification.

Community public water supplies are classified according to system capacity, source of water, character of water being produced, complexity of treatment and other physical conditions that may affect a system. The Department of Natural Resources uses this classification system to determine the certification level necessary for the chief operator to supervise the operation of a facility. (Missouri Public Drinking Water Regulations Title 10, Division 60, Chapter 14.010)

OWN	=	Type of Owner
		1 - Federal Government
		2 - Private
		3 - State Government
		4 - Local Government
POP SERV	=	Population Served
PCT GRD	=	Percent of Source that is Ground Water
PCT PUR GRD	=	Percent of Source that is Purchased Ground Water

CITY WATER SYSTEMS

COMMUNITY WATER SYSTEM NAME	YEAR BEGAN	OPER LVL	OWN	POP SERV	SERV CON	PCT SUR	PCT GRD	PCT PUR SUR	PCT PUR GRD	SUPPLY CAPACITY M.G.D.	AVG DLY CONSUMP M.G.D.	FINISHED WATER STORAGE
SOUTHWEST CITY ID NUMBER MO5010751	1935	D	4	600	298	0	100	0	0	0.3820	0.0750	0.0650
COUNTY LOCATION MCDONALD												
SPARTA ID NUMBER MO5010752	1960	D	4	800	476	0	100	0	0	0.6040	0.1100	0.1000
COUNTY LOCATION CHRISTIAN												
SPICKARD ID NUMBER MO2010753	1908	E	4	389	147	0	0	100	0	0.0000	0.0281	0.0500
COUNTY LOCATION GRUNDY												
SPRINGFIELD ID NUMBER MO5010754	1883	A	4	149,237	59,695	90	10	0	0	56.6000	22.5000	14.0500
COUNTY LOCATION GREENE												
ST CHARLES ID NUMBER MO6010707	1890	A	4	56,339	27,500	0	43	57	0	6.0000	6.4000	3.5000
COUNTY LOCATION ST CHARLES												
ST CLAIR ID NUMBER MO6010708	1932	D	4	4,200	1,763	0	100	0	0	0.5230	0.4000	1.1650
COUNTY LOCATION FRANKLIN												
ST ELIZABETH ID NUMBER MO3010709	1969	E	4	450	95	0	100	0	0	0.1000	0.0300	0.1000
COUNTY LOCATION MILLER												
ST JAMES ID NUMBER MO3010712	1924	D	4	3,500	1,481	0	100	0	0	2.0000	0.5000	0.5500
COUNTY LOCATION PHELPS												
ST LOUIS CITY ID NUMBER MO6010715	1831	X	4	370,000	138,000	100	0	0	0	440.0000	152.0000	20.0000
COUNTY LOCATION ST LOUIS CITY												
ST LOUIS CO WATER CO ID NUMBER MO6010716	1902	X	2	1,000,000	290,836	100	0	0	0	313.0000	121.7000	97.1000
COUNTY LOCATION ST LOUIS												
ST MARYS ID NUMBER MO4010718	1937	D	4	461	203	0	100	0	0	0.2070	0.0248	0.1857
COUNTY LOCATION STE GENEVIEVE												
ST PETERS ID NUMBER MO6010719	1960	A	4	41,000	13,758	0	25	75	0	6.0000	4.5000	3.0500
COUNTY LOCATION ST CHARLES												

NON-COMMUNITY WATER SYSTEMS

COUNTY OF LOCATION	WATER SYSTEM NAME	ID NUMBER	SYS TYPE	DATE SEASON BEGINS	DATE SEASON ENDS
ST FRANCOIS	TEDDY BEAR DAY CARE	MO4170531	17	01/01	12/31
ST LOUIS	AL-PAC HOMELESS SHELTER	MO6061132	6	01/01	12/31
	BABLER STATE PARK	MO6120147	12	01/01	12/31
	CAMP WYMAN	MO6069092	24	01/01	12/31
	CONCORD VILLAGE YOUTH SPORTS COMPLEX	MO6201026	20	05/01	10/31
	GREENSFELDER COUNTY PARK	MO6162373	16	01/01	12/31
	HIDDEN VALLEY GOLF COURSE	MO6200625	20	01/01	12/31
	JAY HENGES RANGE	MO6140960	14	01/01	12/31
	JELLYSTONE PARK CMPGRD	MO6241111	24	05/01	09/30
	LONE ELK COUNTY PARK	MO6202395	20	01/01	12/31
	MARIANIST RETREAT CENTER	MO6281482	28	01/01	12/31
	PARADISE VALLEY GOLF & COUNTRY CLUB	MO6200551	20	04/01	10/31
	QUARRY HILL GOLF PRACTICE CENTER	MO6201621	20	03/01	10/31
	RAMADA INN AT SIX FLAGS	MO6190564	19	01/01	12/31
	ROCKWOODS RESERVATION	MO6142190	14	01/01	12/31
	SIX FLAGS OVER MID-AMERICA	MO6181967	20	04/01	10/31
	THE PLAYERS CLUB AT ST LOUIS	MO6200549	20	01/01	12/31
	THE WEDGE	MO6290548	29	01/01	12/31
	WILDHORSE AMOCO	MO6291618	29	01/01	12/31
STE GENEVIEVE	BLOOMSDALE ELEM SCHOOL	MO4171222	17	09/01	05/31
	CAMP BUTTERFLY	MO4190281	22	05/01	09/30
	HAWN STATE PARK	MO4120067	12	01/01	12/31
	PEACEFUL VALLEY BAPTIST CAMP	MO4258565	24	06/01	09/30
	WINDS OF MEADOWVIEW	MO4211581	21	01/01	12/31
STODDARD	DUCK CREEK WILDLIFE AREA	MO4142183	14	04/01	12/31
	MINGO NATIONAL WILDLIFE REFUGE	MO4102254	10	01/01	12/31
	RALSTON PURINA CO	MO4180594	18	01/01	12/31
	RICHLAND R-1 HIGH SCHOOL	MO4171275	17	09/01	05/31
STONE	ACORN ACRES RV PARK	MO5240732	24	01/01	12/31
	ALPINE LODGE RESORT	MO5190970	19	04/01	10/31

Chicago Heights Blvd VOC Plume
Overland, Missouri
MOD006283808
PA/SI Reference 31

1990 CPH-1-27

1990 Census of
Population and Housing
Summary Population and
Housing Characteristics

Missouri

STOCK # 003-024-07326-9

20⁰⁰

Issued August 1991



U.S. Department of Commerce
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Rockwell A. Schnabel, Deputy Secretary

Economics and Statistics Administration
Michael R. Darby, Under Secretary
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BUREAU OF THE CENSUS
Barbara Everitt Bryant, Director

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Table 6. Household, Family, and Group Quarters Characteristics: 1990

(For definitions of terms and meanings of symbols, see text)

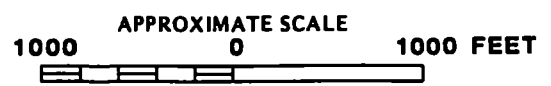
State County Place and (In Selected States) County Subdivision	Persons in households	All house- holds	Family households			Nonfamily households				Persons per—		Persons in group quarters			
			Total	Married- couple family	Female house- holder, no husband present	Total	Householder living alone			Household	Family	Total	Insti- tutional persons	Other per- sons in group quarters	
							Total	Total	Female						
										65 years and over					
The State	4 971 676	1 961 206	1 368 334	1 104 723	208 175	592 872	510 684	221 516	177 384	2.54	3.08	145 397	80 854	64 543	
COUNTY															
Adair County	21 279	9 060	5 408	4 551	676	3 652	2 740	1 122	908	2.35	2.96	3 298	456	2 842	
Andrew County	14 340	5 429	4 185	3 673	367	1 244	1 121	616	489	2.64	3.06	2 292	263	29	
Atchison County	6 960	2 961	2 033	1 762	200	928	830	481	380	2.35	2.87	497	173	324	
Audrain County	23 009	9 205	6 667	5 670	782	2 538	2 350	1 344	1 053	2.50	3.01	590	527	63	
Barry County	27 201	10 858	8 046	6 987	759	2 812	2 554	1 420	1 102	2.51	2.95	346	331	15	
Barton County	11 140	4 524	3 188	2 770	319	1 336	1 253	768	594	2.46	3.01	172	110	62	
Bates County	14 733	5 918	4 303	3 710	432	1 615	1 503	903	724	2.49	2.98	292	243	49	
Benton County	13 651	5 764	4 212	3 727	359	1 552	1 423	826	607	2.37	2.80	208	179	29	
Bollinger County	10 457	3 946	3 057	2 662	284	889	814	500	364	2.65	3.07	162	106	56	
Boone County	101 696	41 937	25 573	20 602	3 965	16 364	11 531	2 770	2 248	2.42	3.01	10 683	1 145	9 538	
Buchanan County	80 649	32 486	22 319	17 669	3 717	10 167	8 990	4 500	3 646	2.48	3.04	2 434	1 698	736	
Butler County	38 003	15 334	10 970	8 859	1 730	4 364	3 922	2 027	1 587	2.48	2.98	762	597	165	
Caldwell County	8 187	3 222	2 369	2 083	217	853	799	503	409	2.54	3.04	193	193	-	
Calloway County	30 364	11 552	8 639	7 302	1 016	2 913	2 524	1 184	925	2.63	3.08	2 445	1 298	1 147	
Camden County	27 190	11 305	8 596	7 685	648	2 709	2 331	1 061	778	2.61	2.76	305	253	52	
Cape Girardeau County	58 261	23 390	16 158	13 550	2 077	7 232	5 933	2 511	2 051	2.49	3.00	3 372	792	2 580	
Carroll County	10 570	4 332	3 016	2 580	322	1 316	1 234	809	642	2.44	3.02	178	176	2	
Carter County	5 456	2 128	1 520	1 266	187	608	564	319	229	2.56	3.10	59	59	-	
Cass County	62 988	22 892	17 839	15 411	1 879	5 053	4 379	2 057	1 722	2.75	3.15	820	634	186	
Cedar County	11 833	5 003	3 525	3 080	340	1 478	1 371	873	681	2.37	2.86	260	260	-	
Chariton County	9 055	3 661	2 597	2 295	214	1 064	1 009	639	477	2.47	3.02	147	146	1	
Christian County	32 280	11 937	9 510	8 264	954	2 427	2 125	966	792	2.70	3.07	364	364	-	
Clark County	7 450	2 859	2 108	1 813	197	751	701	396	304	2.61	3.09	97	97	-	
Clay County	150 449	58 915	42 458	35 673	5 274	16 457	13 829	4 353	3 577	2.55	3.04	2 962	1 667	1 295	
Clinton County	16 253	6 112	4 639	4 029	440	1 473	1 325	728	589	2.66	3.11	342	333	9	
Cole County	58 032	22 976	15 887	13 331	2 031	7 089	6 286	2 372	1 998	2.53	3.11	5 547	5 108	439	
Cooper County	13 561	5 359	3 903	3 360	417	1 456	1 338	787	634	2.53	3.02	1 274	1 080	194	
Crawford County	18 901	7 299	5 455	4 722	538	1 844	1 677	938	731	2.59	3.05	272	259	13	
Dade County	7 235	2 976	2 098	1 846	182	878	824	515	400	2.43	2.96	214	211	3	
Dallas County	12 507	4 899	3 648	3 158	355	1 251	1 158	703	531	2.55	3.02	139	121	18	
Davess County	7 765	3 040	2 211	1 976	172	829	776	520	420	2.55	3.08	100	100	-	
DeKalb County	7 781	3 054	2 246	2 000	176	808	763	498	404	2.55	3.05	2 186	2 178	8	
Dent County	13 499	5 327	3 938	3 394	435	1 389	1 270	787	630	2.53	3.00	303	257	46	
Douglas County	11 761	4 587	3 409	2 993	291	1 178	1 069	614	479	2.56	3.03	115	102	13	
Dunklin County	32 522	13 128	9 292	7 345	1 614	3 836	3 566	2 102	1 721	2.48	3.01	590	552	38	
Franklin County	79 786	28 856	22 246	18 984	2 426	6 610	5 783	2 793	2 227	2.76	3.20	817	767	50	
Gasconade County	13 735	5 543	3 959	3 461	342	1 584	1 430	851	656	2.48	2.99	271	263	8	
Genry County	6 618	2 756	1 909	1 682	172	847	808	556	466	2.40	2.96	230	213	17	
Greene County	197 756	81 463	54 525	45 018	7 502	26 938	21 635	8 686	7 256	2.43	2.96	10 193	3 294	6 899	
Grundy County	10 277	4 346	2 994	2 594	311	1 352	1 264	799	653	2.36	2.92	259	249	10	
Harrison County	8 281	3 574	2 460	2 173	207	1 114	1 060	676	534	2.32	2.86	188	188	-	
Henry County	19 700	8 189	5 689	4 837	642	2 500	2 289	1 400	1 114	2.41	2.94	344	309	35	
Hickory County	7 224	3 183	2 349	2 123	164	834	776	485	350	2.27	2.67	111	111	-	
Holt County	5 906	2 440	1 689	1 503	126	689	702	478	365	2.42	2.99	128	128	-	
Howard County	8 898	3 571	2 518	2 114	303	1 053	960	598	469	2.49	3.03	733	219	514	
Howell County	30 876	12 283	9 027	7 683	1 036	3 256	3 002	1 707	1 370	2.51	2.98	571	513	58	
Iron County	10 308	3 995	2 970	2 520	347	1 025	937	554	423	2.58	3.04	418	353	65	
Jackson County	621 967	252 582	164 361	121 736	34 400	88 221	74 760	26 937	21 661	2.46	3.08	11 265	7 634	3 631	
Jasper County	88 285	36 134	24 890	20 428	3 549	11 244	9 904	4 885	3 991	2.44	2.98	2 180	888	1 292	
Jefferson County	169 796	59 199	47 211	39 763	5 432	11 988	9 859	3 433	2 757	2.87	3.23	1 584	1 399	185	
Johnson County	37 913	14 579	10 213	8 823	1 007	4 366	3 153	1 189	975	2.60	3.08	4 601	357	4 244	
Knox County	4 366	1 819	1 273	1 111	114	546	511	324	267	2.40	2.94	116	77	39	
Laclede County	26 650	10 420	7 749	6 652	831	2 671	2 421	1 324	1 044	2.56	3.01	508	211	297	
Lafayette County	30 169	11 732	8 570	7 299	921	3 162	2 907	1 714	1 386	2.57	3.07	938	741	197	
Lawrence County	29 670	11 724	8 487	7 255	928	3 237	2 950	1 733	1 384	2.53	3.03	566	555	11	
Lewis County	9 326	3 745	2 655	2 284	264	1 090	989	578	461	2.49	3.02	907	253	654	
Lincoln County	28 539	10 316	7 913	6 851	758	2 403	2 137	1 045	817	2.77	3.21	353	285	68	
Linn County	13 544	5 704	3 837	3 346	373	1 867	1 745	1 111	892	2.37	2.97	341	339	2	
Livingston County	13 798	5 645	3 910	3 345	437	1 735	1 618	944	769	2.44	3.01	794	794	-	
McDonald County	16 681	6 386	4 784	4 058	504	1 602	1 434	760	603	2.61	3.05	257	156	101	
Macon County	15 017	6 160	4 376	3 829	405	1 784	1 663	1 029	838	2.44	2.96	328	326	2	
Madison County	10 966	4 344	3 205	2 683	388	1 139	1 041	623	484	2.52	2.99	161	161	-	
Maries County	7 877	3 028	2 271	1 989	207	757	711	391	296	2.60	3.08	99	99	-	
Martin County	26 826	10 728	7 412	6 137	1 013	3 316	3 042	1 675	1 367	2.50	3.08	856	541	315	
Mercer County	3 655	1 577	1 079	972	66	498	470	307	245	2.32	2.88	68	61	7	
Miller County	20 456	7 977	5 740	4 819	681	2 237	1 999	1 003	775	2.56	3.07	244	204	40	
Mississippi County	14 218	5 411	3 968	2 908	869	1 443	1 336	781	635	2.63	3.13	224	224	-	
Monteau County	11 876	4 583	3 328	2 896	324	1 255	1 169	707	575	2.59	3.13	422	422	-	
Monroe County	8 900	3 471	2 466	2 175	217	1 005	935	528	411	2.56	3.14	204	167	37	
Montgomery County	11 047	4 341	3 114	2 668	326	1 227	1 133	713	550	2.54	3.06	308	308	-	
Morgan County	15 287	6 269	4 629	4 097	374	1 640	1 477	836	595	2.44	2.87	287	222	65	
New Madrid County	20 624	7 795	5 726	4 448	1 066	2 069	1 897	1 067	858	2.65	3.15	304	304	-	
Newton County	43 745	16 886	12 678	10 982	1 267	4 208	3 736	1 937	1 540	2.59	3.04	700	471	229	
Nodaway County	18 905	7 620	4 996	4 330	497	2 624	2 065	1 025	816	2.48	3.05	2 804	252		

Household, Family, and Group Quarters Characteristics: 1990—Con.

(Units of terms and meanings of symbols, see text)

County and [In Selected States] County Subdivision	Persons in households		Family households				Nonfamily households				Persons per—		Persons in group quarters		
	Persons in households	All households	Total	Married-couple family	Female householder, no husband present	Total	Householder living alone		Total	Female	Household	Family	Total	Insti-tutionalized persons	Other persons in group quarters
							Total	65 years and over							
COUNTY—Con.															
Ripley County	12 171	4 788	3 522	2 908	460	1 266	1 184	705	556	2.54	3.02	132	132	—	
St. Charles County	210 482	74 331	57 815	49 956	5 910	16 516	13 357	3 603	2 877	2.83	3.25	2 225	1 537	688	
St. Clair County	8 267	3 499	2 441	2 148	222	1 058	986	608	478	2.36	2.88	190	190	—	
St. Genevieve County	15 792	5 707	4 416	3 878	374	1 291	1 153	625	476	2.77	3.21	245	181	64	
St. Francois County	45 725	17 670	13 101	10 871	1 788	4 569	4 084	2 225	1 809	2.59	3.04	3 179	2 832	347	
St. Louis County	975 815	380 110	270 421	219 468	40 657	109 689	93 532	35 078	28 674	2.57	3.10	17 714	12 586	5 128	
Sakine County	21 872	8 903	6 121	5 020	846	2 782	2 499	1 417	1 148	2.46	3.00	1 651	882	769	
Schuyler County	4 176	1 729	1 234	1 085	117	495	467	324	260	2.42	2.93	60	60	—	
Scotland County	4 696	1 956	1 325	1 165	123	631	586	375	311	2.40	3.01	126	126	—	
Scott County	38 895	14 761	10 950	8 767	1 810	3 811	3 490	1 921	1 597	2.63	3.12	481	481	—	
Shannon County	7 515	2 917	2 199	1 931	204	818	665	374	296	2.58	3.03	98	83	15	
Shelby County	6 725	2 809	1 919	1 685	185	890	838	536	438	2.39	2.98	217	217	—	
Stoddard County	28 214	11 383	8 366	7 024	1 052	3 017	2 801	1 606	1 323	2.48	2.94	681	439	242	
Stone County	18 889	7 885	5 975	5 367	460	1 910	1 696	947	696	2.40	2.77	189	184	5	
Sullivan County	6 103	2 615	1 809	1 588	161	806	754	519	415	2.33	2.87	223	185	38	
Taney County	24 386	10 321	7 497	6 578	699	2 824	2 495	1 324	1 024	2.36	2.79	1 175	272	903	
Texas County	21 255	8 441	6 195	5 314	663	2 246	2 088	1 177	931	2.52	3.00	221	199	22	
Vernon County	17 979	7 301	5 085	4 262	659	2 216	2 043	1 127	908	2.46	3.02	1 062	692	370	
Warren County	19 302	7 070	5 423	4 745	470	1 647	1 423	684	503	2.73	3.15	232	208	24	
Washington County	19 755	6 987	5 420	4 437	725	1 562	1 374	710	527	2.83	3.25	625	615	10	
Wayne County	11 366	4 607	3 417	2 849	410	1 190	1 067	640	478	2.47	2.88	177	146	31	
Weber County	22 977	8 391	6 369	5 715	627	1 822	1 666	926	723	2.74	3.16	776	759	17	
Warth County	2 369	1 037	679	601	54	358	336	230	181	2.28	2.90	70	71	—	
Wright County	16 558	6 510	4 725	4 059	518	1 785	1 679	998	780	2.54	3.06	200	199	1	
St. Louis city	385 916	164 931	90 945	50 557	33 864	73 986	64 677	26 519	20 788	2.34	3.21	10 769	5 900	4 869	
PLACE AND COUNTY SUBDIVISION															
Adrian city, Bates County	1 519	678	428	365	55	200	190	118	101	2.42	3.02	63	57	6	
Advance city, Stoddard County	1 071	488	321	259	49	167	162	108	92	2.19	2.78	66	68	—	
Afton CDP, St. Louis County	21 075	8 919	6 263	5 230	815	2 656	2 369	1 209	1 003	2.36	2.87	31	17	14	
Agency town, Buchanan County	642	201	176	157	14	25	17	8	6	3.19	3.40	—	—	—	
Airport Drive village, Jasper County	818	309	250	224	19	59	52	22	15	2.65	2.98	—	—	—	
Alba city, Jasper County	465	190	129	109	18	61	59	36	32	2.45	3.05	—	—	—	
Albany city, Genney County	1 891	837	530	441	75	307	292	206	180	2.26	2.87	67	67	—	
Albion village, Polk County	76	28	21	19	2	7	6	5	5	2.71	3.19	—	—	—	
Alexandria city, Clark County	341	138	93	77	8	45	38	13	9	2.47	3.00	—	—	—	
Altendale town, Warth County	58	32	16	14	2	16	15	11	5	1.81	2.44	—	—	—	
Allenville village, Cape Girardeau County	69	27	19	17	2	8	6	3	3	2.56	3.05	—	—	—	
Alma city, Lafayette County	446	178	124	107	13	54	47	36	32	2.51	3.08	—	—	—	
Altamont town, Daviess County	188	74	50	45	3	24	24	14	11	2.54	3.22	—	—	—	
Altmore city, Perry County	307	129	87	80	3	42	41	25	21	2.38	3.01	—	—	—	
Alton city, Oregon County	689	320	194	145	33	126	124	91	76	2.15	2.85	3	3	—	
Amazonia town, Andrew County	257	99	74	59	11	25	21	14	9	2.60	3.03	—	—	—	
Amity town, De Kalb County	99	39	25	24	—	14	12	7	4	2.54	3.24	—	—	—	
Amoret city, Bates County	212	84	64	50	10	20	19	12	9	2.52	2.94	—	—	—	
Amsterdam city, Bates County	237	84	67	57	8	17	15	6	4	2.82	3.24	—	—	—	
Anderson city, McDonald County	1 278	570	360	273	61	210	195	116	99	2.24	2.87	154	98	56	
Annapolis town, Pike County	70	25	16	15	—	9	9	5	4	2.80	3.81	—	—	—	
Annapolis city, Iron County	363	155	99	75	21	56	53	33	26	2.34	3.06	—	—	—	
Annonin town, Mississippi County	288	115	85	70	5	30	25	12	7	2.50	2.86	—	—	—	
Appleton city, St. Clair County	1 212	562	331	281	44	231	218	147	124	2.16	2.89	68	68	—	
Arbela town, Scotland County	40	18	13	11	1	5	5	3	3	2.22	2.69	—	—	—	
Arbyrd city, Dunklin County	597	252	163	127	28	89	87	57	48	2.37	2.97	—	—	—	
Arcadia city, Iron County	609	280	176	150	21	104	95	68	61	2.18	2.75	—	—	—	
Arche city, Cass County	799	332	235	204	26	97	95	63	53	2.41	2.95	—	—	—	
Arcola village, Dade County	72	39	23	20	2	16	16	11	7	1.85	2.43	—	—	—	
Argyle town	178	66	46	42	3	20	19	17	14	2.70	3.39	—	—	—	
Marion County	7	2	2	1	1	—	—	—	—	3.50	3.00	—	—	—	
Osage County	171	64	44	41	2	20	19	17	14	2.67	3.41	—	—	—	
Arkoe town, Madaway County	64	24	17	17	—	7	6	3	1	2.67	3.29	—	—	—	
Armstrong city, Howard County	310	130	91	67	20	39	36	29	21	2.38	2.88	—	—	—	
Arnold city, Jefferson County	18 717	6 664	5 281	4 328	713	1 383	1 140	365	317	2.81	3.17	111	111	—	
Arrow Rock town, Sakine County	70	33	24	20	3	9	8	4	3	2.12	2.50	—	—	—	
Asbury city, Jasper County	220	75	63	53	5	12	10	5	3	2.93	3.21	—	—	—	
Ashburn town, Pike County	51	21	14	9	3	7	7	5	5	2.43	3.00	—	—	—	
Ash Grove city, Greene County	1 128	479	332	280	37	147	143	109	87	2.35	2.86	—	—	—	
Ashland city, Boone County	1 252	540	342	270	62	198	178	97	87	2.32	2.92	—	—	—	
Atlanta city, Macon County	411	163	119	99	16	44	42	33	28	2.52	3.03	—	—	—	
Augusta city, St. Charles County	263	109	73	70	1	36	33	25	15	2.41	3.05	—	—	—	
Aultville village, Lafayette County	72	29	20	15	4	9	9	2	2	2.48	2.90	—	—	—	
Aurora city, Lawrence County	6 459	2 728	1 798	1 470	258	930	856	541	462	2.37	2.98	—	—	—	
Auxvasse city, Calloway County	821	345	228	189	32	117	113	86	72	2.38	3.04	—	—	—	
Ava city, Douglas County	2 836	1 285	776	607	139	509	481	319	270	2.21	2.91	107	102	—	
Avilla town, Jasper County	99	37	27	24	2	10	6	3	—	2.68	3.04	—	—	—	
Avondale city, Clay County	550	219	157	118	29	62	50	15	12	2.51	2.96	—	—	—	
Bagnell town, Miller County	89	36	25	21	3	11	10	4	4	2.47	2.96	—	—	—	
Baker village, Stoddard County	8	3	2	2	—	1	—	—	—	2.67	3.50	—	—	—	
Bakersfield village, Ozark County	292	106	81	64	13	25	24	16	14	2.75	3.27	—	—	—	
Baldwin Park village, Cass County	85	35	22	19	2	13	11	5	4	2.43	3.18	—	—	—	
Balwin city, St. Louis County	21 700	7 849	6 191	5 392	618	1 658	1 378	360	298	2.76	3.16	115	116	—	
Baring city, Knox County	182	77	46	40	4	31	27	17	13	2.36	3.09	—	—	—	
Barnard city, Madaway County	234	104	64	49	10	40	39	28	18	2.25	2.98	—	—	—	
Barnett city, Morgan County	215	80	56	50	3	24	24	11	11	2.69	3.36	—	—	—	
Barnhart CDP, Jefferson County	4 848	1 481	1 307	1 156	119	174	134	41	30	3.27	3.49	63	31	32	
Bates City village, Lafayette County	197	72	56	44	9										

To determine if flood Chicago Heights Blvd VOC Plume
contact your insurance O...d, Missouri
Program, at (800) 638-1 MO...6283808
PA/SI Reference 32



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

**ST. LOUIS COUNTY,
MISSOURI**
(UNINCORPORATED AREAS)

PANEL 65 OF 145
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
290327 0065 E

MAP REVISED:
NOVEMBER 1, 1985



Federal Emergency Management Agency

VILLAGE OF PASADENA HILLS
AREA NOT INCLUDED

CITY OF NORTHWOODS
AREA NOT INCLUDED

CITY OF BEVERLY HILLS
AREA NOT INCLUDED

CITY OF PINE LAWN
AREA NOT INCLUDED

CITY OF ... VILLAGE
... NOT INCLUDED

VILLAGE OF VELDA VILLAGE HILLS
AREA NOT INCLUDED



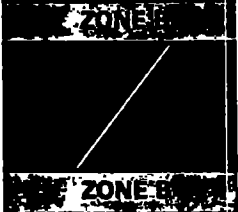


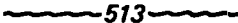

VILLAGE OF UPLANDS PARK
AREA NOT INCLUDED

CITY OF PINE LAWN
AREA NOT INCLUDED

VILLAGE OF HILLSDALE
AREA NOT INCLUDED

BOUNDARY

KEY TO MAP

- 500-Year Flood Boundary 
- 100-Year Flood Boundary 
- Zone Designations* 
- 100-Year Flood Boundary 
- 500-Year Flood Boundary 
- Base Flood Elevation Line With Elevation In Feet**  513
- Base Flood Elevation in Feet Where Uniform Within Zone** (EL 987)
- Elevation Reference Mark RM7x
- Zone D Boundary 
- River Mile M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

***EXPLANATION OF ZONE DESIGNATIONS**

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

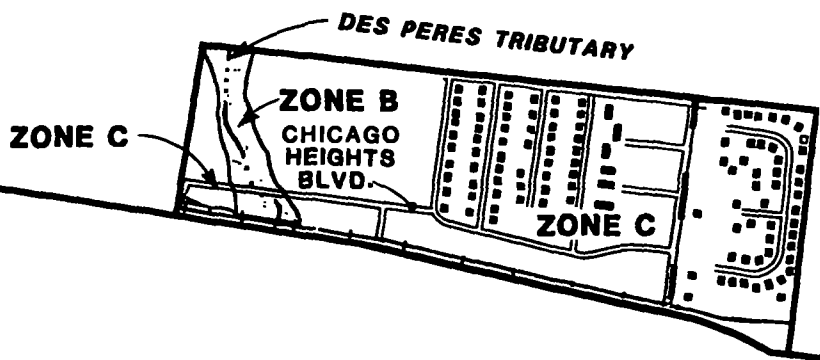
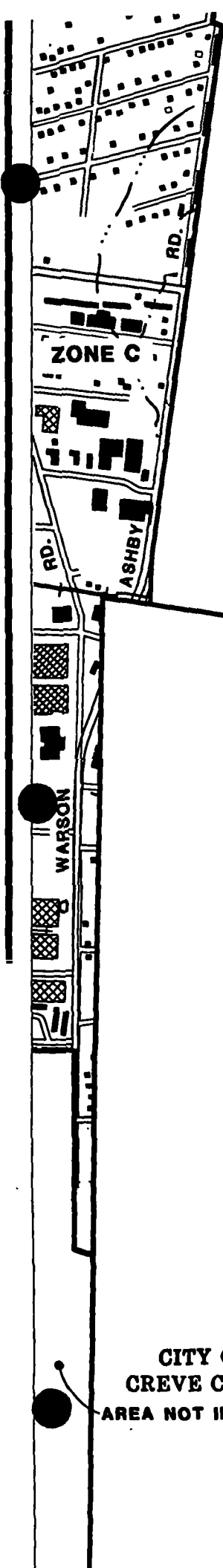
NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Map Index.

CITY OF OVERLAND
AREA NOT INCLUDED



CITY OF OLIVETTE
AREA NOT INCLUDED

CITY OF
CREVE COEUR
AREA NOT INCLUDED

geocorr3 3.03 Rev. 24Jan2000 / Process: 64704 (OSED/UA, U. of Missouri) - Run 16MAR00 at 1
 Listing of Geographic Correlations

COUNTY	TRACT	RING	POP	AFACT		Chicago Heights Blvd VOC Plume Overland, Missouri MOD006283808 PA/SI Reference 33
29189	2156.00	0.25	690	0.139	690	
29189	2146.00	0.50	814	0.090		
29189	2156.00	0.50	1510	0.305	2324	
29189	2145.00	1.00	637	0.188		
29189	2146.00	1.00	4663	0.514		
29189	2149.00	1.00	112	0.017	8490	
29189	2155.00	1.00	777	0.164		
29189	2156.00	1.00	2301	0.464		
29189	2143.00	2.00	36	0.008		
29189	2144.00	2.00	2030	0.357	30,213	
29189	2145.00	2.00	2754	0.812		
29189	2146.00	2.00	3597	0.396		
29189	2147.00	2.00	3424	0.458		
29189	2149.00	2.00	3732	0.564		
29189	2150.01	2.00	0	0.000		
29189	2150.02	2.00	3438	0.434		
29189	2153.01	2.00	95	0.022		
29189	2154.00	2.00	644	0.122		
29189	2155.00	2.00	3934	0.832		
29189	2156.00	2.00	457	0.092		
29189	2157.00	2.00	4053	0.597		
29189	2158.00	2.00	2019	0.269		
29189	2132.01	3.00	1523	0.294	53,108	
29189	2133.00	3.00	1311	0.159		
29189	2134.00	3.00	2130	0.289		
29189	2135.00	3.00	3913	0.708		
29189	2136.00	3.00	458	0.098		
29189	2142.00	3.00	653	0.170		
29189	2143.00	3.00	4337	0.992		
29189	2144.00	3.00	3659	0.643		
29189	2145.00	3.00	0	0.000		

29189	2160.00	4.00		1.000
29189	2161.00	4.00		1.000
29189	2162.00	4.00	7242	1.000
29189	2164.00	4.00	2737	1.000
29189	2165.00	4.00	2547	0.777
29189	2166.00	4.00	1183	1.000
29189	2174.00	4.00	36	1.000
29189	2175.00	4.00	1881	1.000

Total 159,545

geocorr3 3.03 Rev. 24Jan2000

Processing started at OSEDA/Office of Missouri at 15:57:15 on 16MAR00 (CST)

#####-process id: 56956

Requested states to be processed: 29 Missouri

Source geocodes requested: county tract

Target geocodes requested: ring

Output will show how combinations of source geocodes relate to the target geocodes.

Blocks will be selected only if within a distance of less than 4.0 miles from a user-specified point labeled: Specified Point, with coordinates: longitude 90.38004 ,latitude 38.68471.

User has specified using ring areas as pseudo-geocodes.

User has specified ring pseudo-geographic areas with the following outer diameters (ring geocode added to outputs):

0.25 miles

0.5 miles

1 miles

2 miles

3 miles

4 miles

Results:

2168	census blocks selected and processed
74	observations on output correlation list

Processing ended at 15:57:44 on 16MAR00 (CST)

Elapsed time: 29 seconds.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Mel Carnahan, Governor • Stephen M. Mahood, Director

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

RECEIVED

ENVIRONMENTAL SERVICES PROGRAM

SEP 16 1998

RESULTS OF SAMPLE ANALYSES

HAZARDOUS WASTE PROGRAM
 MISSOURI DEPARTMENT OF
 NATURAL RESOURCES

Sample Number: 98-7101
 Lab Number: 98-D2416

Reported To: LANCE LIVESAY	Report Date: 9/11/98
Affiliation: HWP	Date Collected: 8/13/98
Project Code: 3591/3034	Date Received: 8/14/98

Sample Collected by:	LANCE LIVESAY, HWP
Sampling Location:	EG & G MO METALS SITE, OVERLAND, MO
Sample Description:	WATER GRAB OF SB-8

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 50.0	ug/L	8/20/98	8260
Vinyl Chloride	< 50.0	ug/L	8/20/98	8260
Bromomethane	< 50.0	ug/L	8/20/98	8260
Chloroethane	< 50.0	ug/L	8/20/98	8260
1,1-Dichloroethene	< 50.0	ug/L	8/20/98	8260
Acetone	< 200	ug/L	8/20/98	8260
Carbon Disulfide	< 50.0	ug/L	8/20/98	8260
Methylene Chloride	< 200	ug/L	8/20/98	8260
Methyl Tert-Butyl Ether	< 50.0	ug/L	8/20/98	8260
trans-1,2-Dichloroethene	< 50.0	ug/L	8/20/98	8260
1,1-Dichloroethane	< 50.0	ug/L	8/20/98	8260
2-Butanone	< 200	ug/L	8/20/98	8260
cis-1,2-Dichloroethene	5,400	ug/L	8/20/98	8260
Chloroform	< 50.0	ug/L	8/20/98	8260
1,1,1-Trichloroethane	< 50.0	ug/L	8/20/98	8260
Carbon Tetrachloride	< 50.0	ug/L	8/20/98	8260
Benzene	< 50.0	ug/L	8/20/98	8260
1,2-Dichloroethane	< 50.0	ug/L	8/20/98	8260
Trichloroethene	25,000	ug/L	8/20/98	8260
1,2-Dichloropropane	< 50.0	ug/L	8/20/98	8260
Bromodichloromethane	< 50.0	ug/L	8/20/98	8260
2-Hexanone	< 200	ug/L	8/20/98	8260
Trans-1,3-Dichloropropene	< 50.0	ug/L	8/20/98	8260
Toluene	< 50.0	ug/L	8/20/98	8260
CIS-1,3-Dichloropropene	< 50.0	ug/L	8/20/98	8260

Page 2

Lab Number: 98-D2416

Sample Number: 98-7101

September 11, 1998

Analysis Performed	Results		Analyzed	Method
1,1,2-Trichloroethane	< 50.0	ug/L	8/20/98	8260
4-Methyl-2-Pentanone	< 200	ug/L	8/20/98	8260
Tetrachloroethene	130	ug/L	8/20/98	8260
Dibromochloromethane	< 50.0	ug/L	8/20/98	8260
Chlorobenzene	< 50.0	ug/L	8/20/98	8260
Ethylbenzene	< 50.0	ug/L	8/20/98	8260
Total Xylenes	< 50.0	ug/L	8/20/98	8260
Styrene	< 50.0	ug/L	8/20/98	8260
Bromoform	< 50.0	ug/L	8/20/98	8260
1,1,2,2-Tetrachloroethane	< 50.0	ug/L	8/20/98	8260
1,3-Dichlorobenzene	< 50.0	ug/L	8/20/98	8260
1,4-Dichlorobenzene	< 50.0	ug/L	8/20/98	8260
1,2-Dichlorobenzene	< 50.0	ug/L	8/20/98	8260

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.


James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: STEVE STURGESS, HWP