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PRMT SECTION

VOLUME I OF II

RCRA FACILITY INVESTIGATION
J.F. QUEENY PLANT
MONSANTO CHEMICAL COMPANY
ST. LOUIS, MISSOURI

PREPARED FOR

MONSANTO CHEMICAL COMPANY
ST. LOUIS, MISSOURI

PREPARED BY:

GERAGHTY & MILLER, INC.
Environmental Services

R00105662
RCRA RECORDS CENTER
ACC# 10

Monsanto

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PRMT SECTION

March 18, 1992

Mr. Morris Kay
Regional Administrator
U.S. Environmental Protection Agency
Region 7
WSTM Division/RCRA Branch
726 Minnesota Avenue
Kansas City, Kansas 66101

Re: Monsanto - J. F. Queeny Plant
EPA Id. No. MOD 004 954 111
RCRA Facility Investigation Final Report

Dear Mr. Kay:

In accordance with the requirements of Section I of the Corrective Action Schedule of Compliance of Hazardous and Solid Waste Amendments Permit No. MOD 004 954 111 issued November 8, 1989, to Monsanto Chemical Company for its J. F. Queeny Plant, enclosed herewith please find five (5) copies of the RCRA Facility Investigation Final Report.

If there are any questions or need for more information, please contact Mr. Robert L. Cheever, Environmental Protection Superintendent, at 314-622-1641 or Ms. Jo Hanson, Project Manager, at 314-694-6127.

Sincerely,

Russell F. Sackett

Russell F. Sackett
Plant Manager

cc: Kyle Russell - MDNR

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March 18, 1992

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Russell F. Sackett

Russell F. Sackett
Plant Manager

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RCRA FACILITY INVESTIGATION
J.F. QUEENY PLANT
MONSANTO CHEMICAL COMPANY
ST. LOUIS, MISSOURI

VOLUME I OF I

March 1992

Prepared for

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RCRA FACILITY INVESTIGATION
J.F. QUEENY PLANT
MONSANTO CHEMICAL COMPANY
ST. LOUIS, MISSOURI

March 20, 1992

Geraghty & Miller, Inc. is submitting this report to Monsanto Chemical Company for work performed at the J.F. Queeny Site, St. Louis, Missouri. The report was prepared in conformance with Geraghty & Miller's strict quality assurance/quality control procedures to ensure that the report meets the highest standards in terms of the methods used and the information presented. If you have any questions or comments concerning this report, please contact one of the individuals listed below.

Respectfully submitted,
GERAGHTY & MILLER, INC.

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RCRA FACILITY INVESTIGATION
J.F. QUEENY SITE
MONSANTO CHEMICAL COMPANY
ST. LOUIS MISSOURI

E.0 EXECUTIVE SUMMARY

Geraghty & Miller, Inc. was retained by Monsanto Chemical Company to conduct a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) at Monsanto's J.F. Queeny site, St. Louis, Missouri in accordance with its RCRA facility permit. The purpose of the RFI was to characterize the nature, extent, and rate of migration of releases of chemicals to the subsurface soils or ground water. The characterization was implemented through soil and ground-water sampling, bedrock coring, aquifer testing, risk assessment, and ground-water modeling. The results of these activities are summarized below.

E.1 SITE DESCRIPTION AND HISTORY

The Queeny site is located in St. Louis, Missouri, on 63 acres in a heavily industrialized area. The site is approximately 500 feet from the Mississippi River. A 9-acre parcel of the plant was sold to Rhone-Poulenc in 1989. The nearest residential neighborhood is located approximately three blocks to the west of the site.

Chemical manufacturing at the Queeny site began in 1902 with the production of saccharin. During the next 20 years, organic chemicals such as caffeine, vanillin, phenacetin, glycerophosphate, chloral hydrate, phenolphthalein, acetanilide, aspirin, and phthalic

anhydride were added to the plant's production. In its lifetime, the Queeny site has manufactured over 200 different products in over 800 different forms. Its major product families have included process chemicals, plasticizers, synthetic functional fluids, fine chemicals, and agricultural chemicals.

Major products recently manufactured at the plant include acetanilides (the most common of which is known by the trade name Lasso™), L-aspartic acid, paranitrophenetole, trichlorocarbanilide (TCC), maleic anhydride briquettes, and synthetic functional fluids. Acetanilides production ceased in December 1990, and TCC production ceased in early 1991. Chlorobenzene is no longer used at the site.

E.2 REGIONAL AND SITE GEOLOGY

The stratigraphy of the site consists of recent alluvium which overlies glacial material. During the various on-site drilling programs, the unconsolidated deposits were determined to consist predominantly of sand, some gravel, with layers of silt and clay. Fill material is present at several locations within the plant.

The unconsolidated deposits are underlain by bedrock which is comprised chiefly of limestone and dolomite. The bedrock surface is very irregular and varies from 10 ft to approximately 100 ft below grade. The upper 5 to 10 ft of the bedrock is weathered in places, but below this zone, few water-bearing fractures exist and bedrock well yields are

very low. In the southeastern portion of the plant, a quarry is known to have existed in the past. The depth of the quarry was determined to be about 100 ft below grade and it was apparently filled in with native unconsolidated deposits, foundary slag, bricks, and concrete.

E.3 REGIONAL AND SITE HYDROGEOLOGY

Ground-water flow is generally toward the east, and although there are local components of flow in other directions within the site boundaries, ground-water ultimately discharges to the Mississippi River. Ground-water flow patterns vary at the site due to the variable depth to bedrock and the variable permeability of the unconsolidated and bedrock formations. A ground-water high occurs beneath the south-central portion of the site in the former acetanilides production area. This condition is likely due to the shallow depth to bedrock and the low permeability of the silt and clay overlying bedrock in this area. Another ground-water high is present in the vicinity of the former bulk chemical storage terminal. This condition is attributed to a perched water-table zone that overlies a shallow, low-permeability, silty clay unit.

Water-level measurements obtained during the RFI and from historical water-level data indicate that a downward component of ground-water flow is usually present at most well clusters within the unconsolidated deposits. Limited data for the bedrock monitoring wells indicate that an upward gradient is present at two well clusters. At the other two well

clusters, a downward gradient was present in June 1991 and un upward gradient was present in October 1991. Gradient reversal may occur during periods of high river stage.

Slug tests were performed at 10 wells across the site to determine the hydraulic conductivity of the unconsolidated deposits. The data indicated that the hydraulic conductivity varies from 2.8 ft to 31 ft/day for wells screened in silty sand with gravel deposits (Wells MW-2A and MW-13) compared to a range of 0.13 ft/day to 0.73 ft/day for finer-grained sands with silt and clay (Wells MW-3, MW-9, MW-10, and MW-20). These results compare favorably with published values for the types of material present at the site. The slug test data obtained for Wells MW-2A, MW-3, MW-9, and MW-10 confirmed the results previously obtained by Environmental Science and Engineering (ESE) in 1985 (ESE, 1985).

An aquifer test was conducted in the northern portion of the plant to determine the aquifer coefficients necessary for the development of a two-dimensional ground-water model. The results of the test indicate that the hydraulic conductivity is approximately 120 ft/day in the more permeable deposits (Wells TW-1 and OBS-1) and is an order of magnitude lower in the siltier deposits.

E.4 REGIONAL AND SITE WATER USE

Based upon a preliminary data review conducted by Jacobs Engineering Group, Inc. on behalf of the U.S. Environmental Protection Agency (USEPA), there are no drinking

water supply wells within a 1-mile radius of the site (Jacobs Engineering Group, Inc., 1989). Nine industrial wells were identified within this radius, all of which are upgradient of the site. The site water supply is obtained from the City of St. Louis whose source is the Mississippi River at an intake approximately 5 miles upriver from the plant. The closest city water supply intake is located 1.5 miles upriver from the Monsanto facility. The nearest downriver water intake is 30 miles south at Chester, Illinois.

E.5 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

Hydrogeologic investigations were conducted at the site beginning with a plant-wide investigation by ESE in 1983 during which 16 monitoring wells were installed. Twelve additional plant-wide wells were installed by ESE in 1984, and all wells were sampled for the USEPA list of priority pollutant compounds. Several organic compounds were detected in the ground water at various locations throughout the site. The results of these investigations were summarized in two reports prepared by ESE in 1984 and 1985.

In 1985, ESE conducted an investigation near the FF building to assess the effect of a tetrachloroethylene (perchloroethylene or PCE) release to the ground. PCE was detected in soil; the concentration decreased rapidly with distance from the PCE tank. A non-aqueous phase liquid (NAPL) was detected in one well, and dissolved product was detected in several others. Subsequently, Brotcke Engineering Company, Inc. (BEC) installed four

PCE recovery wells near the FF building. PCE was recovered during the early stages of the program, after which no additional PCE was recovered.

In 1986, Geraghty & Miller conducted a soil boring program in the vicinity of the former acetanilides production area. The objectives of the study were to determine the areal and vertical extent of a NAPL detected in Well MW-14 and to map local ground-water flow directions. The five newly-installed wells and Well MW-14 were sampled and analyzed by Monsanto's on-site laboratory. The ground-water samples contained organic compounds associated with the former acetanilides manufacturing, however, a NAPL was observed only in Well MW-14 at a thickness of less than one inch. Since the well was installed in a small fill area, it is believed that the NAPL was contained within the fill because the surrounding material is composed of silt and clay.

In 1988, Geraghty & Miller conducted a hydrogeologic investigation at the coal storage yard and the former bulk chemical storage terminal on Victor Street. Soil borings and monitoring wells were installed, and ground-water samples were analyzed for USEPA priority pollutant compounds. Volatile organic compounds (VOCs) were detected in ground-water samples collected from wells at both locations.

E.6 SOIL QUALITY

Soil samples were analyzed for the full list of Appendix IX constituents at all sampling locations during the RFI with the exception of the former acetanilides production area, where soil was only analyzed for VOCs in accordance with the work plan. The study areas include the former acetanilides production area, the former quarry, the former bulk chemical storage terminal, and the boiler slag accumulation pad. Each area is summarized below.

Former Acetanilides Production Area - VOCs were detected in most of the soil samples collected in the former acetanilides production area, and chlorobenzene was the predominant constituent detected with concentrations ranging from 33 micrograms per kilogram (ug/kg) to 59,000 ug/kg.

Former Quarry - Analytical results indicate that chlorobenzene and other VOCs occur at very low concentrations (less than 20 ug/kg). Base/neutral organic compounds associated with petroleum products were detected in two soil samples collected at one quarry boring and in drill cuttings from another boring where a sheen was observed. No other organic compounds were detected, and inorganic parameters were within background levels.

Former Bulk Chemical Storage Terminal - High VOC concentrations (726,000 ug/kg) consisting predominantly of chlorobenzene were detected at one sample at the former bulk

chemical storage terminal. At the three other boring locations, total VOCs were either not detected or occurred at concentrations less than 30 ug/kg. Base/neutral organic compounds were detected in two of the four soil samples at total concentrations of 52,000 ug/kg and 65,000 ug/kg. No other organic compounds were detected. Inorganic constituent were within the range of other soil samples collected throughout the site.

Boiler Slag Accumulation Pad - The only organic constituents detected in the one sample collected at the boiler slag accumulation pad were the polychlorinated biphenyls (PCBs), Aroclor 1248 and Aroclor 1254, at concentrations of 89,000 ug/kg and 46,000 ug/kg, respectively. The inorganic constituents were within the range of other soil samples collected throughout the site.

E.7 GROUND-WATER QUALITY

As agreed with the USEPA, ground-water quality was to be considered on a site-wide basis rather than on an area-specific basis. VOCs were detected in approximately 50 percent of the wells monitoring the unconsolidated zone. Chlorobenzene was the primary constituent detected, and the highest concentrations were observed in the former acetanilides production area. Chlorobenzene was the only VOC detected during the bedrock monitoring program, and was found in only one well (MW-8R) at low concentrations (6.5/11 micrograms per liter [ug/L]). Since chlorobenzene was detected at high concentrations in the unconsolidated deposits, and not within the bedrock, it is likely that the bedrock acts as a

confining unit. This is supported by the absence of chlorobenzene in bedrock well MW-13R, with relatively high concentrations of chlorobenzene in the unconsolidated zone at this location (500/600 ug/L).

VOCs other than chlorobenzene were detected in wells located at the former coal storage yard (Well HW-1B). Based on ground-water flow direction and the absence of chlorobenzene in the former coal storage yard monitoring wells, it is likely that this area has been impacted by off-site sources.

Few semivolatile compounds were detected in ground water, and concentrations were very low in comparison to VOCs. The highest concentrations of base/neutral compounds occurred at Well MW-13 where total concentrations ranged from several hundred to several thousand micrograms per liter (ug/L). The absence of these compounds in the bedrock supports Geraghty & Miller's belief that the bedrock is a confining unit. Acid extractable compounds were detected in only two wells and at concentrations less than 50 ug/L. The few compounds found were not reported in the bedrock wells.

With the exception of silvex at 0.40 ug/L in Well OBS-1, no herbicides were detected in any well. In addition, no pesticides, polychlorinated biphenyls (PCBs), or chlorinated dioxins or furans were detected in any well.

Several metals exceeded federal drinking water standards in unfiltered samples (total concentrations). These metals include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The samples at each location were described as silty, cloudy or turbid. All dissolved metals were below their respective drinking water standards. Geraghty & Miller believes that suspended sediment in the water samples accounts for the total metals concentrations reported; therefore, the total metals are not representative of ground-water quality.

The inconsistency of the historical metals data from 1984 through 1986 was examined. The reason for high results in 1984 versus much lower concentrations in 1985 and 1986 was due to unfiltered samples being submitted for total metals analysis in 1984, and filtered samples being submitted for dissolved analysis in 1985 and 1986.

Sulfide was detected in only seven wells, and all concentrations were estimated. Cyanide was detected at low concentrations in five wells (10 to 26 ug/L) and at a higher concentration in Well MW-20.

Should have been sampled according to WP Addendum

DNAPLs (dense NAPLs) were not observed in any monitoring well. An LNAPL (light NAPL) was measured at the former bulk chemical storage terminal in one well (0.02 ft at Well VW-2) in October 1991; however, free product was not observed in this well in June 1991, and LNAPLs were not observed in any other well.

E.8 NUMERICAL FLOW AND TRANSPORT ANALYSIS

A two-dimensional, steady-state, ground-water flow model was constructed to characterize the fate and transport of constituents in ground water, and to predict the concentrations of constituents that may enter the Mississippi River. The model shows that ground-water eventually discharges into the Mississippi River. Estimates of total VOCs entering the river have been calculated under two different scenarios; no source and constant source. The solute-transport analysis for the no-source simulation assumes the source of total VOCs to the ground-water system has been removed, and indicates that peak concentrations of 100 to 200 ug/L total VOCs reach the Mississippi River after about 5 years from the initial release. These concentrations decline to less than 10 ug/L after 8 years. The constant source simulation for transport analysis shows that peak concentrations occur at the Mississippi River at approximately the same time as for the no-source scenario. Total VOC concentrations under this scenario were determined to be approximately 125 ug/L in ground water discharging to the river.

It should be noted that the results of the model are conservative because the model assumed a constant distribution of total VOCs throughout the entire saturated thickness of the aquifer, when, in fact, the concentrations are varied. Further, chlorobenzene is no longer used at the site. Therefore, the continuous-source scenario represents a worst-case scenario.

E.9 HEALTH AND ENVIRONMENTAL ASSESSMENT

A health and environmental assessment was performed to identify and evaluate the potential risk to human health and the environment from constituents in the soil and ground water at the site. Although no current pathways of exposure at the site were identified, future exposures to on-site soil during potential excavation projects and to ground water discharging to the Mississippi River were evaluated.

The risk assessment indicates that future risks are within or less than the acceptable regulatory guideline of 1×10^{-4} to 1×10^{-6} for excess lifetime cancer risk and a hazard index (non-cancer risk) of less than one.

RCRA FACILITY INVESTIGATION
J.F. QUEENY PLANT
MONSANTO CHEMICAL COMPANY
ST. LOUIS, MISSOURI

1.0 INTRODUCTION

Geraghty & Miller, Inc. was retained by Monsanto Chemical Company to conduct a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) at the Monsanto Chemical Company's J. F. Queeny Plant in St. Louis, Missouri, in accordance with its RCRA facility permit. The purpose of the RFI was to characterize the nature, extent, and rate of migration of possible past releases of chemicals to the subsurface soils or ground water. The information obtained from the field sampling program was evaluated to determine whether interim corrective measures and/or a corrective measures study (CMS) is necessary. Field activities were conducted to supplement an existing data base derived from previous field investigations conducted by Geraghty & Miller and others. Monitoring and sampling efforts were conducted in each of the areas identified and discussed in the RFI work plan approved by the U.S. Environmental Protection Agency (USEPA) on November 15, 1990 (Geraghty & Miller, Inc., 1990). Locations of soil borings and monitoring wells are provided on the site location map (Figure 1-1). The following tasks were performed in accordance with the work plan:

- Fourteen soil borings were drilled and soil samples were collected at the former acetanilides production/railcar unloading area to characterize the nature and extent of chemicals in the unsaturated zone.

- Four boreholes were drilled and soil samples were collected at the former quarry area to determine the nature and thickness of the fill material overlying the bedrock.

- Four boreholes were drilled at the former bulk chemical storage terminal to characterize soil quality.

- One surface sample was collected at the boiler slag accumulation pad to assess the shallow subsurface soil.

- A monitoring well was installed to the top of the bedrock surface in the former quarry area to characterize ground-water quality directly above the bedrock.

- One monitoring well was installed at the former bulk chemical storage terminal and one well was installed at the coal storage yard to monitor the deepest portion of the unconsolidated aquifer at these locations.

- Bedrock cores were obtained from each of five bedrock boreholes to characterize the lithology of the bedrock geology.

- Two bedrock boreholes (MW-8R and MW-13R) were converted into bedrock monitoring wells to characterize ground-water quality in the bedrock. This task was added to the program during the RFI in accordance with USEPA requirements.

- Two rounds of synoptic water-level measurements were collected from existing and new site monitoring wells to confirm the direction of ground-water flow.

- Two rounds of ground-water sampling were conducted at 28 wells (20 existing wells and eight new wells) to further characterize ground-water quality.

- Data validation was performed for all soil and ground-water samples to assure that all data developed during the RFI were correct.

- An 8-inch diameter test well (TW-1) and a 4-inch diameter observation well (OBS-1) were installed in the unconsolidated deposits so that an aquifer test could be conducted.

- A constant-rate aquifer test was conducted to further define aquifer coefficients (transmissivity, hydraulic conductivity, and storativity) in the unconsolidated aquifer.

- Slug tests were performed on ten wells to compare results to previous aquifer data and to supplement information obtained from the constant-rate aquifer test.

- A ground-water model was developed to characterize flow and transport conditions at the site.

- A health and environmental assessment was performed to assess the potential impact to human health and the environment.

All drilling and sampling procedures were identified in the Field Sampling Plan (FSP) of the October 1990 RFI Work Plan (Geraghty & Miller, Inc., 1990). The FSP was derived from Geraghty & Miller's field sampling protocols, which are based on technically sound standard practices such as those published in "Handbook for Sampling and Preservation of Water and Wastewater," USEPA (1982); "RCRA Ground-Water Monitoring Technical Enforcement Guidance," USEPA (1986); and "RCRA Facility Investigation (RFI) Guidance Volume II; Soil, Ground Water and Subsurface Gas Releases," USEPA (1989). The protocols included in the FSP were developed to ensure that Geraghty & Miller's field procedures are uniform and high in quality. In addition, laboratory protocols followed a site-specific Quality Assurance Project Plan (QAPP) provided in the work plan to ensure the development of high quality data (Geraghty & Miller, Inc. 1990).

2.0 SITE DESCRIPTION

This section describes the physical characteristics of the site, site history, and previous investigations conducted at the facility.

2.1 SITE LOCATION, OWNERSHIP, AND ACCESS

The J.F. Queeny Plant is located in St. Louis, Missouri on a 63-acre property which is located in the western portion of the Cahokia, Illinois, U. S. Geological Survey (USGS) topographic quadrangle at Mississippi River mile 178. A 9-acre parcel of the plant was sold to Rhone-Poulenc in 1989 (Figure 1-1). The Monsanto property is completely surrounded by an 8 ft high fence, and access to the site requires authorization from Monsanto Chemical Company or Rhone-Poulenc.

2.2 SITE DESCRIPTION

The environmental setting plus regional and site specific hydrogeology are presented below.

2.2.1 Environmental Setting and Land Use

The area of St. Louis in which the site is located is heavily industrialized, and within a major transportation corridor provided by the Mississippi River, numerous interstate highways, and a large railroad center. The Missouri-Pacific railroad yard is between the plant and the Mississippi River, which is adjacent to the eastern boundary of the railroad yard. The distance from the plant's eastern boundary to the river varies from 500 to 800 ft. Industries along the southern border of the site are Loy-Lang Company, Ill-Mo Supply Company, and Hager Hinge Company. Benjamin Moore, Ethyl Corporation, and Nooter Corporation are on the northern boundary of the plant, and commercial properties, parking lots, and vacant land are located to the west. The nearest residential neighborhood is located approximately three blocks to the west. A

complete list of adjacent property owners may be found in Attachment 4 of Section 3 in the RCRA Part B application (dated December 8, 1989).

2.2.2 Topography and Surface Drainage

The site lies between 415 to 425 ft above National Geodetic Vertical Datum (NGVD) with very little relief. Despite the close proximity of the Mississippi River (500 to 800 ft), the facility is not located within the 100-year flood plain, according to the Federal Emergency Management Agency (FEMA). This is because a flood wall, constructed by the U.S. Corps of Engineers, separates the facility from the river. This wall is located along the eastern boundary of the Missouri-Pacific Railroad yard (Figure 1-1).

Site runoff is collected in storm sewers that discharge to the plant's wastewater treatment system. After being treated, plant wastewater is discharged to the St. Louis Metropolitan Sewer District (MSD) and is treated in the city's publicly owned treatment works (POTW).

2.2.3 Climate

The climate of the area is continental with hot, humid summers and mild winters. Periods of extreme cold are short. The 1990 meteorological data, as recorded at Lambert International Airport in St. Louis, indicated a maximum temperature of 102°F (July 4, 1990) and a minimum temperature of 0°F (December 23, 1990). The total 1990 annual rainfall was approximately 45 inches. Wind speed averages 9.8 miles per hour and is generally from the southwest in the summer and northwest in the winter.

2.2.4 Soil Conditions

The 1979 soil survey for St. Louis County and St. Louis City, Missouri by the United States Department of Agriculture, Soil Conservation Services (USDA-SCS), indicates that the soils at the site are primarily composed of the urban land, bottom land, 0 to 3 percent slopes and urban land, upland, 0 to 5 percent slopes associations. These units consist of areas in which more than 85 percent of the surface soil is covered by asphalt, concrete, buildings, or other impervious materials. Originally considered bottom, terrace, or upland, many areas have been filled to bring them above normal flood levels. Identification of the soils is impractical because of their variability.

2.2.5 Regional and Site Geology

The stratigraphy at the site consists of recent alluvium that overlies glacial material. Published information indicates that these unconsolidated deposits are underlain by bedrock of Pennsylvanian and Mississippian age, which consists of limestone and dolomite with lesser amounts of sandstone and shale (Jacobs Engineering Group, Inc. 1989).

During the various on-site drilling programs, the alluvial deposits were determined to consist of predominantly fine-to-medium-grained sand with some gravel, and layers of silt and clay. These deposits are underlain by glacial deposits in some portions of the site, which are underlain by bedrock comprised of limestone. The glacial deposits consist of fine sand and silt, with layers of clay and gravel. The information developed during the RFI supplemented previous data and was used to prepare cross sections of the study area. Figures 2-1 through 2-4 are north-south and east-west cross sections that represent the geology at the site.

As seen on these figures, fill material is present in many locations of the site to depths as great as 30 to 35 ft below land surface and is approximately 100 ft thick at the

former quarry. In the central portion of the site, the fill material is underlain by fine-grained silt, clay, and silty sand (5 to 40 ft thick), which rests directly on the shallow bedrock that is encountered at 10 to 20 ft below land surface (Figures 2-1 and 2-3). In areas where bedrock occurs at greater depths, fine to coarse sand and gravel (0 to 45 ft thick) underlie the finer-grained material. In the northern portion of the facility, the sand and gravel layer is underlain by additional fine-grained deposits of silt, clay, and silty sand ranging up to 35 ft in thickness (Figure 2-2). In the southern portion of the site, the sand is underlain by a discontinuous silty clay and silty sand layer (10 to 15 ft thick) underlain by additional fine to coarse sand (0 to 25 ft thick) that appears to increase in thickness as the depth to bedrock increases (Figure 2-1).

In the southeastern portion of the plant, a quarry is known to have existed in the past. Geologic logs for wells drilled in the quarry (QS-1) indicate that it was at least 100 ft deep during its operation. Logs for borings and wells completed in the quarry area indicate that the quarry has been filled with native unconsolidated deposits, foundry slag, bricks, and concrete.

The bedrock encountered during the coring program consisted of a light grey, fine to medium crystalline, limestone with dark gray mottling. Localized areas of chert were also observed. Nearly 100 percent of the core sample was recovered at all locations except at upgradient bedrock well MW-2R, which indicates that there are only few fractures. The observed fractures were typically narrow and filled with clay.

2.2.6 Regional and Site Hydrogeology

The ground water and surface water characteristics are described in this section.

2.2.6.1 Ground Water

Ground water at the site is generally unconfined but may be partially confined where low permeability layers (silt or clay) occur above more permeable units (sand and gravel). A ground-water high has been mapped beneath the south-central portion (former acetanilides production area) of Monsanto's property (Figure 2-5). The ground-water high is likely related to the shallow depth to bedrock (approximately 10 to 20 ft below land surface), and the low permeability of silt and clay relative to the surrounding area. Another ground-water high in the vicinity of the former bulk chemical storage terminal is attributed to a perched water zone due to low permeability materials.

The horizontal component of ground-water flow is generally to the east, and although there are local components of flow in other directions within the plant boundaries, ground water ultimately discharges to the Mississippi River. Water-level measurements collected at the site since November 1984 indicate that a vertical (downward) component of ground-water flow exists at well clusters MW-1A/1B, MW-7A/7B, and MW-8A/8B. The recent water-level data collected in June and October 1991 confirm this vertical component of flow for the unconsolidated deposits (Table 2-1). Water-level measurements in the bedrock monitoring wells indicate there is an upward component of flow from the bedrock to the unconsolidated deposits at well clusters MW-8A/8R and MW-2A/2R. At well clusters MW-9/9R and MW-13/13R, a downward component of flow was observed in June 1991, but an upward component was observed in October 1991, which suggests that water-table fluctuations are seasonal and may be dependent on river stage. These seasonal fluctuations were noted mostly in wells along the eastern site boundary including wells MW-8, MW-8R, MW-9, MW-9R, MW-10, MW-13R, MW-18A, TW-1, OBS-1, HW-1, HW-1B, and VW-2B (Table 2-1).

Aquifer and slug testing were performed during the RFI to provide data for a ground-water model. The ground-water modeling was performed to estimate aquifer characteristics and flow velocities. This information is presented in Section 5.

2.2.6.2 Surface Water

In 1981, Monsanto completed a facility-wide spill control and stormwater collection system. All surface-water drainage is directed through storm sewers to the Monsanto wastewater treatment facility and then discharged to the St. Louis MSD.

2.2.7 Regional and Site Water Use

Based upon a preliminary data review conducted in 1989 by Jacobs Engineering Group, Inc. on behalf of the USEPA, there are no drinking water supply wells within a 1-mile radius of the site (Jacobs Engineering Group, Inc. 1989). Nine industrial wells were identified within this radius, all of which are upgradient from the site and in excess of 400 ft below land surface. The site water supply is obtained from the City of St. Louis whose source is the Mississippi River at an intake approximately 5 miles upriver from the plant. The closest city water supply intake is located 1.5 miles upriver from the Monsanto facility (Jacobs Engineering Group, Inc. 1989). The nearest downriver water intake is 30 miles south at Chester, Illinois.

2.3 SITE HISTORY

Chemical manufacturing at Monsanto's J. F. Queeny Plant began in 1902 with the production of saccharin. During the next 20 years, organic chemicals such as caffeine, vanillan, phenacetin, glycerophosphate, chloral hydrate, phenolphthalein, acetanilide, aspirin, and phthalic anhydride were added to the plant's production.

In its lifetime, the Queeny Plant has manufactured over 200 different products in over 800 different forms. Its major product families have included process chemicals, such as maleic anhydride, furmaric acid, toluene sulfonic acid, and nitrophenetole; plasticizers, such as phthalate esters and toluene sulfonamides; synthetic functional fluids such as Pydrauls™, Skydrols™, and coolanols; food and fine chemicals, such as salicylic

acid, aspirin, methyl salicylate, benzoic acid, and ethavan; and agricultural chemicals such as Lasso™.

Major products recently manufactured at the plant include acetanilides (the most common of which is Lasso™), L-aspartic acid, paranitrophenetole, trichlorocarbanilide (TCC), maleic anhydride briquettes, and synthetic functional fluids. Acetanilides production ceased in December 1990, and TCC production ceased in early 1991. Chlorobenzene is no longer used at the Queeny site.

2.4 OTHER BACKGROUND INFORMATION

Additional background information consists of a summary of previous site investigations plus a review of aerial photographs.

2.4.1 Summary of Existing Reports

Hydrogeologic investigations were conducted at the site beginning with a plant-wide investigation by Environmental Science & Engineering, Inc. (ESE) in 1983 during which 16 monitoring wells were installed. Twelve additional plant-wide wells were installed by ESE in 1984, and all wells were sampled for the USEPA list of Priority Pollutant compounds. A number of organic compounds were detected in the ground water at several locations throughout the site. The results of these investigations were summarized in two reports prepared by ESE (Environmental Science & Engineering, Inc. 1984, 1985).

In 1985, eight soil borings and three monitoring wells (MW-A, MW-B, and MW-D) were installed under the direction of ESE near the FF building to assess the effect of a tetrachloroethylene (also called perchloroethylene or PCE) release to the ground. PCE was detected in four of seven soil samples analyzed, and the concentration decreased rapidly with distance from the PCE tank. A non-aqueous phase liquid

(NAPL) was detected in Well MW-A, and dissolved product was detected in Wells MW-A and MW-B. Subsequently, Brotcke Engineering Company, Inc. (BEC) installed four PCE recovery wells (REC-1 through REC-4) near the FF building. PCE was recovered during the early stages of the program, after which no additional PCE was recovered.

In 1986, Geraghty & Miller supervised the installation of five soil borings (B-1 through B-5) and five monitoring wells (GM-1 through GM-5) in the vicinity of the former acetanilides production area. The objectives of the study were to determine the areal and vertical extent of a dense NAPL detected in the bottom of Well MW-14 and to map local ground-water flow directions. The five newly-installed wells and Well MW-14 were sampled and analyzed by Monsanto's on-site laboratory. The ground-water samples contained organic compounds associated with acetanilides production; however, a NAPL was observed only in Well MW-14 at a thickness of less than 1 inch. Since the well was installed in a small fill area, Geraghty & Miller believes that the NAPL was contained within the fill because the surrounding material is composed of silt and clay.

A summary of all investigations conducted at the Queeny site was provided in a report prepared by Geraghty & Miller (1988a). This report included the work conducted by ESE, BEC, and Geraghty & Miller through June 1988.

An additional investigation was conducted by Geraghty & Miller in April 1988 at the coal storage yard and the former bulk chemical (Victor Street) storage terminal. Twelve soil borings (HB-1 through HB-3 and VB-1 through VB-9) and five monitoring wells (HW-1, HW-2, HW-3, VW-1, and VW-2) were installed and ground-water samples were analyzed for the USEPA list of priority pollutant compounds. The results of screening soil samples in the field indicated that volatile organic compounds (VOCs) were present in the fill material at the former bulk chemical storage terminal. VOCs were detected only slightly above background levels at the coal storage yard. VOCs were detected in ground-water samples collected from wells at both locations. The results of these investigations were summarized in a report prepared by Geraghty & Miller (1988b).

2.4.2 Site Plans and Aerial Photographs of the Site

Available historical site plans and aerial photographs were obtained and reviewed in conjunction with data obtained during the RFI. This information was used to identify the areal extent of the former quarry, shown on Figure 1-1.

3.0 FIELD ACTIVITIES

Field activities conducted during the RFI consisted of soil and ground-water sampling, monitoring well installation, bedrock coring, and aquifer testing.

3.1 FORMER ACETANILIDES PRODUCTION/RAILCAR UNLOADING AREA SOIL BORING PROGRAM

Fourteen soil borings (LS-1 through LS-14) were drilled at the former acetanilides production/railcar unloading area to determine the hydrogeology and soil quality of the unsaturated deposits. Soil samples were collected continuously at 2 ft intervals until the water table was encountered. Soil samples were retained for laboratory analyses of VOCs from two intervals: 0 to 2 ft below grade and the 2 ft interval above the water table. Replicate samples were collected at Borings LS-1 and LS-6. Soil samples were not retained for laboratory analysis at borings LS-3, LS-4, LS-5, LS-9, and LS-10 because the soil was saturated at less than 2 ft below grade.

At locations where the water table was less than 4 ft below grade, or the 0 to 2 ft below grade sample was composed of aggregate fill, only one sample was retained for laboratory analysis. Refusal was encountered at less than 3.5 ft below grade at three locations (LS-1, LS-7, and LS-13); these locations were moved 5 ft and an alternate boring was drilled to obtain sufficient soil for laboratory analysis. Final borehole locations are shown on Figure 3-1, and boring logs are provided in Appendix A.

3.1.1 Auger Drilling Technique

A G&M innovation

Hollow stem augers (4 ¼-inch inside diameter [ID]) were used during drilling in the former acetanilides production/railcar unloading area. Cuttings were lifted out of the borehole on the outside of the auger flights, while a center plug kept the inside of the flights free of soil.

3.1.2 Split-Barrel Core Sampling

This is the only known method for obtaining soil samples

Split-barrel core samples of the unconsolidated sediments were collected through the hollow-stem auger flights prior to advancing the drill bit. The 2-inch diameter by 2-ft long split spoon was used to collect samples continuously; the spoon was advanced by dropping a 140-lb hammer onto the sampling assembly from a height of 30 inches.

Headspace samples were collected from each split barrel core sample and were screened for VOCs. The Geraghty & Miller geologist recorded the date sampled, location, depth, blow counts, grain size, and color for each borehole. Lithologic changes were recorded to the nearest 0.1 ft.

very important

3.1.3 Decontamination

?

All equipment that came into contact directly or indirectly with the formation was steam cleaned prior to and between each borehole location. Between each sampling event at a single boring location, the sampling equipment was cleaned according to protocols outlined in the FSP.

3.1.4 Borehole Completion

When the water table was encountered, soil sampling and drilling were terminated. Each hole was then backfilled with a mixture of approximately 95 percent cement and 5 percent bentonite. A tremie pipe was not used during borehole completion because the borings were shallow (less than 12 ft), and since the soil was predominantly silt and clay, the boreholes did not collapse prior to grouting.

3.1.5 Disposal of Drill Cuttings and Fluids

Cuttings and fluids generated during drilling were drummed until they were removed for disposal. Monsanto disposed of the soils at an appropriate landfill using proper procedures and manifests. Drilling water was sent to the plant sewer system with approval of the MSD.

3.2 FORMER QUARRY SOIL BORING PROGRAM

need to check this

Four boreholes (QS-1 through QS-4) were drilled in the former quarry to determine the nature, thickness, and soil quality of fill material overlying bedrock. Soil samples were retained for analysis of Appendix IX constituents from two intervals: 0 to 2 ft below grade and the 2-ft interval above the water table at Borings QS-1 and QS-2. Soil samples were collected for analysis of fraction organic carbon (F_{oc}) at saturated intervals of varying lithologies at Borings QS-3R and QS-4. At Borings QS-1 and QS-2, a second borehole had to be drilled adjacent to the original boring to obtain a sufficient amount of soil for the required laboratory analysis. At the original QS-3 location, the boring was outside the areal extent of the former quarry; therefore, another borehole (QS-3R) was relocated 62 ft west and 10 ft north and resampled in an attempt to better define quarry boundaries and the nature and thickness of the fill material.

Need to verify this

The boreholes were drilled with 4¼-inch ID hollow-stem augering equipment, and QS-1 was converted to a monitoring well that extended down to the top of the bedrock surface. Refusal was initially encountered at less than 15.5 ft below grade in boreholes QS-1, QS-2, and QS-3; however, the bottom of the quarry (bedrock) was reached after the borings were relocated. Final borehole locations are shown on Figure 1-1 and boring logs are provided in Appendix A.

3.2.1 Auger Drilling Technique

Drilling and soil sampling were conducted from land surface to the bottom of the quarry using 4¼-inch ID hollow-stem augering equipment. Boring QS-1 was then overdrilled using 6¼-inch ID hollow-stem augering equipment to facilitate well installation.

3.2.2 Split-Barrel Core Sampling

Split-barrel core samples and/or 4-inch diameter, 5-ft long soil tube samples were obtained continuously from land surface to the bottom of the quarry using the hollow-stem augering technique described previously in Section 3.1.1 (Auger Drilling Technique).

Field screening for VOCs was conducted during hollow-stem drilling as described in Section 3.1.2 (Split Barrel Core Sampling). During drilling, soil samples and the breathing zone were screened for health and safety purposes in accordance with the RFI health and safety plan (HASP).

3.2.3 Decontamination

All drilling equipment was decontaminated in accordance with the procedures outlined in Section 3.1.3 (Decontamination).

3.2.4 Borehole Completion

Three boreholes (QS-2, QS-3, and QS-4) were drilled to bedrock and grouted with a mixture of 95 percent cement and 5 percent bentonite with a tremie pipe. The remaining borehole was converted into a monitoring well that extends to the top of bedrock, as described in Section 3.5 (Monitoring Well Installation - Former Quarry Area, Former Bulk Chemical Storage Terminal, and Coal Storage Area).

3.2.5 Disposal of Drill Cuttings and Fluids

Cuttings and fluids generated during drilling were handled as described in Section 3.1.5.

3.3 FORMER BULK CHEMICAL STORAGE TERMINAL SOIL BORING PROGRAM

Four soil borings (VS-1 through VS-4) were drilled at the former bulk chemical storage terminal to characterize soil lithology and quality and to supplement data obtained during an earlier boring program (Geraghty & Miller, Inc. 1988b). Drilling locations were selected to be adjacent to the locations of four former aboveground storage tanks. Soil samples were collected continuously to the water table for lithologic description, and samples from the 2-ft interval above the water table were retained for analysis of Appendix IX constituents. All previous and existing locations are shown on Figure 3-2, and soil boring logs are provided in Appendix A.

3.3.1 Auger Drilling Technique

Drilling and soil sampling were conducted using the hollow-stem auger drilling technique as described in Section 3.1.1 (Auger Drilling Technique) and Section 3.1.2 (Split-Barrel Core Sampling).

3.3.2 Split-Barrel Core Sampling

Split-barrel core sampling and/or 4-inch diameter, 5-ft long soil tube sampling was conducted continuously to the water table. All soil samples were field screened for VOCs for health and safety purposes. A geologist logged the borehole using a scale of 1 inch equals 1 ft and recorded lithologic changes to the nearest 0.1 ft. At Borings VS-2

and VS-4, a second borehole had to be drilled adjacent to the original location to obtain sufficient soil for laboratory analysis.

3.3.3 Decontamination

All drilling equipment was decontaminated in accordance with procedures outlined in Section 3.1.3 (Decontamination).

3.3.4 Borehole Completion

Borehole completion was conducted with the same protocols as described in Section 3.2.4 (Borehole Completion).

3.3.5 Disposal of Drill Cuttings and Fluids

Cuttings and fluids generated during drilling were handled as described in Section 3.1.5.

3.4 BOILER SLAG ACCUMULATION PAD SOIL SAMPLING

One shallow soil sample (BS-1) was collected at the boiler slag accumulation pad at the location shown on Figure 1-1. The sample was collected in the 1.25 to 3.25-ft interval below grade for analysis of Appendix IX compounds. Field screening, decontamination, and borehole completion were in accordance with the procedures outlined in Sections 3.1.2 (Split-Barrel Core Sampling), 3.1.3 (Decontamination), and 3.1.4 (Borehole Completion), respectively.

3.5 MONITORING WELL INSTALLATION - FORMER QUARRY AREA, FORMER BULK CHEMICAL STORAGE TERMINAL, AND COAL STORAGE YARD

Three overburden wells (QS-1, VW-2B, and HW-1B) were drilled at the Queeny site to provide additional sitewide coverage (Figure 1-1). One of the quarry boreholes was converted to a monitoring well (QS-1) that extends to the top of bedrock. This well is intended to obtain water-quality data directly above the bedrock in the former quarry area as well as to determine whether dense nonaqueous phase liquids (DNAPLs) are present. Another monitoring well (VW-2B) was installed downgradient of the former bulk chemical storage terminal, and one well (HW-1B) was installed at the coal storage yard to monitor the deepest portion of the unconsolidated aquifer at these locations. All three wells extend to the bedrock surface. Boring logs are provided in Appendix A; well construction diagrams are provided in Appendix B; and well construction details are summarized in Table 3-1.

3.5.1 Drilling Method

The auger drilling technique described in Section 3.1.1 (Auger Drilling Techniques) was used to drill and install a 4-inch diameter PVC well at each of the three locations. Continuous split-spoon samples were collected during drilling at each location and 6¼-inch ID hollow-stem augers were used to facilitate well installation. Potable water was used periodically during drilling to prevent sand from heaving up inside the augers.

3.5.2 Well Construction

At the former quarry and coal storage yard areas, drilling continued until the top of bedrock had been reached, using 6¼-inch ID augers. Wells were constructed using 4-inch ID flush-joint PVC casing and 10 ft of 4-inch ID PVC well screen with a slot size of 0.02 inch (20-slot). The well materials were installed through the augers; all materials

used to construct the wells were new. Prior to installation, the lengths of casing and screen were measured and recorded by the hydrogeologist. The final well depth and screen zone was determined following a review of all available borehole data including the hydrogeologist's sample/core log.

During installation of the 4-inch well at the original proposed quarry well location, QS-4, the bentonite pellet seal bridged inside the 6¼-inch ID hollow-stem augers, rendering the well unusable. The on-site USEPA representative approved relocating the well at Boring QS-1; the agency preferred this location over QS-4 because the depth to bedrock was greater.

At the former bulk chemical storage terminal, an additional precaution was taken due to the presence of a shallow or perched water table aquifer that had been affected by VOCs. In this area, a clay layer approximately 12 ft thick was previously reported to exist at a depth of about 12 to 24 ft below grade. To prevent ground water from migrating below the clay layer during drilling, a 16-inch ID steel surface casing was set approximately 3 ft into the clay. The clay at this location was determined to be only 6 to 8 ft in thickness.

After the 16-inch casing was installed, drilling continued using 6¼-inch ID augers, through the surface casing and through the unconsolidated deposits until the top of bedrock was encountered. Split-spoon samples were collected continuously to the top of bedrock to the extent practical. A 4-inch diameter PVC well (VW-2B) was installed through the augers, as described above.

3.5.3 Sand Pack

A sand pack was installed in the borehole annulus around each well screen. Colorado Silica Sand (10 to 20) was used for the sand packs, and a weighted tape was placed down the annulus periodically to measure the depth to the sand pack as it was

installed to ensure that bridging did not occur and that the sand extended to about 5 ft above the top of the screen. A representative sample of the sand pack material was supplied by the driller prior to use. The sample was described in writing according to lithology, grain-size distribution, trade name, and source and was determined suitable prior to well construction.

3.5.4 Bentonite Seal

A bentonite slurry seal, at least 2 ft thick, was pumped through a tremie pipe to the top of the sand pack in each well. The thickness of the slurry seal was verified by field measurements of the depth to the sand pack and the depth to the top of the seal.

A monitoring well originally planned at the QS-4 location had to be abandoned during construction when the pellets used for the bentonite seal bridged inside the PVC casing. For this reason, pellets were not used when the bentonite seal was emplaced at the final three well locations.

3.5.5 Bentonite/Cement Grout

A grout mixture of bentonite (5 percent) and cement (95 percent) was pumped through a tremie pipe down the annulus between the borehole and/or surface casing and the well casing in each well. The bentonite/cement grout extended from the top of the slurry seal to 2 ft below grade, and the remaining annular space was filled with concrete. A protective steel casing and locking cap assembly was placed in the concrete over each well head to secure the wells from potential vandalism.

3.5.6 Well Construction Diagram

A well construction diagram was prepared by the on-site hydrogeologist for each well. This diagram showed the bottom of the borehole, screen setting, sand pack interval, bentonite seal interval, grout interval, borehole and well casing diameter, and height of the well casing above ground surface. Well construction diagrams for all wells installed during the RFI are provided in Appendix B.

3.5.7 Well Development

A record of well development was maintained along with the other pertinent well data as part of the Quality Assurance/Quality Control (QA/QC) procedures. Well development was accomplished using a compressed air dual-line developer. Development continued until all traces of drill cuttings were removed, the well responded to water-level changes in the formation, and the well produced clear, sediment-free water to the extent practical. For each well, a 1-pint sample of the last water to be removed during development was obtained and inspected for relative clarity by the hydrogeologist to determine whether development was complete.

Dispersing agents, acids, disinfectants, and other additives were not used during well construction or development at any time. During development, water was removed from the entire standing water column by periodically lowering and raising the pump intake. Development water was temporarily drummed and was discharged to the plant sewer system by Monsanto following approval by the MSD.

The following data were recorded as part of development and QA/QC procedures:

- The static water-levels measured from the top of the well casing before and after development.

- The calculated volume of water standing in the well prior to development.
- The sounded well depth before and after development to determine if siltation had occurred inside the well.
- The physical character of water removed, including changes in clarity, color, particulates, and odor.
- The type and size/capacity of the pump used.
- The surging technique used.

3.5.8 Decontamination

All drilling equipment and tools were thoroughly cleaned in accordance with protocols outlined in Section 3.1.3 (Decontamination).

3.5.9 Disposal of Drill Cuttings, Fluids, and Development Water

All drill cuttings and fluids were disposed of according to the protocols described in Section 3.1.5 (Disposal of Drill Cuttings and Fluids).

3.6 BEDROCK CORE AND WELL INSTALLATION PROGRAM

Bedrock cores were obtained at five locations (MW-2R, MW-8R, MW-9R, MW-13R, and MW-21R) to characterize the geology of the bedrock underlying the site. The locations were also selected to obtain information on the upgradient and downgradient water quality within the bedrock and to characterize whether the formation is weathered or competent, or whether voids exist.

The initial scope of work was to core the bedrock until a fracture capable of producing water was encountered. A bedrock water sample was to be collected for field analysis by a portable gas chromatograph (GC). If VOCs were detected, coring and sampling was to continue until a zone was encountered where no VOCs were detected.

At that time, a confirmatory ground-water sample was to be collected for laboratory analysis of Appendix IX constituents. Water samples were only collected at the first location, MW-2R, because the other boreholes did not produce water sufficient for obtaining a sample. An agreement was reached with USEPA that coring would be terminated if two consecutive 6-ft coreholes did not produce sufficient water for field GC analysis. Therefore, coring was terminated at each location after 12 ft of cores were obtained.

Because water could not be obtained during the coring program, it was believed that there was no water in the bedrock. However, during a round of water-level measurements conducted in June 1991, the depth to water in the bedrock boreholes was observed to have risen since the initial measurements. It was concluded that either the bedrock does produce water but at very low yields or that there is leakage from the overburden due to a poor seal between the casing and bedrock.

To determine whether the bedrock does actually produce water, or that the water results from leakage from a poor well seal, an agreement was reached with USEPA to install wells in two bedrock boreholes. Therefore, 2-inch diameter stainless-steel wells were installed in the boreholes at locations MW-8R and MW-13R. Details are described below.

3.6.1 Drilling Method and Bedrock Coring/Sampling

The unconsolidated deposits were drilled with 4¼-inch diameter ID auger equipment using potable water periodically to prevent sand heave. Continuous split-spoon samples were collected to the top of bedrock to the extent practical. Two samples were retained from each borehole for laboratory analysis of F_{oc}. The samples were selected to represent a range of soil permeabilities. This information was needed for development of retardation coefficients to be used in the ground-water model.

The boreholes were then redrilled with 12¼-inch diameter ID auger equipment. A 10-inch diameter steel casing was set to the top of bedrock and cemented into place. Once the cement had set, drilling proceeded through weathered bedrock into competent bedrock using the rotary wash method. A 6-inch diameter steel casing was cemented into the competent bedrock.

After all five 6-inch casings had been cemented in place, cores were taken in the competent bedrock using a 3-inch diameter NX core barrel. The bedrock core was obtained by rotating a hollow tube (core-sampler) with a diamond drill bit at the end of a connecting drill string. Water was circulated through the drill string to cool the drill bit and wash the fine cuttings up to the surface. After a 6-ft core length was drilled, the hollow-core sampler was extracted from the borehole. When the bedrock core barrel was withdrawn from the hole, it was placed on a clean, stable area and the rock core was extruded. The field hydrogeologist kept a record of the following items during the coring process:

- Date to start and finish hole.
- Name of contractor, driller, and field hydrogeologist.
- Location of drill site.
- Boring number or identification.
- Diameter of hole.
- Description and size of core.
- Depth interval of core.
- Percent recovery of core.

After the bedrock core had been examined, it was stored in a standard wooden core box marked to show the boring number, location, and depth interval at which the core was recovered. Photographs were taken of all five bedrock cores; the cores are in storage at the Queeny site. Core recovery was 100 percent (72 inches) at all core

locations except Well MW-2R, where core recovery in the two consecutive intervals was 56 out of 80 cored inches (70 percent) and 71 out of 72 cored inches, respectively.

3.6.2 Field Analysis of Bedrock Ground-Water Samples

A preliminary field screening of bedrock ground-water quality was initially planned for all five bedrock wells. However, there was only sufficient water for sampling at Well MW-2R, and a water sample from this well was analyzed in a mobile on-site laboratory provided by John Mathes & Associates, Inc. The field analyses revealed the presence of 1 microgram per liter (ug/L) of chlorobenzene in the first 6-ft core at Well MW-2R. Therefore, a second 6-ft core was drilled. There was insufficient water in this second core interval, and the USEPA agreed that coring could be terminated after this second 6-ft core interval. No additional ground-water samples were analyzed during the bedrock coring program due to insufficient water for sampling.

The mobile on-site laboratory was equipped with a fully automated Hewlett-Packard 5890A GC that has a flame ionization detector (FID) and a computing integrator that provides accurate, real-time sample analysis. The samples were introduced into the GC using a Tekmar purge-and-trap sample concentrator. It was calibrated to identify the presence of site-specific VOCs, such as chlorobenzene. The detection limit of the FID was approximately 1 ug/L for many of the VOCs. Only chlorobenzene was detected at 1 ug/L in the one ground-water sample analyzed (at Well MW-2R).

A 40-milliliter (mL) glass vial fitted with a Teflon-lined septum cap was used to collect samples. A portion of the sample was rapidly screened using a static headspace method to determine if sample dilution was necessary to prevent overloading the purge-and-trap sample concentrator. Quantitative analysis was then performed by concentrating the analytes on the purge-and-trap unit and automatically transferring them to the GC.

The one field sample was analyzed using a modified USEPA Method 601/602. An FID measured the concentration of analytes. At the beginning of each day, a single-point calibration curve was established by an external standard method using target compounds that elute within the same time range of compounds already detected on-site. For quality control, a reagent water blank and a quality control sample were analyzed each day.

To verify that the field GC was producing reliable data, a confirmatory ground-water sample was collected from Well MW-2R for laboratory analysis of Appendix IX compounds.

3.6.3 Well Installation

During synoptic water-level measurements, significant amounts of water were observed in the bedrock boreholes. The occurrence of this water was believed to be the result of leakage from the unconsolidated deposits through ineffective grout seals. This interpretation is based on the following: First, no water was obtained from the bedrock boreholes during coring but later, the water level was higher; and second, the 6-inch surface casing at Well MW-9R rotated during coring. An agreement was reached with the USEPA that two bedrock wells, MW-8R and MW-13R would be completed with 2-inch stainless-steel screen and casing. The 3-inch coreholes were reamed to 53/8 inches, and wells were installed with stainless-steel casings equipped with 5-ft long stainless-steel screens.

Well construction details are summarized in Table 3-1, and a diagram for each bedrock well is provided in Appendix B. The diagrams show the following features:

- Depth to the bottom of the bedrock borehole.
- Bedrock borehole diameter.
- Depth to bedrock.

- Length/depth of 10-inch well casing.
- Length/depth of 6-inch well casing.
- Length/depth of 2-inch well casing and screen at Wells MW-8R and MW-13R.
- Depth of bedrock that was penetrated by 6-inch well casing.
- Zones of bedrock fractures.
- Height of well casing (without cap) above grade.

3.6.4 Well Development

Well development was conducted in accordance with the procedures outlined in Section 3.5.7 (Well Development).

3.6.5 Decontamination

All drilling equipment and tools were thoroughly cleaned in accordance with the protocols outlined in Section 3.1.3 (Decontamination).

3.6.6 Disposal of Drill Cuttings and Fluids

Cuttings and fluids generated during drilling were handled as described in Section 3.1.5.

3.7 CONSTRUCTION OF A TEST WELL AND OBSERVATION WELL

An 8-inch diameter test well (TW-1) was installed for the purpose of conducting an aquifer test. One 4-inch diameter observation well (OBS-1) was also drilled and installed approximately 80 ft from test well (TW-1) to measure water-level changes during the aquifer test. This well supplemented existing wells that were used for water-level measurements during the test. Well locations are shown on Figure 1-1.

3.7.1 Drilling Method

The hollow-stem auger drilling technique was used to drill an 8-inch diameter pilot hole in advance of a larger borehole necessary for the installation of an 8-inch diameter test well. The pilot hole was necessary to obtain split-spoon samples for sieve analysis. The sieve analysis results were used to determine the optimum well screen slot size and the appropriate size gravel pack.

The location for Well TW-1 was determined after three test holes were drilled. The first borehole, TW-1A, was located north of the west loading dock on the north side of the KK warehouse (Figure 1-1). This borehole was sampled continuously from land surface until spoon refusal occurred at 64 ft below grade. In an effort to obtain a greater depth to bedrock and possibly coarser material in which to screen the well, a second boring (TW-1B) was drilled just southeast of Well MW-7B (Figure 1-1). Split-spoon samples were collected every 5 ft above 60 ft, and continuously below 60 ft. Based on boring logs of Wells MW-7A/7B, a greater depth to bedrock and coarser material were expected at this location. Bedrock was encountered at 93.5 ft below grade. However, the material was much finer than indicated in the logs for Wells MW-7A/7B and this location was, therefore, unsuitable for a test well.

A third borehole (TW-1) was drilled 15 ft north of TW-1A. Split-spoon samples were collected every 5 ft above 40 ft below land surface and continuously from 40 to 63 ft below grade. This boring location was accepted by the USEPA as suitable for the test well. The two other boreholes, TW-1A and TW-1B were grouted according to procedures described in Section 3.6 (Bedrock Core and Well Installation Program).

Once the well screen had been received from the manufacturer, the borehole was overdrilled using 12¼-inch ID hollow-stem augers. Potable water was used periodically to prevent sand from heaving up inside the augers.

The 4-inch diameter observation well (OBS-1) was drilled and installed using the auger method previously described; however, 8¼-inch ID augers were used to overdrill the borehole.

3.7.2 Well Installation

The installation of test well TW-1 and observation well OBS-1 began as soon as practical after borehole completion. Both wells were installed through the hollow-stem augers. Once well installation had begun, the process continued until the well had been completed and secured against unauthorized access, to the extent practical.

Test well TW-1 was constructed of 8-inch diameter steel casing and 11 ft of 8-inch diameter stainless-steel screen. The screen, casing, and couplers were all new materials. The lengths of casing and screen were measured and recorded by the hydrogeologist prior to installation. The 4-inch diameter observation well (OBS-1) was constructed of schedule 40 flush-joint, internally threaded, PVC casing, and 10 ft of well screen.

Well construction details are summarized in Table 3-1, and diagrams were prepared by the hydrogeologist for Wells TW-1 and OBS-1. These diagrams are included in Appendix B and show the following information:

- Depth to the bottom of the borehole.
- Screen setting.
- Sand pack interval.
- Bentonite seal interval.
- Grout interval.
- Borehole and well casing diameters.
- Height of the well casing (without cap or plug) above grade.

3.7.3 Sand Pack

A sand pack was installed in the borehole annulus around the screen. Number 8-14 Colorado Silica Sand was used for the sand pack; a weighted steel tape was placed down the annulus periodically to measure the depth to the sand pack as it was installed to ensure that bridging did not occur and that the sand pack extended to about 5 ft above the top of the screen.

A representative sample of the sand packing material was supplied by the driller prior to use; the sample was described in writing according to lithology, grain-size distribution, trade name, and source and was determined suitable prior to well construction.

3.7.4 Bentonite Seal

A bentonite slurry seal, at least 2 ft thick, was pumped through a tremie pipe to the top of the sand pack. The thickness of the slurry seal was verified by field measurements of depth to the top of the sand pack and the depth to the top of the slurry seal.

3.7.5 Bentonite/Cement Grout

A grout mixture of bentonite (5 percent) and cement (95 percent) was pumped through a tremie pipe down the annulus between the borehole and/or surface casing and the well casing. The bentonite/cement grout extended from the top of the slurry seal to 2 ft below grade and the remaining annular space was filled with concrete. A protective steel casing and locking cap assembly were placed in the concrete over the well head to secure the well from potential vandalism.

3.7.6 Well Development

Well development was conducted in accordance with the procedures outlined in Section 3.5.7 (Well Development). The observation well (OBS-1) was developed with a compressed air dual-line developer; the test well (TW-1) was developed with a mechanical surge block and a compressed air dual-line developer.

3.7.7 Decontamination

All drilling equipment and tools were thoroughly cleaned in accordance with the protocols outlined in Section 3.1.3 (Decontamination).

3.7.8 Disposal of Drill Cuttings and Fluids

All drill cuttings and fluids were disposed according to the protocols described in Section 3.1.5 (Disposal of Drilling Cuttings and Fluids).

3.8 WATER-LEVEL MEASUREMENTS

Synoptic rounds of water-level measurements were taken from all available monitoring wells during both rounds of ground-water sampling. These data were used to determine the direction of ground-water flow and provided the field hydrogeologist with information to compute the volume of water in each well prior to ground-water sampling. When taking the full round of water-level measurements, care was taken to avoid cross contamination of wells. In addition, all available site wells were checked to determine if NAPLs were present. Water-level measurements collected during ground-water sampling are provided in Table 2-1. A measurable level of an LNAPL was only recorded at Well VW-2 during the second round of water-level measurements. A NAPL was not observed at this well during the first round, nor in any other wells during either sampling round.

Was a sample collected & analyzed?

An electronic probe (M-scope) was used to measure water levels. Each measurement was checked carefully to ensure the reading was correct and then was recorded in the water sampling log (Appendix C) and the water-level/pumping test log. The water-level measurement procedure is described below.

- The electronic probe was cleaned with a detergent solution; rinsed with potable water, and dried with a clean cloth.
- The probe was lowered into the well until contact with the water surface was indicated by an electronic signal.
- The tape was held at the measuring point for each well casing and the depth to water was measured.
- A confirmatory reading was made.
- The water-level elevation was determined by subtracting the depth to water from the measuring point elevation.

3.9 GROUND-WATER SAMPLING

Two rounds of ground-water samples were collected during the RFI. During the first round of sampling (June 1991), ground-water samples were collected from 26 wells to further define upgradient and downgradient ground-water quality. Specifically, samples were collected from Wells GM-1, GM-2, GM-3, GM-4, GM-5, MW-2A, MW-2B, MW-2R (collected during bedrock coring program) MW-3(D), MW-4, MW-8A, MW-8B, MW-9, MW-10, MW-11A, MW-11B, MW-13, MW-14, MW-15, MW-20, TW-1, OBS-1, QS-1, HW-1B, VW-2, and VW-2B. For QA/QC purposes, replicate samples were obtained from Wells MW-8A, MW-8B, MW-13, and MW-14. Wells GM-1 through GM-5 and MW-14 are located in the former acetanilides production area and were analyzed for Appendix IX VOCs; all other samples were analyzed for the full list of Appendix IX compounds. The same 26 wells, plus bedrock Wells MW-8R and MW-13R, were sampled during Round 2, which was conducted during October/November 1991. Because many parameters were either not detected or were only detected in a few wells, a

reduced list of parameters was analyzed during Round 2, as approved by the USEPA. A summary of the parameters analyzed at each well is provided in Table 3-2.

Quality control measures included proper sampling procedures for well purging prior to sampling, sample-removal methods that utilized acceptable materials for all equipment and supplies, sample processing (including filtration, preservation, labeling, and bottle filling), and sample shipment.

Geraghty & Miller's ground-water sampling protocol was based on technically sound standard practices as published in "Handbook for Sampling and Sample Preservation of Water and Wastewater," (USEPA, 1982), "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document," (USEPA, 1986), and "RCRA Facility Investigation (RFI) Guidance; Soil, Groundwater, and Subsurface Gas Releases," (USEPA, 1989). These procedures were used to develop the field sampling plan (FSP) for the work plan.

All pertinent information regarding ground-water sampling procedures was recorded on Geraghty & Miller's water sampling logs (Appendix C).

3.9.1 Preparation of Sampling Equipment

All equipment was thoroughly cleaned before each use. Any supplies, such as tubing, that could not be properly cleaned were discarded in an appropriate manner. Sampling equipment that came into contact with the ground-water sample was decontaminated according to the procedures outlined in Section 3.1.3 (Decontamination). The water-level measuring probe was cleaned with a laboratory-grade detergent and rinsed with potable water prior to use. A new length of polypropylene cord was attached to the sampling bailer prior to sample collection at each well. Equipment, such as conductivity and pH meters, was calibrated each day according to the manufacturer's instructions.

3.9.2 Equipment Decontamination

All equipment used to evacuate and sample the well was decontaminated before sampling began, between each well sampled, and prior to leaving the site, according to the procedures outlined below. Disposable supplies such as tubing and rope were discarded after use at each well.

The decontamination procedures for a submersible pump were as follows:

- Personnel wore disposable gloves at all times during the decontamination and changed gloves as necessary.
- The pump was removed from the well and placed, along with the electrical cord, into a clean, plastic-lined trash can. The equipment was rinsed with distilled water.
- The interior and exterior of the pump were rinsed with a 2 percent Micro solution. A scrub brush was used on the pump and cord to remove surficial contaminants. The equipment was then rinsed with distilled water.
- The clean pump and cord were placed in a clean plastic bag.

No decontamination procedures were necessary for a centrifugal pump as the only part of that equipment that contacted ground water was the dedicated intake line.

The decontamination procedures for a Teflon bailer were as follows:

- Personnel wore disposable gloves at all times during decontamination and changed gloves as necessary.
- The bailer was disassembled and each part was rinsed with a 2 percent Micro solution and distilled water.

- Each part of the bailer was scrubbed with a brush and a 2 percent Micro solution to remove surficial contaminants. Each part was then rinsed with copious amounts of distilled water.
- The bailer was reassembled and rinsed with distilled water.
- The bailer was placed in a clean plastic bag.

3.9.3 Sampling Equipment

The equipment used for sampling ground water is listed below:

- Electric probe
- Clean rags
- Distilled water
- Plastic sheeting
- Polypropylene cord
- Teflon and PVC bailers
- Micro laboratory cleaner
- Graduated buckets
- Latex gloves
- pH meter and buffers
- Conductivity meter and standard
- Beakers
- Prefilters
- 0.45 micron filters
- Filter funnels
- Vacuum flasks
- Vacuum pump
- Thermometers
- Sample bottles
- Indelible pens
- Brushes
- Stainless-steel submersible pump
- ¾-inch and ½-inch polyethylene tubing
- Centrifugal pump
- Clear tape

3.9.4 Preparation of Well for Sampling

Upon arrival at the well site, sampling personnel checked the well for damage, recorded the well designation, removed the cap, and wiped the top of the well casing with a clean cloth. Sampling equipment was protected from potential contamination by plastic sheeting or bags.

The total depths of the wells and depths to water were measured prior to sampling. This allowed the sampling team to calculate the volume of water in the well and to determine if any formation material had accumulated in the well. The well depth was measured to an accuracy of 0.01 ft. In addition, the height of the measuring point above ground surface was measured as an indication of whether the well had been disturbed since installation. The stick up was measured to an accuracy of 0.01 ft.

Prior to purging and sampling, the static water level in each well was measured and the volume of standing water was calculated. Each measurement was made to an accuracy of 0.01 ft below the measuring point. Care was taken to avoid cross-contamination of wells by thoroughly cleaning the measuring instrument between wells.

All available on-site wells were inspected for NAPLs concurrently with the collection of water-level measurements. An electronic interface probe was used to determine the presence or absence of NAPLs, and this information was documented on the sampling logs (Appendix C).

3.9.5 Purging the Well

Standing water was removed from the well casing prior to collecting ground-water samples. Depending on well diameter, well depths, and depth to water, a stainless-steel submersible pump, a centrifugal pump, or a Teflon or PVC bailer was used. Before the submersible pump was lowered into the well, the pump and its discharge tubing were cleaned with a phosphate-free detergent followed by a rinse with deionized water. The pump was slowly lowered into the well on a safety line, set just below the anticipated dynamic water level, and secured. New tubing was used for each well.

The water level in the pumped well was monitored so that the pump could be lowered if the water level dropped near the intake. Care was taken to ensure that the column of water above the pump was removed from the well prior to sampling.

For wells evacuated with a centrifugal pump, the pump was set on the ground next to the well. A length of clean, polyethylene tubing was lowered into the well until it reached below the anticipated dynamic water level. Care was taken to ensure that the column of water above the pump was removed from the well prior to sampling.

Regardless of which method was used for evacuation, the wells were evacuated until the field parameters (pH, temperature, specific conductance) stabilized (+/- 10 percent) over two successive well volumes. This was done to ensure that the sample subsequently collected was representative of the screened zone. If the well could not maintain a continuous yield until the field parameters had stabilized, it was pumped or bailed dry and sampled after the water level recovered.

The evacuated water was either pumped directly into the sewer or into drums that were ultimately discharged to the sewer. Prior to discharging wastewater to the sewer, Monsanto obtained permission from the MSD.

3.9.6 Collection of the Ground-Water Sample

After a well had been evacuated, a ground-water sample was collected with a Teflon bailer. The bailer was lowered slowly so that the water surface was minimally disturbed. Water entered the bailer through the bottom end plug and was prevented from draining out by an inert ball-check valve. A polypropylene cord was used to raise and lower the bailer, and the cord was discarded after each well sampling event. The bailer did not come into contact with any surfaces outside the well casing. The bailer was cleaned in accordance with the decontamination procedures outlined in Section 3.9.2 (Equipment Decontamination). Sampling personnel wore a new pair of disposable latex gloves for each well sampled and when handling a clean bailer.

The sample containers were inspected to ensure that they were the correct type and number and had the correct preservative, as outlined in the analytical laboratory

QAPP (Appendix B to the RFI Work Plan, dated October 1990). The labels were filled out and samples were poured into the containers, avoiding agitation or turbulence that might have resulted in loss of VOCs and/or excessive oxygenation of the samples. Care was also exercised to avoid breakage and to eliminate the entry or contact of any substance with the interior surface of the bottles, vials, or caps, other than the water sample being collected. Caps were not removed until the actual sampling time and then just long enough to fill the container. The vials for volatile organics analysis were topped off to eliminate any headspace or air bubbles and were tightly closed with Teflon-lined septums held in place by open-top screw caps. The sample bottles were prepared with appropriate preservatives prior to sampling, and the sample containers were kept cool, dust-free, and out of the sun. The procedures that Geraghty & Miller personnel followed to collect samples are described below:

- All containers were marked as to project, well identification, date, etc.
- The bailer was disassembled and cleaned according to the decontamination procedures described in Section 3.9.2 (Equipment Decontamination). Clean gloves were worn by sampling personnel when handling clean bailers.
- The bailer was reassembled and placed in a clean plastic bag until it was used. An appropriate length of polypropylene cord was secured to the bailer.
- The bailer was lowered into the well and water column gradually to minimize turbulence. The bailer was allowed to sink and become fully submerged. Water from the first bailer was discarded before being refilled.
- The 40 mL vials for VOC analysis, preserved with HCl, were filled in such a manner to ensure that no air bubbles were present.
- After VOC samples had been collected, the remaining sample containers were filled in the order of the parameter's volatilization sensitivity where appropriate.

- When samples for metals analysis were collected, both filtered and unfiltered samples were collected. The filtered samples were passed through a 5.0-um prefilter and a 0.45-um final filter, both of which are cellulose-based membranes. After filtration, the samples were transferred to pre-acidified containers for metals analysis.
- The well cap was closed and the well locked.
- Samples were packed on ice; the Geraghty & Miller water sampling logs and chain-of-custody forms were completely filled out. Samples were shipped to the laboratory within 24 hours of sample collection.
- The cord, gloves, and sheeting were discarded in an appropriate manner; the bailer was disassembled, decontaminated, and placed in a clean plastic bag.

3.9.7 Containers, Preservation, and Holding Times

Prior to implementation of the field sampling plan, the analytical laboratory was contacted to obtain sample-handling specifications. These specifications complied with USEPA requirements for sample handling and analysis and were checked by Geraghty & Miller chemists.

Containers for water sampling were made of glass, Teflon, or polyethylene plastic, as outlined in the analytical laboratory QAPP. The type of container used depended on the specific analyte being investigated. Polyethylene containers were used for samples for inorganic parameters, and glass containers were used to collect samples for organic analysis. Glass containers had Teflon-lined lids or Teflon septa. When organic compounds (other than VOCs) were being sampled, amber-tinted glass containers were used, as the tinting inhibits photochemical reactions of the constituents being investigated.

Samples were preserved at approximately 4° Celsius in coolers during transport to the laboratory for analysis. Frozen, plastic-ice containers and bagged commercial ice were used in shipping, and the type of preservation used was recorded on the Geraghty & Miller sampling log. Specific containers and preservatives for each analysis were provided in the analytical laboratory QAPP. Analysis was performed as soon as possible within the USEPA and Standard Methods holding times.

3.9.8 Field Analyses

Measurements for temperature, pH, and specific conductance were made in the field at the time of sampling because these properties change during storage. Approximately 250 mL of the sample was placed in a clean, unpreserved polyethylene container when field measurements were conducted. The probes were inserted immediately; the measurements were taken and recorded on the Geraghty & Miller water sampling log.

Temperature, pH, and specific conductance were measured with a Hydac digital conductivity, temperature, and pH tester. Because pH is exponentially related to concentration, great care was exercised in making a measurement. At the beginning of the sampling day, the pH meter was calibrated with three standard buffer solutions. Before a measurement was made, the probe was completely rinsed with distilled water. Then the probe was lowered into a container of sample water and allowed to equilibrate. A pH reading was made as soon as the meter reading stabilized. Between measurements, the probe was immersed in distilled water. The pH meter was recalibrated frequently during the sampling round to ensure accurate and precise measurements.

To measure the sample's specific conductance, the temperature was measured, the instrument adjusted to the temperature, and the probe was then lowered into the sample and stirred gently. A reading was taken within a few seconds after immersion.

Before each use, the probe was cleaned with distilled water. The conductivity meter was calibrated daily with a conductivity standard and was recalibrated frequently during the sampling round to ensure accurate and precise measurements.

3.9.9 Filtration

Samples were collected for dissolved metals as well as for total metals. Prior to preservation, water samples for dissolved metals analyses were filtered through 5.0-um and 0.45-um pore size cellulose-based membranes to remove suspended particulate matter. Filtration was performed as soon as possible after obtaining the water sample. Filtering equipment was cleaned with 2 percent Micro solution, then with potable water, rinsed with 10 percent nitric acid, and finally with copious amounts of distilled water between each use.

3.9.10 Quality Control

Quality Control (QC) samples were used to monitor sampling and laboratory performance. The types of QC samples that were included in this investigation were replicates and blanks. Replicate samples were collected from the same well. Collection and analysis of such samples allowed a check to be made on laboratory reproducibility. Greater than ten percent of all ground-water samples collected at the site were replicated. The procedure used for taking replicate samples is discussed below.

When collecting samples for replicate analyses, one complete set of sample containers was filled first. A second set of bottles was then filled using a separate and distinct bailer volume. Adequate water was available to completely fill the bottles before they were capped. Replicate samples were taken from MW-8A, MW-8B, MW-13, and MW-14.

Trip and equipment blanks were incorporated into the sampling program. A trip blank is a sample composed of organic-free water (prepared by the laboratory) that was filled in the laboratory and traveled unopened with the sample bottles. The trip blanks were analyzed along with the field samples for the VOCs. Analysis of trip blanks determines whether samples have been contaminated by VOCs as a result of handling in the field, during shipment, or in the laboratory. One trip blank accompanied each day's shipment of water samples to the laboratory for VOC analysis.

An equipment blank was collected to assess the decontamination procedures used during sample collection. The sample was prepared by pouring organic-free water into the Teflon bailer (which had been decontaminated and was ready for sampling) and then into the sampling containers. One equipment blank was collected each day of sampling and was analyzed for the same suite of constituents as the ground-water samples.

3.9.11 Record Keeping

All Geraghty & Miller personnel involved in sample collection carefully documented the handling history of all ground-water samples and blanks collected. Geraghty & Miller forms were completed to document the integrity of each sample, from the time the sampling team entered the site, through sample collection and shipment. These included daily logs, sampling logs, and chain-of-custody forms.

Daily logs were used by the sampling team for QA/QC purposes to record all sampling events and field observations. Entries in the daily logs were dated by the person making the entry, and the logs were kept in a secure, dry place. The following types of information were included on the log forms:

- Date and time of arrival at site.
- Client name.
- Location.

- Weather.
- Names of sampling team members.
- Work progress.
- QC samples.
- Departure time.
- Delays.
- Unusual situations.
- Well damage.
- Departure from established QA/QC field procedures.
- Instrument problems.
- Accidents.

The sampling team prepared a Geraghty & Miller water sampling log at the time of sampling to record information about each sample collected. In addition to project information, the log included the following information:

- Date and time of sampling.
- Well evacuation data.
- Physical appearance of samples.
- Field observations.
- Results of field analyses.
- Sampling methods and materials.
- Constituents to be analyzed/replicates.
- Sample container and preservation.
- Sampling personnel.

To track QA/QC handling protocols, sample labels were filled out by sampling personnel, and the Geraghty & Miller chain-of-custody form was completed in the field before the sampling team left the site. Labels included sample identification, project name, date and time collected, and analyses to be performed.

The sampling team was responsible for maintaining custody of the samples until they were delivered to the carrier. The containers (bearing custody seals) were in view at all times or were in a secure place in accordance with the sample handling procedures outlined in the QAPP.

3.10 AQUIFER TESTING

Aquifer testing was conducted to determine aquifer coefficients (transmissivity, hydraulic conductivity, and storage coefficient). This information was used in the ground-water model prepared for the site.

Prior to conducting the constant-rate aquifer test, a step test was conducted to determine the desired pumping rate so that the maximum drawdown could be obtained during the test. Based on the step test, the well was pumped during the aquifer test at a constant rate of 65 gallons per minute (gpm) for 76 hours. Drawdown was measured in various wells throughout the test at specified time intervals to provide the data necessary to determine aquifer coefficients. Automatic water-level recorders were used to provide a detailed, continuous drawdown record and were periodically checked by manually measuring the water level with an electronic sounding device (M-scope). Water-level measurements (recovery data) were collected after pumping ceased as a means of confirming drawdown data.

3.10.1 Installation of Discharge Meter and Control Valve

An in-line flow meter was installed on the discharge pipe near the well head to monitor the flow rate of pumped water. The discharge rate during the test was controlled by an in-line gate valve located near the end of the discharge pipe. The valve was pre-set and marked for the desired pumping rate, which was determined from data obtained during the step test.

3.10.2 Ground-Water Discharge Disposal

Ground water discharged during the aquifer pumping test was routed into an on-site sewer. Proper permits were obtained by Monsanto from the local POTW.

3.10.3 Conducting the Aquifer Test

Several days before the scheduled aquifer test, a short trial/step test was conducted to check the performance of the pumping well and establish the pumping rate to be used for the final test. The well was pumped at increasing rates to observe the water-level drawdown. The amount and rate of water-level drawdown observed during preliminary testing were used to determine the proper equipment necessary for each water-level measuring device (e.g., selection of the proper pressure range for the transducers). Based on the step test, a pumping rate of 65 gpm was established for the aquifer test.

The aquifer test began after the water level in the aquifer had returned to the nonpumping, static conditions observed prior to the step test. The test was conducted at the flow rate determined during the step test (65 gpm) and the well was pumped at a constant and continuous rate for 76 hours. Flow rates were collected intermittently and are included on the pumping test logs (Appendix D).

Water-level measurements were collected from 17 wells during the aquifer and recovery tests. These wells were divided into Group A and Group B. Group A wells were closer to Test Well TW-1 than Group B wells, and water-level measurements were collected more frequently at the Group A wells. A complete round of water-level measurements was collected prior to start-up of the aquifer test.

Group A Wells	Group B Wells
TW-1 (pumping well)	MW-2A
OBS-1	MW-2B
MW-7B	MW-2R
MW-18A	MW-19
MW-18B	MW-17
MW-8R	MW-20
MW-8A	MW-9
MW-8B	MW-9R
	MW-5

Water levels were measured at Test Well TW-1 with an In-Situ, Inc. Hermit 2000 data logger and a 15-pounds per square inch (psi) transducer probe. Well OBS-1 was measured with an Enviro-Labs, Inc. EL-200 data logger and a 5-psi transducer probe. Measurements at all other wells in Groups A and B were collected manually using an electronic water-level indicator (M-scope).

Water-level measurements were obtained from Test Well TW-1 and Observation Well OBS-1, using the data loggers, according to a logarithmic time scale. Measurements were collected very rapidly at the initial stages of the test and less frequently as the test progressed. The data loggers used the sampling schedules outlined below:

STANDARD LOG SCHEDULE - IN-SITU, INC., HERMIT 2000

Elapsed Time	Measurement Interval
0-6 seconds	0.5 seconds
6-60 seconds	1 second
60-120 seconds	5 seconds
2-10 minutes	0.5 minute
10-100 minutes	2 minutes
100-1,000 minutes	10 minutes
1,000-10,000 minutes	100 minutes

STANDARD LOG SCHEDULE - ENVIRO-LABS, INC., EL-200

Elapsed Time	Measurement Interval
0-20 seconds	1 second
20-35 seconds	3 seconds
35-60 seconds	6 seconds
1-5 minutes	30 seconds
5-10 minutes	1 minute
10-30 minutes	2 minutes
30-70 minutes	4 minutes
70-130 minutes	20 minutes
130-370 minutes	30 minutes
370-10,000 minutes	60 minutes

Manual water-level measurements were collected for Group A wells as close to a log schedule as possible. Two field technicians collected measurements from Group A wells during the first 2 hours of the drawdown and recovery tests. This allowed for a higher frequency of data collection during the early stages of the aquifer tests when water-level values change more rapidly. However, if a reading was not measured on time, the measurement was made as soon as possible after the scheduled reading and the actual time of the measurement was recorded. All water-level measurements, along with the time of measurement, were recorded on Geraghty & Miller Pumping Test forms (see Appendix D) as part of the QA/QC protocols. Synoptic water-level measurements that included the wells in Groups A and B were made approximately twice daily.

3.10.4 Recovery Test

To confirm the results of the drawdown test, water-level measurements were collected for approximately 16 hours during the recovery phase of the aquifer test. The

same frequency of measurement schedule used during the aquifer test was used during the recovery phase.

3.10.5 Data Plots

As soon as a sufficient amount of data had been collected, drawdowns and elapsed times since pumping began were calculated and the data were plotted in the field. The data plots were kept current throughout the test so that the optimum test length could be determined. In addition, computer-generated plots were prepared (Appendix D).

3.10.6 Aquifer Test Data Analysis

The pump test data were analyzed using both the Cooper-Jacob and Theis methods on AQTESOLV. A discussion of the data is provided in Section 4.4 (Aquifer Test Data Analysis). This information was used in the ground-water model, which is discussed in Section 5.0 (Ground-Water Flow and Solute Transport Models).

3.11 SLUG TESTS

Slug tests were performed in ten wells to determine the hydraulic conductivity of the unconsolidated deposits. Locations were selected to include wells where slug testing was conducted in the past, to provide areal coverage of the Queeny site, and at locations that represent a range of hydraulic conductivities as determined from review of earlier test data and of soil boring logs. The tests were conducted by using a bailer, In-Situ, Inc., Hermit 2000 data logger, and a 5-psi pressure transducer probe. Slug test data are provided in Appendix D.

3.11.1 Conducting the Slug Test

The following procedures were followed while conducting the slug tests.

- The static water level in the well was measured with an M-scope.
- A 5-psi probe was lowered into the well to a depth of about 5 to 10 ft below the top of the water table.
- The calibration of the probe was checked by reading the water level recorded by the data logger at a known depth (static depth of submerged probe) and then raising the probe exactly 1.0 ft measured with a tape. The data logger should read exactly 1 ft higher than the original static depth at which the probe was set.
- The transducer cord was taped to the well casing and a non-leaking bailer was lowered into the well with the top of the bailer just below the water table.
- The water level in the well was allowed to equilibrate, which usually took 10 to 30 minutes.
- The bailer was withdrawn from the well without interfering with the transducer cable. The data logger was started about 5 seconds prior to withdrawal of the bailer to ensure accurate pre-test data.
- The bailer and probe were decontaminated between wells to prevent the potential of cross contamination. Decontamination procedures consisted of washing the equipment with a 2 percent Micro solution (laboratory-grade detergent) followed by a thorough rinsing with distilled water.

3.11.2 Wells Measured

The following wells were slug tested:

MW-2A	MW-8A
MW-3(D)	MW-10
GM-1	MW-20
MW-13	VW-1
MW-9	MW-18A

3.11.3 Frequency of Measurements

The sampling schedule outlined for aquifer testing was used during the slug tests. The slug test was conducted until the well recovered at least 90 percent of its static water level.

3.11.4 Slug Test Data Analysis

The slug test data were analyzed using the Bower and Rice (1976) method on AQTESOLV. This information was used in the ground-water model, and is discussed in Section 4.5 (Slug Test Data Analysis).

4.0 DATA EVALUATION

This section describes the analytical results from soil and ground-water sampling and provides a discussion of the aquifer and slug testing.

4.1 SOIL DATA

Soil samples were analyzed for the full list of Appendix IX constituents at all sampling locations, except for the former acetanilides production area, where soil was only analyzed for VOCs in accordance with the work plan (Geraghty & Miller, Inc. 1990). Analytical data are summarized in Tables 4-1 through 4-4. Data validation was conducted on all samples, and a discussion of the validation is provided in Appendix E.

4.1.1 Former Acetanilides Production Area

Fourteen boreholes were drilled at the former acetanilides production area and during the RFI. Sixteen soil samples and two replicate samples were collected from nine boreholes for VOCs analysis by Appendix IX methodology. Soil samples were not collected from Borings LS-3, LS-4, LS-5, LS-9, and LS-10 because water was encountered at less than 2 ft below grade. Chlorobenzene was detected in 13 out of 18 samples at concentrations ranging from 33 micrograms per kilogram (ug/kg) to 59,000 ug/kg (Table 4-1). The areal and vertical distribution of the chlorobenzene is apparently random and may represent years of activity throughout the entire former acetanilides production area (Figure 4-1).

The only other VOCs detected were 2-butanone (methyl ethyl ketone [MEK]) at an estimated concentration of 160,000 ug/kg in sample LS-7 (7.5 to 9.5 ft below grade); 1,1,1-trichloroethane ranging from 15 to 57 ug/kg at locations LS-11 through LS-14; carbon disulfide at 8.2 ug/kg at location LS-12 (0.5 to 2.5 ft below grade); and trichloroethene and xylenes at 8.9 ug/kg and an estimated concentration of 12 ug/kg, respectively, at location LS-13A (1.0 to 3.0 ft below grade).

4.1.2 Former Quarry

Four soil samples and one replicate sample were collected from quarry borings QS-1 and QS-2. In addition, one sample was collected from the drill cuttings at location QS-4 because a sheen was detected in the samples collected within the water table. All samples were analyzed for the full list of Appendix IX constituents.

Chlorobenzene and xylenes were detected in samples QS-1 (0 to 4.5 ft below grade) and QS-2 (4.0 to 9.0 ft below grade) at concentrations less than 20 ug/kg (Table 4-1). In addition, 1,1,1-trichloroethane was detected at low concentrations in both soil samples collected at Boring QS-2 (6.2 ug/kg and 8.9 ug/kg). No other VOCs were detected in any soil samples from the quarry.

Base/neutral compounds were detected in soil samples collected at quarry boring QS-1 and from drill cuttings collected at Boring QS-4. The drill cuttings sample was submitted at Monsanto's request because a sheen-like appearance was observed in the cuttings during drilling. Base/neutral compounds associated with petroleum products were detected at a total concentration of 19,920 ug/kg in cuttings sample QS-4 (Table 4-2). These base/neutral compounds were detected in Boring QS-1 (0 to 4.5 ft below grade) at a total concentration of 91,400 ug/kg. Only p-phenylenediamine was detected in Boring QS-1 (4.5 to 9.0 ft below grade) at concentrations of 79,000 ug/kg. No base/neutral compounds were detected in any soil samples collected from quarry boring QS-2.

No acid extractable organic compounds, pesticides, polychlorinated biphenyls (PCBs), herbicides, or chlorinated dioxins or furans were detected in the soil samples collected from the former quarry (Table 4-3).

Neither antimony nor silver was detected in any of the five soil samples collected at the quarry, and beryllium was only detected at concentrations just above its detection

limit (0.56 ug/kg and 0.61 ug/kg) in samples from Boring QS-1 (Table 4-4). Of the other metals, the highest metal concentrations generally occur in sample QS-1 (4.0 to 9.0 ft below grade). Total cyanide was not detected in any quarry soil sample, and sulfide was detected at 12 ug/kg and 29 ug/kg (estimated) in samples from QS-1.

4.1.3 Former Bulk Chemical Storage Terminal

One soil sample was collected from each of four soil borings drilled at the former bulk chemical storage terminal. The highest VOC concentrations occur in the sample from Boring VS-1 where chlorobenzene (620,000 ug/kg), iodomethane (49,000 ug/kg) and ethyl methacrylate (57,000 ug/kg) were detected (Table 4-1). Very low concentrations of total VOCs (less than 30 ug/kg) were detected in samples from Borings VS-2 and VS-3. The VOCs include carbon disulfide, methylene chloride, and toluene, but these concentrations may represent laboratory contamination. No VOCs were detected in sample VS-4.

Base/neutral organic compounds were detected in two of the four soil samples collected at the former storage terminal. Concentrations of total base/neutral compounds were 65,000 ug/kg in sample VS-1 and 52,000 ug/kg in sample VS-2 (Table 4-2). No acid extractable organic compounds, pesticides, PCBs, herbicides, or chlorinated dioxins or furans were detected in any soil samples collected at the former storage terminal (Table 4-3).

Neither antimony nor silver was detected in any of the four soil samples collected at the former storage terminal. Data for thallium, selenium, and total cyanide were rejected during data validation. Sulfide ranged from not detected to 2,800 mg/kg. The highest metal concentrations were detected in soil samples VS-1 and VS-4 (Table 4-4).

4.1.4 Boiler Slag Accumulation Pad

One soil sample (BS-1) was collected in the shallow soil zone beneath the boiler slag accumulation pad. The soil was analyzed for the full list of Appendix IX constituents. The only organic constituents detected were Aroclor 1248 and Aroclor 1254 (PCBs) at concentrations of 89,000 ug/kg and 46,000 ug/kg, respectively (Table 4-3).

Concentrations of metals, total cyanide, and sulfide were compared to soils data from the other areas of the site (Table 4-4). The concentrations are within the range of other soil samples collected during the RFI.

Unreal, G&M!

4.2 GROUND-WATER DATA

Two rounds of ground-water samples were collected from selected wells throughout the site. Twenty-five wells were sampled in June 1991 (plus bedrock Well MW-2R in April 1991) for analysis of Appendix IX constituents. A second round of sampling was conducted during October/November 1991 and the same wells, plus two bedrock wells (MW-8R and MW-13R) were sampled. A modified list of parameters for laboratory analysis was approved by the USEPA for Round 2 and Table 3-2 identifies the parameters analyzed at each well during both sampling rounds. The analytical results are presented in Tables 4-5 through 4-8. Where possible, comparisons to historical data are presented. Data validation was conducted on all samples, and the validation results are included in Appendix E.

4.2.1 Volatile Organic Compounds

All monitoring wells were sampled for VOCs during both rounds. VOCs were detected in approximately half of the wells sampled during the RFI at total concentrations ranging from 29 ug/L at Well MW-15 (during Round 1) to 280,000 ug/L (during Round 2) at Well GM-1 (Table 4-5). No VOCs were detected at Wells MW-2A,

MW-2B, MW-2R, MW-8B (except as described below), MW-9, MW-10, MW-11A, MW-11B, MW-13R, MW-20, and QS-1. Chlorobenzene was the primary constituent detected, and the highest chlorobenzene concentrations were observed at the former acetanilides production area (Wells GM-1 through GM-5 and Well MW-14) and at Well MW-8A.

The following VOCs were only detected in Monitoring Wells MW-3, HW-1B, and VW-2. Tetrachloroethene (97 ug/L and 380 ug/L during Rounds 1 and 2, respectively) and trichloroethene (510 ug/L and 570 ug/L) were detected at Well MW-3; trichloroethene was detected at Well HW-1B (1,100 ug/L and 330 ug/L); and benzene was detected at Well VW-2 (1,900 ug/L and 1,300 ug/L).

Estimated concentrations of acetone were detected in Well MW-8B and its duplicate (110 ug/L and 120 ug/L) during Round 1, but acetone was not detected in Well MW-8B or its replicate during Round 2, nor in any other ground-water samples. Likewise, an estimated concentration of methylene chloride was detected at Well GM-1 (15,000 ug/L) during Round 2, but was not detected in any other ground-water samples during either round. These isolated occurrences of acetone and methylene chloride are likely to be due to laboratory contamination.

Monitoring Wells HW-1, HW-2, and HW-1B are located in the former coal storage yard, which is downgradient of off-site industrial properties. Well HW-1B was sampled during the RFI and the other two wells were installed and sampled in 1988 (Geraghty & Miller, 1988b). The only VOCs detected in these wells were trichloroethene in Well HW-1B (1,100 ug/L and 330 ug/L [duplicate analysis]) during the RFI and 1,1-dichloroethene and trichloroethene during the earlier studies. No other organic compounds were detected in these wells. Based on ground-water flow direction and the absence of chlorobenzene in these wells, it is likely that this area has been impacted by off-site sources.

The only VOC detected in any of the three bedrock wells was chlorobenzene in bedrock Well MW-8R and its replicate (11/6.5 ug/L) during Round 2. Wells MW-8R and MW-13R were only sampled during Round 2 because they were installed after Round 1 was conducted. Well MW-2R, the upgradient bedrock well was sampled twice and no VOCs were detected. Since high concentrations of chlorobenzene were detected in the unconsolidated well at clusters MW-8A/R and MW-13A/R (17,000 ug/L and 500/600, respectively), and only very low concentrations of chlorobenzene were detected in bedrock Well MW-8R (11/6.5 ug/L), Geraghty & Miller concludes the bedrock serves as a confining unit.

In general, VOC concentrations were similar between sampling rounds. The only exceptions were at former acetanilides production area Wells GM-1, GM-2, GM-4, and MW-14, where chlorobenzene concentrations during Round 2 were approximately twice the Round 1 concentrations. The laboratory and data validation confirmed that all concentrations were accurate.

The VOC data from Rounds 1 and 2 were compared to historical data (Tables 4-9 and 4-10) for the site. Only one previous round of sampling had been conducted at former acetanilides production area Wells GM-1 through GM-5; ground-water samples had been analyzed for specific parameters by Monsanto's laboratory. The previous data confirm the presence of chlorobenzene at similar magnitudes as the current sampling rounds at the former acetanilides production area (Table 4-9).

For other monitoring wells, VOC concentrations were similar to historical data. However, the historical data were observed to fluctuate up to four orders of magnitude between sampling events (Table 4-10). Methylene chloride and toluene, common laboratory contaminants, were detected at low concentrations during previous sampling rounds, but were not found during RFI sampling.

Total VOC concentrations for Rounds 1 and 2 were averaged and plotted on Figure 4-2 to identify the areas of the highest VOCs and to illustrate the difference between upgradient and downgradient ground-water quality. To supplement data at areas of the site where wells were not sampled during the RFI, average historical total VOC concentrations were used. This information was provided in the Geraghty & Miller June 1988 report and was also used to supplement the RFI data included in the ground-water model (Section 5 and Appendix F).

The VOC concentrations shown on Figure 4-2 show five areas where ground water has been impacted: The northern portion of the plant in the vicinity of the KK building, the central plant area, the former acetanilides production area, the former bulk chemical storage terminal, and the former coal storage yard. Based on the plant-wide distribution of chlorobenzene, it appears that each of these areas has been affected by plant activities with the exception of the former coal storage yard, where VOCs other than chlorobenzene have been detected. It is believed that the source of VOCs at the former coal storage yard is off site.

4.2.2 Base/Neutral Organic Compounds

Only eight wells sampled during Round 1 had any detectable concentrations of base/neutral compounds: Wells MW-4, MW-8A, MW-10, MW-13, TW-1, OBS-1, QS-1, and VW-2. As approved by the USEPA, only these wells, plus Well MW-8B and bedrock Wells MW-8R and MW-13R were sampled for base/neutral compounds during Round 2.

The highest concentrations of these compounds were detected in the sample and replicate from Well MW-13 at total concentrations of 1,266 ug/L and 4,206 ug/L (replicate sample) during Round 1, and 349 ug/L during Round 2 (Table 4-6). The primary constituent detected was p-chloroaniline. In general, base/neutral concentrations were similar between sampling rounds, and concentrations ranged from approximately

50 to 150 ug/L. No base/neutral compounds were detected in any of the three bedrock wells, which supports Geraghty & Miller's belief that the bedrock is a confining unit.

The data from Rounds 1 and 2 were compared to historical data collected at the site since 1984 (Table 4-11). Comparison to historical data is difficult because the historical occurrence of base/neutral compounds is sporadic and inconsistent. For example, base/neutral organic compounds (primarily bis[2-ethylhexyl] phthalate, diethyl phthalate, and di-n-butyl phthalate) were detected intermittently at low concentrations in some wells (MW-2A, MW-2B, MW-3, MW-11A, and MW-11B), but were not detected during the recent sampling. In addition, historical total base/neutral concentrations at individual wells varied by as much as two orders of magnitude. Based on this information, there is a greater level of confidence with the data developed during the RFI.

4.2.3 Acid-Extractable Organic Compounds

The only acid-extractable compound detected in Round 1 ground-water samples was 2-chlorophenol at Well MW-8A and its replicate sample (25/20 ug/L) and Well VW-2 (16 ug/L). Because it was only detected in two wells during Round 1, the USEPA agreed that samples from only four wells be analyzed for acid-extractable compounds during Round 2; these wells were MW-8A, MW-8B, MW-8R, and VW-2. Well MW-8A was the only well where acid extractable compounds were detected during Round 2 (2-chlorophenol was detected at 36/25 ug/L).

The data from Rounds 1 and 2 were compared to historical data collected at the site since 1984 (Table 4-12). Although acid extractable compounds were not detected in any well except for Well MW-8A during the RFI, sporadic occurrences of phenol and 2-chlorophenol were observed in the historical data.

4.2.4 Other Organic Compounds

No pesticides, PCBs, herbicides, or chlorinated dioxins or furans were detected in any well sampled during Round 1 with the following exception: At well OBS-1, the herbicide 2,4,5-TP Silvex was detected at 0.40 ug/L (Table 4-7). The USEPA agreed to waive analysis of these parameters during Round 2. Historically, no pesticides/PCBs were detected in any wells (Table 4-13).

4.2.5 Metals

Ground-water samples from specified wells (Table 3-2) were analyzed for both total and dissolved metals during both sampling rounds. Neither total nor dissolved antimony, beryllium, selenium, thallium, or tin was detected in any ground-water sample during either round (Table 4-8). The occurrence of dissolved metals includes arsenic, barium, lead, and zinc in several wells, and chromium at Wells MW-2B (10 ug/L) and OBS-1 (13 ug/L). During Round 1, dissolved silver was estimated at 10 ug/L (duplicate sample from Well MW-8A, but not confirmed for the three other samples from this well) and at 32 ug/L at Well MW-20. During Round 2, dissolved nickel was detected at bedrock Well MW-13R (79 ug/L), and dissolved cobalt was detected in bedrock Well MW-2R (12 ug/L). None of the dissolved metals exceeded federal or state drinking water standards.

The total metals (unfiltered) concentrations were compared to the USEPA Federal Drinking Water Standards (for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Several of these constituents exceeded the Federal Drinking Water Standard in total metals samples from Wells MW-2R, MW-4, MW-8A, MW-8R, MW-10, MW-11A, MW-11B, MW-13, MW-14, MW-15, MW-20, OBS-1, HW-1B, QS-1, and VW-2B (Table 4-8).

The water sampling logs for these wells were reviewed and, at each of these wells, the water was described as silty, turbid, or cloudy (Appendix C). Many of these wells are

screened in silty material, which accounts for the turbid water samples. Analytical results for dissolved (filtered) metals samples from these wells indicate that all dissolved metals were below the Federal Drinking Water Standard. The suspended material in the samples, therefore, accounts for a large proportion of the metals, and the total metals concentrations are thus not representative of ground-water quality.

There was an apparent inconsistency in concentrations of historical Priority Pollutant metals at the Queeny site. Analytical results for metals in samples collected in 1984 were higher (by as much as three orders of magnitude for the October 1984 data) than the 1985 and 1986 results (Table 4-14). However, Monsanto was able to ascertain that the samples collected in 1984 had been analyzed for total metals, while the 1985 and 1986 samples had been filtered and analyzed for dissolved metals. The difference in analytical results can thus be attributed to the difference in analytical methods. This explanation is confirmed by the analytical data developed during the RFI, where total versus dissolved metals concentrations differed by up to two orders of magnitude.

4.2.6 Total Cyanide and Sulfide

Total cyanide was only detected in Wells MW-9, MW-10, MW-11B, MW-13, and VW-2 at low concentrations ranging from 10 to 26 ug/L. At Well MW-20, total cyanide was detected at 6,500 and 27,000 ug/L (Round 1 and Round 2, respectively).

Cyanide data were compared to historical data for the site. Cyanide had been detected historically in many wells, but the occurrences were sporadic. Cyanide had been detected historically at some wells where it was not detected during the RFI.

Sulfide was only detected at estimated concentrations (qualified on the data tables with a "J") in Wells MW-10 (160 ug/L during Round 2), MW-11A (110 ug/L during Round 2), MW-13 (960/1600 ug/L), MW-13R (780 ug/L), MW-14 (320 ug/L), MW-20

(7,600/530 ug/L), and VW-2 (850/480 ug/L). Sulfide had not been analyzed during previous sampling events.

4.3 INSPECTION OF THE WELLS FOR NAPLs

All wells were inspected for NAPLs during both rounds of ground-water sampling. Only one well, VW-2 (located at the former bulk chemical storage terminal) had a measurable light NAPL thickness of 0.02 ft during Round 2. However, a light NAPL was not present during Round 1 measurements in June 1991, nor was it found in any other well. NAPL was not observed at Well MW-14, where a NAPL thickness of less than 1 inch had previously been observed in 1986 (Geraghty & Miller, 1988).

4.4 AQUIFER TEST DATA ANALYSIS

An aquifer test was conducted at the north end of the site to evaluate the hydraulic conductivities of the unconsolidated aquifer material and its degree of hydraulic connection with the bedrock. Test Well TW-1 was pumped at 65 gpm for 76 hours. Water-level measurements were collected from Wells TW-1 and OBS-1 using pressure transducers and data loggers. Water-level measurements from 15 other wells were collected manually using an electronic water-level indicator (see Section 3.10.4., Conducting the Aquifer Test).

The aquifer test data were analyzed using the Cooper-Jacob method (Cooper and Jacob, 1946) on AQTESOLV™; the data plots are included in Appendix D. Hydraulic conductivities calculated from the aquifer test data collected from Wells TW-1, OBS-1, MW-7B, MW-8A, MW-8B, MW-17, MW-18A, and MW-18B range from 11.5 feet/day (ft/d) to 128.4 (ft/d). A compilation of the hydraulic conductivities from the aquifer test are presented in Table D-1. These hydraulic conductivities were used as initial estimates in the ground-water flow model (Section 5).

To confirm the results of the Cooper-Jacob method, data from Well OBS-1 was also plotted using the Theis method (Theis, 1935) on AQTESOLV™, and plotted by hand using the Boulton method (Lohman, 1979), and the Jacob method (Jacob, 1963). The hydraulic conductivity values derived from the early part of the Cooper-Jacob, Boulton, and Jacob curve matching procedures, in Well OBS-1 were 120.8, 128.16, 128.19 ft/d, respectively. These values correspond to the hydraulic conductivity value of 128.4 ft/day generated using the Theis curve (Theis, 1935) for Well OBS-1.

The hydraulic conductivity values derived from the aquifer test are comparable to those published in Freeze and Cherry (1979) for a silty sand ranging to a clean sand. Most of the wells are screened in silty sand, with or without clay, gravel, and fill material.

Aquifer test plots and hydraulic conductivity values for Wells MW-2A, MW-2B, MW-5, MW-9, MW-19, and MW-20 have not been included in Appendix D or in Table D-1. Water-level measurements for these wells were not observed or recorded until 8 hours after the start of the aquifer test. At approximately the same time there was a documented rise in river stage in the nearby Mississippi River, and water levels in these wells were influenced by this rise (see Section 4.4, Aquifer Test Data Analysis). The hydraulic conductivity values calculated from water-level data from these wells would not represent the true hydraulic conductivity of the aquifer material.

Aquifer test measurements were collected from bedrock wells MW-8R, MW-2R, and MW-9R to determine the degree of hydraulic connection between the bedrock and the unconsolidated aquifer. Although water-level changes were observed and recorded in each of the three wells, the data and its analysis did not allow for the quantification of the degree of hydraulic connection between the unconsolidated hydrogeologic units and the consolidated bedrock. It was assumed that any flow between the two units was minimal.

Due to large water-level declines and unconfined aquifer conditions, drawdown corrections had to be made to the original aquifer test data for pumping Well TW-1. Well TW-1 had over 20 feet of drawdown during the test, which is extreme for a saturated aquifer thickness of 42 feet. Standard methods of analyzing pumping test data assume there is a constant aquifer thickness. Under unconfined conditions the aquifer is partially dewatered, resulting in a decrease in saturated thickness and an increase in drawdown compared to the equivalent confined aquifer situation (Jacob, 1944). The following formula was used to correct the drawdown data from the unconfined aquifer to the equivalent confined conditions. Only Well TW-1 was affected by this equation. All of the other wells showed decreases in water levels of less than 0.01 feet when this equation was applied to the data.

$s' = s - (s^2/2m)$

s' = equivalent confined aquifer drawdown

s = observed drawdown under unconfined conditions

m = aquifer thickness

Recovery data from the aquifer test was not used to estimate the hydraulic conductivity of the aquifer material. Approximately seven hours after the start of the aquifer test the river stage in the Mississippi River began to rise at a rate of about 0.1 foot per hour. About 33 hours after the start of the aquifer test, water levels in Wells OBS-1, MW-7B, MW-8A, MW-8B, and MW-18A showed obvious signs of recovery (see Appendix D, Figures D-2 through D-7). At this time, water levels in these wells had not yet reached steady state pumping conditions, and most likely had already been affected by the rising river stage and surrounding ground-water levels. Recovery data, therefore, could not be used to estimate aquifer parameters.

4.5 SLUG TEST DATA ANALYSIS

Slug tests were performed to provide a range of hydraulic conductivity values of the unconsolidated aquifer from around the site, and to compare with slug test data from previous tests conducted in some of the same wells (ESE, 1985). In general, a slug of water was taken out of each well using a bailer. The recovery of the water level was measured using a pressure transducer and data logger (see Section 3.11.1., Slug Tests).

The slug test data were analyzed using the Bouwer and Rice method (Bouwer and Rice, 1976) on AQTESOLV™. A straight line match in each plot was used to calculate the hydraulic conductivity of the aquifer material. Plots of the slug test data are included in Appendix D. The earliest data for each plot was not used because it is assumed to be representative of the hydraulic conductivity of the gravel pack or of the developed zone surrounding the well.

Hydraulic conductivity values derived from the slug test data from Wells MW-2A, MW-3, MW-9, MW-10, MW-13, and MW-20 range from 0.1332 ft/d (MW-3) to 30.8 ft/d (MW-13) (Appendix D, Table D-2). These data fit into the range defined by Freeze and Cherry (1979) of a silty sand which ranges in hydraulic conductivity from approximately 0.05 to 250 ft/d. These hydraulic conductivity values are also comparable to the hydraulic conductivity measurements derived from slug tests performed in Wells MW-2A, MW-3, MW-9, and MW-10 by ESE (1985), which ranged from 0.0768 to 1.641 ft/d. Slug test data from Wells GM-1, MW-8A, VW-1, and MW-18A were analyzed, but there was not enough data from each well to derive an accurate hydraulic conductivity value.

5.0 GROUND-WATER FLOW AND SOLUTE TRANSPORT MODELS

A numerical, ground-water flow and solute transport model was constructed for the Queeny site as part of the RCRA RFI. The purpose of this analysis was to provide estimates of constituent concentrations reaching the Mississippi River. The total VOC loading estimates were incorporated into a risk assessment for scenarios including swimming and fish consumption. Modeling results are presented in detail in Appendix F and as a summary in this section.

Only total VOCs were used in the model because the concentrations and frequencies of occurrence of other constituents were lower. Chlorobenzene is the most prevalent VOC accounting for at least 90 percent of the total VOC plume.

The modeling proceeded in two phases. The first phase consisted of construction and calibration of a two-dimensional ground-water flow model. The ground-water velocity distribution calculated by the flow model was used during the second modeling phase which was construction of a solute transport model.

The ground-water flow system was conceptualized as a two-dimensional system. A two-dimensional approach was chosen for several reasons. The aquifer over portions of the site is very thin, in some cases less than 10 ft thick. In other areas, the aquifer is about 100 ft thick. Vertical gradients throughout much of the site are small, although there is a slight downward gradient in most areas. In addition, a two-dimensional transport analysis is conservative because it assumes that the constituent is equally distributed throughout the entire saturated thickness of the aquifer.

In order to provide conservative and realistic constituent loading for use in the risk assessment, a methodology was developed to bracket the potential range in loading rates. The transport model constructed in the second modeling phase was not calibrated, because insufficient data exists to characterize total VOC source locations, timing of releases, and source strengths. Two scenarios were simulated in this methodology including the following:

(1) The no-source scenario investigates the future movement of the observed plume with no additional source of VOCs. The no-source scenario was simulated by placing the observed plume of total VOCs in the model as initial conditions. Sources of total VOCs were assumed to be removed and the plume was allowed to migrate with the ground-water flow system. This simulation represents the best-case scenario.

(2) The constant-source scenario investigates the future movement of the observed plume with continued and constant addition of total VOCs to the aquifer. The constant-source scenario was also simulated by initializing the existing total VOC plume in the model. A constant-source was estimated from soil chemistry data and was applied in the model. The constant-source simulation represents the worst-case scenario since chlorobenzene is no longer used at the site.

5.1 GROUND-WATER FLOW MODEL

A numerical ground-water flow model was constructed for the Queeny site as part of the RFI. The purpose of the flow model was to approximate the steady-state distribution of ground-water velocities beneath the site for use in a solute transport model. This was accomplished by constructing a two-dimensional, ground-water flow model and calibrating the model to steady-state conditions in the unconsolidated aquifer system. The US Geological Survey (USGS) MODFLOW model (McDonald and Harbaugh 1988) was used to simulate the ground-water flow system.

The two-dimensional flow model developed for the Queeny site covers approximately 730 acres (1.1 square miles). The active model domain is 4,000 ft in east-west extent, and 8,000 ft in the north-south direction. The model covers an area larger than the Queeny site in order to encompass natural hydrologic boundaries where possible. The eastern edge of the model is the Mississippi River, the ultimate discharge point for all ground-water beneath

the plant. The western edge of the model represents the lateral extent of the unconsolidated aquifer and was estimated from topographic maps of the area. The northern and southern edges of the model represent ground-water flow lines perpendicular to the river. The latter boundaries are based upon the assumption that all ground-water in the unconsolidated aquifer migrates to the Mississippi River. The location of these boundaries was chosen far enough from the area of interest to minimize any errors associated with this assumption.

A finite-difference grid composed of 69 rows and 125 columns areally, and 1 layer vertically was used to model the aquifer system at the site, for a total of 8,625 nodes. Block dimensions ranged from 50 to 100 ft in the column, or x-direction, and from 50 to 100 ft in the row, or y-direction. Finer grid spacing was used in the plant area to enhance model resolution and facilitate solute transport model stability and convergence. The Mississippi River is simulated using constant-head boundary conditions in the Queeny model. A river stage of 381 ft NGVD was chosen for the elevation of the constant head boundary corresponding to base flow conditions in the river. Figure 5-1 shows the finite difference grid and location of the constant head blocks that represent the Mississippi River. The model was calibrated to static conditions. Appendix F describes the model construction process in detail.

5.2 SOLUTE TRANSPORT MODEL

Ground-water velocities computed by the flow model, as described in the previous section, provided input to the solute transport model. The transport model was developed to evaluate the loadings of total VOCs to the Mississippi River under two scenarios; no continued source of total VOCs and a constant source of total VOCs. These two transport scenarios provide a reasonable range of potential loadings to the Mississippi River. The SWIFT III model (Reeves et al. 1986) was used for the transport analyses.

Operations at the Queeny site have resulted in elevated concentrations of certain chemicals in ground water in the site vicinity. A primary objective of this analysis was to

determine the potential migration of ground water containing VOCs to the Mississippi River. Simulation of the migration of dissolved VOCs in the aquifer requires the application of a solute-transport model. Solute-transport models use the velocity field determined from ground-water flow to simulate the movement of solute. The solute transport model used in this analysis used the calibrated hydraulic parameters and flow field determined by MODFLOW to simulate the migration of VOCs in ground water.

The transport model was not calibrated, however, the scenarios evaluated by the model were chosen to be both conservative and realistic. Two different scenarios were chosen to provide a reasonable range of loadings to the Mississippi River.

5.2.1 Transport Model Construction

The SWIFT III model uses the same block-centered finite-difference scheme for the solute transport model as MODFLOW used for the ground-water flow model; hence, the same grid, flow boundary conditions, and aquifer properties were used in both models. However, several additional parameters were defined in the transport model, including: (1) molecular diffusion, (2) dispersivity, (3) porosity, (4) retardation coefficient, and (5) solute half-life. Each of the transport parameters was estimated from the published literature and assigned a uniform value throughout the model domain, as described in Appendix F.

The total VOC plume was mapped based upon water quality data collected during the RFI. These data were supplemented with data collected from 1984 to 1986 for wells not sampled during the RFI. The total VOC plume was initialized in the model, as shown in Figure 5-2. Due to the two-dimensional nature of the transport model, the concentration was assumed to be constant with depth. Data from well clusters at the plant site illustrate that the plume is stratified; therefore, the two-dimensional approach is conservative by maintaining high total VOC concentrations throughout the entire saturated thickness of the aquifer. The reference concentration for total VOC was assumed to be zero; that is, no background concentration of total VOC was considered.

Two predictive transport scenarios were simulated in order to bracket the range of possible loadings to the Mississippi River. The lowest rate of loading to the Mississippi would occur if there was no additional source of total VOCs to the aquifer system. This scenario is called the no-source scenario. The highest loading rate would occur if the sources of VOCs were to continue at their current strength indefinitely into the future. The latter scenario is called the constant-source scenario. Actual source strengths are unknown at the Queeny site; however, a good estimate can be obtained from multiplying the recharge rate by the concentration of total VOCs in soils. This approach was used for the constant-source scenario.

The results of the transport model are presented as total VOC contour maps at specified simulation times, and as concentration versus time at selected points along the Mississippi River. In each case, the time presented is in days or years from the beginning of the simulation. Since the initial conditions for the transport model represent 1991 conditions, the times discussed below are in days or years from 1991.

5.2.2 No-Source Scenario

The no-source simulation represents the effects of future migration of the present total VOC plume with no additional loading to the aquifer. The simulation was conducted by initializing the total VOC plume in the model based upon observed concentrations (see initial conditions above) and then simulating the continued migration of total VOCs into the future.

Results of the no-source scenario show a decrease in total VOC levels over time due to lack of a continuing source. Figure 5-3 shows the simulated total VOC plume for the no-source scenario after 1 year of elapsed time. Peak concentrations dropped from over 100,000 ug/L to about 10,000 ug/L in the former acetanilides production area, with the overall extent and shape of the plume remaining similar to the initialized plume. After 5 years (Figure 5-4), concentrations at the KK building and at the former bulk chemical

storage terminal dropped to less than 100 ug/L from initial levels of 1,000 to 10,000 ug/L. Concentrations remained above 1,000 ug/L in the former acetanilides production area, where the highest levels of total VOCs in ground water have been observed. After 10 years (Figure 5-5), concentrations dropped below 10 ug/L; except in the former acetanilides production area, where concentrations of approximately 125 ug/L still exist.

Total VOC concentrations discharging to the Mississippi River were obtained by plotting concentration over time for model cells representing the river. Concentration and time data were provided for use in the risk assessment. Figure 5-6 shows concentration versus time at the three points along the Mississippi where the centroids of the three plumes intercept the river. Note that concentrations reaching the river peak at a maximum of 110 ug/L after 5 years for the northern point (KK area) and 210 ug/L after about 3 years in the southern point (former bulk chemical storage terminal), but peak at about 10 ug/L after 10 years for the river discharge point originating from the former acetanilides production area.

The longer transport time and lower peak concentrations reaching the river from the former acetanilides production area is caused by slower ground-water velocities in the silty clay sediments underlying the area. In addition, as the VOCs reached more permeable portions of the aquifer, significant dilution occurs because the total VOCs are released slowly from the less permeable deposits. Peak concentrations at the river are an order of magnitude less for the solute associated with the former acetanilides production area.

Under the no-source scenario, most of the mass of the plume discharges to the Mississippi River within 10 years. The highest concentration of total VOCs reaching the river under the no-source scenario is about 200 ug/L; however, this is a transient peak with concentrations dropping to less than 10 ug/L after 12 years.

5.2.3 Constant-Source Scenario

The constant-source scenario was simulated by adding a continuous source of total VOCs to the existing total VOC plumes. The source concentrations were estimated from total VOC concentrations measured in soils at the Queeny site.

Source strengths were estimated for the former acetanilides production area and former bulk chemical storage terminal from soils data at about 17,000 and 181,000 ug/L, respectively. No soils data was collected at the KK building, and the source strength was estimated by introducing a source that approximately replicated the observed ground-water total VOC concentrations in the area. The source strength estimated for the KK building area was about 100,000 ug/L.

The solute transport model was run to simulate 30 years of elapsed time; however, the simulated concentration field reaches steady-state after about 20 years. At steady state, the 100 ug/L contours from the KK building and former bulk chemical storage terminal reach the Mississippi River. Migration from the former acetanilides production area is controlled by the low conductivity sediments, as discussed for the no-source scenario. Concentrations reaching the river from the former acetanilides production area are about 20 ug/L, which is much less than the other two source areas.

Total VOC concentrations were estimated at the three points along the Mississippi River. Figure 5-7 shows concentration versus time under a constant source at the same locations illustrated in Figure 5-6. The peak concentrations under the constant-source scenario are about 50 ug/L higher than the no-source scenario for the north and south locations. The concentration curves flatten out after about 10 years at 110 ug/L for the northern point (KK area) and at 120 ug/L for the southern points (former bulk chemical storage terminal), and after about 18 years at about 10 ug/L for the central point (former acetanilides production area), indicating that steady-state conditions have been reached.

The steady-state total VOC concentrations reaching the river under the constant-source scenario are less than the peak concentrations for the no-source scenario. The exception is at the former acetanilides area where peak and steady-state concentrations are essentially the same (10 ug/L). The greatest decrease is in the southern plume where the steady-state concentration is about 120 ug/L less than the peak concentration. This phenomenon results from the fact that source strengths are decaying at the site in response to flushing of constituents from the soil by recharge or by fluctuations in the water table.

6.0 HEALTH AND ENVIRONMENTAL ASSESSMENT

The scope of a Health and Environmental Assessment (HEA) (risk assessment) is to identify the constituents of concern, characterize their hazards, and identify the pathways of exposure. Once this has been completed, the excess lifetime cancer risk and hazard index (non-cancer effect) are calculated.

6.1 INTRODUCTION

An HEA was prepared for the Queeny site as part of the RFI. This HEA evaluated the risk to public health and to the environment posed by constituents in the soil and ground water at the facility. A summary of the HEA is presented here, and the complete HEA is included as Appendix G.

As part of the RFI, 29 soil samples were collected from January through March 1991; 26 ground-water samples were collected in June 1991; and 28 ground-water samples were collected in November 1991. The specific areas of the site addressed in the HEA include (1) the former acetanilides production/railroad car unloading area, (2) the former quarry, (3) the former bulk chemical storage terminal, and (4) the boiler slag accumulation pad. In addition, monitoring wells throughout the site were used to investigate site-wide ground-water quality.

Industrial, residential, and recreational pathways of exposure to site-related constituents were considered. The industrial exposure pathways included both a site worker and an excavation worker. These were hypothetical future exposures because health-and-safety practices and extensive pavement currently limit contact with soil at the site, and there are currently no known contact points with the soil. Hypothetical future residential exposure was addressed by comparing constituent concentrations in ground water to drinking water standards, even though no potable wells are currently located on-site or between the site and the Mississippi River. Future installation of potable wells or residential development at the

site was considered highly unlikely. The recreational exposure pathways considered included fishing and swimming in the Mississippi River.

The HEA is a baseline risk assessment; therefore, risks associated with a no action alternative were presented. The primary elements of the baseline risk assessment are as follows:

1. Constituent characterization.
2. Hazard characterization.
3. Exposure characterization.
4. Risk characterization.

Each of these elements is summarized below along with a summary of the findings and conclusions of the HEA.

6.2 CONSTITUENT CHARACTERIZATION

Out of a total of 37 constituents detected in the soil, 17 were identified as constituents of concern (COCs) based on frequency of occurrence, concentrations, comparison with background, and toxicity (Table 6-1). A more detailed description of the COCs is presented in Appendix G. The COCs include seven VOCs (carbon disulfide, chlorobenzene, methylene chloride, toluene, 1,1,1-trichloroethane, trichloroethene, and xylenes), four semi-VOCs (fluoranthene, phenanthrene, p-phenylenediamine, and pyrene), and six inorganics (cadmium, copper, lead, mercury, tin, and zinc). Based on frequency of detection and concentrations, chlorobenzene and 1,1,1-trichloroethane were the primary organic constituents detected in soil.

Thirty-two constituents were identified in ground-water samples and all were selected as COCs (Table 6-2). These include five VOCs (benzene, chlorobenzene, methylene chloride, tetrachloroethene, and trichloroethene), 13 semi-VOCs (acenaphthene, aniline,

bis[2-ethylhexyl]phthalate, p-chloroaniline, 2-chlorophenol, 1,2,-dichlorobenzene, 1,4-dichlorobenzene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene, and 1,2,4-trichlorobenzene), and 14 inorganics (arsenic, barium, cadmium, chromium, cobalt, copper, cyanide, lead, mercury, nickel, silver, sulfide, vanadium, and zinc). Chlorobenzene was the primary organic constituent occurring in half the wells sampled at concentrations ranging from 11 to 280,000 ug/L. Arsenic, barium, lead, vanadium, and zinc were the most prevalent inorganics. Data for inorganics were from unfiltered samples and represent total metals concentrations.

6.3 HAZARD CHARACTERIZATION

Reference doses (RfDs) and cancer slope factors (CSFs) were identified for COCs from the Integrated Risk Information System (IRIS) and the Health Effects Assessment Summary Tables (HEAST). These tables, in addition to brief toxicity summaries for each COC, are provided in Appendix G.

6.4 EXPOSURE CHARACTERIZATION

Exposure can occur through ingestion, inhalation, or dermal contact. No current exposure pathways were identified at the site. The water for the site and surrounding area is supplied by the St. Louis municipal system. No potable wells are known to exist in the site vicinity; therefore, there are no exposure points for ground water. Affected soils at the site are beneath paved surfaces, buildings, or layers of clean stone, thus, direct contact with affected soils is prevented under current conditions.

No significant changes in site use are expected for the foreseeable future; however, several potential future exposure pathways were identified. Affected soils could be excavated or pavement could be removed in the future; thus, contact with soils by workers is possible. Furthermore, affected ground water will eventually discharge to the Mississippi

River where individuals fishing or swimming in the river could be exposed. Aquatic life in the river could also be impacted. These potential exposure pathways are evaluated below.

6.4.1 Soil

For the purposes of the HEA, it was assumed that future construction projects could potentially result in removal of pavement and excavation of affected soils. Site workers could then come into contact with these soils. Exposure scenarios were based on USEPA standard exposure factors and professional judgment. Two receptors were evaluated: (1) a site worker who could potentially come in contact with affected soils anywhere on the site over a long-term employment; and (2) an excavation worker exposed to soils in a specific area during a short-term excavation project.

Exposure assumptions for the site worker were as follows: (1) body weight of 70 kilograms (kg) (USEPA, 1991a); (2) incidental ingestion of 50 milligrams (mg) of soil per day (USEPA, 1991a); (3) exposure frequency of 4 hours per day, 250 days per year; (4) exposure duration of 25 years (USEPA, 1991a); (5) skin surface area (hands) of 840 square centimeters (cm^2) (USEPA, 1991a); (6) inhalation rate of 2.5 cubic meters per hours (m^3/hour) (USEPA, 1991a); (7) soil adherence to skin at 1 milligram per square centimeter (mg/cm^2) (USEPA, 1991b); and (8) a 70-year lifetime. Assumptions for the excavation worker were as follows: (1) body weight of 70 kg; (2) incidental ingestion of 100 mg of soil per day (USEPA, 1991a); (3) exposure frequency of 8 hours per day, 5 days per week; (4) exposure duration of 6 weeks; (5) skin surface area (hands, face, and neck) of 2,000 cm^2 (USEPA, 1989); (6) inhalation rate of 3.6 m^3/hour (USEPA, 1989a) (7) soil adherence to skin at 1 mg/cm^2 (USEPA, 1991b); and (8) a 70-year lifetime.

Average daily exposure doses were calculated for the site worker as shown in Table 6-3. An explanation of and calculations for exposure doses are provided in Appendix G. Exposure doses for the excavation worker at the former acetanilides area, former quarry,

former bulk chemical storage terminal, and the boiler slag accumulation pad are shown in Tables 6-4, 6-5, 6-6, and 6-7, respectively.

6.4.2 Ground Water

According to flow rates measured for the Mississippi River at the St. Louis Army Corps of Engineers station, the average flow rate for 1990 was 196,200 cubic feet per second (ft^3/sec), the long term (past 20 years) average was 154,920 ft^3/sec, and the 7-day 10-year low flow (7Q10) was 46,500 ft^3/sec (Kopsky, pers. comm. 1991).

An estimate of constituent concentrations in the Mississippi River contributed by the Queeny site was calculated using the following assumptions: (1) the ground water discharges at a rate of 37,200 cubic feet per day/per foot (ft^3/day/ft) (0.43 ft^3/sec); and (2) the site ground water mixes with 10 percent of the 7Q10 river flow. Although the solute transport model predicted a total VOC concentration in the River of 10 ug/L under a no-source scenario and 125 ug/L under a continuing source, the exposure calculations used the current Upper Confidence Limit (UCL) concentrations as estimates of constituent concentrations discharging to the river. Thus, the concentrations used to calculate exposure in the river (UCL values) were more than 200 (Table 6-2) times greater (more conservative) than the concentrations predicted by the solute transport model for a continuing source.

Potential ground-water exposure pathways include recreational use (fishing and swimming) of the Mississippi River adjacent to the ground-water discharge area. Standard assumptions for swimming and fish ingestion scenarios were used to estimate potential exposure to humans. Exposure doses are shown in Tables 6-8 (swimming) and 6-9 (fish ingestion). A detailed description of the calculations is provided in Appendix G.

Finally, ground-water concentrations were compared with available drinking-water standards (see Table 6-10), and predicted surface-water concentrations were compared with available water-quality criteria based on protection of aquatic life (see Table 6-11).

6.5 RISK CHARACTERIZATION

Risk estimates for cancer (excess lifetime cancer risk [ELCR]) and non-cancer (hazard index) effects were calculated for each identified receptor and exposure pathway. Regulatory guidance for ELCR defines the potentially acceptable range as 1×10^{-4} to 1×10^{-6}. For non-cancer effects, a hazard index greater than one indicates that remediation may be required.

Exposure to constituents in soil or ground water is not likely under current conditions. There are currently no known areas where workers can contact affected soil, and vapor emissions are limited in most areas due to paved surfaces. In addition, no current exposure to ground water exists at the site. Therefore, without current exposure there is currently no risk from soil and ground water at the site.

6.5.1 Soil

Risk estimates for a future site worker potentially exposed to constituents in soil over a 25-year period were within the acceptable regulatory limits. The excess lifetime cancer risk was 4×10^{-8} and the hazard index was 0.3 (Table 6-3). Subchronic exposure for future excavation workers also resulted in acceptable risks. Excess lifetime cancer risks for the excavation worker ranged from 4×10^{-9} (former acetanilides production area) to 4×10^{-6} (boiler slag accumulation pad). Hazard indices ranged form 0.02 (former acetanilides production area) to 0.9 (bulk chemical storage terminal) (Tables 6-4 to 6-7).

6.5.2 Ground Water

Risk estimates for recreational use of the Mississippi River were all well below regulatory guidance. Swimming exposure resulted in an excess lifetime cancer risk of 1×10^{-9} and a hazard index of 0.00002 (Table 6-8). Ingestion of fish caught from the stretch of river adjacent to the site resulted in an ELCR estimate of 1×10^{-7} and a hazard index of 0.003

(Table 6-9). Furthermore, constituent concentrations predicted for the Mississippi River as a result of future ground-water discharge from the site were well below water-quality criteria for protection of aquatic life (Table 6-11).

Although there is no current or likely foreseeable future use of ground water at the site as a potable supply, constituent concentrations detected in ground water were compared with drinking water standards and criteria (Table 6-10). Constituents detected at concentrations above drinking water standards or health-based criteria include five VOCs (benzene, chlorobenzene, methylene chloride, tetrachloroethene, and trichloroethene), three semi-VOCs (bis[2-ethylhexyl]phthalate, 2-chlorophenol, and 1,2,4-trichlorobenzene), and three inorganics (arsenic, cyanide, and lead). Drinking water standards or criteria were not available for aniline, p-chloroaniline, sulfide, and vanadium.

7.0 FINDINGS AND CONCLUSIONS

1. Since soil at the site is beneath pavement, buildings, or layers of clean stone, risk associated with future chronic exposure of site workers to soil over a 25-year period were less than the most conservative regulatory guidelines. The ELCR is 4×10^{-8}, and the HI (non-cancer risk) is 0.3.

2. VOCs were detected in most of the soil samples collected in the former acetanilides production area. Chlorobenzene was the predominant constituent and it ranged from 33 ug/kg to 59,000 ug/kg in concentration. Risk in this area would only apply to future excavation workers, and this risk was also less than the most conservative regulatory guidelines. The ELCR is 4×10^{-9}, and the HI is 0.2.

3. Analytical results for soil samples collected in the former quarry indicate that chlorobenzene and other VOCs occur at very low concentrations (less than 20 ug/kg). Base/neutral organic compounds associated with petroleum products were detected in one soil sample collected at one quarry boring and in one sample from drill cuttings collected from another boring where a sheen was observed. No other organic compounds were detected, and inorganic parameters were within background levels. Risk in this area would only apply to future excavation workers, and the risk was also less than most conservative regulatory guidelines. The ECLR is 3×10^{-7}, and the HI is 0.01.

4. At the former bulk chemical storage terminal, total VOC concentrations (726,00 ug/kg) consisting predominantly of chlorobenzene were detected in one of the samples. At the three other boring locations, total VOCs were either not detected or occurred at concentrations less than 30 ug/kg. Base/neutral organic compounds were detected in two of the four soil samples at total concentrations of 52,000 ug/kg and 65,000 ug/kg. No other organic compounds were detected. Risk in this area would only apply to future excavation workers, and this risk was also less than the most conservative regulatory guidelines. The ELCR is 6×10^{-8}, and the HI is 0.9.

5. At the boiler slag accumulation pad, the only organic constituents detected in the one sample collected were Aroclor 1248 and Aroclor 1254 at concentrations of 89,000 ug/kg and 46,000 ug/kg, respectively. All inorganic constituents were within the range of background concentrations. Risk in this area would only apply to future excavation workers, and this risk was also within regulatory guidelines. The ELCR is 4×10^{-6}, and the HI is 0.03.

6. VOCs were detected in approximately 50 percent of the wells monitoring the unconsolidated zone. Chlorobenzene was the primary constituent detected, and the highest concentrations were observed in the former acetanilides production area. Few semivolatile compounds were detected in ground water, and concentrations were very low in comparison to VOCs. With the exception of silvex at 0.40 ug/L in Well OBS-1, no herbicides were detected in any well. This concentration is well below silvex's Federal MCL of 50 ug/L. No pesticides, PCBs, or chlorinated dioxins/furans were detected in any well. Cynanide concentrations were all below the proposed Federal MCL of 200 ug/L.

7. Several metals exceeded Federal drinking water standards in unfiltered samples (total concentrations). These metals include arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The samples at each location were described as silty, cloudy, or turbid. All dissolved metals were below their respective drinking water standards. It is believed that suspended sediment in the water samples accounts for the total metals concentrations reported; therefore, the total metals results are not representative of ground-water quality. Futhermore, because ground water is not used in St. Louis for drinking water supply, there is no pathway of exposure. The risk assessment identified exposure from ground-water by swimming in the Mississippi River or eating fish caught in the river. Risks associated with these pathways (1×10^{-8}) were well below the most conservative regulatory guideline of 1×10^{-6}.

8. Chlorobenzene was the only VOC detected during the bedrock monitoring program, and in only one well (MW-8R) at low concentrations. Since chlorobenzene was detected at high concentrations in the unconsolidated deposits, but not in the bedrock aquifer, Geraghty & Miller concludes that the bedrock acts as a confining unit. In addition, the bedrock contains few water-bearing fractures and bedrock well yields are very low. This is supported by the absence of chlorobenzene in bedrock well MW-13R, while relatively high concentrations of chlorobenzene were observed in the unconsolidated zone at this location (MW-13). The highest concentrations of base/neutral compounds occurred in well MW-13 where total concentrations ranged from several hundred to several thousand ug/L. The absence of these compounds in the bedrock supports Geraghty & Miller's conclusion that the bedrock acts as a confining unit.

9. Based on the easterly flow of ground-water in the former coal storage yard area, the absence of chlorobenzene in the former coal storage yard monitoring wells, and high concentrations of TCE in these wells, it is likely that the coal storage yard has been impacted by off-site sources.

10. The two-dimensional, steady-state, ground-water flow model shows that ground-water flow eventually discharges into the Mississippi River. Since water-quality data indicate that total VOCs are the main constituents of concern, a solute-transport model was developed using total VOCs to determine the impact on the Mississippi River. The solute-transport analysis for the no-source simulation indicates that peak concentrations of 100 to 200 ug/L total VOCs reach the Mississippi River after about 5 years. These concentrations decline to less than 10 ug/L after 8 years. The constant-source simulation for transport analysis shows that peak concentrations occur at the Mississippi River at approximately the same time as for the no-source scenario. Total VOC concentrations were determined to be approximately 125 ug/L at the river. The results of the model are conservative because the model assumed that the

distribution of total VOCs is uniform throughout the entire saturated thickness of the aquifer. Furthermore, chlorobenzene is no longer used on site.

11. Ground water is not currently used at the site and is not likely to be used in the future. The St. Louis municipal system furnishes the water supply for the site; thus, direct exposure to ground water is not occurring and will not likely occur in the future. Risks from swimming and ingesting fish caught from the river near the site were determined to be less than the most conservative regulatory guidelines of 1×10^{-6} excess cancer risk and a hazard index of one.

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Table 2-1. Synoptic Water-Level Elevations, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well ID	Measuring Point Elevation (1)	June 3, 1991 Depth to Water (2)	June 3, 1991 Water-Level Elevation (1)	October 28, 1991 Depth to Water (2)	October 28, 1991 Water-Level Elevation (1)
MW-2A	430.83	16.47	414.36	19.91	410.92
MW-2B	430.77	14.38	416.39	17.81	412.96
MW-3(D)	425.41	10.65	414.76	13.26	412.15
MW-4	427.33	8.83	418.50	8.44	418.89
MW-5	426.11	10.77	415.34	10.65	415.46
MW-7B	422.17	16.81	405.36	DRY	–
MW-8A	423.70	18.77	404.93	36.38	387.32
MW-8B	423.70	14.92	408.78	29.72	393.98
MW-9	424.94	14.81	410.13	23.86	401.08
MW-10	425.19	18.94	406.25	33.00	392.19
MW-11A	426.20	12.19	414.01	12.58	413.62
MW-11B	426.35	12.37	413.98	12.74	413.61
MW-11C	426.23	12.21	414.02	13.05	413.18
MW-13	425.91	11.87	414.04	12.18	413.73
MW-14	425.92	3.10	422.82	4.27	421.65
MW-15	426.63	13.37	413.26	13.64	412.99
MW-17	420.52	–	–	13.41	407.11
MW-18A	422.96	17.60	405.36	34.37	388.59
MW-18B	423.06	9.96	413.10	10.76	412.30
MW-19	424.11	11.37	412.74	11.20	412.91
MW-20	423.27	6.15	417.12	6.65	416.62
GM-1	425.48	9.25	416.23	9.26	416.22
GM-2	425.47	9.26	416.11	9.40	416.07
GM-3	427.48	4.88	422.60	5.81	421.67
GM-4	424.28	0.91	423.37	2.78	421.50
GM-5	424.53	1.63	422.90	4.38	420.15
TW-1	423.09	18.11	404.98	35.50	387.59
OBS-1	423.79	18.47	405.32	35.15	388.64
QS-1	427.51	13.41	414.10	13.81	413.70
HW-1	423.13	19.40	403.73	40.25	382.88
HW-1B	422.39	18.74	403.65	39.58	382.81
HW-2	425.25	15.23	410.02	19.19	406.06
HW-3	423.99	16.82	407.17	22.44	401.55
VW-1	419.13	9.98	409.15	10.35	408.78
VW-2	419.40	10.28	409.12	11.11	408.29
VW-2B	429.56 —	16.05 =	403.51 → 413.51	36.88	382.68 → 392.68
MW-2R	431.69	14.94	416.75	17.09	414.60
MW-8R	423.19	17.62	405.57	35.68	387.51
MW-9R	424.36	32.65	391.71	15.70	408.66
MW-13R	424.21	43.65	380.56	15.25	408.96
MW-21R	427.15	11.33	415.82	10.94	416.21

– Measurement not collected.

(1) Elevation in feet above mean sea level.

(2) Feet below measuring point.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
MW1A[4]	10/7/83	430.07	2	PVC	0.02	47	35-45	2.0	59
MW1B[4]	10/6/83	429.82	2	PVC	0.02	30	17.5-27.5	2.5	59
MW2A	10/11/83	430.826	2	PVC	0.02	50	38.5-48.5	1.5	48.5
MW2B	10/10/83	430.774	2	PVC	0.02	27.5	15.5-25.5	2.0	48.5
MW3(MW-D)	9/30/83	425.41	2	PVC	0.02	33	21-31	2.0	31.5
MW4	9/27/83	427.33	2	PVC	0.02	19	7-17	2.0	17.5
MW5	9/28/83	426.11	2	PVC	0.02	17	5-15	2.0	17
MW6A	9/29/83	426.82	2	PVC	0.02	44.5	32-42	2.5	50
MW6B[4]	11/20/84	426.57	2	PVC	0.02	27.5	10-25	2.5	50
MW7A[4]	10/5/83	422.18	2	PVC	0.02	52	40-50	2.0	95

(1) Feet above mean sea level.
(2) Feet below measuring point.
(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
MW7B[4]	10/6/83	422.166	2	PVC	0.02	33.5	21-31	2.5	95
MW9	10/13/83	424.943	2	PVC	0.02	43	31-41	2.0	41.5
MW8A	10/27/83	423.70	2	PVC	0.02	49	37-47	2.0	82.5
MW8B	10/27/83	423.699	2	PVC	0.02	35	23-33	2.0	82.5
MW10	10/12/83	425.19	2	PVC	0.02	43.5	31.5-41.5	2.0	41.5
MW11A	10/20/83	426.203	2	PVC	0.02	80	68-78	2.0	---
MW11B	10/20/83	426.35	2	PVC	0.02	32	20-30	2.0	---
MW11C	11/6/84	426.23	2	PVC	0.02	27.5	10-25	2.0	---
MW12[5]	12/11/84	424.03	2	PVC	0.02	21.5	6.5-21.5	0	23

(1) Feet above mean sea level.
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(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
MW13	11/14/84	425.908	2	PVC	0.02	50.5	8-48	2.5	---
MW14	12/10/84	425.919	2	Teflon	0.02	12	5-10	2.0	10
MW15	11/29/84	426.83	2	PVC	0.02	18	10.5-15.5	2.5	16
MW16[5]	12/17/84	421.15	2	PVC	0.02	43.5	8.5-43.5	0	50
MW17	11/26/84	420.52	2	PVC	0.02	52.5	10-50	2.5	---
MW18A	11/30/84	422.955	2	PVC	0.02	81.5	39-79	2.5	81.5
MW18B	12/6/84	423.06	2	PVC	0.02	47.5	10-45	2.5	81.5
MW19	11/19/84	424.11	2	PVC	0.02	15.5	8-13	2.5	13
MW20	11/28/84	423.27	2	PVC	0.02	26.5	9-24	2.5	26.5

(1) Feet above mean sea level.
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(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
MW-A[5]	5/85	---	2	Teflon	0.02	30	20-30	0	31.5
MW-B[5]	5/85	---	2	Teflon	0.02	17	7-17	0	---
MW-C[5]	5/85	---	2	PVC	0.03	20	10-20	0	---
REC-1[5]	1/87	---	4	Stainless steel	0.01	48	28-48	---	42
REC-2[5]	1/87	---	4	Stainless steel	0.01	64.5	44.5-64.5	---	58
REC-3[5]	1/87	---	4	Stainless steel	0.01	66	46-66	---	60
REC-4[5]	1/87	---	4	Stainless steel	0.01	71	51-71	---	66

(1) Feet above mean sea level.
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(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
GM-1	11/18/86	425.476	2	Stainless steel	0.01	13.5	6.75-11.75	1.75	11.8
GM-2	11/18/86	425.471	2	Stainless steel	0.01	11.75	4.75-9.75	2.0	9.8
GM-3	11/19/86	427.48	2	Stainless steel	0.01	12.5	4.5-9.5	3.0	9.5
GM-4	11/20/86	424.28	2	Stainless steel	0.01	9.5	5-10	-0.5	9.5
GM-5	11/21/86	424.53	2	Stainless steel	0.01	16.5	6.5-16.5	-0.5	16.5
TW-1	5/7/91	423.094	8	Steel	0.02	61.20	48.5-59.6	2.05	63

(1) Feet above mean sea level.
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(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
OBS-1	5/13/91	423.788	4	PVC	0.02	62.67	49-59	3.93	76
QS-1	3/5/91	427.507	4	PVC	0.02	102.88	90-100	2.77	101
MW-2R	4/25/91	431.686	3	Steel	NI	79.16	63.5-76.5[6]	2.85	49.5
MW-8R	9/5/91	424.116	2	Stainless steel	0.01	129.41	121.41-126.41	3.00	84
MW-9R	4/30/91	424.356	3	Steel	NI	66.82	52.5-65[6]	2.47	39.5
MW-13R	9/5/91	426.695	2	Stainless steel	0.01	75.29	67.29-72.29	3.00	53

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(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

Table 3-1. Summary of Construction Details for Monitoring and Recovery Wells, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well Designation	Date Installed	Measuring Point Elevation[1]	Well Diameter (inches)	Construction Material	Screen Slot Size (inches)	Total Depth of Well[2]	Screen Setting[3]	Height of Measuring Point Above Land Surface (ft)	Depth to Bedrock[3]
MW-21R	4/26/91	427.148	3	Steel	NI	32.03	17-29[6]	2.84	6.5
HW-1	5/25/88	423.129	2	PVC	0.01	45	30-45	2.37	79
HW-2	5/25/88	423.245	2	PVC	0.01	29	14-29	1.82	29.25
HW-3	5/26/88	423.99	2	PVC	0.01	22	7-22	1.77	22
HW-1B	4/3/91	422.389	4	PVC	0.02	79.67	68-78	1.83	78.5
VW-1	5/24/88	419.128	2	PVC	0.01	14	4-14	2.18	70.75
VW-2	5/24/88	419.397	2	PVC	0.01	14	4-14	2.40	---
VW-2B	4/8/91	419.559	4	PVC	0.02	76.78	64.5-74.5	2.79	76

(1) Feet above mean sea level.
(2) Feet below measuring point.
(3) Feet below land surface.
(4) No longer on Monsanto property.
(5) Destroyed.
(6) Core interval in feet below land surface.
NI No screen installed - bedrock coreholes.
--- Not determined.

TABLE3I.TAB

Table 3-2. Summary of Well and Parameters Sampled During the RFI, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well ID	Appendix IX Volatile Organic Compounds	Appendix IX Base Neutral Extractable Compounds	Appendix IX Acid Extractable Compounds	Other Appendix IX Organics**	Appendix IX Metals (Total and Dissolved)	Appendix IX Total Cyanide	Appendix IX Total Sulfide
GM-1	1/2						
GM-2	1/2						
GM-3	1/2						
GM-4	1/2						
GM-5	1/2						
MW-2A	1/2	1	1	1	1	1	1
MW-2B	1/2	1	1	1	1	1	1
MW-2R	1/2	1	1	1	1/2	1/2	1/2
MW-3(D)	1/2	1	1	1	1/2	1/2	1/2
MW-4	1/2	1/2	1	1	1/2	1/2	1/2
MW-8A	1*/2	1*/2*	1*/2*	1*	1*/2*	1*/2	1*/2
MW-8B	1*/2*	1*/2	1*/2	1*	1*/2	1*/2	1*/2
MW-8R	2*	2	2		2	2	2
MW-9	1/2	1	1	1	1/2	1/2	1/2

1 Round 1
2 Round 2
1/2 Parameter analyzed during round 1 and 2.
* Replicate sample.
** Other Appendix IX organics include pesticides, polychlorinated biphenyls, herbicides, chlorinated dioxins, and furans.

Table 3-2. Summary of Well and Parameters Sampled During the RFI, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well ID	Appendix IX Volatile Organic Compounds	Appendix IX Base Neutral Extractable Compounds	Appendix IX Acid Extractable Compounds	Other Appendix IX Organics**	Appendix IX Metals (Total and Dissolved)	Appendix IX Total Cyanide	Appendix IX Total Sulfide
MW-10	1/2	1/2	1	1	1/2	1/2	1/2
MW-11A	1/2	1	1	1	1/2	1/2	1/2
MW-11B	1/2	1	1	1	1/2	1/2	1/2
MW-13	1*/2	1*/2	1*	1*	1*/2	1*/2*	1*/2*
MW-13R	2	2			2	2	2
MW-14	1*/2				2	2	2
MW-15	1/2	1	1	1	1/2	1/2	1/2
MW-20	1/2	1	1	1	1/2	1/2	1/2
QS-1	1/2	1/2	1	1	1/2	1/2	1/2
TW-1	1/2	1/2	1	1	1/2	1/2	1/2
OBS-1	1/2	1/2	1	1	1/2	1/2	1/2
VW-2	1/2	1/2	1/2	1	1/2	1/2	1/2
VW-2B	1/2	1	1	1	1/2	1/2	1/2
HW-1B	1/2	1	1	1	1/2	1/2	1/2

1 Round 1
2 Round 2
1/2 Parameter analyzed during round 1 and 2.
* Replicate sample.
** Other Appendix IX organics include pesticides, polychlorinated biphenyls, herbicides, chlorinated dioxins, and furans.

TABLE32.TAB

Table 4-1. Concentrations of Volatile Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

	Replicates					
Sample I.D.:	LS-1	LS-15	LS-1	LS-2	LS-2	LS-6
Sample Depth (1) :	(1.5-3.5)	(1.5-3.5)	(9.5-11.5)	(1.0-3.0)	(9.0-11.0)	(1.0-3.0)
Laboratory Log Number:	30556-1	30556-7	30556-2	30512-8	30512-9	30556-3
Parameter (ug/kg)						
Acetonitrile	<3000 I	<3100 I	<79000 I	<570 I	<79000 I	<760000 I
Acetone	<600	<630	<16000	<110	<16000	<150000
Benzene	<30	<31	<790	<5.7	<790	<7600
Bromodichloromethane	<30	<31	<790	<5.7	<790	<7600
Bromomethane	<60	<63	<1600	<11	<1600	<15000
Carbon disulfide	<30	<31	<790	<5.7	<790	<7600
Chlorobenzene	1200	680	13000	<5.7	2300	59000
Dibromochloromethane	<30	<31	<790	<5.7	<790	<7600
Chloroethane	<60	<63	<1600	<11	<1600	<15000
Chloromethane	<60	<63	<1600	<11	<1600	<15000
Chloroform	<30	<31	<790	<5.7	<790	<7600
3-Chloropropene (allylchloride)	<60	<63	<1600	<11	<1600	<15000
1,2-Dibromo-3-chloropropane	<60 I	<63 I	<1600	<11	<1600 I	<15000
1,2-Dibromoethane (EDB)	<30	<31	<790	<5.7	<790	<7600
Dibromomethane	<30	<31	<790	<5.7	<790	<7600
trans-1,4-Dichloro-2-butene	<60	<63	<1600	<11	<1600	<15000
Dichlorodifluoromethane	<300	<310	<7900	<57	<7900	<76000
1,1-Dichloroethane	<30	<31	<790	<5.7	<790	<7600
1,2-Dichloroethane	<30	<31	<790	<5.7	<790	<7600
trans-1,2-Dichloroethene	<30	<31	<790	<5.7	<790	<7600
1,1-Dichloroethene	<30	<31	<790	<5.7	<790	<7600
Methylene chloride	<30	<31	<790	<5.7	<790	<7600
1,2-Dichloropropane	<30	<31	<790	<5.7	<790	<7600
cis-1,3-Dichloropropene	<30	<31	<790	<5.7	<790	<7600
trans-1,3-Dichloropropene	<30	<31	<790	<5.7	<790	<7600
Ethyl benzene	<30	<31	<790	<5.7	<790	<7600
2-Butanone (MEK)	<600 I	<630 I	<16000 I	<110 I	<16000 I	120000 I
Iodomethane	<30	<31	<790	<5.7	<790	<7600
Methacrylonitrile	<600	<630	<16000	<110	<16000	<150000
4-Methyl-2-pentanone (MIBK)	<300	<310	<7900	<57	<7900	<76000
Pentachloroethane	<60	<63	<1600	<11	<1600	<15000
Styrene	<30	<31	<790	<5.7	<790	<7600
1,1,1,2-Tetrachloroethane	<30	<31	<790	<5.7	<790	<7600
1,1,2,2-Tetrachloroethane	<30	<31	<790	<5.7	<790	<7600
Tetrachloroethene	<30	<31	<790	<5.7	<790	<7600
Carbon tetrachloride	<30	<31	<790	<5.7	<790	<7600
Toluene	<30	<31	<790	<5.7	<790	<7600
Bromoform	<30	<31	<790	<5.7	<790	<7600
1,1,2-Trichloroethane	<30	<31	<790	<5.7	<790	<7600
1,1,1-Trichloroethane	<30	<31	<790	<5.7	<790	<7600
Trichloroethene	<30	<31	940	<5.7	<790	<7600
Trichlorofluoroethane	<60	<63	<1600	<11	<1600	<15000
1,2,3-Trichloropropane	<30	<31	<790	<5.7	<790	<7600
Vinyl acetate	<300	<310	<7900	<57	<7900	<76000
Vinyl chloride	<60	<63	<1600	<11	<1600	<150000
Xylenes	<30	<31	<790	<5.7	<790	<7600
2-Hexanone	<300	<310	<7900	<57	<7900	<76000
Propionitrile	<600 I	<630 I	<16000 I	<110 I	<16000 I	<150000 I
Methyl methacrylate	<30	<31	<790	<5.7	<790	<7600
Acrolein	<600 I	<630 I	<16000 I	<110 I	<16000 I	<150000 I
Acrylonitrile	<600	<630	<16000	<110	<16000	<150000
Ethyl methacrylate	<30	<31	<790	<5.7	<790	<7600
Isobutyl alcohol	<6000 I	<6300 I	<160000 I	<1100 I	<160000 I	<1500000 I

(1) Feet below land surface.
ug/kg Micrograms per kilogram.
J The associated numerical value is an estimated quantity.
I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENVOC.XLS

Table 4-1. Concentrations of Volatile Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

	Replicates					
Sample I.D.:	LS-6	LS-15	LS-7	LS-7	LS-8	LS-11
Sample Depth (1) :	(9.0-11.0)	(9.0-11.0)	(1.5-3.5)	(7.5-9.5)	(0.6-2.5)	(2.5-4.5)
Laboratory Log Number:	30556-4	30556-8	30556-5	30556-6	30512-7	30512-5
Parameter (ug/kg)						
Acetonitrile	<75000 I	<150000 I	<74000 I	<780000 I	<570 I	<3000 I
Acetone	<15000	<30000	<15000	<160000	<110	<610
Benzene	<750	<1500	<740	<7800	<5.7	<30
Bromodichloromethane	<750	<1500	<740	<7800	<5.7	<30
Bromomethane	<1500	<3000	<1500	<16000	<11	<61
Carbon disulfide	<750	<1500	<740	<7800	<5.7	<30
Chlorobenzene	**8200**	**23000**	**14000**	<7800	**37**	**390**
Dibromochloromethane	<750	<1500	<740	<7800	<5.7	<30
Chloroethane	<1500	<3000	<1500	<16000	<11	<61
Chloromethane	<1500	<3000	<1500	<16000	<11	<61
Chloroform	<750	<1500	<740	<7800	<5.7	<30
3-Chloropropene (allylchloride)	<1500	<3000	<1500	<16000	<11	<61
1,2-Dibromo-3-chloropropane	<1500	<3000	<1500 I	<16000	<11	<61
1,2-Dibromoethane (EDB)	<750	<1500	<740	<7800	<5.7	<30
Dibromomethane	<750	<1500	<740	<7800	<5.7	<30
trans-1,4-Dichloro-2-butene	<1500	<3000	<1500	<16000	<11	<61
Dichlorodifluoromethane	<7500	<15000	<7400	<78000	<57	<300
1,1-Dichloroethane	<750	<1500	<740	<7800	<5.7	<30
1,2-Dichloroethane	<750	<1500	<740	<7800	<5.7	<30
trans-1,2-Dichloroethene	<750	<1500	<740	<7800	<5.7	<30
1,1-Dichloroethene	<750	<1500	<740	<7800	<5.7	<30
Methylene chloride	<750	<1500	<740	<7800	<5.7	<30
1,2-Dichloropropane	<750	<1500	<740	<7800	<5.7	<30
cis-1,3-Dichloropropene	<750	<1500	<740	<7800	<5.7	<30
trans-1,3-Dichloropropene	<750	<1500	<740	<7800	<5.7	<30
Ethyl benzene	<750	<1500	<740	<7800	<5.7	<30
2-Butanone (MEK)	<15000 I	<30000 I	<15000 I	**160000 J**	<110 I	<610 I
Iodomethane	<750	<1500	<740	<7800	<5.7	<30
Methacrylonitrile	<15000	<30000	<15000	<160000	<110	<610
4-Methyl-2-pentanone (MIBK)	<7500	<15000	<7400	<78000	<57	<300
Pentachloroethane	<1500	<3000	<1500	<16000	<11	<61
Styrene	<750	<1500	<740	<7800	<5.7	<30
1,1,1,2-Tetrachloroethane	<750	<1500	<740	<7800	<5.7	<30
1,1,2,2-Tetrachloroethane	<750	<1500	<740	<7800	<5.7	<30
Tetrachloroethene	<750	<1500	<740	<7800	<5.7	<30
Carbon tetrachloride	<750	<1500	<740	<7800	<5.7	<30
Toluene	<750	<1500	<740	<7800	<5.7	<30
Bromoform	<750	<1500	<740	<7800	<5.7	<30
1,1,2-Trichloroethane	<750	<1500	<740	<7800	<5.7	<30
1,1,1-Trichloroethane	<750	<1500	<740	<7800	<5.7	<30
Trichloroethene	<750	<1500	<740	<7800	<5.7	<30
Trichlorofluoroethane	<1500	<3000	<1500	<16000	<11	<61
1,2,3-Trichloropropane	<750	<1500	<740	<7800	<5.7	<30
Vinyl acetate	<7500	<15000	<7400	<78000	<57	<300
Vinyl chloride	<1500	<3000	<1500	<16000	<11	<61
Xylenes	<750	<1500	<740	<7800	<5.7	<30
2-Hexanone	<7500	<15000	<7400	<78000	<57	<300
Propionitrile	<15000 I	<30000 I	<15000 I	<160000 I	<110 I	<610 I
Methyl methacrylate	<750	<1500	<740	<7800	<5.7	<30
Acrolein	<15000 I	<30000 I	<15000 I	<160000 I	<110 I	<610 I
Acrylonitrile	<15000	<30000 I	<15000	<160000	<110	<610
Ethyl methacrylate	<750	<1500	<740	<7800	<5.7	<30
Isobutyl alcohol	<150000 I	<300000 I	<150000 I	<1600000 I	<1100 I	<6100 I

(1) Feet below land surface.
ug/kg Micrograms per kilogram.
J The associated numerical value is an estimated quantity.
I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENVOC.XLS

Table 4-1. Concentrations of Volatile Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample I.D.:	LS-11	LS-12	LS-12	LS-13A	LS-14	LS-14
Sample Depth (1) :	(6.5-8.5)	(0.5-2.5)	(2.5-4.5)	(1.0-3.0)	(0.5-2.5)	(2.5-4.5)
Laboratory Log Number:	30512-10	30512-3	30512-4	30512-6	30512-1	30512-2
Parameter (ug/kg)						
Acetonitrile	<630 I	<570 I	<3100 I	<570 I	<600 I	<600 I
Acetone	<130	<110	<620	<110	<120	<120
Benzene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Bromodichloromethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Bromomethane	<13	<11	<62	<11	<12	<12
Carbon disulfide	<6.3	8.2	<31	<5.7	<6.0	<6.0
Chlorobenzene	48	<5.7	920	<5.7	<6.0	33
Dibromochloromethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Chloroethane	<13	<11	<62	<11	<12	<12
Chloromethane	<13	<11	<62	<11	<12	<12
Chloroform	<6.3	<5.7	<31	<5.7	<6.0	<6.0
3-Chloropropene (allylchloride)	<13	<11	<62	<11	<12	<12
1,2-Dibromo-3-chloropropane	<13	<11	<62	<11	<12	<12
1,2-Dibromoethane (EDB)	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Dibromomethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
trans-1,4-Dichloro-2-butene	<13	<11	<62	<11	<12	<12
Dichlorodifluoromethane	<63	<57	<310	<57	<60	<60
1,1-Dichloroethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
1,2-Dichloroethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
trans-1,2-Dichloroethene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
1,1-Dichloroethene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Methylene chloride	<6.3	<5.7	<31	<5.7	<6.0	6.5 J
1,2-Dichloropropane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
cis-1,3-Dichloropropene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
trans-1,3-Dichloropropene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Ethyl benzene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
2-Butanone (MEK)	<130 I	<110 I	<620 I	<110 I	<120 I	<120 I
Iodomethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Methacrylonitrile	<130	<110	<620	<110	<120	<120
4-Methyl-2-pentanone (MIBK)	<63	<57	<310	<57	<60	<60
Pentachloroethane	<13	<11	<62	<11	<12	<12
Styrene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
1,1,1,2-Tetrachloroethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
1,1,2,2-Tetrachloroethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Tetrachloroethene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Carbon tetrachloride	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Toluene	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Bromoform	<6.3	<5.7	<31	<5.7	<6.0	<6.0
1,1,2-Trichloroethane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
1,1,1-Trichloroethane	15	29	<31	26	57	25 J
Trichloroethene	<6.3	<5.7	<31	8.9	<6.0	<6.0
Trichlorofluoromethane	<13	<11	<62	<11	<12	<12
1,2,3-Trichloropropane	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Vinyl acetate	<63	<57	<310	<57	<60	<60
Vinyl chloride	<13	<11	<62	<11	<12	<12
Xylenes	<6.3	<5.7	<31	12 J	<6.0	<6.0
2-Hexanone	<63	<57	<310	<57	<60	<60
Propionitrile	<130 I	<110 I	<620 I	<110 I	<120 I	<120 I
Methyl methacrylate	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Acrolein	<130 I	<110 I	<620 I	<110 I	<120 I	<120 I
Acrylonitrile	<130	<110	<620	<110	<120	<120
Ethyl methacrylate	<6.3	<5.7	<31	<5.7	<6.0	<6.0
Isobutyl alcohol	<1300 I	<1100 I	<6200 I	<1000 I	<1200 I	<1200 I

(1) Feet below land surface.
ug/kg Micrograms per kilogram.
J The associated numerical value is an estimated quantity.
I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENVOC.XLS

Table 4-1. Concentrations of Volatile Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

			—Replicate—			
Sample I.D.:	QS-1	QS-1	QS-2	QS-5	QS-2	QS-4
Sample Depth (1) :	(0-4.5)	(4.0-9.0)	(0-2.5)	(0-2.5)	(4.0-9.0)	Cuttings
Laboratory Log Number:	30581-1	30581-2	30664-1	30664-2	30664-3	30935-1
Parameter (ug/kg)						
Acetonitrile	<560 I	<590 I	<560 I	<560 I	<570 I	<700 I
Acetone	<110	<120	<110	<110	<110	<140
Benzene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Bromodichloromethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Bromomethane	<11	<12	<11	<11	<11	<14
Carbon disulfide	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Chlorobenzene	14	<5.9	<5.6	<5.6	8.6	<7.0
Dibromochloromethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Chloroethane	<11	<12	<11	<11	<11	<14
Chloromethane	<11 I	<12 I	<11 I	<11	<11 I	<14
Chloroform	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
3-Chloropropene (allylchloride)	<11	<12	<11	<11	<11	<14
1,2-Dibromo-3-chloropropane	<11	<12	<11	<11	<11	<14
1,2-Dibromoethane (EDB)	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Dibromomethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
trans-1,4-Dichloro-2-butene	<11	<12	<11	<11	<11	<14
Dichlorodifluoromethane	<56	<59	<56	<56	<57	<70
1,1-Dichloroethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,2-Dichloroethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
trans-1,2-Dichloroethene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,1-Dichloroethene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Methylene chloride	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,2-Dichloropropane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
cis-1,3-Dichloropropene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
trans-1,3-Dichloropropene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Ethyl benzene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
2-Butanone (MEK)	<110	<120	<110	<110	<110	<140
Iodomethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Methacrylonitrile	<110 I	<120 I	<110 I	<110 I	<110 I	<140 I
4-Methyl-2-pentanone (MIBK)	<56	<59	<56	<56	<57	<70
Pentachloroethane	<11	<12	<11	<11	<11	<14
Styrene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,1,1,2-Tetrachloroethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,1,2,2-Tetrachloroethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Tetrachloroethene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Carbon tetrachloride	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Toluene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Bromoform	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,1,2-Trichloroethane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
1,1,1-Trichloroethane	<5.6	<5.9	6.2	<5.6	8.9	<7.0
Trichloroethene	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Trichlorofluoromethane	<11	<12	<11	<11	<11	<14
1,2,3-Trichloropropane	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Vinyl acetate	<56	<59	<56	<56	<57	<70
Vinyl chloride	<11	<12	<11	<11	<11	<14
Xylenes	20	<5.9	<5.6	<5.6	7.7	<7.0
2-Hexanone	<56	<59	<56	<56	<57	<70
Propionitrile	<110 I	<120 I	<110 I	<110 I	<110 I	<140 I
Methyl methacrylate	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Acrolein	<110 I	<120 I	<110 I	<110 I	<110 I	<140 I
Acrylonitrile	<110	<120	<110	<110 I	<110	<140
Ethyl methacrylate	<5.6	<5.9	<5.6	<5.6	<5.7	<7.0
Isobutyl alcohol	<1100 I	<1200 I	<1100 I	<1100 I	<1100 I	<1400 I

(1) Feet below land surface.
ug/kg Micrograms per kilogram.
J The associated numerical value is an estimated quantity.
I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENVOC.XLS

Table 4-1. Concentrations of Volatile Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample I.D.:	VS-1	VS-2	VS-3	VS-4	BS-1
Sample Depth (1) :	(10.5-12.5)	(7.0-9.0)	(9.0-11.0)	(9.0-11.0)	(1.25-3.25)
Laboratory Log Number:	31093-1	31093-2	32030-1	32030-2	32071-1
Parameter (ug/kg)					
Acetonitrile	<4200000 I	<630 I	<680 I	<3300 I	<590 I
Acetone	<850000	<130	<140	<660	<120
Benzene	<42000	<6.3	<6.8	<33	<5.9
Bromodichloromethane	<42000	<6.3	<6.8	<33	<5.9
Bromomethane	<85000	<13	<14	<66	<12
Carbon disulfide	<42000	8.4 J	12 J	<33	<5.9
Chlorobenzene	620000	<6.3	<6.8	<33	<5.9
Dibromochloromethane	<42000	<6.3	<6.8	<33	<5.9
Chloroethane	<85000	<13	<14	<66	<12
Chloromethane	<85000	<13	<14	<66	<12
Chloroform	<42000	<6.3	<6.8	<33	<5.9
3-Chloropropene (allylchloride)	<85000	<13	<14	<66	<12
1,2-Dibromo-3-chloropropane	<85000	<13	<14	<66	<12
1,2-Dibromoethane (EDB)	<42000	<6.3	<6.8	<33	<5.9
Dibromomethane	<42000	<6.3	<6.8	<33	<5.9
trans-1,4-Dichloro-2-butene	<85000	<13	<14	<66	<12 I
Dichlorodifluoromethane	<420000	<63	<68	<330	<59
1,1-Dichloroethane	<42000	<6.3	<6.8	<33	<5.9
1,2-Dichloroethane	<42000	<6.3	<6.8	<33	<5.9
trans-1,2-Dichloroethene	<42000	<6.3	<6.8	<33	<5.9
1,1-Dichloroethene	<42000	<6.3	<6.8	<33	<5.9
Methylene chloride	<42000	7.4	8.2	<33	<5.9
1,2-Dichloropropane	<42000	<6.3	<6.8	<33	<5.9
cis-1,3-Dichloropropene	<42000	<6.3	<6.8	<33	<5.9
trans-1,3-Dichloropropene	<42000	<6.3	<6.8	<33	<5.9
Ethyl benzene	<42000	<6.3	<6.8	<33	<5.9
2-Butanone (MEK)	<850000 I	<130 I	<140 I	<660 I	<120 I
Iodomethane	49000	<6.3	<6.8	<33	<5.9
Methacrylonitrile	<850000	<130	<140	<660	<120
4-Methyl-2-pentanone (MIBK)	<42000	<63	<68	<330	<59
Pentachloroethane	<42000	<13	<14	<66	<12 I
Styrene	<42000	<6.3	<6.8	<33	<5.9
1,1,1,2-Tetrachloroethane	<42000	<6.3	<6.8	<33	<5.9
1,1,2,2-Tetrachloroethane	<42000	<6.3	<6.8	<33	<5.9
Tetrachloroethene	<42000	<6.3	<6.8	<33	<5.9
Carbon tetrachloride	<42000	<6.3	<6.8	<33	<5.9
Toluene	<42000	14	13	<33	<5.9
Bromoform	<42000	<6.3	<6.8	<33	<5.9
1,1,2-Trichloroethane	<42000	<6.3	<6.8	<33	<5.9
1,1,1-Trichloroethane	<42000	<6.3	<6.8	<33	<5.9
Trichloroethene	<42000	<6.3	<6.8	<33	<5.9
Trichlorofluoromethane	<85000	<13	<14	<66	<12
1,2,3-Trichloropropane	<42000	<6.3	<6.8	<33	<5.9
Vinyl acetate	<420000	<63	<68	<330	<59
Vinyl chloride	<85000	<13	<14	<66	<12
Xylenes	<42000	<6.3	<6.8	<33	<5.9
2-Hexanone	<420000	<63	<68	<330	<59
Propionitrile	<850000 I	<130 I	<140 I	<660 I	<120 I
Methyl methacrylate	<42000	<6.3	<6.8	<33	<5.9
Acrolein	<850000 I	<130 I	<140 I	<660 I	<120 I
Acrylonitrile	<850000	<130	<140	<660	<120
Ethyl methacrylate	57000	<6.3	<6.8	<33	<5.9
Isobutyl alcohol	<8500000 I	<1300 I	<1400 I	<6600 I	<1200 I

(1) Feet below land surface.
ug/kg Micrograms per kilogram.
J The associated numerical value is an estimated quantity.
I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENVOC.XLS

Table 4-2. Concentrations of Acid and Base/Neutral Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

			—Replicates—			
Sample I.D.:	QS-1	QS-1	QS-2	QS-5	QS-2	QS-4
Sample Depth:	(0-4.5)	(4.0-9.0)	(0-2.5)	(0-2.5)	(4.0-9.0)	Cuttings
Laboratory Log Number:	30581-1	30581-2	30664-1	30664-2	30664-3	30935-1
Parameter (ug/kg)						
Acenaphthene	<8700*	<10000*	<11000*	<11000*	<13000*	**580**
Acenaphthylene	<8700	<10000	<11000	<11000	<13000	<460
Acetophenone	<8700	<10000	<11000	<11000	<13000	<460
2-Acetylaminofluorene	<17000	<20000	<22000	<22000	<26000	<930
4-Aminobiphenyl	<17000	<20000	<22000	<22000	<26000	<930
Anthracene	<8700	<10000	<11000	<11000	<13000	**990**
Aniline	<8700	<10000	<11000	<11000	<13000	<460
Benzo(a)anthracene	<8700	<10000	<11000	<11000	<13000	**3800**
Benzo(k)fluoranthene	<8700	<10000	<11000	<11000	<13000	**610**
Benzo(b)fluoranthene	<8700	<10000	<11000	<11000	<13000	**990**
Benzo(g,h,i)perylene	<8700	<10000	<11000	<11000	<13000	**1800**
Benzo(a)pyrene	<8700	<10000	<11000	<11000	<13000	**2700**
Benzyl alcohol	<8700	<10000	<11000	<11000	<13000	<460
bis(2-Chloroethoxy)methane	<8700	<10000	<11000	<11000	<13000	<460
bis(2-Chloroethyl)ether	<8700	<10000	<11000	<11000	<13000	<460
bis(2-Ethylhexyl)phthalate	<8700	<10000	<11000	<11000	<13000	<460
4-Bromophenyl-phenyl-ether	<8700	<10000	<11000	<11000	<13000	<460
Butylbenzylphthalate	<8700	<10000	<11000	<11000	<13000	<460
(Dinoseb)2-sec-butyl-4,6-dinitrophenol	<44000	<51000	<54000	<54000	<65000	<2300
p-Chloroaniline	<17000	<20000	<22000	<22000	<26000	<930
1,3-Dichlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
1,4-Dichlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
1,2-Dichlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
4-Chlorophenyl-phenylether	<8700	<10000	<11000	<11000	<13000	<460
2-Chloronaphthalene	<8700	<10000	<11000	<11000	<13000	<460
Chrysene	<8700	<10000	<11000	<11000	<13000	<460
Dibenz(a,h)anthracene	<8700	<10000	<11000	<11000	<13000	**480**
Di-n-butylphthalate	<8700	<10000	<11000	<11000	<13000	<460
3,3'-Dichlorobenzidine	<17000	<20000	<22000	<22000	<26000	<930
3,3'-Dimethylbenzidine	<8700	<10000	<11000	<11000	<13000	<460
Diethylphthalate	<8700	<10000	<11000	<11000	<13000	<460
p-(Dimethylamino)azobenzene	<8700	<10000	<11000	<11000	<13000	<460
7,12-Dimethylbenz(a)anthracene	<8700	<10000	<11000	<11000	<13000	<460
a-a-Dimethylphenethylamine	<44000	<51000	<54000	<54000	<65000	<2300
Dimethylphthalate	<8700	<10000	<11000	<11000	<13000	<460
m-Dinitrobenzene	<44000	<51000	<54000	<54000	<65000	<2300
2,4-Dinitrotoluene	<8700	<10000	<11000	<11000	<13000	<460
2,6-Dinitrotoluene	<8700	<10000	<11000	<11000	<13000	<460
Di-n-octylphthalate	<8700	<10000	<11000	<11000	<13000	<460
N-Nitroso-di-n-propylamine	<8700	<10000	<11000	<11000	<13000	<460
Fluoranthene	<8700	<10000	<11000	<11000	<13000	**3500**
Fluorene	<8700	<10000	<11000	<11000	<13000	**1100**
Hexachlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
Hexachlorobutadiene	<8700	<10000	<11000	<11000	<13000	<460
Hexachlorocyclopentadiene	<8700	<10000	<11000	<11000	<13000	<460
Hexachloroethane	<8700	<10000	<11000	<11000	<13000	<460
Hexachloropropene	<8700	<10000	<11000	<11000	<13000	<460
Indeno(1,2,3-cd)pyrene	<8700	<10000	<11000	<11000	<13000	**1300**
Isophorone	<8700	<10000	<11000	<11000	<13000	<460
Isosafrole	<8700	<10000	<11000	<11000	<13000	<460
Methapyrilene	<87000	<100000	<110000	<110000	<130000	<4600
3-Methylcholanthrene	<8700	<10000	<11000	<11000	<13000	<460

ug/kg Micrograms per kilogram.

* Due to the abundance of organics present in the sample, high-level extraction was employed which increased reported detection limits.

I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENACID.XLS

Table 4-2. Concentrations of Acid and Base/Neutral Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Parameter (ug/kg)	Sample I.D.: QS-1	QS-1	Replicates QS-2	QS-5	QS-2	QS-4
Sample Depth:	(0-4.5)	(4.0-9.0)	(0-2.5)	(0-2.5)	(4.0-9.0)	Cuttings
Laboratory Log Number:	30581-1	30581-2	30664-1	30664-2	30664-3	30935-1
Methylmethanesulfonate	–	–	–	–	–	<460
2-Methylnaphthalene	<8700	<10000	<11000	<11000	<13000	<460
Naphthalene	<8700	<10000	<11000	<11000	<13000	<630
1,4-Naphthoquinone	<8700	<10000	<11000	<11000	<13000	<460
1-Naphthylamine	<8700	<10000	<11000	<11000	<13000	<460
2-Naphthylamine	<8700	<10000	<11000	<11000	<13000	<460
2-Nitroaniline	<44000	<51000	<54000	<54000	<65000	<2300
3-Nitroaniline	<44000	<51000	<54000	<54000	<65000	<2300
4-Nitroaniline	<44000	<51000	<54000	<54000	<65000	<2300
Nitrobenzene	<8700	<10000	<11000	<11000	<13000	<460
N-Nitrosodi-n-butylamine	<8700	<10000	<11000	<11000	<13000	<460
N-Nitrosodiethylamine	<17000	<20000	<22000	<22000	<26000	<930
N-Nitrosodimethylamine	<8700	<10000	<11000	<11000	<13000	<460
N-Nitrosomethylethylamine	<8700	<10000	<11000	<11000	<13000	<460
N-Nitrosodiphenylamine/Diphenylamine	<8700	<10000	<11000	<11000	<13000	<460
N-Nitrosomorpholine	<8700	<10000	<11000	<11000	<13000	<460
N-Nitrosopiperidine	<17000	<20000	<22000	<22000	<26000	<930
Nitrosopyrrolidine	<35000	<41000	<43000	<43000	<52000	<1900
5-Nitro-o-toluidine	<8700	<10000	<11000	<11000	<13000	<460
Pentachlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
Pentachloronitrobenzene	<87000	<100000	<110000	<110000	<130000	<4600
Phenacetin	<17000	<20000	<22000	<22000	<26000	<930
Phenanthrene	**15000**	<10000	<11000	<11000	<13000	**2900**
2-Picoline	<8700	<10000	<11000	<11000	<13000	<460
Pronamide	<8700	<10000	<11000	<11000	<13000	<460
Pyrene	**9400**	<10000	<11000	<11000	<13000	**6200**
Safrole	<8700	<10000	<11000	<11000	<13000	<460
1,2,4,5-Tetrachlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
1,2,4-Trichchlorobenzene	<8700	<10000	<11000	<11000	<13000	<460
2-Chlorophenol	<8700	<10000	<11000	<11000	<13000	<460
Cresol m&p	<8700	<10000	<11000	<11000	<13000	<460
o-Cresol	<8700	<10000	<11000	<11000	<13000	<460
4-Nitrophenol	<44000	<51000	<54000	<54000	<65000	<2300
2,4-Dichlorophenol	<8700	<10000	<11000	<11000	<13000	<460
2,6-Dichlorophenol	<8700	<10000	<11000	<11000	<13000	<460
2,4-Dimethylphenol	<8700	<10000	<11000	<11000	<13000	<460
4,6-Dinitro-2-methylphenol	<44000	<51000	<54000	<54000	<65000	<2300
2,4-Dinitrophenol	<44000	<51000	<54000	<54000	<65000	<2300
Pentachlorophenol	<44000	<51000	<54000	<54000	<65000	<2300
Phenol	<8700	<10000	<11000	<11000	<13000	<460
2,4,5-Trichlorophenol	<44000	<51000	<54000	<54000	<65000	<2300
2,4,6-Trichlorophenol	<8700	<10000	<11000	<11000	<13000	<460
2,3,4,6-Tetrachlorophenol	<8700	<10000	<11000	<11000	<13000	<460
2-Nitrophenol	<8700	<10000	<11000	<11000	<13000	<460
Diallate	<8700	<10000	<11000	<11000	<13000	<460
Ethyl methanesulfonate	<17000	<20000	<22000	<22000	<26000	<930
4-Nitroquinoline 1-oxide	<87000	<100000	<110000	<110000	<130000	<4600
p-Phenylenediamine	**67000**	**79000**	<11000	<11000	<13000	<460
o-Toluidine	<8700	<10000	<11000	<11000	<13000	<460
0,0,0-Triethyl phosphorothioate	<8700	<10000	<11000	<11000	<13000	<460
1,3,5-Trinitrobenzene	<44000	<51000	<54000	<54000	<65000	<2300
4-Chloro-3-methylphenol	<8700	<10000	<11000	<11000	<13000	<460
Dibenzofuran	<8700	<10000	<11000	<11000	<13000	**470**
1,4-Dioxane	<8700	<10000	<11000	<11000	<13000	<460
Pyridine	<8700	<10000	<11000	<11000	<13000	<460

ug/kg Micrograms per kilogram.

* Due to the abundance of organics present in the sample, high-level extraction was employed which increased reported detection limits.

I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENACID.XLS

Table 4-2. Concentrations of Acid and Base/Neutral Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample I.D.:	VS-1	VS-2	VS-3	VS-4	BS-1
Sample Depth:	(10.5-12.5)	(7.0-9.0)	(9.0-11.0)	(9.0-11.0)	(1.25-3.25)
Laboratory Log Number:	31093-1	31093-2	32030-1	32030-2	32071-1
Parameter (ug/kg)					
Acenaphthene	<15000	<12000	<13000	<12000	<9700
Acenaphthylene	<15000	<12000	<13000	<12000	<9700
Acetophenone	<15000	<12000	<13000	<12000	<9700
2-Acetylaminofluorene	<31000	<24000	<25000	<24000	<19000
4-Aminobiphenyl	<31000	<24000	<25000	<24000	<19000
Anthracene	<15000	<12000	<13000	<12000	<9700
Aniline	<15000	<12000	<13000	<12000	<9700
Benzo(a)anthracene	<15000	<12000	<13000	<12000	<9700
Benzo(k)fluoranthene	<15000	<12000	<13000	<12000	<9700
Benzo(b)fluoranthene	<15000	<12000	<13000	<12000	<9700
Benzo(g,h,i)perylene	<15000	<12000	<13000	<12000	<9700
Benzo(a)pyrene	<15000	<12000	<13000	<12000	<9700
Benzyl alcohol	<15000	<12000	<13000	<12000	<9700
bis(2-Chloroethoxy)methane	<15000	<12000	<13000	<12000	<9700
bis(2-Chloroethyl)ether	<15000	<12000	<13000	<12000	<9700
bis(2-Ethylhexyl)phthalate	<15000	<12000	<13000	<12000	<9700
4-Bromophenyl-phenyl-ether	<15000	<12000	<13000	<12000	<9700
Butylbenzylphthalate	<15000	<12000	<13000	<12000	<9700
(Dinoseb)2-sec-butyl-4,6-dinitrophenol	<77000	<60000	<64000	<64000	<49000
p-Chloroaniline	<31000	<24000	<25000	<24000	<19000
1,3-Dichlorobenzene	<15000	<12000	<13000	<12000	<9700
1,4-Dichlorobenzene	<15000	<12000	<13000	<12000	<9700
1,2-Dichlorobenzene	<15000	<12000	<13000	<12000	<9700
4-Chlorophenyl-phenylether	<15000	<12000	<13000	<12000	<9700
2-Chloronaphthalene	<15000	<12000	<13000	<12000	<9700
Chrysene	<15000	<12000	<13000	<12000	<9700
Dibenz(a,h)anthracene	<15000	<12000	<13000	<12000	<9700
Di-n-butylphthalate	<15000	<12000	<13000	<12000	<9700
3,3'-Dichlorobenzidine	<31000	<24000	<25000	<24000	<19000
3,3'-Dimethylbenzidine	<15000	<12000	<13000	<12000	<9700
Diethylphthalate	<15000	<12000	<13000	<12000	<9700
p-(Dimethylamino)azobenzene	<15000	<12000	<13000	<12000	<9700
7,12-Dimethylbenz(a)anthracene	<15000	<12000	<13000	<12000	<9700
a-a-Dimethylphenethylamine	<77000	<60000	<64000	<60000	<49000
Dimethylphthalate	<15000	<12000	<13000	<12000	<9700
m-Dinitrobenzene	<15000	<60000	<64000	<60000	<49000
2,4-Dinitrotoluene	<15000	<12000	<13000	<12000	<9700
2,6-Dinitrotoluene	<15000	<12000	<13000	<12000	<9700
Di-n-octylphthalate	<15000	<12000	<13000	<12000	<9700
N-Nitroso-di-n-propylamine	<15000	<12000	<13000	<12000	<9700
Fluoranthene	**24000**	**15000**	<13000	<12000	<9700
Fluorene	<15000	<12000	<13000	<12000	<9700
Hexachlorobenzene	<15000	<12000	<13000	<12000	<9700
Hexachlorobutadiene	<15000	<12000	<13000	<12000	<9700
Hexachlorocyclopentadiene	<15000	<12000	<13000	<12000	<9700
Hexachloroethane	<15000	<12000	<13000	<12000	<9700
Hexachloropropene	<15000	<12000	<13000	<12000	<9700
Indeno(1,2,3-cd)pyrene	<15000	<12000	<13000	<12000	<9700
Isophorone	<15000	<12000	<13000	<12000	<9700
Isosafrole	<15000	<12000	<13000	<12000	<9700
Methapyrilene	<150000	<120000	<130000	<120000	<97000
3-Methylcholanthrene	<15000	<12000	<13000	<12000	<9700

ug/kg Micrograms per kilogram.

* Due to the abundance of organics present in the sample, high-level extraction was employed which increased reported detection limits.

I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENACID.XLS

Table 4-2. Concentrations of Acid and Base/Neutral Organic Compounds in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample I.D.:	VS-1	VS-2	VS-3	VS-4	BS-1
Sample Depth:	(10.5-12.5)	(7.0-9.0)	(9.0-11.0)	(9.0-11.0)	(1.25-3.25)
Laboratory Log Number:	31093-1	31093-2	32030-1	32030-2	32071-1
Parameter (ug/kg)					
Methylmethanesulfonate	<15000	<12000	<13000	<12000	<9700
2-Methylnaphthalene	41000	<12000	<13000	<12000	<9700
Naphthalene	<40000	<12000	<13000	<12000	<9700
1,4-Naphthoquinone	<15000	<12000	<13000	<12000	<9700
1-Naphthylamine	<15000	<12000	<13000	<12000	<9700
2-Naphthylamine	<15000	<12000	<13000	<12000	<9700
2-Nitroaniline	<77000	<60000	<64000	<60000	<49000
3-Nitroaniline	<77000	<60000	<64000	<60000	<49000
4-Nitroaniline	<77000	<60000	<64000	<60000	<49000
Nitrobenzene	<15000	<12000	<13000	<12000	<9700
N-Nitrosodi-n-butylamine	<15000	<12000	<13000	<12000	<9700
N-Nitrosodiethylamine	<31000	<24000	<25000	<24000	<19000
N-Nitrosodimethylamine	<15000	<12000	<13000	<12000	<9700
N-Nitrosomethylethylamine	<15000	<12000	<13000	<12000	<9700
N-Nitrosodiphenylamine/Diphenylamine	<15000	<12000	<13000	<12000	<9700
N-Nitrosomorpholine	<15000	<12000	<13000	<12000	<9700
N-Nitrosopiperidine	<31000	<24000	<25000	<24000	<19000
Nitrosopyrrolidine	<62000	<48000	<51000	<48000	<39000
5-Nitro-o-toluidine	<15000	<12000	<13000	<12000	<9700
Pentachlorobenzene	<15000	<12000	<13000	<12000	<9700
Pentachloronitrobenzene	<150000	<120000	<130000	<120000	<97000
Phenacetin	<31000	<24000	<25000	<24000	<19000
Phenanthrene	<15000	13000	<13000	<12000	<9700
2-Picoline	<15000	<12000	<13000	<12000	<9700
Pronamide	<15000	<12000	<13000	<12000	<9700
Pyrene	<15000	14000	<13000	<12000	<9700
Safrole	<15000	<12000	<13000	<12000	<9700
1,2,4,5-Tetrachlorobenzene	<15000	<12000	<13000	<12000	<9700
1,2,4-Trichchlorobenzene	<15000	<12000	<13000	<12000	<9700
2-Chlorophenol	<15000	<12000	<13000	<12000	<9700
Cresol m&p	<15000	<12000	<13000	<12000	<9700
o-Cresol	<15000	<12000	<13000	<12000	<9700
4-Nitrophenol	<77000	<60000	<64000	<60000	<49000
2,4-Dichlorophenol	<15000	<12000	<13000	<12000	<9700
2,6-Dichlorophenol	<15000	<12000	<13000	<12000	<9700
2,4-Dimethylphenol	<15000	<12000	<13000	<12000	<9700
4,6-Dinitro-2-methylphenol	<77000	<60000	<64000	<60000	<49000
2,4-Dinitrophenol	<77000	<60000	<64000	<60000	<49000
Pentachlorophenol	<77000	<60000	<64000	<60000	<49000
Phenol	<15000	<12000	<13000	<12000	<9700
2,4,5-Trichlorophenol	<77000	<60000	<64000	<60000	<49000
2,4,6-Trichlorophenol	<15000	<12000	<13000	<12000	<9700
2,3,4,6-Tetrachlorophenol	<15000	<12000	<13000	<12000	<9700
2-Nitrophenol	<15000	<12000	<13000	<12000	<9700
Diallate	<15000	<12000	<13000	<12000	<9700
Ethyl methanesulfonate	<31000	<24000	<25000	<24000	<19000
4-Nitroquinoline 1-oxide	<150000 I	<12000 I	<13000	<120000 I	<9700 I
p-Phenylenediamine	<15000	<12000	<13000	<12000	<9700
o-Toluidine	<15000	<12000	<13000	<12000	<9700
0,0,0-Triethyl phosphorothioate	<15000	<12000	<13000	<12000	<9700
1,3,5-Trinitrobenzene	<77000	<60000	<64000	<60000	<4900
4-Chloro-3-methylphenol	<15000	<12000	<13000	<12000	<9700
Dibenzofuran	<15000	<12000	<13000	<12000	<9700
1,4-Dioxane	<15000	<12000	<13000	<12000	<9700
Pyridine	<15000	<12000	<13000	<12000	<9700

ug/kg Micrograms per kilogram.

* Due to the abundance of organics present in the sample, high-level extraction was employed which increased reported detection limits.

I The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

QUENACID.XLS

Table 4-3. Concentrations of Pesticides, Polychlorinated Biphenyls, Herbicides, Chlorinated Dioxins, and Furans in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Parameter (ug/kg)	Sample I.D.: QS-1 (0-4.5) Laboratory Log Number: 30581-1	QS-1 (4.0-9.0) 30581-2	—Replicates— QS-2 (0-2.5) 30664-1	QS-5 (0-2.5) 30664-2	QS-2 (4.0-9.0) 30664-3	QS-4 Cuttings 30935-1
Pesticides						
Disulfoton	<860*	<890*	<850*	<860*	<890*	<990*
Methyl parathion	<130	<130	<130	<130	<130	<74
Ethyl parathion	<430	<440	<430	<430	<440	<490
Sulfotepp	<640	<670	<640	<640	<670	<740
Famphur	<4300	<4400	<4300	<4300	<4400	<4900
Phorate	<640	<670	<640	<640	<670	<740
Thionazin	<430	<440	<430	<430	<440	<490
Dimethoate	<4300	<4400	<4300	<4300	<4400	<4900
Aldrin	<63*	<66*	<66*	<32*	<66*	<180*
Isodrin	<130	<130	<130	<65	<130	<350
alpha-Chlordane	<63	<66	<66	<32	<66	<180
gamma-Chlordane	<63	<66	<66	<32	<66	<180
Chlorobenzilate	<2500	<2600	<2600	<1300	<2600	<7000
DDD	<130	<130	<130	<65	<130	<350
DDE	<130	<130	<130	<65	<130	<350
DDT	<320	<330	<330	<160	<330	<880
Dieldrin	<130	<130	<130	<65	<130	<350
Endosulfan I	<130	<130	<130	<65	<130	<350
Endosulfan II	<320	<330	<330	<160	<330	<880
Endosulfan sulfate	<500	<530	<530	<260	<530	<1400
Endrin	<130	<130	<130	<65	<130	<350
Endrin aldehyde	<630	<660	<660	<320	<660	<1800
Heptachlor	<63	<66	<66	<32	<66	<180
Heptachlor epoxide	<130	<130	<130	<65	<130	<350
alpha-BHC	<63	<66	<66	<32	<66	<180
beta-BHC	<63	<66	<66	<32	<66	<180
gamma-BHC	<63	<66	<66	<32	<66	<180
delta-BHC	<63	<66	<66	<32	<66	<180
Kepone	<320	<330	<330	<160	<330	<880
Methoxychlor	<2500	<2600	<2600	<1300	<2600	<7000
Toxaphene	<5000	<5300	<5300	<2600	<5300	<14000
Polychlorinated Biphenyls						
Aroclor-1016	<2500	<2600	<2600	<1300	<2600	<7000
Aroclor-1221	<2500	<2600	<2600	<1300	<2600	<7000
Aroclor-1232	<2500	<2600	<2600	<1300	<2600	<7000
Aroclor-1242	<2500	<2600	<2600	<1300	<2600	<7000
Aroclor-1248	<2500	<2600	<2600	<1300	<2600	<7000
Aroclor-1254	<2500	<2600	<2600	<1300	<2600	<7000
Aroclor-1260	<2500	<2600	<2600	<1300	<2600	<7000
Herbicides						
2,4-D	<1100**	<120	<220	<110	<230	<140
2,4,5-T	<670	<71	<130	<67	<140	<85
2,4,5-TP Silvex	<220	<24	<45	<22	<45	<28
Chlorinated Dioxins and Furans						
Tetra-CDD	<5.6*	<5.9*	<5.6*	<0.56	<5.7*	–
Tetra-CDF	<5.6	<5.9	<5.6	<0.56	<5.7	–
Penta-CDD	<5.6	<5.9	<5.6	<0.56	<5.7	–
Penta-CDF	<5.6	<5.9	<5.6	<0.56	<5.7	–
Hexa-CDD	<5.6	<5.9	<5.6	<0.56	<5.7	–
Hexa-CDF	<5.6	<5.9	<5.6	<0.56	<5.7	–
Dioxin-2,3,7,8-TCDD	<5.6	<5.9	<5.6	<0.56	<5.7	–

ug/kg Micrograms per kilogram.

* Due to the abundance of organics present in the sample, high level extraction was employed which increased reported detection limits.

** Elevated detection limits due to sample matrix interference.

– Parameters not analyzed. ~ Why?

QUENPEST.XLS

Table 4-3. Concentrations of Pesticides, Polychlorinated Biphenyls, Herbicides, Chlorinated Dioxins, and Furans in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample I.D.:	VS-1	VS-2	VS-3	VS-4	BS-1
Sample Depth:	(10.5-12.5)	(7.0-9.0)	(9.0-11.0)	(9.0-11.0)	(1.25-3.25)
Laboratory Log Number:	31093-1	31093-2	32030-1	32030-2	32071-1
Parameter (ug/kg)					
Pesticides					
Disulfoton	<1200	<850	<1100*	<900*	<880*
Methyl parathion	<180	<130	<160	<130	<130
Ethyl parathion	<620	<420	<540	<450	<440
Sulfotepp	<920	<630	<810	<670	<660
Famphur	<6200	<4200	<5400	<4500	<4400
Phorate	<920	<630	<810	<670	<660
Thionazin	<620	<420	<540	<450	<440
Dimethoate	<6200	<4200	<5400	<4500	<4400
Aldrin	<420*	<32*	<180*	<630*	<620*
Isodrin	<840	<64	<370	<1300	<1200
alpha-Chlordane	<420	<32	<180	<630	<620
gamma-Chlordane	<420	<32	<180	<630	<620
Chlorobenzilate	<17000	<1300	<7300	<25000	<25000
DDD	<840	<64	<370	<1300	<1200
DDE	<840	<64	<370	<1300	<1200
DDT	<2100	<160	<910	<3200	<3100
Dieldrin	<840	<64	<370	<1300	<1200
Endosulfan I	<840	<64	<370	<1300	<1200
Endosulfan II	<2100	<160	<910	<3200	<3100
Endosulfan sulfate	<3300	<250	<1500	<5100	<5000
Endrin	<840	<64	<370	<1300	<1200
Endrin aldehyde	<4200	<320	<1800	<6300	<6200
Heptachlor	<420	<32	<180	<630	<620
Heptachlor epoxide	<840	<64	<370	<1300	<1200
alpha-BHC	<420	<32	<180	<630	<620
beta-BHC	<420	<32	<180	<630	<620
gamma-BHC	<420	<32	<180	<630	<620
delta-BHC	<420	<32	<180	<630	<620
Kepone	<2100	<160	<910	<3200	<3100
Methoxychlor	<17000	<1300	<7300	<25000	<25000
Toxaphene	<33000	<2500	<15000	<51000	<50000
Polychlorinated Biphenyls					
Aroclor-1016	<17000	<1300	<7300	<25000	<25000
Aroclor-1221	<17000	<1300	<7300	<25000	<25000
Aroclor-1232	<17000	<1300	<7300	<25000	<25000
Aroclor-1242	<17000	<1300	<7300	<25000	<25000
Aroclor-1248	<17000	<1300	<7300	<25000	89000
Aroclor-1254	<17000	<1300	<7300	<25000	[illegible]
Aroclor-1260	<17000	<1300	<7300	<25000	<25000
Herbicides					
2,4-D	<340*	<120	<130	<1300*	<120*
2,4,5-T	<200	<75	<81	<790	<71
2,4,5-TP Silvex	<68	<25	<27	<260	<24
Chlorinated Dioxins and Furans					
Tetra-CDD	<0.85	<0.63	<0.68	<0.66	<2.9
Tetra-CDF	<0.85	<0.63	<0.68	<0.66	<2.9
Penta-CDD	<0.85	<0.63	<0.68	<0.66	<2.9
Penta-CDF	<0.85	<0.63	<0.68	<0.66	<2.9
Hexa-CDD	<0.85	<0.63	<0.68	<0.66	<2.9
Hexa-CDF	<0.85	<0.63	<0.68	<0.66	<2.9
Dioxin-2,3,7,8-TCDD	<0.85	<0.63	<0.68	<0.66	<2.9

ug/kg Micrograms per kilogram.
* Due to the abundance of organics present in the sample, high level extraction was employed which increased reported detection limits.
** Elevated detection limits due to sample matrix interference.
-- Parameters not analyzed.

QUENPEST.XLS

Table 4-4. Concentrations of Metals, Total Cyanide, and Sulfate in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

			Replicate		
Sample I.D.:	QS-1	QS-1	QS-2	QS-5	QS-2
Sample Depth:	(0-4.5)	(4.0-9.0)	(0-2.5)	(0-2.5)	(4.0-9.0)
Laboratory Log Number:	30581-1	30581-2	30664-1	30664-2	30664-3
Parameter (mg/kg)					
Antimony	<5.6	<5.8	<5.4	<5.4	<5.5
Barium	460	530	150	130	180
Beryllium	0.56	0.61	<0.54	<0.54	<0.55
Cadmium	0.76	1.1	4.3 J	4.9 J	4.5 J
Chromium	19	31 J	22 J	20 J	22 J
Cobalt	5.5	8.1	4.7	4.3	6.0
Copper	44	130	57 J	38 J	5.6 J
Nickel	15	25	30	28	26
Silver	<1.1	<1.2	<1.1	<1.1	<1.1
Tin	13 J	<5.8 I	<5.4	<5.4	<5.5
Vanadium	25	13	17	15	25
Zinc	250 J*	460 J*	96 J	110 J	130 J
Arsenic	12 J	16 J	8.5	4.5	11
Lead	240 J	500 J	76	31	170
Thallium	<1.1	<1.2	<1.1	<1.1	<1.1
Selenium	<2.7 I	<2.9 I	<2.2 **	<2.2 **	<2.2 **
Mercury	0.34	0.35	0.22	0.24	0.30
Total Cyanide	<1.2	<1.2 I	<1.1	<1.1	<1.1
Sulfide	12	29 J	<2.8 I	<2.8 I	<2.8 I

mg/kg Milligrams per kilogram.

* Reported value is estimated because of interference indicated by the serial dilution percent difference.

** Elevated detection limits reported due to sample matrix interference.

J The associated numerical value is an estimated quantity.

I The data are unusable (compound may or may not be present).

Table 4-4. Concentrations of Metals, Total Cyanide, and Sulfate in Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample I.D.:	VS-1	VS-2	VS-3	VS-4	BS-1
Sample Depth:	(10.5-12.5)	(7.0-9.0)	(9.0-11.0)	(9.0-11.0)	(1.25-3.25)
Laboratory Log Number:	31093-1	31093-2	32030-1	32030-2	32071-1
Parameter (mg/kg)					
Antimony	<7.4	<5.4	<5.9	<5.7	<5.9
Barium	580	290	490	1600	180
Beryllium	1.5	0.59	0.90	0.87	0.70
Cadmium	6.4	8.3	4.3	5.0	4.1
Chromium	19	8.0	14	48	18
Cobalt	9.2	4.7	7.9	9.9	6.3
Copper	180 J	44 J	36 J	86 J	35
Nickel	27	17	23	32	18
Silver	<15	<11	<5.9	<11	<1.2
Tin	100	7.4	23	<5.7	48 J
Vanadium	23	16	29	27	53 J
Zinc	1800 J	180 J	180 J	910 J	250 J
Arsenic	20 J	7.6 J	8.0 J	8.0 J	6.5 J
Lead	1200	230	170	170	280
Thallium	<1.4 I*	<2.2 I*	<1.2 I*	<1.0 I*	<1.2
Selenium	<2.9 I**	<2.2 I**	<2.4 I**	<23 I**	<5.9 I**
Mercury	0.95	0.39	0.37	1.5	0.44
Total Cyanide	<1.7 I	<1.3 I	<1.4 I	<1.4 I	<1.2 I
Sulfide	2800	<7.2	<22	300 J	<2.5

mg/kg Milligrams per kilogram.

* Reported value is estimated because of interference indicated by the serial dilution percent difference.

** Elevated detection limits reported due to sample matrix interference.

J The associated numerical value is an estimated quantity.

I The data are unusable (compound may or may not be present).

Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	GM-1	GM-1	GM-2	GM-2	GM-3	GM-3
Laboratory Log Number:	33672-3	37211-9	33672-4	37211-8	33672-5	37211-7
Date Sampled:	6/4/91	11/1/91	6/4/91	11/1/91	6/4/91	11/1/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500,000 I	<1,000,000 I	<500,000 I	<500,000 I	<250,000 I	<250,000 I
Acetone	<100,000	<200,000	<100,000	<100,000	<50,000	<50,000
Benzene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Bromodichloromethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Bromomethane	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
Carbon disulfide	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Chlorobenzene	**140,000**	**280,000**	**72,000**	**140,000**	**52,000**	**49,000 J**
Dibromochloromethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Chloroethane	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
2-Chlorethylvinyl ether	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
Chloromethane	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
Chloroform	<5,000	<10,000	<5,000	<5000	<2,500	<2,500
3-Chloropropene (allylchloride)	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
1,2-Dibromo-3-chloropropane	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
Dibromoethane (EDB)	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Dibromomethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
trans-1,4-Dichloro-2-butene	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
Dichlorodifluoromethane	<50,000	<100,000	<50,000	<50,000	<25,000	<25,000
1,1-Dichloroethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
1,2-Dichloroethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
trans-1,2-Dichloroethene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
1,1-Dichloroethene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Methylene chloride	<5,000	**15,000 J**	<5,000	<5,000	<2,500	<2,500
1,2-Dichloropropane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
cis-1,3-Dichloropropene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
trans-1,3-Dichloropropene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Ethyl benzene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
2-Butanone (MEK)	<100,000 I	<200,000 I	<100,000 I	<100,000 I	<50,000 I	<50,000 I
Iodomethane	<5,000	<10,000	<5,000	<5,000	<25,000	<2,500
Methacrylonitrile	<100,000	<200,000	<100,000	<100,000	<50,000	<50,000
4-Methyl-2-pentanone (MIBK)	<50,000	<100,000	<50,000	<50,000	<25,000	<25,000
Pentachloroethane	<10,000 I	<20,000 I	<10,000 I	<10,000 I	<5,000 I	<5,000 I
Styrene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
1,1,1,2-Tetrachloroethane	<5,000 I	<10,000 I	<5,000 I	<5,000 I	<2,500 I	<2,500 I
1,1,2,2-Tetrachloroethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Tetrachloroethene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Carbon tetrachloride	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Toluene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Bromoform	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
1,1,2-Trichloroethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
1,1,1-Trichloroethane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Trichloroethene	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Trichlorofluoromethane	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
1,2,3-Trichloropropane	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Vinyl acetate	<50,000	<100,000	<50,000	<50,000	<25,000	<25,000
Vinyl chloride	<10,000	<20,000	<10,000	<10,000	<5,000	<5,000
Xylenes	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
2-Hexanone	<50,000	<100,000	<50,000	<50,000	<25,000	<25,000
Propionitrile	<100,000	<200,000 I	<100,000	<100,000 I	<50,000	<50,000 I
Methyl methacrylate	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Acrolein	<100,000 I	<200,000 I	<100,000 I	<100,000 I	<50,000 I	<50,000 I
Acrylonitrile	<100,000	<200,000	<100,000	<100,000	<50,000	<50,000
Ethyl methacrylate	<5,000	<10,000	<5,000	<5,000	<2,500	<2,500
Isobutyl alcohol	<1,000,000 I	<2,000,000 I	<1,000,000 I	<1,000,000 I	<500,000	<500,000 I

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Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	GM-4	GM-4	GM-5	GM-5	MW-2A	MW-2A
Laboratory Log Number:	33672-6	37211-6	33672-7	37211-5	33733-3	37265-8
Date Sampled:	6/4/91	11/1/91	6/4/91	11/1/91	6/6/91	11/5/91
Parameter (concentrations in ug/L)						
Acetonitrile	<50,000 I	<5,000 I	<50,000 I	<50,000 I	<500 I	<500 I
Acetone	<10,000	<1,000	<10,000	<10,000	<100	<100
Benzene	<500	<50	<500	<500	<5.0	<5.0
Bromodichloromethane	<500	<50	<500	<500	<5.0	<5.0
Bromomethane	<1,000	<100	<1,000	<1,000	<10	<10
Carbon disulfide	<500	<50	<500	<500	<5.0	<5.0
Chlorobenzene	990	1,700	11,000	8500/10000 J	<5.0	<5.0
Dibromochloromethane	<500	<50	<500	<500	<5.0	<5.0
Chloroethane	<1,000	<100	<1,000	<1,000	<10	<10
2-Chlorethylvinyl ether	<1,000	<100	<1,000	<1,000	<10	<10
Chloromethane	<1,000	<100	<1,000	<1,000	<10	<10
Chloroform	<500	<50	<500	<500	<5.0	<5.0
3-Chloropropene (allylchloride)	<1,000	<100	<1,000	<1,000	<10	<10
1,2-Dibromo-3-chloropropane	<1,000	<100	<1,000	<1,000	<10	<10
Dibromoethane (EDB)	<500	<50	<500	<500	<5.0	<5.0
Dibromomethane	<500	<50	<500	<500	<5.0	<5.0
trans-1,4-Dichloro-2-butene	<1,000	<100	<1,000	<1,000	<10	<10
Dichlorodifluoromethane	<5,000	<500	<5,000	<5,000	<50	<50
1,1-Dichloroethane	<500	<50	<500	<500	<5.0	<5.0
1,2-Dichloroethane	<500	<50	<500	<500	<5.0	<5.0
trans-1,2-Dichloroethene	<500	<50	<500	<500	<5.0	<5.0
1,1-Dichloroethene	<500	<50	<500	<500	<5.0	<5.0
Methylene chloride	<500	<50	<500	<500	<5.0	<5.0
1,2-Dichloropropane	<500	<50	<500	<500	<5.0	<5.0
cis-1,3-Dichloropropene	<500	<50	<500	<500	<5.0	<5.0
trans-1,3-Dichloropropene	<500	<50	<500	<500	<5.0	<5.0
Ethyl benzene	<500	<50	<500	<500	<5.0	<5.0
2-Butanone (MEK)	<10,000 I	<1,000 I	<10,000 I	<10,000 I	<100 I	<100 I
Iodomethane	<500	<50	<500	<500	<5.0	<5.0
Methacrylonitrile	<10,000	<1,000	<10,000	<10,000	<100	<100
4-Methyl-2-pentanone (MIBK)	<5,000	<500	<5,000	<5,000	<50	<50
Pentachloroethane	<1,000 I	<100 I	<1,000 I	<1,000 I	<10 I	<10 I
Styrene	<500	<50	<500	<500	<5.0	<5.0
1,1,1,2-Tetrachloroethane	<500 I	<50 I	<500 I	<500 I	<5.0 I	<5.0 I
1,1,2,2-Tetrachloroethane	<500	<50	<500	<500	<5.0	<5.0
Tetrachloroethene	<500	<50	<500	<500	<5.0	<5.0
Carbon tetrachloride	<500	<50	<500	<500	<5.0	<5.0
Toluene	<500	<50	<500	<500	<5.0	<5.0
Bromoform	<500	<50	<500	<500	<5.0	<5.0
1,1,2-Trichloroethane	<500	<50	<500	<500	<5.0	<5.0
1,1,1-Trichloroethane	<500	<50	<500	<500	<5.0	<5.0
Trichloroethene	<500	<50	<500	<500	<5.0	<5.0
Trichlorofluoromethane	<1,000	<100	<1,000	<1,000	<10	<10
1,2,3-Trichloropropane	<500	<50	<500	<500	<5.0	<5.0
Vinyl acetate	<5,000	<500	<5,000	<5,000	<50	<50
Vinyl chloride	<1,000	<100	<1,000	<1,000	<10	<10
Xylenes	<500	<50	<500	<500	<5.0	<5.0
2-Hexanone	<5,000	<500	<5,000	<5,000	<50	<50
Propionitrile	<10,000	<1,000 I	<10,000	<10,000 I	<100	<100 I
Methyl methacrylate	<500	<50	<500	<500	<5.0	<5.0
Acrolein	<10,000	<1,000 I	<10,000 I	<10,000 I	<100 I	<100 I
Acrylonitrile	<10,000	<1,000	<10,000	<10,000	<100	<100
Ethyl methacrylate	<500	<50	<500	<500	<5.0	<5.0
Isobutyl alcohol	<100,000 I	<10,000 I	<100,000 I	<100,000 I	<1,000 I	<1,000 I

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Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-2B	MW-2B	MW-2R	MW-2R	MW-3	MW-3
Laboratory Log Number:	33733-4	37265-9	32911-1	37265-5	33805-2	37265-1
Date Sampled:	6/6/91	11/5/91	4/25/91	11/5/91	6/11/91	11/5/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500 I	<500 I	<500 I	<500 I	<5,000 I	<25,000 I
Acetone	<100	<100	<100	<100	<1,000	<5,000
Benzene	<5.0	<5.0	<5.0	<5.0	<50	<250
Bromodichloromethane	<5.0	<5.0	<5.0	<5.0	<50	<250
Bromomethane	<10	<10	<10	<10	<100	<500
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<50	<250
Chlorobenzene	<5.0	<5.0	<5.0	<5.0	**840**	**1,300**
Dibromochloromethane	<5.0	<5.0	<5.0	<5.0	<50	<250
Chloroethane	<10	<10	<10	<10	<100	<500
2-Chlorethylvinyl ether	<10	<10	<10	<10	<100	<500
Chloromethane	<10	<10	<10	<10	<100	<500
Chloroform	<5.0	<5.0	<5.0	<5.0	<50	<250
3-Chloropropene (allylchloride)	<10	<10	<10	<10	<100	<500
1,2-Dibromo-3-chloropropane	<10	<10	<10	<10	<100	<500
Dibromoethane (EDB)	<5.0	<5.0	<5.0	<5.0	<50	<250
Dibromomethane	<5.0	<5.0	<5.0	<5.0	<50	<250
trans-1,4-Dichloro-2-butene	<10	<10	<10	<10	<100 I	<500
Dichlorodifluoromethane	<50	<50	<50	<50	<500	<2,500
1,1-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<50	<250
1,2-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<50	<250
trans-1,2-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<50	<250
1,1-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<50	<250
Methylene chloride	<5.0	<5.0	<5.0	<5.0	<50	<250
1,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<50	<250
cis-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<50	<250
trans-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<50	<250
Ethyl benzene	<5.0	<5.0	<5.0	<5.0	<50	<250
2-Butanone (MEK)	<100 I	<100 I	<100 I	<100 I	<1,000 I	<5,000 I
Iodomethane	<5.0	<5.0	<5.0	<5.0	<50	<250
Methacrylonitrile	<100	<100	<100	<100	<1,000	<5,000
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<500	<2,500
Pentachloroethane	<10 I	<10 I	<10 I	<10 I	<100 I	<500 I
Styrene	<5.0	<5.0	<5.0	<5.0	<50	<250
1,1,1,2-Tetrachloroethane	<5.0 I	<5.0 I	<5.0 I	<5.0 I	<50 I	<250 I
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<5.0	<5.0	<50	<250
Tetrachloroethene	<5.0	<5.0	<5.0	<5.0	**97**	**380**
Carbon tetrachloride	<5.0	<5.0	<5.0	<5.0	<50	<250
Toluene	<5.0	<5.0	<5.0	<5.0	<50	<250
Bromoform	<5.0	<5.0	<5.0	<5.0	<50	<250
1,1,2-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<50	<250
1,1,1-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<50	<250
Trichloroethene	<5.0	<5.0	<5.0	<5.0	**510**	**570**
Trichlorofluoromethane	<10	<10	<10	<10	<100	<500
1,2,3-Trichloropropane	<5.0	<5.0	<5.0	<5.0	<50	<250
Vinyl acetate	<50	<50	<50	<50	<500	<2,500
Vinyl chloride	<10	<10	<10	<10	<100	<5,000
Xylenes	<5.0	<5.0	<5.0	<5.0	<50	<250
2-Hexanone	<50	<50	<50	<50	<500	<2,500
Propionitrile	<100	<100 I	<100	<100 I	<1,000	<5,000 I
Methyl methacrylate	<5.0	<5.0	<5.0	<5.0	<50	<250
Acrolein	<100 I	<100 I	<100	<100 I	<1,000	<5,000 I
Acrylonitrile	<100	<100	<100	<100	<1,000	<5,000
Ethyl methacrylate	<5.0	<5.0	<5.0	<5.0	<50	<250
Isobutyl alcohol	<1,000 I	<1,000 I	<1,000	<1,000 I	<10,000 I	<50,000 I

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Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-4	MW-4	MW-8A	MW-8A Dup	MW-8A	MW-8B
Laboratory Log Number:	33805-4	37166-1	33748-3	33748-4	37146-5	33748-5
Date Sampled:	6/11/91	10/30/91	6/7/91	6/7/91	10/29/91	6/7/91
Parameter (concentrations in ug/L)						
Acetonitrile	<5,000 I	<2,500 I	<100,000 I	<100,000 I	<100,000 I	<500 I
Acetone	<1,000	<500	<20,000	<20,000	<20,000	**110 J**
Benzene	<50	<25	<1,000	<1,000	<1,000	<5.0
Bromodichloromethane	<50	<25	<1,000	<1,000	<1,000	<5.0
Bromomethane	<100	<50	<2,000	<2,000	<2,000	<10
Carbon disulfide	<50	<25	<1,000	<1,000	<1,000	<5.0
Chlorobenzene	**880**	**760**	**17,000**	**17,000**	**16,000**	<5.0
Dibromochloromethane	<50	<25	<1,000	<1,000	<1,000	<5.0
Chloroethane	<100	<50	<2,000	<2,000	<2,000	<10
2-Chlorethylvinyl ether	<100	<50	<2,000	<2,000	<2,000 I	<10
Chloromethane	<100	<50	<2,000	<2,000	<2,000	<10
Chloroform	<50	<25	<1,000	<1,000	<1,000	<5.0
3-Chloropropene (allylchloride)	<100	<50	<2,000	<2,000	<2,000	<10
1,2-Dibromo-3-chloropropane	<100	<50	<2,000	<2,000	<2,000	<10
Dibromoethane (EDB)	<50	<25	<1,000	<1,000	<1,000	<5.0
Dibromomethane	<50	<25	<1,000	<1,000	<1,000	<5.0
trans-1,4-Dichloro-2-butene	<100 I	<50	<2,000	<2,000	<2,000	<10
Dichlorodifluoromethane	<500	<250	<10,000	<10,000	<10,000	<50
1,1-Dichloroethane	<50	<25	<1,000	<1,000	<1,000	<5.0
1,2-Dichloroethane	<50	<25	<1,000	<1,000	<1,000	<5.0
trans-1,2-Dichloroethene	<50	<25	<1,000	<1,000	<1,000	<5.0
1,1-Dichloroethene	<50	<25	<1,000	<1,000	<1,000	<5.0
Methylene chloride	<50	<25	<1,000	<1,000	<1,000	<5.0
1,2-Dichloropropane	<50	<25	<1,000	<1,000	<1,000	<5.0
cis-1,3-Dichloropropene	<50	<25	<1,000	<1,000	<1,000	<5.0
trans-1,3-Dichloropropene	<50	<25	<1,000	<1,000	<1,000	<5.0
Ethyl benzene	<50	<25	<1,000	<1,000	<1,000	<5.0
2-Butanone (MEK)	<1,000 I	<500 I	<20,000 I	<20,000 I	<20,000 I	<100 I
Iodomethane	<50	<25	<1,000	<1,000	<1,000	<5.0
Methacrylonitrile	<1,000	<500	<20,000	<20,000	<20,000	<100
4-Methyl-2-pentanone (MIBK)	<500	<25 I	<10,000	<10,000	<10,000	<50
Pentachloroethane	<100 I	<500 I	<2000 I	<2000 I	<2000 I	<10 I
Styrene	<50	<250	<1,000	<1,000	<1,000	<5.0
1,1,1,2-Tetrachloroethane	<50 I	<25 I	<1,000 I	<1,000 I	<1,000 I	<5.0 I
1,1,2,2-Tetrachloroethane	<50	<25	<1,000	<1,000	<1,000	<5.0
Tetrachloroethene	<50	<25	<1,000	<1,000	<1,000	<5.0
Carbon tetrachloride	<50	<25	<1,000	<1,000	<1,000	<5.0
Toluene	<50	<25	<1,000	<1,000	<1,000	<5.0
Bromoform	<50	<25	<1,000	<1,000	<1,000	<5.0
1,1,2-Trichloroethane	<50	<25	<1,000	<1,000	<1,000	<5.0
1,1,1-Trichloroethane	<50	<25	<1,000	<1,000	<1,000	<5.0
Trichloroethene	<50	<25	<1,000	<1,000	<1,000	<5.0
Trichlorofluoromethane	<100	<50	<2,000	<2,000	<2,000	<10
1,2,3-Trichloropropane	<50	<25	<1,000	<1,000	<1,000	<5.0
Vinyl acetate	<500	<250	<10,000	<10,000	<10,000	<50
Vinyl chloride	<100	<50	<2,000	<2,000	<2,000	<10
Xylenes	<50	<25	<1,000	<1,000	<1,000	<5.0
2-Hexanone	<500	<250	<10,000	<10,000	<10,000	<50
Propionitrile	<1,000	<500 I	<20,000	<20,000	<20,000 I	<100
Methyl methacrylate	<50	<25	<1,000	<1,000	<1,000	<5.0
Acrolein	<1,000	<500 I	<20,000	<20,000	<20,000 I	<100 I
Acrylonitrile	<1,000	<500	<20,000	<20,000	<20,000	<100
Ethyl methacrylate	<50	<25	<1,000	<1,000	<1,000	<5.0
Isobutyl alcohol	<10,000 I	<5,000 I	<200,000 I	<200,000 I	<200,000 I	<1,000

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Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8B Dup	MW-8B	MW-8B Rep	MW-8R	MW-8R Rep	MW-9
Laboratory Log Number:	33748-6	37146-4	37146-7	37146-3	37146-8	33748-1
Date Sampled:	6/7/91	10/29/91	10/29/91	10/29/91	10/29/91	6/7/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500 I	<500 I	<500 I	<500 I	<500 I	<500 I
Acetone	**120 J**	<100	<100	<100	<100	<100
Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<5.0	<5.0	<5.0	**11**	**6.5**	<5.0
Dibromochloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	<10	<10	<10	<10	<10	<10
2-Chlorethylvinyl ether	<10	<10 I	<10 I	<10 I	<10 I	<10
Chloromethane	<10	<10	<10	<10	<10	<10
Chloroform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
3-Chloropropene (allylchloride)	<10	<10	<10	<10	<10	<10
1,2-Dibromo-3-chloropropane	<10	<10	<10	<10	<10	<10
Dibromoethane (EDB)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibromomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,4-Dichloro-2-butene	<10	<10	<10	<10	<10	<10
Dichlorodifluoromethane	<50	<50	<50	<50	<50	<50
1,1-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Ethyl benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone (MEK)	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
Iodomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methacrylonitrile	<100	<100	<100	<100	<100	<100
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50	<50
Pentachloroethane	<10 I	<10 I	<10 I	<10 I	<10 I	<10 I
Styrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,1,2-Tetrachloroethane	<5.0 I	<5.0 I	<5.0 I	<5.0 I	<5.0 I	<5.0 I
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	<10	<10	<10	<10	<10	<10
1,2,3-Trichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl acetate	<50	<50	<50	<50	<50	<50
Vinyl chloride	<10	<10	<10	<10	<10	<10
Xylenes	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Hexanone	<50	<50	<50	<50	<50	<50
Propionitrile	<100	<100 I	<100 I	<100 I	<100 I	<100
Methyl methacrylate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acrolein	<100	<100 I	<100 I	<100 I	<100 I	<100 I
Acrylonitrile	<100	<100	<100	<100	<100	<100
Ethyl methacrylate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Isobutyl alcohol	<1,000 I	<1,000 I	<1,000 I	<1,000 I	<1,000 I	<1,000

Footnotes on page 11.

Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-9	MW-10	MW-10	MW-11A	MW-11A	MW-11B
Laboratory Log Number:	37181-6	33780-1	37166-2	33780-2	37265-3	33780-3
Date Sampled:	10/31/91	6/10/91	10/30/91	6/10/91	11/5/91	6/10/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500 I	<500 I	<500 I	<500 I	<500 I	<500 I
Acetone	<100	<100	<100	<100	<100	<100
Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibromochloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	<10	<10	<10	<10	<10	<10
2-Chlorethylvinyl ether	<10	<10	<10	<10	<10	<10
Chloromethane	<10	<10	<10	<10	<10	<10
Chloroform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
3-Chloropropene (allylchloride)	<10	<10	<10	<10	<10	<10
1,2-Dibromo-3-chloropropane	<10	<10	<10	<10	<10	<10
Dibromoethane (EDB)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibromomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,4-Dichloro-2-butene	<10	<10	<10	<10	<10	<10
Dichlorodifluoromethane	<50	<50	<50	<50	<50	<50
1,1-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Ethyl benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Butanone (MEK)	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
Iodomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methacrylonitrile	<100	<100	<100	<100	<100	<100
4-Methyl-2-pentanone (MIBK)	<50	<50	<50	<50	<50	<50
Pentachloroethane	<10 I	<10 I	<10 I	<10 I	<10 I	<10 I
Styrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,1,2-Tetrachloroethane	<5.0 I	<5.0 I	<5.0 I	<5.0 I	<5.0 I	<5.0 I
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	<10	<10	<10	<10	<10	<10
1,2,3-Trichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl acetate	<50	<50	<50	<50	<50	<50
Vinyl chloride	<10	<10	<10	<10	<10	<10
Xylenes	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Hexanone	<50	<50	<50	<50	<50	<50
Propionitrile	<100 I	<100	<100 I	<100	<100 I	<100
Methyl methacrylate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acrolein	<100 I	<100	<100 I	<100	<100 I	<100
Acrylonitrile	<100	<100	<100	<100	<100	<100
Ethyl methacrylate	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Isobutyl alcohol	<1,000 I	<1,000 I	<1,000 I	<1,000 I	<1,000 I	<1,000 I

Footnotes on page 11.

Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-11B	MW-13	MW-13 Dup	MW-13	MW-13R	MW-14
Laboratory Log Number:	37265-4	33780-4	33780-5	37166-3	37181-1	33672-8
Date Sampled:	11/5/91	6/10/91	6/10/91	10/30/91	10/31/91	6/4/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500 I	<5,000 I	<5,000 I	<2,500 I	<500 I	<500,000 I
Acetone	<100	<1,000	<1,000	<500	<100	<100,000
Benzene	<5.0	<50	<50	<25	<5.0	<5,000
Bromodichloromethane	<5.0	<50	<50	<25	<5.0	<5,000
Bromomethane	<10	<100	<100	<50	<10	<10,000
Carbon disulfide	<5.0	<50	<50	<25	<5.0	<5,000
Chlorobenzene	<5.0	**520**	**530**	**620**	<5.0	**55,000**
Dibromochloromethane	<5.0	<50	<50	<25	<5.0	<5,000
Chloroethane	<10	<100	<100	<50	<10	<10,000
2-Chlorethylvinyl ether	<10	<100	<100	<50	<10	<10,000
Chloromethane	<10	<100	<100	<50	<10	<10,000
Chloroform	<5.0	<50	<50	<25	<5.0	<5,000
3-Chloropropene (allylchloride)	<10	<100	<100	<50	<10	<10,000
1,2-Dibromo-3-chloropropane	<10	<100	<100	<50	<10	<10,000
Dibromoethane (EDB)	<5.0	<50	<50	<25	<5.0	<5,000
Dibromomethane	<5.0	<50	<50	<25	<5.0	<5,000
trans-1,4-Dichloro-2-butene	<10	<100 I	<100 I	<25	<10	<10,000
Dichlorodifluoromethane	<50	<500	<500	<250	<50	<50,000
1,1-Dichloroethane	<5.0	<50	<50	<25	<5.0	<5,000
1,2-Dichloroethane	<5.0	<50	<50	<25	<5.0	<5,000
trans-1,2-Dichloroethene	<5.0	<50	<50	<25	<5.0	<5,000
1,1-Dichloroethene	<5.0	<50	<50	<25	<5.0	<5,000
Methylene chloride	<5.0	<50	<50	<25	**13 U**	<5,000
1,2-Dichloropropane	<5.0	<50	<50	<25	<5.0	<5,000
cis-1,3-Dichloropropene	<5.0	<50	<50	<25	<5.0	<5,000
trans-1,3-Dichloropropene	<5.0	<50	<50	<25	<5.0	<5,000
Ethyl benzene	<5.0	<50	<50	<25	<5.0	<5,000
2-Butanone (MEK)	<100 I	<1,000 I	<1,000 I	<500 I	<100 I	<100,000 I
Iodomethane	<5.0	<50	<50	<25	<5.0	<5,000
Methacrylonitrile	<100	<1,000	<1,000	<500	<100	<100,000
4-Methyl-2-pentanone (MIBK)	<50	<500	<500	<250 I	<50	<50,000
Pentachloroethane	<10 I	<100 I	<100 I	<50 I	<10 I	<10,000 I
Styrene	<5.0	<50	<50	<25	<5.0	<5,000
1,1,1,2-Tetrachloroethane	<5.0 I	<50 I	<50 I	<25 I	<5.0 I	<5,000 I
1,1,2,2-Tetrachloroethane	<5.0	<50	<50	<25	<5.0	<5,000
Tetrachloroethene	<5.0	<50	<50	<25	<5.0	<5,000
Carbon tetrachloride	<5.0	<50	<50	<25	<5.0	<5,000
Toluene	<5.0	<50	<50	<25	<5.0	<5,000
Bromoform	<5.0	<50	<50	<25	<5.0	<5,000
1,1,2-Trichloroethane	<5.0	<50	<50	<25	<5.0	<5,000
1,1,1-Trichloroethane	<5.0	<50	<50	<25	<5.0	<5,000
Trichloroethene	<5.0	<50	<50	<25	<5.0	<5,000
Trichlorofluoromethane	<10	<100	<100	<50	<10	<10,000
1,2,3-Trichloropropane	<5.0	<50	<50	<25	<5.0	<5,000
Vinyl acetate	<50	<500	<500	<250	<50	<50,000
Vinyl chloride	<10	<100	<100	<50	<10	<10,000
Xylenes	<5.0	<50	<50	<25	<5.0	<5,000
2-Hexanone	<50	<500	<500	<250	<50	<50,000
Propionitrile	<100 I	<1,000	<1,000	<500 I	<100 I	<100,000
Methyl methacrylate	<5.0	<50	<50	<25	<5.0	<5,000
Acrolein	<100 I	<1,000	<1,000	<500 I	<100 I	<100,000 I
Acrylonitrile	<100	<1,000	<1,000	<500	<100	<100,000
Ethyl methacrylate	<5.0	<50	<50	<25	<5.0	<5,000
Isobutyl alcohol	<1,000 I	<10,000 I	<10,000 I	<5,000 I	<1,000 I	<1,000,000 I

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Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-14 Dup	MW-14	MW-15	MW-15	MW-20	MW-20
Laboratory Log Number:	33672-9	37211-1	33805-3	37265-2	33748-2	37265-6
Date Sampled:	6/4/91	11/1/91	6/11/91	11/5/91	6/7/91	11/5/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500,000 I	<250,000 I	<500 I	<500 I	<500 I	<500 I
Acetone	<100,000	<50,000	<100	<100	<100	<100
Benzene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Bromomethane	<10,000	<5,000	<10	<10	<10	<10
Carbon disulfide	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	**47,000**	**100,000**	**29**	<5.0	<5.0	<5.0
Dibromochloromethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Chloroethane	<10,000	<5,000	<10	<10	<10	<10
2-Chlorethylvinyl ether	<10,000	<5,000	<10	<10	<10	<10
Chloromethane	<10,000	<5,000	<10	<10	<10	<10
Chloroform	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
3-Chloropropene (allylchloride)	<10,000	<5,000	<10	<10	<10	<10
1,2-Dibromo-3-chloropropane	<10,000	<5,000	<10	<10	<10	<10
Dibromoethane (EDB)	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Dibromomethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
trans-1,4-Dichloro-2-butene	<10,000	<5,000	<10	<10	<10	<10
Dichlorodifluoromethane	<50,000	<25,000	<50	<50	<50	<50
1,1-Dichloroethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
trans-1,2-Dichloroethene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
cis-1,3-Dichloropropene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
trans-1,3-Dichloropropene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Ethyl benzene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
2-Butanone (MEK)	<100,000 I	<50,000 I	<100 I	<100 I	<100 I	<100 I
Iodomethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Methacrylonitrile	<100,000	<50,000	<100	<100	<100	<100
4-Methyl-2-pentanone (MIBK)	<50,000	<25,000	<50	<50	<50	<50
Pentachloroethane	<10,000 I	<5,000 I	<10 I	<10 I	<10 I	<10 I
Styrene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
1,1,1,2-Tetrachloroethane	<5,000 I	<2,500 I	<5.0 I	<5.0 I	<5.0 I	<5.0 I
1,1,2,2-Tetrachloroethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Toluene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Bromoform	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
1,1,1-Trichloroethane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Trichloroethene	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	<10,000	<5,000	<10	<10	<10	<10
1,2,3-Trichloropropane	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Vinyl acetate	<50,000	<25,000	<50	<50	<50	<50
Vinyl chloride	<10,000	<5,000	<10	<10	<10	<10
Xylenes	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
2-Hexanone	<50,000	<25,000	<50	<50	<50	<50
Propionitrile	<100,000	<50,000 I	<100	<100 I	<100	<100 I
Methyl methacrylate	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Acrolein	<100,000 I	<50,000 I	<100	<100 I	<100 I	<100 I
Acrylonitrile	<100,000	<50,000	<100	<100	<100	<100
Ethyl methacrylate	<5,000	<2,500	<5.0	<5.0	<5.0	<5.0
Isobutyl alcohol	<1,000,000 I	<500,000 I	<1,000	<1,000 I	<1,000	<1,000 I

Footnotes on page 11.

Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	TW-1	TW-1	OBS-1	OBS-1	HW-1B	HW-1B
Laboratory Log Number:	33672-1	37181-4	33693-3	37181-2	33693-1	37211-4
Date Sampled:	6/4/91	10/31/91	6/5/91	10/31/91	6/5/91	11/1/91
Parameter (concentrations in ug/L)						
Acetonitrile	<50,000 I	<50,000 I	<13,000 I	<5,000 I	<5,000 I	<5,000 I
Acetone	<10,000	<10,000	<2,500	<1,000	<1,000	<1,000
Benzene	<500	<500	**290**	<50	<50	<50
Bromodichloromethane	<500	<500	<130	<50	<50	<50
Bromomethane	<1,000	<1,000	<25	<100	<100	<100
Carbon disulfide	<500	<500	<130	<50	<50	<50
Chlorobenzene	**6,500**	**4,900**	**4,700**	**900**	<50	<50
Dibromochloromethane	<500	<500	<130	<50	<50	<50
Chloroethane	<1,000	<1,000	<250	<100	<100	<100
2-Chlorethylvinyl ether	<1,000	<1,000	<250	<100	<100	<100
Chloromethane	<1,000	<1,000	<250	<100	<100	<100
Chloroform	<500	<500	<130	<50	<50	<50
3-Chloropropene (allylchloride)	<1,000	<1,000	<250	<100	<100	<100
1,2-Dibromo-3-chloropropane	<1,000	<1,000	<250	<100	<100	<100
Dibromoethane (EDB)	<500	<500	<130	<50	<50	<50
Dibromomethane	<500	<500	<130	<50	<50	<50
trans-1,4-Dichloro-2-butene	<1,000	<1,000	<250	<100	<100	<100
Dichlorodifluoromethane	<5,000	<5,000	<1,300	<500	<500	<500
1,1-Dichloroethane	<500	<500	<130	<50	<50	<50
1,2-Dichloroethane	<500	<500	<130	<50	<50	<50
trans-1,2-Dichloroethene	<500	<500	<130	<50	<50	<50
1,1-Dichloroethene	<500	<500	<130	<50	<50	<50
Methylene chloride	<500	<500	<130	<50	<50	<50
1,2-Dichloropropane	<500	<500	<130	<50	<50	<50
cis-1,3-Dichloropropene	<500	<500	<130	<50	<50	<50
trans-1,3-Dichloropropene	<500	<500	<130	<50	<50	<50
Ethyl benzene	<500	<500	<130	<50	<50	<50
2-Butanone (MEK)	<10,000 I	<10,000 I	<2,500 I	<1,000 I	<1,000 I	<1,000 I
Iodomethane	<500	<500	<130	<50	<50	<50
Methacrylonitrile	<10,000	<10,000	<2,500	<1,000	<1,000	<1,000
4-Methyl-2-pentanone (MIBK)	<5,000	<5,000	<1,300	<500 I	<500	<500
Pentachloroethane	<1,000 I	<1,000 I	<250 I	<100 I	<100 I	<100 I
Styrene	<500	<500	<130	<50	<50	<50
1,1,1,2-Tetrachloroethane	<500 I	<500 I	<130 I	<50 I	<50 I	<50 I
1,1,2,2-Tetrachloroethane	<500	<500	<130	<50	<50	<50
Tetrachloroethene	<500	<500	<130	<50	<50	<50
Carbon tetrachloride	<500	<500	<130	<50	<50	<50
Toluene	<500	<500	<130	<50	<50	<50
Bromoform	<500	<500	<130	<50	<50	<50
1,1,2-Trichloroethane	<500	<500	<130	<50	<50	<50
1,1,1-Trichloroethane	<500	<500	<130	<50	<50	<50
Trichloroethene	<500	<500	<130	<50	**1,100**	**330**
Trichlorofluoromethane	<1,000	<1,000	<250	<100	<100	<100
1,2,3-Trichloropropane	<500	<500	<130	<50	<50	<50
Vinyl acetate	<5,000	<5,000	<1,300	<500	<500	<500
Vinyl chloride	<1,000	<1,000	<250	<100	<100	<100
Xylenes	<500	<500	<130	<50	<50	<50
2-Hexanone	<5,000	<5,000	<1,300	<500	<500	<500
Propionitrile	<10,000	<10,000 I	<2,500	<1,000 I	<1,000	<1,000 I
Methyl methacrylate	<500	<500	<130	<50	<50	<50
Acrolein	<10,000 I	<10,000 I	<2,500 I	<1,000 I	<1,000 I	<1,000 I
Acrylonitrile	<10,000	<10,000	<2,500	<1,000	<1,000	<1,000
Ethyl methacrylate	<500	<500	<130	<50	<50	<50
Isobutyl alcohol	<100,000	<100,000 I	<2,500 I	<1,000 I	<10,000 I	<10,000 I

Footnotes on page 11.

Table 4-5. Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	QS-1	QS-1	VW-2	VW-2	VW-2B	VW-2B
Laboratory Log Number:	33693-2	37181-3	33733-1	37146-1	33733-2	37211-3
Date Sampled:	6/5/91	10/31/91	6/6/91	10/29/91	6/6/91	11/1/91
Parameter (concentrations in ug/L)						
Acetonitrile	<500 I	<500 I	<25,000 I	<50,000 I	<5,000 I	<50,000 I
Acetone	<100	<100	<5,000	<10,000	<1,000	<10,000
Benzene	<5.0	<5.0	**1,900**	**1,300**	<50	<500
Bromodichloromethane	<5.0	<5.0	<250	<500	<50	<500
Bromomethane	<10	<10	<500	<1,000	<100	<1,000
Carbon disulfide	<5.0	<5.0	<250	<500	<50	<500
Chlorobenzene	<5.0	<5.0	**7,500**	**8,000**	<50	**1,800**
Dibromochloromethane	<5.0	<5.0	<250	<500	<50	<500
Chloroethane	<10	<10	<500	<1,000	<100	<1,000
2-Chlorethylvinyl ether	<10	<10	<500	<1,000	<100	<1,000
Chloromethane	<10	<10	<500	<1,000	<100	<1,000
Chloroform	<5.0	<5.0	<250	<500	<50	<500
3-Chloropropene (allylchloride)	<10	<10	<500	<1,000	<100	<1,000
1,2-Dibromo-3-chloropropane	<10	<10	<500	<1,000	<100	<1,000
Dibromoethane (EDB)	<5.0	<5.0	<250	<500	<50	<500
Dibromomethane	<5.0	<5.0	<250	<500	<50	<500
trans-1,4-Dichloro-2-butene	<10	<10	<500	<1,000	<100	<1,000
Dichlorodifluoromethane	<50	<50	<2,500	<5,000	<500	<5,000
1,1-Dichloroethane	<5.0	<5.0	<250	<500	<50	<500
1,2-Dichloroethane	<5.0	<5.0	<250	<500	<50	<500
trans-1,2-Dichloroethene	<5.0	<5.0	<250	<500	<50	<500
1,1-Dichloroethene	<5.0	<5.0	<250	<500	<50	<500
Methylene chloride	<5.0	<5.0	<250	<500	<50	<500
1,2-Dichloropropane	<5.0	<5.0	<250	<500	<50	<500
cis-1,3-Dichloropropene	<5.0	<5.0	<250	<500	<50	<500
trans-1,3-Dichloropropene	<5.0	<5.0	<250	<500	<50	<500
Ethyl benzene	<5.0	<5.0	<250	<500	<50	<500
2-Butanone (MEK)	<100 I	<100 I	<5,000 I	<10,000 I	<1,000 I	<10,000 I
Iodomethane	<5.0	<5.0	<250	<500	<50	<500
Methacrylonitrile	<100	<100	<5,000	<10,000	<1,000	<10,000
4-Methyl-2-pentanone (MIBK)	<50	<50	<2,500	<5,000 I	<500	<5,000
Pentachloroethane	<10 I	<10 I	<500 I	<1,000 I	<100 I	<1,000 I
Styrene	<5.0	<5.0	<250	<500	<50	<500
1,1,1,2-Tetrachloroethane	<5.0 I	<5.0 I	<250 I	<500 I	<50 I	<500 I
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<250	<500	<50	<500
Tetrachloroethene	<5.0	<5.0	<250	<500	<50	<500
Carbon tetrachloride	<5.0	<5.0	<250	<500	<50	<500
Toluene	<5.0	<5.0	<250	<500	<50	<500
Bromoform	<5.0	<5.0	<250	<500	<50	<500
1,1,2-Trichloroethane	<5.0	<5.0	<250	<500	<50	<500
1,1,1-Trichloroethane	<5.0	<5.0	<250	<500	<50	<500
Trichloroethene	<5.0	<5.0	<250	<500	<50	<500
Trichlorofluoromethane	<10	<10	<500	<500	<100	<1,000
1,2,3-Trichloropropane	<5.0	<5.0	<250	<500	<50	<500
Vinyl acetate	<50	<50	<2,500	<1,000	<500	<5,000
Vinyl chloride	<10	<10	<500	<500	<100	<1,000
Xylenes	<5.0	<5.0	<250	<500	<50	<500
2-Hexanone	<50	<50	<2,500	<5,000	<500	<5,000
Propionitrile	<100	<100 I	<5,000	<10,000 I	<1,000	<10,000 I
Methyl methacrylate	<5.0	<5.0	<250	<500	<50	<500
Acrolein	<100 I	<100 I	<5,000 I	<10,000 I	<1,000 I	<10,000 I
Acrylonitrile	<100	<100	<25,000	<10,000	<1,000	<10,000
Ethyl methacrylate	<5.0	<5.0	<250	<500	<50	<500
Isobutyl alcohol	<1,000 I	<1,000 I	<50,000 I	<100,000 I	<10,000 I	<100,000 I

Footnotes on page 11.

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-2A	MW-2B	MW-2R	MW-3	MW-4	MW-4
Laboratory Log Number:	33733-3	33733-4	32911-1	33805-2	33805-4	37166-1
Date Sampled:	6/6/91	6/6/91	4/25/91	6/11/91	6/11/91	10/29/91
Parameter (concentrations in ug/L)						
Acenaphthene	<10	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
Acetophenone	<10	<10	<10	<10	<10	<10
2-Acetylaminofluorene	<20	<20	<20	<20	<20	<20
4-Aminobiphenyl	<20	<20	<20	<20	<20	<20
Anthracene	<10	<10	<10	<10	<10	<10
Aniline	<10	<10	<10	<10	<10	<10
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
bis(2-Choroethyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<10	<10	<10	<10	<10	<10
4-Bromophenyl-phenyl-ether	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10	<10
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	<50	<50	<50	<50	<50	<50
p-Chloroaniline	<20	<20	<20	<20	<20	<20
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	14
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10
4-Chlorophenyl-phenyl ether	<10	<10	<10	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
3,3'-Dimethylbenzidine	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
p-(Dimethylamino)azobenzene	<10	<10	<10	<10	<10	<10
7,12-Dimethylbenz(a)anthracene	<10	<10	<10	<10	<10	<10
a-a-Dimethylphenethylamine	<50	<50	<50	<50	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
m-Dinitrobenzene	<50	<50	<50	<50	<50	<10
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Di-n-octylphthalate	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri

Sample ID:	MW-2A	MW-2B	MW-2R	MW-3	MW-4	MW-4
Laboratory Log Number:	33733-3	33733-4	32911-1	33805-2	33805-4	37166-1
Date Sampled:	6/6/91	6/6/91	4/25/91	6/11/91	6/11/91	10/29/91
Parameter (concentrations in ug/L)						
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Hexachloropropene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10	<10
Isosafrole	<10	<10	<10	<10	<10	<10
Methapyrilene	<100	<100	<100	<100	<100	<100
3-Methylcholanthrene	<10	<10	<10	<10	<10	<10
Methylmethanesulfonate	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10	<10
1,4-Naphthoquinone	<10	<10	<10	<10	<10	<10
1-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<50	<50	<50
3-Nitroaniline	<50	<50	<50	<50	<50	<50
4-Nitroaniline	<50	<50	<50	<50	<50	<50
Nitrobenzene	<10	<10	<10	<10	<10	<10
N-Nitrosodi-n-butylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiethylamine	<20	<20	<20	<20	<20	<20
N-Nitrosodimethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomethylethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiphenylamine/Diphenylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomorpholine	<10	<10	<10	<10	<10	<10
N-Nitrosopiperidine	<20	<20	<20	<20	<20	<20
Nitrosopyrrolidine	<40	<40	<40	<40 I	<40	<40
5-Nitro-o-toluidine	<10	<10	<10	<10	<10	<10
Pentachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachloronitrobenzene	<100	<100	<100	<100	<100	<100
Phenacetin	<20	<20	<20	<20	<20	<20
Phenanthrene	<10	<10	<10	<10	<10	<10
2-Picoline	<10	<10	<10	<10	<10	<10
Pronamide	<10	<10	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10	<10
Safrole	<10	<10	<10	<10	<10	<10
1,2,4,5-Tetrachlorobenzene	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	13	22
2-Chlorophenol	<10	<10	<10	<10	<10	<10
Cresol m&p	<10	<10	<10	<10	<10	<10
o-Cresol	<10	<10	<10	<10	<10	<10
4-Nitrophenol	<50	<50	<50	<50	<50	<50
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,6-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water. J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-2A	MW-2B	MW-2R	MW-3	MW-4	MW-4
Laboratory Log Number:	33733-3	33733-4	32911-1	33805-2	33805-4	37166-1
Date Sampled:	6/6/91	6/6/91	4/25/91	6/11/91	6/11/91	10/29/91
Parameter (concentrations in ug/L)						
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<50	<50
2,4-Dinitrophenol	<50	<50	<50	<50	<50	<50
Pentachlorophenol	<50	<50	<50	<50	<50	<50
Phenol	<10	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<50	<50	<50	<50	<50	<50
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10
Diallate	<10	<10	<10	<10	<10	<10
Ethyl methanesulfonate	<20	<20	<20	<20	<20	<20
4-Nitroquinoline 1-oxide	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
p-Phenylenediamine	<10	<10	<10	<10	<10	<10
o-Toluidine	<10	<10	<10	<10	<10	<10
o,o,o-Triethyl phosphorothioate	<10	<10	<10	<10	<10	<10
1,3,5-Trinitrobenzene	<50	<50	<50	<50	<50	<50
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10
Pyridine	<10	<10	<10	<10	<10	<10
1,4-Dioxane	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri

Sample ID:	MW-8A	MW-8A Dup	MW-8A	MW-8A Dup	MW-8B	MW-8B Dup
Laboratory Log Number:	33748-3	33748-4	37146-5	37146-6	33748-5	33748-6
Date Sampled:	6/7/91	6/7/91	10/29/91	10/29/91	6/7/91	6/7/91
Parameter (concentrations in ug/L)						
Acenaphthene	<10	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
Acetophenone	<10	<10	<10	<10	<10	<10
2-Acetylaminofluorene	<20	<20	<20	<20	<20	<20
4-Aminobiphenyl	<20	<20	<20	<20	<20	<20
Anthracene	<10	<10	<10	<10	<10	<10
Aniline	<10	<10	<10	<10	<10	<10
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
bis(2-Choroethyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<10	<10	**120**	<10	<10	<10
4-Bromophenyl-phenyl-ether	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10	<10
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	<50	<50	<50	<50	<50	<50
p-Chloroaniline	**22**	**21**	<20	<20	<20	<20
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	**23**	**22**	**27**	**27**	<10	<10
1,2-Dichlorobenzene	**15**	**15**	**19**	**19**	<10	<10
4-Chlorophenyl-phenyl ether	<10	<10	<10	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
3,3'-Dimethylbenzidine	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
p-(Dimethylamino)azobenzene	<10	<10	<10	<10	<10	<10
7,12-Dimethylbenz(a)anthracene	<10	<10	<10	<10	<10	<10
a-a-Dimethylphenethylamine	<50	<50	<50	<50	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
m-Dinitrobenzene	<50	<50	<50	<50	<50	<50
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Di-n-octylphthalate	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8A	MW-8A Dup	MW-8A	MW-8A Dup	MW-8B	MW-8B Dup
Laboratory Log Number:	33748-3	33748-4	37146-5	37146-6	33748-5	33748-6
Date Sampled:	6/7/91	6/7/91	10/29/91	10/29/91	6/7/91	6/7/91
Parameter (concentrations in ug/L)						
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Hexachloropropene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10	<10
Isosafrole	<10	<10	<10	<10	<10	<10
Methapyrilene	<100	<100	<100	<100	<100	<100
3-Methylcholanthrene	<10	<10	<10	<10	<10	<10
Methylmethanesulfonate	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Naphthalene	**15**	<10	<10	<10	<10	<10
1,4-Naphthoquinone	<10	<10	<10	<10	<10	<10
1-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<50	<50	<50
3-Nitroaniline	<50	<50	<50	<50	<50	<50
4-Nitroaniline	<50	<50	<50	<50	<50	<50
Nitrobenzene	<10	<10	<10	<10	<10	<10
N-Nitrosodi-n-butylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiethylamine	<20	<20	<20	<20	<20	<20
N-Nitrosodimethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomethylethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiphenylamine/Diphenylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomorpholine	<10	<10	<10	<10	<10	<10
N-Nitrosopiperidine	<20	<20	<20	<20	<20	<20
Nitrosopyrrolidine	<40	<40	<40	<40	<40	<40
5-Nitro-o-toluidine	<10	<10	<10	<10	<10	<10
Pentachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachloronitrobenzene	<100	<100	<100	<100	<100	<100
Phenacetin	<20	<20	<20	<20	<20	<20
Phenanthrene	<10	<10	<10	<10	<10	<10
2-Picoline	<10	<10	<10	<10	<10	<10
Pronamide	<10	<10	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10	<10
Safrole	<10	<10	<10	<10	<10	<10
1,2,4,5-Tetrachlorobenzene	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10
2-Chlorophenol	**25**	**20**	**36**	**25**	<10	<10
Cresol m&p	<10	<10	<10	<10	<10	<10
o-Cresol	<10	<10	<10	<10	<10	<10
4-Nitrophenol	<50	<50	<50	<50	<50	<50
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,6-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8A	MW-8A Dup	MW-8A	MW-8A Dup	MW-8B	MW-8B Dup
Laboratory Log Number:	33748-3	33748-4	37146-5	37146-6	33748-5	33748-6
Date Sampled:	6/7/91	6/7/91	10/29/91	10/29/91	6/7/91	6/7/91
Parameter (concentrations in ug/L)						
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<50	<50
2,4-Dinitrophenol	<50	<50	<50	<50	<50	<50
Pentachlorophenol	<50	<50	<50	<50	<50	<50
Phenol	<10	<10	<50	<50	<10	<10
2,4,5-Trichlorophenol	<50	<50	<50	<50	<50	<50
2,4,6-Trichlorophenol	<10	<10	<50	<50	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10
Diallate	<10	<10	<10	<10	<10	<10
Ethyl methanesulfonate	<20	<20	<20	<20	<20	<20
4-Nitroquinoline 1-oxide	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
p-Phenylenediamine	<10	<10	<10	<10	<10	<10
o-Toluidine	<10	<10	<10	<10	<10	<10
o,o,o-Triethyl phosphorothioate	<10	<10	<10	<10	<10	<10
1,3,5-Trinitrobenzene	<50	<50	<50	<50	<50	<50
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10
Pyridine	<10	<10	<10	<10	<10	<10
1,4-Dioxane	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8B	MW-8R	MW-9	MW-10	MW-10	MW-11A
Laboratory Log Number:	37146-4	37146-3	33748-1	33780-1	37166-2	33780-2
Date Sampled:	10/29/91	10/29/91	6/7/91	6/10/91	10/29/91	6/10/91
Parameter (concentrations in ug/L)						
Acenaphthene	<10	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
Acetophenone	<10	<10	<10	<10	<10	<10
2-Acetylaminofluorene	<20	<20	<20	<20	<20	<20
4-Aminobiphenyl	<20	<20	<20	<20	<20	<20
Anthracene	<10	<10	<10	<10	<10	<10
Aniline	<10	<10	<10	<10	<10	<10
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
bis(2-Choroethyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<10	<10	<10	11	<10	<10
4-Bromophenyl-phenyl-ether	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	15	<10	<10
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	<50	<50	<50	<50	<50	<50
p-Chloroaniline	<20	<20	<20	<20	<20	<20
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10
4-Chlorophenyl-phenyl ether	<10	<10	<10	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
3,3'-Dimethylbenzidine	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
p-(Dimethylamino)azobenzene	<10	<10	<10	<10	<10	<10
7,12-Dimethylbenz(a)anthracene	<10	<10	<10	<10	<10	<10
a-a-Dimethylphenethylamine	<50	<50	<50	<50	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
m-Dinitrobenzene	<50	<50	<50	<50	<50	<50
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Di-n-octylphthalate	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8B	MW-8R	MW-9	MW-10	MW-10	MW-11A
Laboratory Log Number:	37146-4	37146-3	33748-1	33780-1	37166-2	33780-2
Date Sampled:	10/29/91	10/29/91	6/7/91	6/10/91	10/29/91	6/10/91
Parameter (concentrations in ug/L)						
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Hexachloropropene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10	<10
Isosafrole	<10	<10	<10	<10	<10	<10
Methapyrilene	<100	<100	<100	<100	<100	<100
3-Methylcholanthrene	<10	<10	<10	<10	<10	<10
Methylmethanesulfonate	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10	<10
1,4-Naphthoquinone	<10	<10	<10	<10	<10	<10
1-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<50	<50	<50
3-Nitroaniline	<50	<50	<50	<50	<50	<50
4-Nitroaniline	<50	<50	<50	<50	<50	<50
Nitrobenzene	<10	<10	<10	<10	<10	<10
N-Nitrosodi-n-butylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiethylamine	<20	<20	<20	<20	<20	<20
N-Nitrosodimethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomethylethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiphenylamine/Diphenylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomorpholine	<10	<10	<10	<10	<10	<10
N-Nitrosopiperidine	<20	<20	<20	<20	<20	<20
Nitrosopyrrolidine	<40	<40	<40	<40	<40	<40
5-Nitro-o-toluidine	<10	<10	<10	<10	<10	<10
Pentachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachloronitrobenzene	<100	<100	<100	<100	<100	<100
Phenacetin	<20	<20	<20	<20	<20	<20
Phenanthrene	<10	<10	<10	<10	<10	<10
2-Picoline	<10	<10	<10	<10	<10	<10
Pronamide	<10	<10	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10	<10
Safrole	<10	<10	<10	<10	<10	<10
1,2,4,5-Tetrachlorobenzene	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10
Cresol m&p	<10	<10	<10	<10	<10	<10
o-Cresol	<10	<10	<10	<10	<10	<10
4-Nitrophenol	<50	<50	<50	<50	<50	<50
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,6-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri

Sample ID:	MW-8B	MW-8R	MW-9	MW-10	MW-10	MW-11A
Laboratory Log Number:	37146-4	37146-3	33748-1	33780-1	37166-2	33780-2
Date Sampled:	10/29/91	10/29/91	6/7/91	6/10/91	10/29/91	6/10/91
Parameter (concentrations in ug/L)						
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<50	<50
2,4-Dinitrophenol	<50	<50	<50	<50	<50	<50
Pentachlorophenol	<50	<50	<50	<50	<50	<50
Phenol	<10	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<50	<50	<50	<50	<50	<50
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10
Diallate	<10	<10	<10	<10	<10	<10
Ethyl methanesulfonate	<20	<20	<20	<20	<20	<20
4-Nitroquinoline 1-oxide	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
p-Phenylenediamine	<10	<10	<10	<10	<10	<10
o-Toluidine	<10	<10	<10	<10	<10	<10
o,o,o-Triethyl phosphorothioate	<10	<10	<10	<10	<10	<10
1,3,5-Trinitrobenzene	<50	<50	<50	<50	<50	<50
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10
Pyridine	<10	<10	<10	<10	<10	<10
1,4-Dioxane	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri

Sample ID:	MW-11B	MW-13	MW-13 Dup	MW-13	MW-13R	MW-15
Laboratory Log Number:	33780-3	33780-4	33780-5	37166-3	37181-1	33805-3
Date Sampled:	6/10/91	6/10/91	6/10/91	10/29/91	10/31/91	6/11/91
Parameter (concentrations in ug/L)						
Acenaphthene	<10	**11**	**14**	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
Acetophenone	<10	<10	<10	<10	<10	<10
2-Acetylaminofluorene	<20	<20	<20	<20	<20	<20
4-Aminobiphenyl	<20	<20	<20	<20	<20	<20
Anthracene	<10	<10	**13**	<10	<10	<10
Aniline	<10	<10	**54**	<10	<10	<10
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
bis(2-Choroethyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<10	<10	**23**	**59**	**10 J**	<10
4-Bromophenyl-phenyl-ether	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10	<10
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	<50	<50	<50	<50	<50	<50
p-Chloroaniline	<20	**1,200**	**4,000**	**270**	<20	<20
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10
4-Chlorophenyl-phenyl ether	<10	<10	<10	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	**22**	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
3,3'-Dimethylbenzidine	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
p-(Dimethylamino)azobenzene	<10	<10	<10	<10	<10	<10
7,12-Dimethylbenz(a)anthracene	<10	<10	<10	<10	<10	<10
a-a-Dimethylphenethylamine	<50	<50	<50	<50	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
m-Dinitrobenzene	<50	<50	<50	<50	<50	<50
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Di-n-octylphthalate	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	**21**	**22**	<10	<10	<10
Fluorene	<10	**12**	**18**	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-11B	MW-13	MW-13 Dup	MW-13	MW-13R	MW-15
Laboratory Log Number:	33780-3	33780-4	33780-5	37166-3	37181-1	33805-3
Date Sampled:	6/10/91	6/10/91	6/10/91	10/29/91	10/31/91	6/11/91
Parameter (concentrations in ug/L)						
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Hexachloropropene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10	<10
Isosafrole	<10	<10	<10	<10	<10	<10
Methapyrilene	<100	<100	<100	<100	<100	<100
3-Methylcholanthrene	<10	<10	<10	<10	<10	<10
Methylmethanesulfonate	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10	<10
1,4-Naphthoquinone	<10	<10	<10	<10	<10	<10
1-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<50	<50	<50
3-Nitroaniline	<50	<50	<50	<50	<50	<50
4-Nitroaniline	<50	<50	<50	<50	<50	<50
Nitrobenzene	<10	<10	<10	<10	<10	<10
N-Nitrosodi-n-butylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiethylamine	<20	<20	<20	<20	<20	<20
N-Nitrosodimethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomethylethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiphenylamine/Diphenylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomorpholine	<10	<10	<10	<10	<10	<10
N-Nitrosopiperidine	<20	<20	<20	<20	<20	<20
Nitrosopyrrolidine	<40	<40	<40	<40	<40	<40
5-Nitro-o-toluidine	<10	<10	<10	<10	<10	<10
Pentachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachloronitrobenzene	<100	<100	<100	<100	<100	<100
Phenacetin	<20	<20	<20	<20	<20	<20
Phenanthrene	<10	<10	**16**	<10	<10	<10
2-Picoline	<10	<10	<10	<10	<10	<10
Pronamide	<10	<10	<10	<10	<10	<10
Pyrene	<10	**22**	**24**	<10	<10	<10
Safrole	<10	<10	<10	<10	<10	<10
1,2,4,5-Tetrachlorobenzene	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10
Cresol m&p	<10	<10	<10	<10	<10	<10
o-Cresol	<10	<10	<10	<10	<10	<10
4-Nitrophenol	<50	<50	<50	<50	<50	<50
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,6-Dichlorophenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-11B	MW-13	MW-13 Dup	MW-13	MW-13R	MW-15
Laboratory Log Number:	33780-3	33780-4	33780-5	37166-3	37181-1	33805-3
Date Sampled:	6/10/91	6/10/91	6/10/91	10/29/91	10/31/91	6/11/91
Parameter (concentrations in ug/L)						
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<50	<50
2,4-Dinitrophenol	<50	<50	<50	<50	<50	<50
Pentachlorophenol	<50	<50	<50	<50	<50	<50
Phenol	<10	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<50	<50	<50	<50	<50	<50
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10
Diallate	<10	<10	<10	<10	<10	<10
Ethyl methanesulfonate	<20	<20	<20	<20	<20	<20
4-Nitroquinoline 1-oxide	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
p-Phenylenediamine	<10	<10	<10	<10	<10	<10
o-Toluidine	<10	<10	<10	<10	<10	<10
o,o,o-Triethyl phosphorothioate	<10	<10	<10	<10	<10	<10
1,3,5-Trinitrobenzene	<50	<50	<50	<50	<50	<50
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10
Pyridine	<10	<10	<10	<10	<10	<10
1,4-Dioxane	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-20	TW-1	TW-1	OBS-1	OBS-1	HW-1B
Laboratory Log Number:	33748-2	33672-1	37181-4	33693-3	37181-2	33693-1
Date Sampled:	6/7/91	6/4/91	10/31/91	6/5/91	10/31/91	6/5/91
Parameter (concentrations in ug/L)						
Acenaphthene	<10	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
Acetophenone	<10	<10	<10	<10	<10	<10
2-Acetylaminofluorene	<20	<20	<20	<20	<20	<20
4-Aminobiphenyl	<20	<20	<20	<20	<20	<20
Anthracene	<10	<10	<10	<10	<10	<10
Aniline	<10	**27/11**	<10	<10	<10	<10
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
bis(2-Choroethyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<10	<10	<10	<10	<10	<10
4-Bromophenyl-phenyl-ether	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10	<10
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	<50	<50	<50	<50	<50	<50
p-Chloroaniline	<20	<20	<20	**97**	**82**	<20
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	**35/18**	**15**	**43**	**13**	<10
1,2-Dichlorobenzene	<10	**28/15**	**9.8**	**38**	**10**	<10
4-Chlorophenyl-phenyl ether	<10	<10	<10	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
Dibenz(a,h)anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
3,3'-Dimethylbenzidine	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
p-(Dimethylamino)azobenzene	<10	<10	<10	<10	<10	<10
7,12-Dimethylbenz(a)anthracene	<10	<10	<10	<10	<10	<10
a-a-Dimethylphenethylamine	<50	<50	<50	<50	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
m-Dinitrobenzene	<50	<50	<50	<50	<50	<50
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Di-n-octylphthalate	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-20	TW-1	TW-1	OBS-1	OBS-1	HW-1B
Laboratory Log Number:	33748-2	33672-1	37181-4	33693-3	37181-2	33693-1
Date Sampled:	6/7/91	6/4/91	10/31/91	6/5/91	10/31/91	6/5/91
Parameter (concentrations in ug/L)						
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Hexachloropropene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10	<10
Isosafrole	<10	<10	<10	<10	<10	<10
Methapyrilene	<100	<100	<100	<100	<100	<100
3-Methylcholanthrene	<10	<10	<10	<10	<10	<10
Methylmethanesulfonate	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10	<10
1,4-Naphthoquinone	<10	<10	<10	<10	<10	<10
1-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Naphthylamine	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<50	<50	<50
3-Nitroaniline	<50	<50	<50	<50	<50	<50
4-Nitroaniline	<50	<50	<50	<50	<50	<50
Nitrobenzene	<10	<10	<10	<10	<10	<10
N-Nitrosodi-n-butylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiethylamine	<20	<20	<20	<20	<20	<20
N-Nitrosodimethylamine	<10 I	<10	<10	<10 I	<10	<10 I
N-Nitrosomethylethylamine	<10	<10	<10	<10	<10	<10
N-Nitrosodiphenylamine/Diphenylamine	<10	<10	<10	<10	<10	<10
N-Nitrosomorpholine	<10	<10	<10	<10	<10	<10
N-Nitrosopiperidine	<20	<20	<20	<20	<20	<20
Nitrosopyrrolidine	<40	<40	<40	<40	<40	<40
5-Nitro-o-toluidine	<10	<10	<10	<10	<10	<10
Pentachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachloronitrobenzene	<100	<100	<100	<100	<100	<100
Phenacetin	<20	<20	<20	<20	<20	<20
Phenanthrene	<10	<10	<10	<10	<10	<10
2-Picoline	<10	<10	<10	<10	<10	<10
Pronamide	<10	<10	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10	<10
Safrole	<10	<10	<10	<10	<10	<10
1,2,4,5-Tetrachlorobenzene	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10 I	<10	<10	<10	<10
Cresol m&p	<10	<10 I	<10	<10	<10	<10
o-Cresol	<10	<10 I	<10	<10	<10	<10
4-Nitrophenol	<50	<50 I	<50	<50	<50	<50
2,4-Dichlorophenol	<10	<10 I	<10	<10	<10	<10
2,6-Dichlorophenol	<10	<10 I	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10 I	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-20	TW-1	TW-1	OBS-1	OBS-1	HW-1B
Laboratory Log Number:	33748-2	33672-1	37181-4	33693-3	37181-2	33693-1
Date Sampled:	6/7/91	6/4/91	10/31/91	6/5/91	10/31/91	6/5/91
Parameter (concentrations in ug/L)						
4,6-Dinitro-2-methylphenol	<50	<50 I	<50	<50	<50	<50
2,4-Dinitrophenol	<50	<50 I	<50	<50	<50	<50
Pentachlorophenol	<50	<50 I	<50	<50	<50	<50
Phenol	<10	<10 I	<10	<10	<10	<10
2,4,5-Trichlorophenol	<50	<50 I	<50	<50	<50	<50
2,4,6-Trichlorophenol	<10	<10 I	<10	<10	<10	<10
2,3,4,6-Tetrachlorophenol	<10	<10 I	<10	<10	<10	<10
2-Nitrophenol	<10	<10 I	<10	<10	<10	<10
Diallate	<10	<10	<10	<10	<10	<10
Ethyl methanesulfonate	<20	<20	<20	<20	<20	<20
4-Nitroquinoline 1-oxide	<100 I	<100 I	<100 I	<100 I	<100 I	<100 I
p-Phenylenediamine	<10	<10	<10	<10	<10	<10
o-Toluidine	<10	<10	<10	<10	<10	<10
o,o,o-Triethyl phosphorothioate	<10	<10	<10	<10	<10	<10
1,3,5-Trinitrobenzene	<50	<50	<50	<50	<50	<50
4-Chloro-3-methylphenol	<10	<10 I	<10	<10	<10	<10
Dibenzofuran	<10	<10	<10	<10	<10	<10
Pyridine	<10	<10	<10	<10	<10	<10
1,4-Dioxane	<10	<10	<10	<10	<10	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri

Sample ID:	QS-1	QS-1	VW-2	VW-2	VW-2B
Laboratory Log Number:	33693-2	37181-3	33733-1	37146-1	33733-2
Date Sampled:	6/5/91	10/31/91	6/6/91	10/29/91	6/6/91
Parameter (concentrations in ug/L)					
Acenaphthene	**11**	<10	<10	<1,000	<10
Acenaphthylene	<10	<10	<10	<1,000	<10
Acetophenone	<10	<10	<10	<1,000	<10
2-Acetylaminofluorene	<20	<20	<20	<2,000	<20
4-Aminobiphenyl	<20	<20	<20	<2,000	<20
Anthracene	<10	<10	<10	<1,000	<10
Aniline	<10	<10	<10	<1,000	<10
Benzo(a)anthracene	<10	<10	<10	<1,000	<10
Benzo(k)fluoranthene	<10	<10	<10	<1,000	<10
Benzo(b)fluoranthene	<10	<10	<10	<1,000	<10
Benzo(g,h,i)perylene	<10	<10	<10	<1,000	<10
Benzo(a)pyrene	<10	<10	<10	<1,000	<10
Benzyl alcohol	<10	<10	<10	<1,000	<10
bis(2-Chloroethoxy)methane	<10	<10	<10	<1,000	<10
bis(2-Choroethyl)ether	<10	<10	<10	<1,000	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<1,000	<10
bis(2-Ethylhexyl)phthalate	<10	**56 J**	<10	<1,000	<10
4-Bromophenyl-phenyl-ether	<10	<10	<10	<1,000	<10
Butylbenzylphthalate	<10	<10	<10	<1,000	<10
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	<50	<50	<50	<5,000	<50
p-Chloroaniline	<20	<20	<20	<2,000	<20
1,3-Dichlorobenzene	<10	<10	<10	<1,000	<10
1,4-Dichlorobenzene	<10	<10	<10	<1,000	<10
1,2-Dichlorobenzene	<10	<10	<10	<1,000	<10
4-Chlorophenyl-phenyl ether	<10	<10	<10	<1,000	<10
2-Chloronaphthalene	<10	<10	<10	<1,000	<10
Chrysene	<10	<10	<10	<1,000	<10
Dibenz(a,h)anthracene	<10	<10	<10	<1,000	<10
Di-n-butylphthalate	<10	<10	<10	<1,000	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<2,000	<20
3,3'-Dimethylbenzidine	<10	<10	<10	<1,000	<10
Diethylphthalate	<10	<10	<10	<1,000	<10
p-(Dimethylamino)azobenzene	<10	<10	<10	<1,000	<10
7,12-Dimethylbenz(a)anthracene	<10	<10	<10	<1,000	<10
a-a-Dimethylphenethylamine	<50	<50	<50	<5,000	<50
Dimethylphthalate	<10	<10	<10	<1,000	<10
m-Dinitrobenzene	<50	<50	<50	<5,000	<50
2,4-Dinitrotoluene	<10	<10	<10	<1,000	<10
2,6-Dinitrotoluene	<10	<10	<10	<1,000	<10
Di-n-octylphthalate	<10	<10	**23**	<1,000	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<1,000	<10
Fluoranthene	**14**	<10	<10	<1,000	<10
Fluorene	**10**	<10	<10	<1,000	<10
Hexachlorobenzene	<10	<10	<10	<1,000	<10
Hexachlorobutadiene	<10	<10	<10	<1,000	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	QS-1	QS-1	VW-2	VW-2	VW-2B
Laboratory Log Number:	33693-2	37181-3	33733-1	37146-1	33733-2
Date Sampled:	6/5/91	10/31/91	6/6/91	10/29/91	6/6/91
Parameter (concentrations in ug/L)					
Hexachlorocyclopentadiene	<10	<10	<10	<1,000	<10
Hexachloroethane	<10	<10	<10	<1,000	<10
Hexachloropropene	<10	<10	<10	<1,000	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<1,000	<10
Isophorone	<10	<10	<10	<1,000	<10
Isosafrole	<10	<10	<10	<1,000	<10
Methapyrilene	<100	<100	<100	<10,000	<100
3-Methylcholanthrene	<10	<10	<10	<1,000	<10
Methylmethanesulfonate	<10	<10	<10	<1,000	<10
2-Methylnaphthalene	<10	<10	<10	<1,000	<10
Naphthalene	**31**	**29**	<10	<1,000	<10
1,4-Naphthoquinone	<10	<10	<10	<1,000	<10
1-Naphthylamine	<10	<10	<10	<1,000	<10
2-Naphthylamine	<10	<10	<10	<1,000	<10
2-Nitroaniline	<50	<50	<50	<5,000	<50
3-Nitroaniline	<50	<50	<50	<5,000	<50
4-Nitroaniline	<50	<50	<50	<5,000	<50
Nitrobenzene	<10	<10	<10	<1,000	<10
N-Nitrosodi-n-butylamine	<10	<10	<10	<1,000	<10
N-Nitrosodiethylamine	<20	<20	<20	<2,000	<20
N-Nitrosodimethylamine	<10 I	<10	<10	<1,000	<10
N-Nitrosomethylethylamine	<10	<10	<10	<1,000	<10
N-Nitrosodiphenylamine/Diphenylamine	<10	<10	<10	<1,000	<10
N-Nitrosomorpholine	<10	<10	<10	<1,000	<10
N-Nitrosopiperidine	<20	<20	<20	<2,000	<20
Nitrosopyrrolidine	<40	<40	<40	<4,000	<40
5-Nitro-o-toluidine	<10	<10	<10	<1,000	<10
Pentachlorobenzene	<10	<10	<10	<1,000	<10
Pentachloronitrobenzene	<100	<100	<100	<10,000	<100
Phenacetin	<20	<20	<20	<2,000	<20
Phenanthrene	**31**	**15**	<10	<1,000	<10
2-Picoline	<10	<10	<10	<1,000	<10
Pronamide	<10	<10	<10	<1,000	<10
Pyrene	**15**	<10	<10	<1,000	<10
Safrole	<10	<10	<10	<1,000	<10
1,2,4,5-Tetrachlorobenzene	<10	<10	<10	<1,000	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<1,000	<10
2-Chlorophenol	<10	<10	**16**	<1,000	<10
Cresol m&p	<10	<10	<10	<1,000	<10
o-Cresol	<10	<10	<10	<1,000	<10
4-Nitrophenol	<50	<50	<50	<5,000	<50
2,4-Dichlorophenol	<10	<10	<10	<1,000	<10
2,6-Dichlorophenol	<10	<10	<10	<1,000	<10
2,4-Dimethylphenol	<10	<10	<10	<1,000	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-6. Acid and Base/Neutral Compounds in Ground Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	QS-1	QS-1	VW-2	VW-2	VW-2B
Laboratory Log Number:	33693-2	37181-3	33733-1	37146-1	33733-2
Date Sampled:	6/5/91	10/31/91	6/6/91	10/29/91	6/6/91
Parameter (concentrations in ug/L)					
4,6-Dinitro-2-methylphenol	<50	<50	<50	<5,000	<50
2,4-Dinitrophenol	<50	<50	<50	<5,000	<50
Pentachlorophenol	<50	<50	<50	<5,000	<50
Phenol	<10	<10	<10	<1,000	<10
2,4,5-Trichlorophenol	<50	<50	<50	<5,000	<50
2,4,6-Trichlorophenol	<10	<10	<10	<1,000	<10
2,3,4,6-Tetrachlorophenol	<10	<10	<10	<1,000	<10
2-Nitrophenol	<10	<10	<10	<1,000	<10
Diallate	<10	<10	<10	<1,000	<10
Ethyl methanesulfonate	<20	<20	<20	<2,000	<20
4-Nitroquinoline 1-oxide	<100 I	<100 I	<100 I	<10,000 I	<100 I
p-Phenylenediamine	<10	<10	<10	<1,000	<10
o-Toluidine	<10	<10	<10	<1,000	<10
o,o,o-Triethyl phosphorothioate	<10	<10	<10	<1,000	<10
1,3,5-Trinitrobenzene	<50	<50	<50	<5,000	<50
4-Chloro-3-methylphenol	<10	<10	<10	<1,000	<10
Dibenzofuran	<10	<10	<10	<1,000	<10
Pyridine	<10	<10	<10	<1,000	<10
1,4-Dioxane	<10	<10	<10	<1,000	<10

ug/L Micrograms per liter.
I Data invalid.
J Estimated value.

Table 4-7. Concentrations of Pesticides, Polychlorinated Biphenyls, Herbicides, Chlorinated Dioxins, and Furans in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-2A	MW-2B	MW-2R	MW-3	MW-4	MW-8A	MW-8A Dup
Laboratory Log Number:	33733-3	33733-4	32911-1	33805-2	33805-4	33748-3	33748-4
Date Sampled:	6/6/91	6/6/91	4/25/91	6/11/91	6/11/91	6/7/91	6/7/91
Parameter (concentrations in ug/L)							
Disulfoton	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl parathion	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethyl parathion	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sulfotepp	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Famphur	<10	<10	<10	<10	<10	<10	<10
Phorate	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Thionazin	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dimethoate	<10	<10	<10	<10	<10	<10	<10
Aldrin	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
Isodrin	<0.020	<0.10	<0.020	<0.020	<0.20	<0.040	<0.040
alpha-Chlordane	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
gamma-Chlordane	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
Chlorobenzilate	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
DDD	<0.020	<0.10	<0.020	<0.020	<0.20	<0.040	<0.040
DDE	<0.020	<0.10	<0.020	<0.020	<0.20	<0.040	<0.040
DDT	<0.050	<0.25	<0.050	<0.050	<0.50	<0.10	<0.10
Dieldrin	<0.020	<0.10	<0.020	<0.020	<0.20	<0.040	<0.040
Endosulfan I	<0.020	<0.10	<0.020	<0.020	<0.20	<0.040	<0.040
Endosulfan II	<0.050	<0.25	<0.050	<0.050	<0.50	<0.10	<0.10
Endosulfan sulfate	<0.10	<0.50	<0.10	<0.10	<1.0	<0.20	<0.20
Endrin	<0.020	<0.10	<0.020	<0.020	<0.20	<0.020	<0.020
Endrin aldehyde	<0.10	<0.50	<0.10	<0.10	<1.0	<0.20	<0.20
Heptachlor	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
Heptachlor epoxide	<0.020	<0.10	<0.020	<0.020	<0.20	<0.040	<0.040
alpha-BHC	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
beta-BHC	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
gamma-BHC	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
delta-BHC	<0.010	<0.050	<0.010	<0.010	<0.10	<0.020	<0.020
Kepone	<0.050	<0.25	<0.050	<0.050	<0.50	<0.10	<0.10
Methoxychlor	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Toxaphene	<1.0	<5.0	<1.0	<1.0	<10	<2.0	<2.0
Aroclor-1016	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Aroclor-1221	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Aroclor-1232	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Aroclor-1242	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Aroclor-1248	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Aroclor-1254	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
Aroclor-1260	<0.50	<2.5	<0.50	<0.50	<5.0	<1.0	<1.0
2,4-D	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,4,5-T	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2,4,5-TP Silvex	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetra-CCD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tetra-CDF	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Penta-CDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Penta-CDF	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Hexa-CDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dioxin-2,3,7 TCDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

ug/L Micrograms per liter.

Table 4-7. Concentrations of Pesticides, Polychlorinated Biphenyls, Herbicides, Chlorinated Dioxins, and Furans in Ground-Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8B	MW-8B Dup	MW-9	MW-10	MW-11A	MW-11B	MW-13
Laboratory Log Number:	33748-5	33748-6	33748-1	33780-1	33780-2	33780-3	33780-4
Date Sampled:	6/7/91	6/7/91	6/7/91	6/10/91	6/10/91	6/10/91	6/10/91
Parameter (concentrations in ug/L)							
Disulfoton	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl parathion	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethyl parathion	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sulfotepp	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Famphur	<10	<10	<10	<10	<10	<10	<10
Phorate	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Thionazin	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dimethoate	<10	<10	<10	<10	<10	<10	<10
Aldrin	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
Isodrin	<0.040	<0.040	<0.040	<0.10	<0.20	<0.10	<1.0
alpha-Chlordane	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
gamma-Chlordane	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
Chlorobenzilate	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
DDD	<0.040	<0.040	<0.040	<0.10	<0.20	<0.10	<1.0
DDE	<0.040	<0.040	<0.040	<0.10	<0.20	<0.10	<1.0
DDT	<0.10	<0.10	<0.10	<0.25	<0.50	<0.25	<2.5
Dieldrin	<0.040	<0.040	<0.040	<0.10	<0.20	<0.10	<1.0
Endosulfan I	<0.040	<0.040	<0.040	<0.10	<0.20	<0.10	<1.0
Endosulfan II	<0.10	<0.10	<0.10	<0.25	<0.50	<0.25	<2.5
Endosulfan sulfate	<0.20	<0.20	<0.20	<0.50	<1.0	<0.50	<5.0
Endrin	<0.020	<0.020	<0.020	<0.10	<0.20	<0.10	<1.0
Endrin aldehyde	<0.20	<0.20	<0.20	<0.50	<1.0	<0.50	<5.0
Heptachlor	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
Heptachlor epoxide	<0.040	<0.040	<0.040	<0.10	<0.20	<0.10	<1.0
alpha-BHC	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
beta-BHC	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
gamma-BHC	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
delta-BHC	<0.020	<0.020	<0.020	<0.050	<0.10	<0.050	<0.50
Kepone	<0.10	<0.10	<0.10	<0.25	<0.50	<0.25	<2.5
Methoxychlor	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Toxaphene	<2.0	<2.0	<2.0	<5.0	<10	<5.0	<50
Aroclor-1016	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Aroclor-1221	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Aroclor-1232	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Aroclor-1242	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Aroclor-1248	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Aroclor-1254	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
Aroclor-1260	<1.0	<1.0	<1.0	<2.5	<5.0	<2.5	<25
2,4-D	<0.50	<0.50	<0.50	<2.5	<0.50	<0.50	<2.5
2,4,5-T	<0.30	<0.30	<0.30	<1.5	<0.30	<0.30	<1.5
2,4,5-TP Silvex	<0.10	<0.10	<0.10	<0.50	<0.10	<0.10	<0.50
Tetra-CCD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tetra-CDF	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Penta-CDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Penta-CDF	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Hexa-CDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dioxin-2,3,7 TCDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

ug/L Micrograms per liter.

Table 4-7. Concentrations of Pesticides, Polychlorinated Biphenyls, Herbicides, Chlorinated Dioxins, and Furans in Ground-Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-13 Dup	MW-15	MW-20	QS-1	TW-1	OBS-1	HW-1B
Laboratory Log Number:	33780-5	33805-3	33748-2	33693-2	33672-1	33693-3	33693-1
Date Sampled:	6/10/91	6/11/91	6/7/91	6/5/91	6/4/91	6/5/91	6/5/91
Parameter (concentrations in ug/L)							
Disulfoton	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl parathion	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethyl parathion	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Sulfotepp	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Famphur	<10	<10	<10	<10	<10	<10	<10
Phorate	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
Thionazin	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dimethoate	<10	<10	<10	<10	<10	<10	<10
Aldrin	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
Isodrin	<1.0	<0.020	<0.40	<0.20	<0.020	<0.20	<0.040
alpha-Chlordane	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
gamma-Chlordane	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
Chlorobenzilate	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
DDD	<1.0	<0.020	<0.40	<0.20	<0.020	<0.20	<0.040
DDE	<1.0	<0.020	<0.40	<0.20	<0.020	<0.20	<0.040
DDT	<2.5	<0.050	<1.0	<0.50	<0.050	<0.50	<0.10
Dieldrin	<1.0	<0.020	<0.40	<0.20	<0.020	<0.20	<0.040
Endosulfan I	<1.0	<0.020	<0.40	<0.20	<0.020	<0.20	<0.040
Endosulfan II	<2.5	<0.050	<1.0	<0.50	<0.050	<0.50	<0.10
Endosulfan sulfate	<5.0	<0.10	<2.0	<1.0	<0.10	<1.0	<0.20
Endrin	<1.0	<0.020	<0.20	<0.20	<0.020	<0.20	<0.040
Endrin aldehyde	<5.0	<0.10	<2.0	<1.0	<0.10	<1.0	<0.20
Heptachlor	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
Heptachlor epoxide	<1.0	<0.020	<0.40	<0.20	<0.020	<0.20	<0.040
alpha-BHC	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
beta-BHC	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
gamma-BHC	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
delta-BHC	<0.50	<0.010	<0.20	<0.10	<0.010	<0.10	<0.020
Kepone	<2.5	<0.050	<1.0	<0.50	<0.050	<0.50	<0.10
Methoxychlor	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Toxaphene	<50	<1.0	<20	<10	<1.0	<10	<2.0
Aroclor-1016	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Aroclor-1221	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Aroclor-1232	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Aroclor-1242	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Aroclor-1248	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Aroclor-1254	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
Aroclor-1260	<25	<0.50	<10	<5.0	<0.50	<5.0	<1.0
2,4-D	<5.0	<0.50	<10	<2.5	<0.50	<0.50	<0.50
2,4,5-T	<3.0	<0.30	<6.0	<1.0	<0.30	<0.30	<0.30
2,4,5-TP Silvex	<1.0	<0.10	<2.0	<0.50	<0.10	0.40	<0.10
Tetra-CCD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tetra-CDF	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Penta-CDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Penta-CDF	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Hexa-CDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dioxin-2,3,7 TCDD	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

ug/L Micrograms per liter.

Table 4-7. Concentrations of Pesticides, Polychlorinated Biphenyls, Herbicides, Chlorinated Dioxins, and Furans in Ground-Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	VW-2	VW-2B
Laboratory Log Number:	33733-1	33733-2
Date Sampled:	6/6/91	6/6/91
Parameter (concentrations in ug/L)		
Disulfoton	<2.0	<2.0
Methyl parathion	<0.30	<0.30
Ethyl parathion	<1.0	<1.0
Sulfotepp	<1.5	<1.5
Famphur	<10	<10
Phorate	<1.5	<1.5
Thionazin	<1.0	<1.0
Dimethoate	<10	<10
Aldrin	<0.10	<0.050
Isodrin	<0.20	<0.10
alpha-Chlordane	<0.10	<0.050
gamma-Chlordane	<0.10	<0.050
Chlorobenzilate	<5.0	<2.5
DDD	<0.20	<0.10
DDE	<0.20	<0.10
DDT	<0.50	<0.25
Dieldrin	<0.20	<0.10
Endosulfan I	<0.20	<0.10
Endosulfan II	<0.50	<0.25
Endosulfan sulfate	<1.0	<0.50
Endrin	<0.20	<0.10
Endrin aldehyde	<1.0	<0.50
Heptachlor	<0.10	<0.050
Heptachlor epoxide	<0.20	<0.10
alpha-BHC	<0.10	<0.050
beta-BHC	<0.10	<0.050
gamma-BHC	<0.10	<0.050
delta-BHC	<0.10	<0.050
Kepone	<0.50	<0.25
Methoxychlor	<5.0	<2.5
Toxaphene	<10	<5.0
Aroclor-1016	<5.0	<2.5
Aroclor-1221	<5.0	<2.5
Aroclor-1232	<5.0	<2.5
Aroclor-1242	<5.0	<2.5
Aroclor-1248	<5.0	<2.5
Aroclor-1254	<5.0	<2.5
Aroclor-1260	<5.0	<2.5
2,4-D	<5.0	<0.50
2,4,5-T	<3.0	<0.30
2,4,5-TP Silvex	<1.0	<0.10
Tetra-CCD	<0.0050	<0.0050
Tetra-CDF	<0.0050	<0.0050
Penta-CDD	<0.0050	<0.0050
Penta-CDF	<0.0050	<0.0050
Hexa-CDD	<0.0050	<0.0050
Dioxin-2,3,7 TCDD	<0.0050	<0.0050

ug/L Micrograms per liter.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-2A		MW-2B		MW-2R	
Laboratory Log Number:	33733-3		33733-4		32911-1	
Date Sampled:	6/6/91		6/6/91		4/25/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	NA
Barium	**270**	**95 J**	**150**	**150 J**	**83 J**	NA
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	NA
Cadmium	<5.0	<5.0	<5.0	<5.0	**11**	NA
Chromium	<10	<10	<10	**10**	**19**	NA
Cobalt	<10	<10	<10	<10	<10	NA
Copper	<25	<25	<25	<25	**26**	NA
Nickel	<40	<40	**43**	<40	<40	NA
Silver	<10	<10 I	<10	<10 I	<10	NA
Tin	<50	<50	<50	<50	<50	NA
Vanadium	<10	<10	<10	<10	**12**	NA
Zinc	**58**	**30**	**40**	**41**	**89**	NA
Arsenic	<10	<10	<10	<10	**15**	NA
Lead	<5.0	<5.0	<5.0	<5.0	<5	NA
Thallium	<10	<10	<10	<10	<10	NA
Selenium	<25	<25	<25	<25	<10	NA
Mercury	<0.20	NA	<0.20	NA	<0.20	NA
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-2R		MW-3		MW-3	
Laboratory Log Number:	37265-5		33805-2		37265-1	
Date Sampled:	11/5/91		6/11/91		11/5/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	460	270	130	140	460	120
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	7	<5.0	<5.0	<5.0
Chromium	69	<10	<10	<10	38	<10
Cobalt	52	12	<10	<10	24	<10
Copper	99	<25	<25	<25	66	<25
Nickel	150	<40	<40	<40	69	<40
Silver	<5.0	<10	<10	<10 I	<5.0	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	89	<10	14	<10	73	<10
Zinc	230	20	25	26	210	22
Arsenic	60 J	<10	<10	<10	22 J	<10
Lead	38	<5.0	9	<5.0	36	14
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<100	<25	<10	<10	<100	<10
Mercury	<0.20	<0.20	<0.20	NA	<0.20	<0.20
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-4		MW-4		MW-8A	
Laboratory Log Number:	33805-4		37166-1		33748-3	
Date Sampled:	6/11/91		10/30/91		6/7/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	45	61	260 J	80 U	880 J	720 J
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	<10	<10	21	<10	<10	<10
Cobalt	<10	<10	11	<10	<10	<10
Copper	<25	<25	25	<25	<25	<25
Nickel	<40	<40	<40	<40	<40	<40
Silver	<10	<10 I	<10	<10	<10	<10 I
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	27 J	<10	<10	<10
Zinc	49	24	95 U	24 U	450	40 J
Arsenic	45 J	24	55	40	17	15
Lead	15	<5.0	13 J	<5.0	28	<5.0
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<10	<10	<10	<10	<50	<25
Mercury	<0.20	NA	<0.020	<0.20	<0.20	NA
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8A Dup		MW-8A		MW-8A Dup	
Laboratory Log Number:	33748-4		37146-5		37146-6	
Date Sampled:	6/7/91		10/29/91		10/29/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	920 J	630 J	1,200 J	700 J	1,200 J	710 J
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	<10	<10	16	<10	13	<10
Cobalt	<10	<10	<10	<10	<10	<10
Copper	<25	<25	45	<25	38	<25
Nickel	<40	<40	<40	<40	<40	<40
Silver	10	10 J	<10	<10	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	15	<10	14	<10
Zinc	260	32 J	110 U	25 U	97 U	30 U
Arsenic	20	<10	15	<10	<10	<10
Lead	33	<5.0	65 J	<5.0	56 J	<25
Thallium	<10	<10	<10	<25	<25	<25
Selenium	<25	<25	<10	<250	<50	<250
Mercury	<0.20	NA	<0.20	<0.20	<0.20	<0.20
Total Cyanide	<10	NA	<10	NA	NA	NA
Sulfide	<100	NA	<100	NA	NA	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8B		MW-8B Dup		MW-8B	
Laboratory Log Number:	33748-5		33748-6		37146-4	
Date Sampled:	6/7/91		6/7/91		10/29/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	640 J	320 J	710	310 J	490 J	330 J
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	<10	<10	<10	<10	<10	<10
Cobalt	<10	<10	<10	<10	<10	<10
Copper	<25	<25	<25	<25	<25	<25
Nickel	<40	<40	<40	<40	<40	<40
Silver	11	<10 I	12	<10 I	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	520	32 J	800	37 J	<20	30 U
Arsenic	19	<10	19	<10	<10	<10
Lead	15	<5.0	34	<5.0	<5.0	<5.0 I
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<10	<10	<10	<10	<10	<10
Mercury	<0.20	NA	<0.20	NA	<0.20	<0.20
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-8R		MW-9		MW-9	
Laboratory Log Number:	37146-3		33748-1		37181-6	
Date Sampled:	10/29/91		6/7/91		10/31/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	160 J	140 J	47 J	50 J	85	33
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	120	<10	<10	<10	<10	<10
Cobalt	<10	<10	<10	<10	<10	<10
Copper	<25	<25	<25	<25	<25	<25
Nickel	64	<40	<40	<40	<40	<40
Silver	<10	<10	<10	<10 I	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	<10	<10	<10	<10
Zinc	62 U	<20	370	30	28 U	22 U
Arsenic	<10	<10	41	34 J	40 J	29
Lead	6.9 J	<5.0	<5.0	<5.0	<5.0	<5.0
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<10	<10	<25	<10	<10	<25
Mercury	<0.20	<0.20	<0.20	NA	<0.20	<0.20
Total Cyanide	<10	NA	18	NA	13	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-10		MW-10		MW-11A	
Laboratory Log Number:	33780-1		37166-2		33780-2	
Date Sampled:	6/10/91		10/30/91		6/10/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	1,600	590	2,000 J	660 J	180	120
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	58	<10	76	<10	<10	<10
Cobalt	40	<10	46	<10	<10	<10
Copper	[illegible]	<25	[illegible]	<25	47	<25
Nickel	100	<40	120	<40	<40	<40
Silver	26	<10 I	<10	<10	<10	<10 I
Tin	<50	<50	<50	<50	<50	<50
Vanadium	140	<10	130	<10	17	<10
Zinc	510	43	390 U	38 U	200	22
Arsenic	95 J	34	64	36	54 J	40
Lead	75	<5.0	56 J	<5.0	170	<5.0
Thallium	<10	<10	<10	<10	<25	<10
Selenium	<10	<10	<10	<25	<10	<10
Mercury	0.30	NA	<0.020	<0.20	0.25	NA
Total Cyanide	18	NA	13	NA	<10	NA
Sulfide	<100	NA	160 J	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-11A		MW-11B		MW-11B	
Laboratory Log Number:	37265-3		33780-3		37265-4	
Date Sampled:	11/5/91		6/10/91		11/5/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	340	150	1,100	780	1,000	680
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	29	<10	<10	<10	<10	<10
Cobalt	10	<10	<10	<10	<10	<10
Copper	100	<25	<25	<25	<25	<25
Nickel	<40	<40	<40	<40	<40	<40
Silver	<5.0	<10	16	<10 I	<5.0	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	33	<10	15	<10	<10	<10
Zinc	320	<20	160	33	81	22
Arsenic	61 J	46	35 J	<10	56 J	<10
Lead	450	<5.0	74	<5.0	55	<5.0
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<10	<25	<25	<25	<100	<25
Mercury	0.70	<0.20	0.25	NA	<0.20	<0.20
Total Cyanide	<10	NA	24	NA	23	NA
Sulfide	110	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-13		MW-13 Dup		MW-13	
Laboratory Log Number:	33780-4		33780-5		37166-3	
Date Sampled:	6/10/91		6/10/91		10/30/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	2,200	500 J	2,100	510	1,000 J	400 J
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	10	<5.0	8	<5.0	<5.0	<5.0
Chromium	68	<10	66	<10	47	<10
Cobalt	60	<10	63	<10	29	<10
Copper	350	<25	310	<25	140	<25
Nickel	160	<40	180	<40	63	<40
Silver	56	<10 I	60	<10 I	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	200	<10	210	<10	77 J	<10
Zinc	1,300	25	1,400	43	430 U	31 U
Arsenic	38 J	<10	45 J	<10	26	<10
Lead	560	<5.0	1,000	<5.0	570 J	<25
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<25	<10	<25	<10	<50	<25
Mercury	4.1	NA	3.7	NA	<0.020	<0.20
Total Cyanide	20	NA	26	NA	25	NA
Sulfide	960	NA	1,600	NA	24,000 J	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-13R		MW-14		MW-15	
Laboratory Log Number:	37181-1		37211-4		33805-3	
Date Sampled:	10/31/91		11/01/91		6/11/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	210	220	1,400	1,300	2,000	250
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	9	<5.0
Chromium	89	<10	90	<10	57	<10
Cobalt	<10	<10	24	<10	110	<10
Copper	<25	<25	130	<25	140	<25
Nickel	320	79	63	<40	200	<40
Silver	<10	<10	<10	<10	30	<10 I
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	50	<10	170	<10
Zinc	56 U	22 U	390 U	52 J	820	47
Arsenic	<10	<10	36 J	20	280 J	59
Lead	<5.0	<5.0	240	<5.0	100	<5.0
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<50	<10	<100	<25	<10	<10
Mercury	<0.20	<0.20	0.32	<0.20	0.37	NA
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	780 J	NA	320 J	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	MW-15		MW-20		MW-20	
Laboratory Log Number:	37265-2		33748-2		37265-6	
Date Sampled:	11/5/91		6/7/91		11/5/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	1,700	150	830 J	510 J	830	480
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	68	<10	<10	<10	17	<10
Cobalt	67	<10	52	<10	27	<10
Copper	110	<25	35	<25	<25	<25
Nickel	150	<40	72	<40	<40	<40
Silver	<5.0	<10	32	32 J	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	130	<10	65	<10	45	<10
Zinc	430	27	540	35 J	260	<20
Arsenic	270 J	64	54	<10	45 J	<10
Lead	160	6.8	430	<5.0	410	<5.0
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<10	<25	<25	<25	<100	<25
Mercury	0.26	<0.20	1.6	NA	1.5	<0.20
Total Cyanide	<10	NA	6,500	NA	27,000	NA
Sulfide	<100	NA	7,600	NA	530	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	TW-1		TW-1		OBS-1	
Laboratory Log Number:	33672-1		37181-3		33693-3	
Date Sampled:	6/4/91		10/31/91		6/5/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	280	230	140	110	250	23 J
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	<10	<10	<10	<10	21	<10
Cobalt	<10	<10	<10	<10	<10	<10
Copper	<25	<25	<25	<25	28	<25
Nickel	<40	<40	<40	<40	<40	<40
Silver	<10	<10	<10	<10	<10	<10 I
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	<10	<10	15	<10
Zinc	59	36	240 U	22 U	240	<20
Arsenic	<10	<10	<10	<10	<10	<10
Lead	<5	<5	<5.0	<5.0	88 J	<5.0
Thallium	<10	<10	<10	<10	<25	<10
Selenium	<10	<10	<10	<25	<10	<10
Mercury	<0.20	NA	<0.20	<0.20	0.37 J	NA
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	OBS-1		HW-1B		HW-1B	
Laboratory Log Number:	37181-2		33693-1		37211-4	
Date Sampled:	10/31/91		6/5/91		11/1/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total Water Silty	Dissolved	Total Water Clear	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	380	270	1,400	20 J	71	35
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	5	<5.0	<5.0	<5.0
Chromium	<10	13	85	<10	11	<10
Cobalt	<10	<10	62	<10	<10	<10
Copper	<25	<25	140	<25	<25	<25
Nickel	<40	<40	160	<40	<40	<40
Silver	<10	<10	30	<10 I	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	<10	<10	160	<10	<10	<10
Zinc	47 U	20 U	410	<20	31 U	<20
Arsenic	<10	<10	53	<10	<10	<10
Lead	13	<5.0	85 J	<5.0	25	<5.0
Thallium	<10	<10	<25	<10	<10	<50
Selenium	<100	<25	<25	<10	<50	<25
Mercury	<0.20	<0.20	1.6 J	NA	<0.20	<0.20
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	QS-1		QS-1		VW-2	
Laboratory Log Number:	33693-2		37181-3		33733-1	
Date Sampled:	6/5/91		10/31/91		6/6/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	2,200	1,400 J	2,600	2,500	810	410
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	10	<10	<10	<10	<10	<10
Cobalt	<10	<10	<10	<10	<10	<10
Copper	31	<25	<25	<25	27	<25
Nickel	<40	<40	<40	<40	<40	<40
Silver	<10	<10 I	<10	<10	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	14	<10	<10	<10	20	11
Zinc	170	<20	46 U	<20	110	40
Arsenic	10	<10	<10	<10	13	<10
Lead	120 J	<5.0	18	<5.0	70 J	<5.0
Thallium	<25	<25	<10	<10	<25	<25
Selenium	<10	<10	<10	<25	<10	<10
Mercury	0.24 J	NA	<0.20	<0.20	<0.20	NA
Total Cyanide	<10	NA	<10	NA	<10	NA
Sulfide	<100	NA	<100	NA	850 J	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-8. Concentrations of Metals, Total Cyanide, and Sulfide in Ground Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Sample ID:	VW-2		VW-2B		VW-2B	
Laboratory Log Number:	37146-1		33733-2		37211-3	
Date Sampled:	10/29/91		6/6/91		11/1/91	
Parameter (concentrations in ug/L)	Total	Dissolved	Total	Dissolved	Total	Dissolved
Antimony	<50	<50	<50	<50	<50	<50
Barium	1,200 J	480 J	190	96 J	130	110
Beryllium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chromium	16	<10	10	<10	<10	<10
Cobalt	24	<10	10	<10	<10	<10
Copper	95	<25	<25	<25	<25	<25
Nickel	56	<40	<40	<40	<40	<40
Silver	<10	<10	11	<10 I	<10	<10
Tin	<50	<50	<50	<50	<50	<50
Vanadium	35	<10	20	<10	<10	<10
Zinc	300 U	39 U	52	48 J	46 U	31 J
Arsenic	15	<10	53	16	36 J	<10
Lead	230 J	5.4	15 J	<5.0	8.0	<5.0
Thallium	<10	<10	<10	<10	<10	<10
Selenium	<10	<10	<10	<25	<50	<25
Mercury	<0.20	<0.20	<0.20	NA	<0.20	<0.20
Total Cyanide	10	NA	<10	NA	<10	NA
Sulfide	480 J	NA	<100	NA	<100	NA

ug/L Micrograms per liter.
NA Not analyzed.
I Data invalid.
J Estimated value.
U Value was less than five times the concentration detected in the associated blank; therefore, the value is considered to be not detected.

Table 4-9. Concentrations of Alachlor and Associated Compounds in Ground-Water Samples Collected Near the Former Acetanilides Production Area, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Parameter	Detection Limits (mg/L)	Well Designation						Solubility in Water
		GM-1	GM-2	GM-3	GM-4	GM-5	MW-14	
Alachlor	3	169	162	6	ND	4	1,010	100 mg/L @ 10°C
Chlorobenzene	50	143	114	42	ND	770	409	500 mg/L @ 20°C
2,6-Diethylaniline	3	ND	ND	44	1,807	ND	23	14,000 mg/L @ 12°C
Acetyl alachlor	10	20	24	29	ND	ND	67	100 mg/L @ 20°C
CP31679	10	20	10	ND	ND	ND	ND	~100 mg/L @ 20°C
Unidentified high boilers	–	ND	ND	ND	1,785	2	99	–

mg/L Milligrams per liter.
ND Not detected.
– Not determined.

Samples were collected by Geraghty & Miller and analyzed by Monsanto.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1B	MW1B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	4/84	8/84
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	<6.0	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	14	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	21	ND	9	19	ND	ND	<2.8	20	56
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	3	ND	ND	ND	ND	<6.0	ND	ND
1,2-trans-Dichloroethylene	ND	ND	0.4	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	23	3	9.4	33	0	0	0	20	56

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW1B	MW1B	MW1B	MW1B	MW1B	MW2A	MW2A	MW2A	MW2A
Date:	10/84	1/85	4/85	7/85	10/85	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	2	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	61	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	0.4	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	9	20	ND	8.22	11.6	52	13	14	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	0.8	ND
Toluene	0.4	ND	ND	ND	ND	2	2	0.5	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	9.4	20	0	8.22	11.6	54	78	15.7	0

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW2A	MW2A	MW2A	MW2A	MW2B	MW2B	MW2B	MW2B	MW2B
Date:	4/85	7/85	10/85	12/86	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	<2.8	10.9	40	6	6	32	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	0.5	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	1	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	0	0	0	10.9	41	6	6.5	32	0

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW2B	MW2B	MW3	MW3	MW3	MW3	MW3	MW3	MW3
Date:	7/85	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	5	8	7	12	18	<44	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	184	ND	86	2,300	4,270.6	3,180	7,380
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	18	ND	28.9	<28	ND
1,2-Dichloropropane	ND	ND	1	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	3	ND	ND	ND	ND	<72	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	7.54	17	4	7	25	ND	74.0	15,600
1,1,2,2-Tetrachloroethane	ND	ND	3	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	1	3	10	69	194.9	146	ND
Toluene	ND	ND	3	2	0.6	ND	ND	<60	ND
1,2-trans-Dichloroethylene	ND	ND	481	ND	4,660	5,760	7,694.6	7,120	7,840
1,1,1-Trichloroethane	ND	ND	ND	ND	NA	ND	ND	<38	ND
1,1,2-Trichloroethane	ND	ND	1	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	3550	6620
Trichlorofluoromethane	ND	ND	7	1,240	1,025	1,680	4,379	ND	ND
Vinyl chloride	ND	ND	56	594	662	401	1,128	1,050	<2,500
Total VOCs analyzed	0	7.54	762	1,851	6,475.6	10,247	17,714	15,120	37,440

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	10/85*	12/86
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	6	9	ND	ND	14.5	ND	ND	ND	<44
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	41,400	471	1	753	7,943.8	7,070	4,220	4,170	2,680
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	12	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	17	8	ND	9.2	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	2	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	43	2	6	30	2.8	ND	762	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	1	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	2	21	0.4	ND	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	3	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	1	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	41,469	520	16.4	783	7,970.3	7,070	4,982	4,170	2,680

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW6A
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86	4/84
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	449
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	259	ND	ND	ND	ND	ND	ND	<6.0	42,900
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	1,040
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	<4.7	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	1	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	13	2	7	53	9	9.10	ND	<2.8	36,800
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	ND	0.6	ND	ND	ND	<6.0	ND	27,700
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	<1.6	ND	ND
1,1,1-Trichloroethane	2	ND	ND	ND	ND	ND	ND	ND	1,090
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	276	2	7.6	53	9	9.1	0	0	109,979

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW6A	MW6A	MW6A	MW6A	MW6A	MW6A	MW6A	MW6B	MW6B
Date:	8/84	10/84	1/85	4/85	7/85	10/85	10/85*	1/85	4/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	272	99	ND	176.3	ND	218	202	ND	8.4
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	186	1,678	ND	36,580	28,900	53,700	45,200	1,120	1,627.6
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	4	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	*	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	4	ND	6.4	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	3.7	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	494	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	26	ND	ND	54.6	ND	82.6	74.6	ND	<7.2
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	26	8	ND	18.4	24,600	29.4	<28	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	81	ND	ND	14,780	41,100	10,300	7,890	ND	ND
1,2-trans-Dichloroethylene	5	175	ND	ND	ND	ND	ND	ND	<1.6
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	3.5	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	6	119	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	606	2,079	511.6	51,609.3	94,600	64,330	53,366.6	1,120	1,636

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW6B	MW6B	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A
Date:	7/85	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	8.12	ND	29	80	53	19	58.3	52.9	151
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,620	1,740	257	1,038	800	558	1,185.9	1,590	1,710
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	8	2	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	15	39	19	13	44	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	<7.2	ND	2	9	9	ND	8.4	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	<28	19	116	5	18	16.6	110	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	2	6	4	ND	6.5	ND	ND
Toluene	<6.0	ND	ND	7	5	ND	6.5	64.1	ND
1,2-trans-Dichloroethylene	ND	ND	23	22	14	ND	15	ND	ND
1,1,1-Trichloroethane	ND	ND	2	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	3	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	2	4	2	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	152	302	68	24	125.3	<100	ND
Total VOCs analyzed	1,628.1	1,740	514	1,625	979	632	1,466.5	1,817	1,861

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW7A	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B
Date:	12/86	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	<88	6	14	5	ND	4.9	ND	ND	<4.4
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,240	ND	363	239	251	157.2	85.8	244	78.3
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	41	408	825	455	388.9	110	812	193
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	<140	ND	ND	ND	ND	ND	<7.2	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	19	55	8	ND	ND	19.8	68.0	29.3
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	<120	1	19	ND	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	1	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	1,240	68	859	1,077	706	551	215.6	1,124.0	300.6

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86	12/86*
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	106	224	106	ND	173.7	ND	148	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	<44
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	15,150	183	1,925	10,400	16,079.4	38,300	8,820	1,100	2,470
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	1	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	11 (a)	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	10	(b)	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	18	3	8	356	54	ND	ND	ND	96.2
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	2	2	(b)	ND	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	17	18	12	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	79	6	ND	135.1	ND	ND	ND	ND
Total VOCs analyzed	15,304	520	2,057	10,756	16,442.2	38,300	8,968	1,100	2,566

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW88	MW88	MW88	MW88	MW88	MW88	MW88	MW88	MW9
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86	4/84
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	48	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	37	2	5	15	ND	11.2	<2.8	<2.8	41
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	1
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	1
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	38	50	5	15	0	11.2	0	0	43

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW9	MW9	MW9	MW9	MW9	MW9	MW9	MW10	MW10
Date:	8/84	10/84	1/85	4/85	7/85	10/85	12/86	4/84	8/84
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	27	ND	ND	ND	ND	23.4	ND	ND	22
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	2	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	1	6	16	ND	ND	10.9	ND	60	9
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	<6.0	ND	1	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	<10.0	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	28	6	16	0	0	34.3	0	63	31

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW10	MW10	MW10	MW10	MW10	MW10	MW11A	MW11A	MW11A
Date:	10/84	1/85	4/85	7/85	10/85	12/86	4/84	8/84	10/84
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	41	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	6	46	22.8	15.0	<2.8	12.6	ND	2	5
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	0.7	ND	ND	ND	ND	ND	ND	1	0.4
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	6.7	46	22.8	15	0	12.6	0	44	5.4

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW11A	MW11A	MW11A	MW11A	MW11A	MW11B	MW11B	MW11B	MW11B
Date:	1/85	4/85	7/85	10/85	12/86	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	4	1	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	10	ND	ND	54.4	2.98	ND	4	5	49
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	1	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	10	0	0	54.4	2.98	0	8	7	49

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW11B	MW11B	MW11B	MW11B	MW11C	MW11C	MW11C	MW11C	MW11C
Date:	4/85	7/85	10/85	12/86	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	<6.0
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	3.39	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	0	0	3.39	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW12	MW12	MW12	MW12	MW12	MW13	MW13	MW13	MW13
Date:	1/85	4/85	7/85	10/85	12/86	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	5.7	ND	<4.4
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	33	1,640	1,295	342
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	29	18.2	<10.0	ND	23.3	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	12	8.8	<2.8	22.8	13.3	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	41	27	0	22.8	36.6	33	1,645.7	1,295	342

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW13	MW14	MW14	MW14	MW14	MW14	MW15	MW15	MW15
Date:	12/86	1/85	4/85	7/85	10/85	12/86	1/85	4/85	7/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	<22	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,140	48,000	140,544	132,000	163,000	110,000	21	22.6	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	343	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	780	ND	<2,800	ND	20	ND	<2.8
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	1,140	48,343	141,324	132,000	163,000	110,000	41	22.6	0

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW15	MW15	MW16	MW16	MW16	MW16	MW17	MW17	MW17
Date:	10/85	12/86	1/85	4/85	7/85	10/85	1/85	4/85	7/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	31	46.8	46.7	38.2	11	11.6	<6.0
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	9.20	5.13	ND	<2.8	ND	20.2	19	ND	4.8
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	19.4	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	40.9	ND	2.0	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	9.2	5.13	31	46.8	46.7	118.7	30	13.6	4.8

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW17	MW18A	MW18A	MW18A	MW18A	MW18A	MW18B	MW18B	MW18B
Date:	10/85	1/85	4/85	7/85	10/85	12/86	1/85	4/85	7/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	6.2	<440	121	13.7	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	63	126.5	5,380	1,750	193	ND	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	<720	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	ND	1,680	195	7.97	ND	6	12.4
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	<600	<60	<6.0	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	15.2	ND	ND	<1.6	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	15.6	ND	ND	ND	ND	1.9	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	0	63	163.5	7,060	2,066	214.67	0	7.9	12.4

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW18B	MW18B	MW19	MW19	MW19	MW19	MW19	MW20	MW20
Date:	10/85	12/86	1/85	4/85	7/85	10/85	12/86	1/85	4/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	<4.4	ND	24	60.3	ND	67.0	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	15,800	36,460	ND	43,700	ND	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	5.8	ND	ND	<4.7	ND	ND
1,2-Dichloroethane	ND	ND	ND	4.6	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	6.45	ND	ND	7	447	3.80	6.14	ND	4.4
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	31	51.6	<6.0	25.3	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	17	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	<1.9	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	<10.0	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	99	97.9	ND	46.4	ND	ND	ND
Total VOCs analyzed	6.45	0	15,971	36,687.2	447	43,842.5	6.14	0	4.4

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW20	MW20	MW20	Field Blank	XFB1	XFB1	Field Blank	XFB2	XFB2
Date:	7/85	10/85	12/86	7/85	10/85	12/86	7/85	10/85	12/86
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)									
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	<6.0	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	1.6	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	7.74	ND	20.8	5.8	ND	4.14	ND	<2.8	8.32
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	<6.0	ND	ND	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	<10.0	ND	ND	ND	ND	ND
Total VOCs analyzed	7.74	0	20.8	7.4	0	4.14	0	0	8.32

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-10. Summary of Volatile Organic Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	Blank	Blank	Lab Blank	Lab Blank	Lab Blank	Method Blank	Jar Blank	Jar Blank
Date:	10/84	10/84	10/84	10/84	10/84	1/85	1/85	4/85
USEPA Priority Pollutant Volatile Organic Compounds (concentrations are in ug/L)								
Acrolein	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	0.5	ND	ND	ND	ND	ND	ND
bis(Chloromethyl)ether	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	0.4	ND	ND	ND	ND	ND	ND
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ND	ND	ND	ND	ND	ND	ND	ND
Methyl bromide	ND	ND	ND	ND	ND	ND	ND	ND
Methyl chloride	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	20	12	38	28	28	14	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	1	0.7	0.6	1	ND	ND	ND
1,2-trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND
Total VOCs analyzed	21	13.9	38.7	28.6	29	14	0	0

ND Not detected.
* Replicate sample.
ug/L Micrograms per liter.
VOCs Volatile organic compounds.
(a) Laboratory did not differentiate between cis- and trans-1,3-dichloropropylene.
(b) Could not be determined.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	1	76	ND	14.0	<10
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	4	ND	ND	ND	ND	<10	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	2	1	1	16	ND	ND	<10
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	12	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	6	1	2	104	0	14	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW1B	MW1B	MW1B	MW1B	MW1B	MW1B	MW1B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	3	ND	1	11	ND	<10	<10
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	2	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	2	2	2	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	7	2	3	11	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW2A	MW2A	MW2A	MW2A	MW2A	MW2A	MW2A
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	1	ND	1	ND	ND	<10	<10
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	3	ND	<1	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	4	1	3	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	8	1	4	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW2A	MW2B	MW2B	MW2B	MW2B	MW2B	MW2B
Date:	12/86	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	3	ND	1	11	ND	<10
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	2	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	3	3	1	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	8	3	2	11	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW2B	MW2B	MW3	MW3	MW3	MW3	MW3
Date:	10/85	12/86	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	<10	11.4	146	ND	1	45	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	1	ND	<1	ND	2.2
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	4	ND	ND	ND	<10
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	<10	ND	3	1	1	ND	<10
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	11	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	11.4	154	1	2	56	2.2

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW3	MW3	MW4	MW4	MW4	MW4	MW4
Date:	7/85	10/85	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	18.1	<11	2	13	1	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	2.42	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	2.56	4.07	16	5	1	12	9.1
1,3-Dichlorobenzene	ND	ND	5	1	3	ND	3.2
1,4-Dichlorobenzene	<4.4	<4.6	30	9	14	20	15.6
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	3	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	4	5	2	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	<10.0	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	2	ND	1	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	25	10	16	17	19.4
Total base/neutral compounds analyzed	20.7	6.5	87	43	38	49	47.3

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW4	MW4	MW4	MW4	MW5	MW5	MW5
Date:	7/85	10/85	10/85*	12/86	4/84	8/84	10/84
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	NA	ND	ND	ND
Acenapthylene	ND	ND	ND	NA	ND	ND	ND
Anthracene	ND	ND	ND	NA	ND	ND	ND
Benzidine	ND	ND	ND	NA	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	NA	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	NA	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	NA	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	NA	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	NA	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	NA	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	NA	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	NA	ND	ND	ND
bis(2-Ethylhexyl)phthalate	<10.0	ND	<10	NA	6	ND	1
4-Bromophenyl phenyl ether	ND	ND	ND	NA	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	NA	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	NA	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	NA	ND	ND	ND
Chrysene	ND	ND	ND	NA	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	NA	ND	ND	ND
1,2-Dichlorobenzene	10.6	9.48	9.14	NA	1	ND	ND
1,3-Dichlorobenzene	3.12	2.77	2.81	NA	ND	ND	ND
1,4-Dichlorobenzene	18.2	16.6	18	NA	1	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	NA	ND	ND	ND
Diethyl phthalate	ND	ND	ND	NA	3	ND	<1
Dimethyl phthalate	ND	ND	ND	NA	ND	ND	ND
Di-n-butyl phthalate	ND	<10	<10	NA	3	1	1
2,4-Dinitrotoluene	ND	ND	ND	NA	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	NA	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	NA	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	NA	ND	ND	ND
Fluoranthene	ND	ND	ND	NA	ND	ND	ND
Fluorene	ND	ND	ND	NA	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	NA	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	NA	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	NA	ND	ND	ND
Hexachloroethane	ND	ND	ND	NA	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	NA	ND	ND	ND
Isophorone	ND	ND	ND	NA	ND	ND	ND
Naphthalene	ND	<1.6	<1.6	NA	ND	ND	ND
Nitrobenzene	ND	ND	ND	NA	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	NA	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	NA	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	NA	ND	ND	ND
Phenanthrene	ND	ND	ND	NA	ND	ND	ND
Pyrene	ND	ND	ND	NA	ND	ND	ND
1,2,4-Trichlorobenzene	19.9	21.1	21.9	NA	1	ND	ND
Total base/neutral compounds analyzed	51.8	50	51.9	0	15	1	2

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW5	MW5	MW5	MW5	MW5	MW6A	MW6A
Date:	1/85	4/85	7/85	10/85	12/86	4/84	8/84
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	NA	ND	ND
Acenapthylene	ND	ND	ND	ND	NA	ND	ND
Anthracene	ND	ND	ND	ND	NA	ND	ND
Benzidine	ND	ND	ND	ND	NA	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	NA	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	NA	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	NA	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	NA	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	NA	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	NA	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	NA	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	NA	ND	ND
bis(2-Ethylhexyl)phthalate	13	ND	<10.0	ND	NA	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	NA	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	NA	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	NA	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	NA	ND	ND
Chrysene	ND	ND	ND	ND	NA	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	NA	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	NA	14	2
1,3-Dichlorobenzene	ND	ND	ND	ND	NA	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	NA	17	7
3,3-Dichlorobenzidine	ND	ND	ND	ND	NA	ND	ND
Diethyl phthalate	ND	ND	ND	ND	NA	8	1
Dimethyl phthalate	ND	ND	ND	ND	NA	ND	ND
Di-n-butyl phthalate	ND	ND	ND	ND	NA	ND	2
2,4-Dinitrotoluene	ND	ND	ND	ND	NA	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	NA	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	NA	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	NA	ND	ND
Fluoranthene	ND	ND	ND	ND	NA	ND	ND
Fluorene	ND	ND	ND	ND	NA	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	NA	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	NA	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	NA	ND	ND
Hexachloroethane	ND	ND	ND	ND	NA	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	NA	ND	ND
Isophorone	ND	ND	ND	ND	NA	ND	ND
Naphthalene	ND	ND	ND	ND	NA	ND	ND
Nitrobenzene	ND	ND	ND	ND	NA	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	NA	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	NA	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	NA	ND	ND
Phenanthrene	ND	ND	ND	ND	NA	ND	ND
Pyrene	ND	ND	ND	ND	NA	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	NA	ND	ND
Total base/neutral compounds analyzed	13	0	0	0	0	39	12

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW6A	MW6A	MW6A	MW6A	MW6A	MW6B	MW6B
Date:	10/84	1/85	4/85	7/85	10/85	1/85	4/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	988	ND	ND	24.2	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	18	24.9	ND	19.3	15.6	13	11.5
1,3-Dichlorobenzene	1	3.6	ND	ND	<1.9	ND	<1.9
1,4-Dichlorobenzene	18	29.9	ND	19.7	16.0	14	10.5
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	3	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	11	ND	ND	<11.2	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	10	ND	ND	<11.2	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	4	ND	4.9	4.04	3.79	ND	ND
Nitrobenzene	ND	ND	ND	15.8	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	1,053	58.4	4.9	83	35.4	27	22

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW6B-D	MW6B	MW7A	MW7A	MW7A	MW7A	MW7A
Date:	7/85	10/85	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	58	4	8	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	10.0	8.89	ND	ND	1	7	2.6
1,3-Dichlorobenzene	ND	ND	ND	ND	<1	4.7	ND
1,4-Dichlorobenzene	10.2	9.63	14	2	5	11.2	12.8
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	3	ND	1	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	3	4	7	4.4	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	1	51.9	9
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	20.2	18.5	78	10	23	79.2	24.4

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW7A	MW7A	MW7A	MW7B	MW7B	MW7B	MW7B
Date:	7/85	10/85	12/86	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	<10.0	<10	<5.6	ND	13	2	9.2
4-Bromophenyl phenyl ether	ND	ND	28.0	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	4.03	ND	6.43	44	34	102	111
1,3-Dichlorobenzene	3.29	ND	5.41	ND	ND	5	6.2
1,4-Dichlorobenzene	5.94	ND	7.46	738	605	1,000	1,100
3,3-Dichlorobenzidine	ND	<4.4	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	<9.9	4	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	<9.9	2	3	3	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	3.1
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	<1.6	ND	ND	274	ND	ND	844
Nitrobenzene	ND	ND	ND	58	133	706	130
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	13.3	0	47.3	1,120	788	1,818	2,203.5

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date:	MW7B 4/85	MW7B 7/85	MW7B 10/85	MW7B 12/86	MW8A 4/84	MW8A 8/84	MW8A 10/84
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	<10	<10.5	<10	ND	3	ND	127
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	52.8	ND	45.6	36.1	59	4	11
1,3-Dichlorobenzene	3.3	ND	ND	3.02	ND	ND	1
1,4-Dichlorobenzene	452	970	399	591	78	5	15
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	39	ND	<1
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	<10	ND	ND	ND	ND	3	10
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	3
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	20	1,740	434	ND	ND	ND	<1
Nitrobenzene	10.7	916	23.3	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	<1
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	538.8	3,626	901.9	630.1	179	12	167

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW8A	MW8A	MW8A	MW8A	MW8A	MW8AR	MW8B
Date:	1/85	4/85	7/85	10/85	12/86	12/86	4/84
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	13.7	ND	<10.0	19.0	<10	<10	2
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	6.1	6.8	17.6	6.07	3.06	3.56	ND
1,3-Dichlorobenzene	ND	ND	<1.9	ND	ND	ND	ND
1,4-Dichlorobenzene	8.2	8.8	24.3	8.44	<4.4	5.30	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	<10	ND	3
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	ND	ND	<10	<10	2
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	<10	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	2.6	2.0	<1.9	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	30.6	17.6	41.9	33.5	3.1	8.9	7.0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW88	MW88	MW88	MW88	MW88	MW88	MW88
Date:	8/84	10/84	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	2	15.8	ND	<12.5	<10	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	<1	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3	4	8.1	ND	ND	<10	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	4.45
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	<1	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	3	6	23.9	0	0	0	4.5

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW9	MW9	MW9	MW9	MW9	MW9	MW9
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	1	ND	1	17	ND	<10.1	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	4	ND	<1	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	2	2	2	ND	ND	<10.1	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	7	2	3	17	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW9	MW10	MW10	MW10	MW10	MW10	MW10
Date:	12/86	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	ND	3	19	ND	<10.0
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	3	ND	1	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	3	2	2	12	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	<1	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	<5.4
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	6	2	6	31	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW10	MW10	MW11A	MW11A	MW11A	MW11A	MW11A
Date:	10/85	12/86	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	NA	ND	ND	ND	ND	ND
Acenapthylene	ND	NA	ND	ND	ND	ND	ND
Anthracene	ND	NA	ND	ND	ND	ND	ND
Benzidine	ND	NA	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	NA	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	NA	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	NA	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	NA	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	NA	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	NA	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	NA	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	NA	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	NA	345	5	ND	ND	ND
4-Bromophenyl phenyl ether	ND	NA	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	NA	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	NA	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	NA	ND	ND	ND	ND	ND
Chrysene	ND	NA	ND	1	ND	ND	ND
Dibenzo(a,h)anthracene	ND	NA	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	NA	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	NA	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	NA	2	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	NA	ND	ND	ND	ND	ND
Diethyl phthalate	ND	NA	2	1	ND	ND	ND
Dimethyl phthalate	ND	NA	ND	ND	ND	ND	ND
Di-n-butyl phthalate	<10	NA	3	4	ND	ND	ND
2,4-Dinitrotoluene	ND	NA	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	NA	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	NA	3	1	ND	ND	ND
1,2-Diphenylhydrazine	ND	NA	ND	ND	ND	ND	ND
Fluoranthene	ND	NA	ND	1	ND	ND	ND
Fluorene	ND	NA	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	NA	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	NA	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	NA	ND	ND	ND	ND	ND
Hexachloroethane	ND	NA	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	NA	ND	ND	ND	ND	ND
Isophorone	ND	NA	ND	ND	ND	ND	ND
Naphthalene	ND	NA	ND	ND	ND	ND	ND
Nitrobenzene	ND	NA	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	NA	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	NA	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	NA	ND	ND	ND	ND	ND
Phenanthrene	ND	NA	ND	1	ND	ND	ND
Pyrene	ND	NA	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	NA	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	0	355	14	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW11A	MW11A	MW11A	MW11B	MW11B	MW11B	MW11B
Date:	7/85	10/85	12/86	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	NA	ND	ND	<1	ND
Acenapthylene	ND	ND	NA	ND	ND	ND	ND
Anthracene	ND	ND	NA	ND	ND	ND	ND
Benzidine	ND	ND	NA	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	NA	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	NA	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	NA	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	NA	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	NA	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	NA	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	NA	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	NA	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	<10.0	<10	NA	ND	44	1	ND
4-Bromophenyl phenyl ether	ND	ND	NA	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	NA	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	NA	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	NA	ND	ND	ND	ND
Chrysene	ND	ND	NA	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	NA	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	NA	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	NA	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	NA	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	NA	ND	ND	ND	ND
Diethyl phthalate	ND	ND	NA	28	ND	ND	ND
Dimethyl phthalate	ND	ND	NA	ND	ND	ND	ND
Di-n-butyl phthalate	ND	<10	NA	8	3	2	ND
2,4-Dinitrotoluene	ND	ND	NA	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	NA	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	NA	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	NA	ND	ND	ND	ND
Fluoranthene	ND	ND	NA	ND	ND	ND	ND
Fluorene	ND	ND	NA	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	NA	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	NA	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	NA	ND	ND	ND	ND
Hexachloroethane	ND	ND	NA	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	NA	ND	ND	ND	ND
Isophorone	ND	ND	NA	ND	ND	ND	ND
Naphthalene	ND	ND	NA	ND	ND	ND	ND
Nitrobenzene	ND	ND	NA	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	NA	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	NA	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	NA	ND	ND	ND	ND
Phenanthrene	ND	ND	NA	ND	ND	<1	ND
Pyrene	ND	ND	NA	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	NA	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	0	0	36	47	3	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date: / USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)	MW11B 4/85	MW11B 7/85	MW11B 10/85	MW11B 12/86	MW11C 1/85	MW11C 4/85	MW11C 7/85
Acenaphthene	ND	ND	ND	NA	ND	ND	ND
Acenapthylene	ND	ND	ND	NA	ND	ND	ND
Anthracene	ND	<1.9	ND	NA	ND	ND	<1.9
Benzidine	ND	ND	ND	NA	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	NA	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	NA	12	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	NA	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	NA	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	NA	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	NA	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	NA	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	NA	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	<10	ND	NA	ND	ND	11.8
4-Bromophenyl phenyl ether	ND	ND	ND	NA	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	NA	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	NA	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	NA	ND	ND	ND
Chrysene	ND	ND	ND	NA	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	NA	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	NA	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	NA	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	NA	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	NA	ND	ND	ND
Diethyl phthalate	ND	ND	ND	NA	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	NA	ND	ND	ND
Di-n-butyl phthalate	ND	<10	31.2	NA	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	NA	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	NA	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	NA	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	NA	ND	ND	ND
Fluoranthene	ND	ND	ND	NA	25	2.3	ND
Fluorene	ND	<1.9	ND	NA	ND	ND	<1.9
Hexachlorobenzene	ND	ND	ND	NA	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	NA	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	NA	ND	ND	ND
Hexachloroethane	ND	ND	ND	NA	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	NA	ND	ND	ND
Isophorone	ND	<2.2	ND	NA	ND	ND	ND
Naphthalene	ND	<1.6	ND	NA	ND	ND	<1.6
Nitrobenzene	ND	ND	ND	NA	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	NA	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	NA	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	NA	ND	ND	ND
Phenanthrene	ND	ND	ND	NA	11	ND	ND
Pyrene	ND	ND	ND	NA	23	2.4	ND
1,2,4-Trichlorobenzene	ND	ND	ND	NA	ND	ND	ND
Total base/neutral compounds analyzed	0	0	31.2	0	71	4.7	11.8

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date: / USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)	MW11C 10/85	MW11C 12/86	MW12 1/85	MW12 4/85	MW12 7/85	MW12 10/85	MW12 12/86
Acenaphthene	ND	NA	13	7.3	8.98	12.3	NA
Acenapthylene	ND	NA	ND	ND	ND	ND	NA
Anthracene	ND	NA	ND	ND	ND	ND	NA
Benzidine	ND	NA	ND	ND	ND	ND	NA
Benzo(a)anthracene	ND	NA	ND	ND	ND	ND	NA
Benzo(a)pyrene	ND	NA	ND	ND	ND	ND	NA
Benzo(b)fluoroanthene	ND	NA	ND	ND	ND	ND	NA
Benzo(ghi)perylene	ND	NA	ND	ND	ND	ND	NA
Benzo(k)fluoranthene	ND	NA	ND	ND	ND	ND	NA
bis(2-Chloroethoxy)methane	ND	NA	ND	ND	ND	ND	NA
bis(2-Chloroethyl)ether	ND	NA	ND	ND	ND	ND	NA
bis(2-Chloroisopropyl)ether	ND	NA	ND	ND	ND	ND	NA
bis(2-Ethylhexyl)phthalate	ND	NA	ND	ND	<10.0	ND	NA
4-Bromophenyl phenyl ether	ND	NA	ND	ND	ND	ND	NA
Butyl benzyl phthalate	ND	NA	ND	ND	ND	ND	NA
2-Chloronaphthalene	ND	NA	ND	ND	ND	ND	NA
4-Chlorophenyl phenyl ether	ND	NA	ND	ND	ND	ND	NA
Chrysene	ND	NA	ND	ND	ND	ND	NA
Dibenzo(a,h)anthracene	ND	NA	ND	ND	ND	ND	NA
1,2-Dichlorobenzene	ND	NA	ND	ND	ND	ND	NA
1,3-Dichlorobenzene	ND	NA	ND	ND	ND	ND	NA
1,4-Dichlorobenzene	ND	NA	ND	ND	ND	ND	NA
3,3-Dichlorobenzidine	ND	NA	ND	ND	ND	ND	NA
Diethyl phthalate	ND	NA	ND	ND	ND	ND	NA
Dimethyl phthalate	ND	NA	ND	ND	ND	ND	NA
Di-n-butyl phthalate	ND	NA	ND	ND	ND	ND	NA
2,4-Dinitrotoluene	ND	NA	ND	ND	ND	ND	NA
2,6-Dinitrotoluene	ND	NA	ND	ND	ND	ND	NA
Di-n-octyl phthalate	ND	NA	ND	ND	ND	ND	NA
1,2-Diphenylhydrazine	ND	NA	ND	ND	ND	ND	NA
Fluoranthene	ND	NA	ND	4.3	2.48	<2.2	NA
Fluorene	ND	NA	ND	ND	8.60	9.36	NA
Hexachlorobenzene	ND	NA	ND	ND	ND	ND	NA
Hexachlorobutadiene	ND	NA	ND	ND	ND	ND	NA
Hexachlorocyclopentadiene	ND	NA	ND	ND	ND	ND	NA
Hexachloroethane	ND	NA	ND	ND	ND	ND	NA
Indeno(1,2,3-c,d)pyrene	ND	NA	ND	ND	ND	ND	NA
Isophorone	ND	NA	ND	ND	ND	ND	NA
Naphthalene	ND	NA	ND	ND	ND	ND	NA
Nitrobenzene	ND	NA	ND	ND	ND	ND	NA
N-Nitrosodimethylamine	ND	NA	ND	ND	ND	ND	NA
N-Nitrosodi-n-propylamine	ND	NA	ND	ND	ND	ND	NA
N-Nitrosodiphenylamine	ND	NA	ND	ND	ND	ND	NA
Phenanthrene	ND	NA	ND	ND	<5.4	ND	NA
Pyrene	ND	NA	ND	ND	<1.9	<1.9	NA
1,2,4-Trichlorobenzene	ND	NA	ND	ND	ND	ND	NA
Total base/neutral compounds analyzed	0	0	13	11.6	20.1	21.7	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date: / USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)	MW13 1/85	MW13 4/85	MW13 7/85	MW13 10/85	MW14 1/85	MW14 4/85	MW14 7/85
Acenaphthene	ND	6.7	2.79	17.3	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	3.59	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	<2.5
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	<4.8
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	<10.0	ND	ND	ND	12.2
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	<10	<10	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	16	5.2	ND	2.89	ND	6.4	<2.2
Fluorene	ND	ND	<1.9	17.2	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	1.9	ND	3.20	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	11	30.4	<5.5	<5.5	ND	5.7	ND
Pyrene	ND	ND	ND	<1.9	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	27	44.2	2.8	44.2	0	12.1	12.2

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW14	MW14	MW15	MW15	MW15	MW15	MW15
Date:	10/85	12/86	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	3.46	NA	ND	ND	ND	NA	NA
Acenapthylene	ND	NA	ND	ND	ND	NA	NA
Anthracene	ND	NA	ND	ND	ND	NA	NA
Benzidine	ND	NA	ND	ND	ND	NA	NA
Benzo(a)anthracene	<8.3	NA	ND	ND	ND	NA	NA
Benzo(a)pyrene	ND	NA	ND	ND	ND	NA	NA
Benzo(b)fluoroanthene	ND	NA	ND	ND	ND	NA	NA
Benzo(ghi)perylene	ND	NA	ND	ND	ND	NA	NA
Benzo(k)fluoranthene	ND	NA	ND	ND	ND	NA	NA
bis(2-Chloroethoxy)methane	ND	NA	ND	ND	ND	NA	NA
bis(2-Chloroethyl)ether	ND	NA	ND	ND	ND	NA	NA
bis(2-Chloroisopropyl)ether	ND	NA	ND	ND	ND	NA	NA
bis(2-Ethylhexyl)phthalate	28.0	NA	ND	ND	ND	NA	NA
4-Bromophenyl phenyl ether	ND	NA	ND	ND	ND	NA	NA
Butyl benzyl phthalate	ND	NA	ND	ND	ND	NA	NA
2-Chloronaphthalene	ND	NA	ND	ND	ND	NA	NA
4-Chlorophenyl phenyl ether	ND	NA	ND	ND	ND	NA	NA
Chrysene	ND	NA	ND	ND	ND	NA	NA
Dibenzo(a,h)anthracene	ND	NA	ND	ND	ND	NA	NA
1,2-Dichlorobenzene	ND	NA	11	ND	ND	NA	NA
1,3-Dichlorobenzene	ND	NA	ND	ND	ND	NA	NA
1,4-Dichlorobenzene	9.70	NA	ND	ND	ND	NA	NA
3,3-Dichlorobenzidine	ND	NA	ND	ND	ND	NA	NA
Diethyl phthalate	ND	NA	ND	ND	ND	NA	NA
Dimethyl phthalate	ND	NA	ND	ND	ND	NA	NA
Di-n-butyl phthalate	ND	NA	ND	ND	<10.0	NA	NA
2,4-Dinitrotoluene	ND	NA	ND	ND	ND	NA	NA
2,6-Dinitrotoluene	ND	NA	ND	ND	ND	NA	NA
Di-n-octyl phthalate	ND	NA	ND	ND	ND	NA	NA
1,2-Diphenylhydrazine	ND	NA	ND	ND	ND	NA	NA
Fluoranthene	2.78	NA	ND	ND	ND	NA	NA
Fluorene	3.51	NA	ND	ND	ND	NA	NA
Hexachlorobenzene	ND	NA	ND	ND	ND	NA	NA
Hexachlorobutadiene	ND	NA	ND	ND	ND	NA	NA
Hexachlorocyclopentadiene	ND	NA	ND	ND	ND	NA	NA
Hexachloroethane	ND	NA	ND	ND	ND	NA	NA
Indeno(1,2,3-c,d)pyrene	ND	NA	ND	ND	ND	NA	NA
Isophorone	ND	NA	ND	ND	ND	NA	NA
Naphthalene	6.45	NA	ND	ND	ND	NA	NA
Nitrobenzene	ND	NA	ND	ND	ND	NA	NA
N-Nitrosodimethylamine	ND	NA	ND	ND	ND	NA	NA
N-Nitrosodi-n-propylamine	ND	NA	ND	ND	ND	NA	NA
N-Nitrosodiphenylamine	ND	NA	89	ND	ND	NA	NA
Phenanthrene	ND	NA	ND	62.3	ND	NA	NA
Pyrene	ND	NA	ND	ND	ND	NA	NA
1,2,4-Trichlorobenzene	ND	NA	ND	ND	ND	NA	NA
Total base/neutral compounds analyzed	53.9	0	100	62.3	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date:	MW16 1/85	MW16 4/85	MW16 7/85	MW16 10/85	MW17 1/85	MW17 4/85	MW17 7/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	2.02
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	<1.9	ND	ND	ND	2.81
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	<10	ND	ND	ND	<10
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	ND	<10	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	6.71	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	4.30
Fluorene	ND	ND	ND	ND	ND	ND	2.35
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	<1.6	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	11.8
Pyrene	ND	ND	ND	ND	ND	ND	2.88
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	0	6.7	0	0	0	26.2

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW17	MW18A	MW18A	MW18A	MW18A	MW18A	MW18B
Date:	10/85	1/85	4/85	7/85	10/85	12/86	1/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	<10	22.7	15.5	<10.5	44.1	14.1	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	3.30	ND
1,2-Dichlorobenzene	ND	1.9	2.1	11.2	30.7	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	6.59	7.32	ND
1,4-Dichlorobenzene	ND	ND	ND	46.5	67.8	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	<10	ND	ND	ND	ND	<10	3.8
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	<10	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	15.8	15.7	191	229	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	40.4	33.3	248.7	378.2	24.7	3.8

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date: / USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)	MW188 4/85	MW188 7/85	MW188 10/85	MW188 12/86	MW19 1/85	MW19 4/85	MW19 7/85
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	<11.2	ND	17.6	ND	ND	<10.0
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	<11.2	ND	<11	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	<2.2
Naphthalene	ND	ND	ND	ND	ND	2.4	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	0	0	17.6	0	2.4	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW19	MW19	MW20	MW20	MW20	MW20	MW20
Date:	10/85	12/86	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	9.59	8.61	8.47
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	2.48	ND	<2.0
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	<7.9	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	<2.5	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	<3.5	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	<10.1	ND	13.0
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	ND	ND	ND	<10.1	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	2.5	15.1	2.50	5.34
Fluorene	ND	ND	ND	4.0	9.75	6.93	7.87
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	2.96	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	<5.5	ND	ND
Pyrene	ND	ND	ND	ND	13.1	<1.9	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	3	0	0	6.5	50	18	34.7

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number: / Date:	Blank 10/84	Blank 10/84	Lab Blank 10/84	Lab Blank 10/84	Lab Blank 10/84	Method Blank 1/85	Jar Blank 1/85
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)							
Acenaphthene	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	1	<1	<1	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	1	1	ND	ND	ND	2.7	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	1	2	0	0	0	2.7	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-11. Summary of Base/Neutral Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	Jar Blank	XFB1	XFB1	XFB2	XFB2
Date:	1/85	10/85	12/86	10/85	12/86
USEPA Priority Pollutant Base/Neutral Extractable Organic Compounds (concentrations are in ug/L)					
Acenaphthene	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND
Benzo(b)fluoroanthene	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND
bis(2-Chloroethyl)ether	ND	ND	ND	ND	ND
bis(2-Chloroisopropyl)ether	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	ND	ND	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND
Diethyl phthalate	ND	ND	ND	ND	ND
Dimethyl phthalate	ND	ND	ND	ND	ND
Di-n-butyl phthalate	ND	<11	ND	ND	<10
2,4-Dinitrotoluene	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND
Di-n-octyl phthalate	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Total base/neutral compounds analyzed	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	4/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW1B	MW1B	MW1B	MW1B	MW1B	MW1B	MW2A	MW2A
Date:	8/84	10/84	1/85	4/85	7/85	10/85	4/84	8/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW2A	MW2A	MW2A	MW2A	MW2A	MW2A	MW2B	MW2B
Date:	10/84	1/85	4/85	7/85	10/85	12/86	4/84	8/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	14.8	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	14.8	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW2B	MW2B	MW2B	MW2B	MW2B	MW2B	MW3	MW3
Date:	10/84	1/85	4/85	7/85	10/85	12/86	4/84	8/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	13	5
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	0	0	13	5

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW3	MW3	MW3	MW3	MW3	MW4	MW4	MW4
Date:	10/84	1/85	4/85	7/85	10/85	4/84	8/84	10/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	<3.3	8.21	19.3	ND	ND	2
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	8.2	19.3	0	0	2

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW4	MW4	MW4	MW4	MW4R	MW5	MW5	MW5
Date:	1/85	4/85	7/85	10/85	10/85	4/84	8/84	10/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	32	34	ND	11.4	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	32	34	0	11.4	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW5	MW5	MW5	MW5	MW5	MW6A	MW6A	MW6A
Date:	1/85	4/85	7/85	10/85	12/86	4/84	8/84	10/84
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	NA	19	ND	9
2,4-Dichlorophenol	ND	ND	ND	ND	NA	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	NA	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	NA	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	NA	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	NA	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	NA	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	NA	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	NA	ND	ND	ND
Phenol	ND	ND	ND	ND	NA	ND	ND	30
2,4,6-Trichlorophenol	ND	ND	ND	ND	NA	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	0	19	0	39

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW6A	MW6A	MW6A	MW6A	MW6A	MW6B	MW6B	MW6B
Date:	1/85	4/85	7/85	10/85	10/85*	1/85	4/85	7/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	39	17	35.9	55.4	20.1	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	<2.7	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	<42.4
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	13	31.3	2.83	3	6.1	8.5	<1.5
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	39	30	67.2	58.2	23.1	6.1	8.5	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW68	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A
Date:	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	2	ND	1	5	4.2	18.1	ND
2,4-Dichlorophenol	ND	7	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	134	17	8	ND	ND	ND	3.99	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	134	26	8	1	5	4.2	22.1	0.0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW7A	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B
Date:	12/86	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	9.34	ND	2	103	21.9	25.8	16.3	56.3
2,4-Dichlorophenol	ND	ND	ND	76	264	46.5	125	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	11	ND	ND	389	9.7
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	9.3	0	2	190	285.9	72.3	530.3	66

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW7B	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A
Date:	12/86	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	93	9	24	8	17.3	27.3	39.5
2,4-Dichlorophenol	19.8	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	4	ND	10.4	10.7
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	19.8	93	9	24	12	17.3	37.7	50.2

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW8A	MW8A	MW8B	MW8B	MW8B	MW8B	MW8B	MW8B
Date:	12/86	12/86*	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	<3.3	3.72	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	3.7	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW88	MW88	MW9	MW9	MW9	MW9	MW9	MW9
Date:	10/85	12/86	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	7.83	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	7.8	0	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW9	MW9	MW10	MW10	MW10	MW10	MW10	MW10
Date:	10/85	12/86	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	2	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	2	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW10	MW11A	MW11A	MW11A	MW11A	MW11A	MW11A	MW11A
Date:	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	5	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	5	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW11B	MW11B	MW11B	MW11B	MW11B	MW11B	MW11B	MW11B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	NA
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	NA
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	NA
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	NA
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	NA
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	NA
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	NA
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	NA
Pentachlorophenol	ND	ND	1	ND	ND	ND	ND	NA
Phenol	ND	ND	ND	ND	ND	ND	ND	NA
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	NA
Total acid compounds analyzed	0	0	1	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW11C	MW11C	MW11C	MW11C	MW12	MW12	MW12	MW12
Date:	1/85	4/85	7/85	10/85	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW13	MW13	MW13	MW13	MW14	MW14	MW14	MW14
Date:	1/85	4/85	7/85	10/85	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	<3.3	ND	74	43.3	52	88.7
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	9.1	8.04	7.43
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	74	52.4	60	96.1

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW15	MW15	MW15	MW15	MW16	MW16	MW16	MW16
Date:	1/85	4/85	7/85	12/86	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	9.12	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	2.87	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	9.1	2.9	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW17	MW17	MW17	MW17	MW18A	MW18A	MW18A	MW18A
Date:	1/85	4/85	7/85	10/85	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	ND	ND	ND	7.34	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	3.31	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	76.2	ND
Phenol	ND	ND	ND	ND	4	10	126	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	4	10	212.9	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW18A	MW18B	MW18B	MW18B	MW18B	MW18B	MW19	MW19
Date:	12/86	1/85	4/85	7/85	10/85	12/86	1/85	4/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	ND	ND	<3.9	ND	ND	81	166
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	1.66	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	0	0	0	0	1.7	81	166

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number: / Date:	MW19 7/85	MW19 10/85	MW19 12/86	MW20 1/85	MW20 4/85	MW20 7/85	MW20 10/85	MW20 12/86
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	84.1	83.1	14.7	ND	ND	ND	ND	<3.5
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	84.1	83.1	14.7	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	XFB1	XFB1	XFB2	Blank	Blank	Lab Blank	Lab Blank	Method Blank
Date:	10/85	12/86	10/85	10/84	10/84	10/84	10/84	1/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)								
2-Chlorophenol	ND	7.09	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4,6-Dinitro-o-cresol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloro-m-cresol	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
Total acid compounds analyzed	0	7.1	0	0	0	0	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-12. Summary of Acid Extractable Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	Jar Blank	Jar Blank
Date:	1/85	4/85
USEPA Priority Pollutant Acid Extractable Organic Compounds (concentrations are in ug/L)		
2-Chlorophenol	ND	ND
2,4-Dichlorophenol	ND	ND
2,4-Dimethylphenol	ND	ND
4,6-Dinitro-o-cresol	ND	ND
2,4-Dinitrophenol	ND	ND
2-Nitrophenol	ND	ND
4-Nitrophenol	ND	ND
p-Chloro-m-cresol	ND	ND
Pentachlorophenol	ND	ND
Phenol	ND	ND
2,4,6-Trichlorophenol	ND	ND
Total acid compounds analyzed	0	0

ND Not detected.
NA Not analyzed.
* Replicate sample.
ug/L Micrograms per liter.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	4/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW1B	MW1B	MW1B	MW1B	MW1B	MW1B	MW2A	MW2A
Date:	8/84	10/84	1/85	4/85	7/85	10/85	4/84	3/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW2A	MW2A	MW2A	MW2A	MW2A	MW2B	MW2B	MW2B
Date:	10/84	1/85	4/85	7/85	10/85	4/84	8/84	10/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW2B	MW2B	MW2B	MW2B	MW3	MW3	MW3	MW3
Date:	1/85	4/85	7/85	10/85	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW3	MW3	MW4	MW4	MW4	MW4	MW4	MW4
Date:	4/85	7/85	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW4	MW5	MW5	MW5	MW5	MW5	MW5	MW5
Date:	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW6A	MW6A	MW6A	MW6A	MW6A	MW6A	MW6A	MW6B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW6B	MW6B	MW6B	MW7A	MW7A	MW7A	MW7A	MW7A
Date:	4/85	7/85	10/85	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW7A	MW7A	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B
Date:	7/85	10/85	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW7B	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A
Date:	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW8B	MW8B	MW8B	MW8B	MW8B	MW8B	MW8B	MW9
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	4/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW9	MW9	MW9	MW9	MW9	MW9	MW10	MW10
Date:	8/84	10/84	1/85	4/85	7/85	10/85	4/84	8/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW10	MW10	MW10	MW10	MW10	MW11A	MW11A	MW11A
Date:	10/84	1/85	4/85	7/85	10/85	4/84	8/84	10/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW11A	MW11A	MW11A	MW11A	MW11B	MW11B	MW11B	MW11B
Date:	1/85	4/85	7/85	10/85	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW11B	MW11B	MW11B	MW11C	MW11C	MW11C	MW11C	MW12
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW12	MW12	MW12	MW13	MW13	MW13	MW13	MW14
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW14	MW14	MW14	MW15	MW15	MW15	MW15	MW16
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW16	MW16	MW16	MW17	MW17	MW17	MW17	MW18A
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	MW18A	MW18A	MW18A	MW18B	MW18B	MW18B	MW18B	MW19
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	1/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Designation:	MW19	MW19	MW19	MW20	MW20	MW20	MW20	Blank
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	10/84
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	Blank	Lab Blank	Lab Blank	Lab Blank	Method Blank	Jar Blank	Jar Blank	Field Blank
Date:	10/84	10/84	10/84	10/84	1/85	1/85	4/85	7/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)								
Aldrin	ND	ND	ND	ND	ND	ND	ND	NA
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	NA
beta-BHC	ND	ND	ND	ND	ND	ND	ND	NA
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	NA
delta-BHC	ND	ND	ND	ND	ND	ND	ND	NA
Chlordane	ND	ND	ND	ND	ND	ND	ND	NA
4,4'-DDT	ND	ND	ND	ND	ND	ND	ND	NA
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	NA
4,4'-DDD	ND	ND	ND	ND	ND	ND	ND	NA
Dieldrin	ND	ND	ND	ND	ND	ND	ND	NA
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	NA
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	NA
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	NA
Endrin	ND	ND	ND	ND	ND	ND	ND	NA
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	NA
Heptachlor	ND	ND	ND	ND	ND	ND	ND	NA
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1016	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1221	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1232	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1242	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1248	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1254	ND	ND	ND	ND	ND	ND	ND	NA
PCB-1260	ND	ND	ND	ND	ND	ND	ND	NA
Toxaphene	ND	ND	ND	ND	ND	ND	ND	NA
Total pesticides/PCB compounds	0	0	0	0	0	0	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-13. Summary of Pesticide/PCB Compounds in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Designation:	XFB1	XFB2
Date:	10/85	10/85
USEPA Priority Pollutant Pesticide/PCB Compounds (concentrations are in ug/L)		
Aldrin	ND	ND
alpha-BHC	ND	ND
beta-BHC	ND	ND
gamma-BHC	ND	ND
delta-BHC	ND	ND
Chlordane	ND	ND
4,4'-DDT	ND	ND
4,4'-DDE	ND	ND
4,4'-DDD	ND	ND
Dieldrin	ND	ND
Endosulfan I	ND	ND
Endosulfan II	ND	ND
Endosulfan sulfate	ND	ND
Endrin	ND	ND
Endrin aldehyde	ND	ND
Heptachlor	ND	ND
Heptachlor epoxide	ND	ND
PCB-1016	ND	ND
PCB-1221	ND	ND
PCB-1232	ND	ND
PCB-1242	ND	ND
PCB-1248	ND	ND
PCB-1254	ND	ND
PCB-1260	ND	ND
Toxaphene	ND	ND
Total pesticides/PCB compounds	0	0

ND Not detected.
* Replicate sample.
PCB Polychlorinated biphenyl.
NA Not analyzed.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis Missou

Well Number:	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1A	MW1B	MW1B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	4/84	8/84
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	19	130	10,400	ND	ND	ND	ND	24	93
Arsenic	48	24	6	ND	ND	ND	ND	69	35
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	2	5	1	8	ND	ND	ND	2	16
Chromium	80	41	20,600	ND	ND	ND	ND	73	69
Copper	90	54	36	ND	ND	ND	ND	100	125
Lead	22	62	10	ND	ND	ND	ND	81	162
Mercury	ND	0.34	0.65	ND	ND	ND	ND	0.27	0.61
Nickel	70	63	112	ND	ND	ND	ND	190	110
Selenium	ND	ND	ND	ND	ND	ND	ND	17	3
Silver	2	ND	1,600	ND	ND	ND	ND	3	ND
Thallium	5	5	ND	ND	ND	ND	<5	6	7
Zinc	200	248	102	90	ND	ND	40	370	454
Miscellaneous Parameters									
Cyanide	21	14	9	59	ND	<25	44.3	28	14
Total phenols (mg/L)	0.003	ND	ND	ND	ND	<50	<50	0.009	0.003
Total organic carbon (mg/L)	12	19.8	14.8	17/18	9.9/7.9	NA	ND	19	15.1

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW1B	MW1B	MW1B	MW1B	MW1B	MW2A	MW2A	MW2A	MW2A
Date:	10/84	1/85	4/85	7/85	10/85	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	25,500	ND	ND	ND	ND	24	32	7,900	ND
Arsenic	24	ND	ND	ND	ND	69	2	8	7
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	3	ND	ND	ND	<4	2	ND	2	ND
Chromium	51,600	3	3	ND	ND	120	9	13,800	ND
Copper	125	ND	ND	ND	ND	ND	10	50	ND
Lead	28	ND	ND	ND	ND	46	16	13	ND
Mercury	0.22	ND	ND	ND	ND	0.22	ND	0.21	ND
Nickel	344	ND	ND	ND	<20	200	16	132	ND
Selenium	6	6	10	9	6	ND	ND	1	ND
Silver	940	ND	ND	ND	ND	3	ND	2,570	ND
Thallium	ND	ND	ND	<5	ND	6	ND	ND	ND
Zinc	376	170	60	ND	30	390	20	113	20
Miscellaneous Parameters									
Cyanide	ND	43	ND	<25	<25	12	15	7	ND
Total phenols (mg/L)	ND	ND	ND	<50	<50	0.004	0.007	ND	ND
Total organic carbon (mg/L)	8.7	25/23	3.0/3.1	ND	ND	5	3	10.6	3.8/4.2

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW2A	MW2A	MW2A	MW2A	MW2B	MW2B	MW2B	MW2B	MW2B
Date:	4/85	7/85	10/85	12/86	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	ND	NA	20	48	15,600	ND	ND
Arsenic	ND	ND	ND	NA	57	17	20	7	ND
Beryllium	ND	ND	ND	NA	ND	ND	ND	ND	ND
Cadmium	ND	ND	<4	NA	3	8	2	ND	ND
Chromium	ND	ND	ND	NA	ND	34	36,300	ND	ND
Copper	ND	ND	ND	NA	60	58	71	ND	ND
Lead	ND	ND	<50	NA	116	93	34	ND	ND
Mercury	ND	ND	ND	NA	0.24	0.42	0.26	ND	ND
Nickel	30	ND	30	NA	110	85	325	30	20
Selenium	ND	<5	ND	NA	ND	ND	ND	ND	ND
Silver	ND	ND	ND	NA	2	ND	1,020	ND	ND
Thallium	ND	ND	ND	NA	5	4	ND	ND	ND
Zinc	ND	ND	70	NA	270	251	335	90	50
Miscellaneous Parameters									
Cyanide	ND	<25	<25	ND	22	ND	ND	ND	ND
Total phenols (mg/L)	ND	100	<50	ND	0.004	ND	ND	ND	ND
Total organic carbon (mg/L)	12/12	ND	ND	5.09/5.37	15	2.9	9.2	4.2/4.5	3.3/2.8

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW2B	MW2B	MW2B	MW3	MW3	MW3	MW3	MW3	MW3
Date:	7/85	10/85	12/86	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	NA	14	52	14,600	ND	ND	ND
Arsenic	ND	ND	NA	24	11	22	5	10	ND
Beryllium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Cadmium	<8	<4	NA	2	3	4	ND	ND	<1
Chromium	ND	ND	NA	ND	20	27,300	ND	ND	ND
Copper	ND	ND	NA	ND	46	152	ND	ND	<9
Lead	ND	<50	NA	14	61	64	ND	ND	ND
Mercury	ND	ND	NA	0.22	0.56	0.48	ND	ND	ND
Nickel	<50	30	NA	ND	43	313	ND	9	<30
Selenium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Silver	ND	ND	NA	3	ND	2,150	ND	ND	ND
Thallium	ND	ND	NA	6	3	ND	ND	ND	ND
Zinc	ND	70	NA	60	162	432	ND	10	ND
Miscellaneous Parameters									
Cyanide	<25	<25	ND	5	ND	ND	31	ND	<25
Total phenols (mg/L)	80	<50	ND	0.009	0.004	ND	ND	0.91	180
Total organic carbon (mg/L)	ND	ND	1.9/1.9	9	12.2	23.6	9.3/8	11/11	ND

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW3	MW4	MW4	MW4	MW4	MW4	MW4	MW4	MW4
Date:	10/85	4/84	8/84	10/84	1/85	4/85	7/85	10/85	10/85*
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	15	64	13,000	ND	ND	ND	ND	ND
Arsenic	<10	49	6	11	ND	12	<10	18	15
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	ND	4	3	3	ND	ND	ND	ND	ND
Chromium	ND	ND	16	13,300	ND	ND	ND	ND	ND
Copper	ND	ND	24	44	ND	ND	ND	ND	ND
Lead	<50	18	39	12	ND	ND	ND	ND	ND
Mercury	ND	ND	0.21	ND	ND	ND	ND	ND	ND
Nickel	<5	60	47	180	20	20	<50	<20	<20
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	2	ND	1,240	ND	ND	ND	<8	<8
Thallium	ND	4	3	ND	ND	ND	ND	ND	ND
Zinc	ND	130	428	103	40	ND	<40	<20	200
Miscellaneous Parameters									
Cyanide	<25	ND	ND	33	ND	ND	<25	25.9	30
Total phenols (mg/L)	<50	0.017	0.029	ND	ND	ND	51	<50	84
Total organic carbon (mg/L)	ND	76	137.9	81.2	60/61	NA	ND	ND	ND

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW4	MW5	MW5	MW5	MW5	MW5	MW5	MW5	MW5
Date:	12/86	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	NA	13	45	11,900	ND	ND	ND	ND	NA
Arsenic	NA	73	9	11	ND	ND	ND	<10	NA
Beryllium	NA	ND	ND	ND	ND	ND	ND	ND	NA
Cadmium	NA	3	9	2	8	ND	ND	ND	NA
Chromium	NA	ND	42	8,620	ND	ND	ND	ND	NA
Copper	NA	80	113	127	ND	ND	ND	<7	NA
Lead	NA	155	238	92	ND	ND	<100	ND	NA
Mercury	NA	0.24	0.39	0.31	ND	ND	ND	ND	NA
Nickel	NA	ND	41	161	ND	ND	ND	<10	NA
Selenium	NA	ND	ND	ND	ND	ND	ND	<5	NA
Silver	NA	5	ND	1,030	ND	ND	ND	ND	NA
Thallium	NA	7	7	ND	ND	ND	ND	ND	NA
Zinc	NA	120	248	110	100	ND	ND	ND	NA
Miscellaneous Parameters									
Cyanide	ND	ND	ND	10	ND	ND	<25	<25	ND
Total phenols (mg/L)	0.128	ND	0.004	ND	ND	ND	200	<50	7.71
Total organic carbon (mg/L)	44.7/44.1	9	40.8	10.6	7.9/7.4	5.2/5.0	ND	ND	5.61/5.37

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW6A	MW6A	MW6A	MW6A	MW6A	MW6A	MW6B	MW6B	MW6B
Date:	4/84	8/84	10/84	4/85	7/85	10/85	4/85	7/85	10/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	29	53	14,700	ND	ND	ND	ND	ND	ND
Arsenic	73	15	17	76	47	49	23	ND	15
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	2	5	7	ND	ND	<4	ND	ND	ND
Chromium	ND	30	51,600	ND	ND	ND	ND	ND	ND
Copper	ND	ND	17	ND	ND	ND	ND	ND	ND
Lead	27	16	10	ND	ND	ND	ND	ND	ND
Mercury	6	0.31	ND	ND	ND	ND	ND	<.2	ND
Nickel	110	30	164	20	ND	ND	10	<30	<20
Selenium	ND	ND	ND	ND	<5	<10	ND	ND	<5
Silver	10	ND	780	ND	ND	ND	ND	<10	<8
Thallium	30	6	ND	ND	<5	ND	ND	ND	ND
Zinc	60	75	48	10	<20	ND	30	50	<20
Miscellaneous Parameters									
Cyanide	ND	ND	ND	ND	<25	<25	ND	<25	<25
Total phenols (mg/L)	0.013	0.209	ND	0.220	200	289	0.120	400	216
Total organic carbon (mg/L)	455	271	181	410/410	ND	ND	190/190	ND	ND

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A	MW7A	MW7B
Date:	4/84	8/84	10/84	1/85	4/85	7/85	10/85	12/86	4/84
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	14	30	9,900	ND	ND	ND	ND	NA	13
Arsenic	79	17	19	35	39	30	45	NA	168
Beryllium	ND	ND	ND	ND	ND	<1	ND	NA	ND
Cadmium	11	2	ND	ND	ND	ND	<4	NA	2
Chromium	ND	ND	9,750	ND	ND	ND	ND	NA	ND
Copper	ND	5	75	ND	ND	<9	ND	NA	ND
Lead	18	14	6	ND	ND	ND	ND	NA	27
Mercury	ND	0.21	ND	ND	ND	ND	ND	NA	0.37
Nickel	ND	7	150	ND	ND	ND	ND	NA	50
Selenium	ND	ND	ND	ND	ND	ND	ND	NA	ND
Silver	ND	ND	1,810	ND	ND	ND	ND	NA	2
Thallium	ND	2	ND	ND	ND	ND	ND	NA	3
Zinc	100	13	75	ND	ND	ND	60	NA	120
Miscellaneous Parameters									
Cyanide	26	ND	ND	ND	ND	<25	<25	ND	6
Total phenols (mg/L)	0.296	0.049	ND	0.058	ND	<50	205	0.075	0.038
Total organic carbon (mg/L)	19	225.4	37.7	13/15	160/160	ND	ND	12.4/11.7	55

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B	MW7B	MW8A	MW8A
Date:	8/84	10/84	1/85	4/85	7/85	10/85	12/86	4/84	8/84
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	28	12,100	ND	ND	ND	ND	NA	30	51
Arsenic	110	40	ND	ND	<10	ND	NA	30	3
Beryllium	ND	ND	ND	ND	<1	ND	NA	ND	ND
Cadmium	12	ND	ND	ND	ND	ND	NA	3	5
Chromium	67	19,000	ND	ND	ND	ND	NA	40	25
Copper	108	59	ND	ND	<9	<10	NA	ND	5
Lead	98	20	ND	ND	ND	ND	NA	19	22
Mercury	0.69	0.21	ND	ND	ND	ND	NA	0.45	ND
Nickel	92	211	ND	ND	<30	<20	NA	90	10
Selenium	ND	ND	ND	ND	ND	ND	NA	ND	ND
Silver	ND	2,660	ND	ND	ND	ND	NA	7	ND
Thallium	3	ND	ND	ND	ND	ND	NA	ND	7
Zinc	334	121	ND	ND	ND	<20	NA	50	52
Miscellaneous Parameters									
Cyanide	8	ND	ND	ND	<25	<25	ND	6	15
Total phenols (mg/L)	0.081	ND	0.082	0.330	320	164.8	0.058	0.147	0.446
Total organic carbon (mg/L)	83.4	101	160/160	54/54	ND	ND	40.6/41.0	72	64.8

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW8A	MW8A	MW8A	MW8A	MW8A	MW8A	MW8B	MW8B	MW8B
Date:	10/84	1/85	4/85	7/85	10/85	12/86	4/84	8/84	10/84
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	10,200	ND	ND	ND	ND	NA	10	23	8,500
Arsenic	5	ND	ND	12	ND	NA	30	9	14
Beryllium	ND	ND	ND	ND	ND	NA	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	NA	7	6	ND
Chromium	5,120	ND	ND	ND	ND	NA	ND	28	39,500
Copper	37	ND	ND	ND	ND	NA	80	54	171
Lead	34	ND	ND	<100	ND	NA	199	284	148
Mercury	0.21	ND	ND	<.2	ND	NA	1.71	2.62	1.97
Nickel	134	ND	ND	ND	ND	NA	200	40	314
Selenium	ND	ND	ND	ND	ND	NA	ND	ND	ND
Silver	1,180	ND	ND	ND	<10	NA	6	ND	980
Thallium	ND	ND	ND	ND	ND	NA	ND	12	ND
Zinc	136	50	ND	<20	<40	NA	390	459	578
Miscellaneous Parameters									
Cyanide	ND	ND	ND	<25	<25	ND	10	ND	ND
Total phenols (mg/L)	ND	ND	0.460	380	467	0.117	0.003	0.004	ND
Total organic carbon (mg/L)	65.6	71/75	280/290	ND	ND	21.8/22.4	22	19.1	31.4

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW8B	MW8B	MW8B	MW8B	MW8B	MW8	MW9	MW9	MW9
Date:	1/85	4/85	7/85	10/85	12/86	12/86*	4/84	8/84	10/84
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	ND	ND	NA	NA	30	89	44,800
Arsenic	ND	ND	<10	<10	NA	NA	55	23	40
Beryllium	ND	ND	ND	ND	NA	NA	ND	ND	ND
Cadmium	ND	ND	<10	<3	NA	NA	2	4	ND
Chromium	ND	ND	ND	ND	NA	NA	ND	52	24,900
Copper	ND	ND	30	ND	NA	NA	50	22	192
Lead	ND	ND	<100	ND	NA	NA	29	65	111
Mercury	ND	ND	0.2	ND	NA	NA	0.39	ND	ND
Nickel	ND	ND	ND	ND	NA	NA	60	36	380
Selenium	ND	ND	ND	<5	NA	NA	ND	ND	ND
Silver	ND	ND	ND	ND	NA	NA	9	ND	2,800
Thallium	ND	ND	ND	<5	NA	NA	31	24	ND
Zinc	ND	ND	30	<40	NA	NA	90	168	298
Miscellaneous Parameters									
Cyanide	100	ND	<25	<25	ND	ND	18	12	14
Total phenols (mg/L)	ND	ND	160	160	ND	0.134	0.009	0.003	ND
Total organic carbon (mg/L)	20/18	300/310	ND	ND	12.3/12.0	27.6/24.1	9	27.9	44.1

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW9	MW9	MW9	MW9	MW9	MW10	MW10	MW10	MW10
Date:	1/85	4/85	7/85	10/85	12/86	4/84	8/84	10/84	1/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	ND	ND	NA	15	41	26,900	ND
Arsenic	16	28	17	32	NA	127	32	74	35
Beryllium	ND	ND	ND	ND	NA	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	NA	3	8	ND	ND
Chromium	ND	ND	ND	ND	NA	110	32	48,000	ND
Copper	ND	ND	ND	ND	NA	80	52	437	ND
Lead	ND	ND	ND	<50	NA	62	104	324	ND
Mercury	ND	ND	ND	ND	NA	4	0.45	0.60	ND
Nickel	ND	ND	ND	ND	NA	230	50	566	ND
Selenium	ND	ND	ND	ND	NA	ND	ND	ND	ND
Silver	ND	ND	ND	ND	NA	3	ND	2,180	ND
Thallium	ND	ND	ND	ND	NA	10	7	ND	ND
Zinc	ND	ND	<20	ND	NA	390	367	72	40
Miscellaneous Parameters									
Cyanide	35	ND	<25	27.8	ND	5	9	9	25
Total phenols (mg/L)	ND	ND	69	<50	0.432	0.004	0.008	ND	ND
Total organic carbon (mg/L)	13/12	7.3/6.8	ND	ND	8.09/8.13	32	98.9	27.8	23/22

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW10	MW10	MW10	MW10	MW11A	MW11A	MW11A	MW11A	MW11A
Date:	4/85	7/85	10/85	12/86	4/84	8/84	10/84	1/85	4/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	ND	NA	24	60	9,000	ND	ND
Arsenic	30	16	11	NA	35	26	11	ND	33
Beryllium	ND	ND	ND	NA	ND	ND	ND	ND	ND
Cadmium	ND	<6	ND	NA	10	3	ND	ND	ND
Chromium	ND	ND	ND	NA	ND	28	13,500	ND	ND
Copper	ND	ND	ND	NA	ND	109	148	ND	ND
Lead	ND	ND	ND	NA	35	330	353	ND	ND
Mercury	ND	ND	ND	NA	ND	1.14	ND	ND	ND
Nickel	ND	ND	ND	NA	ND	30	120	ND	ND
Selenium	ND	ND	ND	NA	ND	ND	ND	ND	ND
Silver	ND	ND	ND	NA	8	ND	1,580	ND	ND
Thallium	ND	ND	ND	NA	7	12	ND	ND	ND
Zinc	ND	<40	<20	NA	100	320	233	ND	ND
Miscellaneous Parameters									
Cyanide	ND	<25	<25	ND	37	6	10	ND	ND
Total phenols (mg/L)	0.130	69	<50	0.176	0.792	0.026	ND	ND	ND
Total organic carbon (mg/L)	53/56	ND	ND	22.4/20.9	42	19.6	31.8	34/33	21/22

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW11A	MW11A	MW11A	MW11B	MW11B	MW11B	MW11B	MW11B	MW11B
Date:	7/85	10/85	12/86	4/84	8/84	10/84	1/85	4/85	7/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	NA	29	34	11,200	ND	ND	ND
Arsenic	33	16	NA	5	36	32	26	44	44
Beryllium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Cadmium	ND	3	NA	2	12	ND	ND	ND	ND
Chromium	ND	ND	NA	100	79	24,200	ND	ND	ND
Copper	ND	<7	NA	70	134	119	ND	ND	ND
Lead	ND	ND	NA	231	394	347	ND	ND	ND
Mercury	ND	ND	NA	0.54	1.63	0.21	ND	ND	ND
Nickel	ND	ND	NA	40	56	117	ND	ND	ND
Selenium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Silver	ND	ND	NA	4	ND	1,090	ND	ND	ND
Thallium	<5	ND	NA	12	15	ND	ND	ND	ND
Zinc	ND	ND	NA	220	784	269	ND	ND	ND
Miscellaneous Parameters									
Cyanide	<25	<25	ND	24	ND	26	33	ND	<25
Total phenols (mg/L)	270	<50	0.332	0.032	0.024	ND	ND	ND	190
Total organic carbon (mg/L)	ND	ND	30.3/31.1	654	759.6	842	400/400	370/370	ND

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW11B	MW11B	MW11C	MW11C	MW11C	MW11C	MW11C	MW12	MW12
Date:	10/85	12/86	1/85	4/85	7/85	10/85	12/86	1/85	4/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	NA	ND	ND	ND	ND	NA	ND	ND
Arsenic	32	NA	19	21	14	16	NA	ND	ND
Beryllium	ND	NA	ND	ND	ND	ND	NA	ND	ND
Cadmium	ND	NA	ND	ND	ND	ND	NA	ND	ND
Chromium	ND	NA	ND	ND	ND	ND	NA	ND	ND
Copper	<7	NA	ND	ND	ND	<7	NA	ND	ND
Lead	ND	NA	ND	ND	ND	ND	NA	ND	ND
Mercury	ND	NA	ND	ND	ND	ND	NA	ND	ND
Nickel	ND	NA	ND	ND	ND	<10	NA	ND	ND
Selenium	ND	NA	ND	ND	ND	<5	NA	ND	ND
Silver	ND	NA	ND	ND	ND	ND	NA	ND	ND
Thallium	ND	NA	ND	ND	ND	<5	NA	ND	ND
Zinc	ND	NA	ND	ND	ND	ND	NA	ND	ND
Miscellaneous Parameters									
Cyanide	<25	ND	ND	ND	<25	<25	ND	ND	ND
Total phenols (mg/L)	<50	ND	ND	ND	270	70.1	0.289	0.052	ND
Total organic carbon (mg/L)	ND	594/588	51/52	33/32	ND	ND	9.83/10.4	28/26	31/31

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW12	MW12	MW12	MW13	MW13	MW13	MW13	MW14	MW14
Date:	7/85	10/85	12/86	1/85	4/85	7/85	10/85	1/85	4/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	NA	ND	ND	ND	ND	ND	ND
Arsenic	ND	<10	NA	10	ND	ND	<10	6	ND
Beryllium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Copper	ND	<7	NA	ND	ND	ND	ND	ND	ND
Lead	ND	ND	NA	ND	ND	ND	ND	ND	ND
Mercury	ND	ND	NA	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	NA	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	NA	ND	ND	ND	ND	ND	ND
Silver	ND	<10	NA	ND	ND	ND	ND	ND	ND
Thallium	ND	NA	NA	ND	ND	ND	ND	ND	ND
Zinc	ND	ND	NA	ND	ND	ND	ND	ND	ND
Miscellaneous Parameters									
Cyanide	<25	<25	ND	ND	ND	<25	25	ND	ND
Total phenols (mg/L)	140	<50	0.110	ND	0.094	<50	560	0.110	0.180
Total organic carbon (mg/L)	ND	ND	27.9/23.7	110/110	120/120	ND	ND	660/660	390/390

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW14	MW14	MW14	MW15	MW15	MW15	MW15	MW15	MW16
Date:	7/85	10/85	12/86	1/85	4/85	7/85	10/85	12/86	1/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	NA	ND	ND	ND	ND	NA	ND
Arsenic	<10	15	NA	ND	ND	<10	13	NA	ND
Beryllium	ND	ND	NA	ND	ND	ND	ND	NA	ND
Cadmium	ND	ND	NA	ND	10	ND	4	NA	ND
Chromium	ND	ND	NA	ND	ND	ND	ND	NA	ND
Copper	ND	<7	NA	ND	ND	ND	<7	NA	ND
Lead	ND	ND	NA	ND	ND	ND	ND	NA	ND
Mercury	ND	ND	NA	ND	ND	ND	ND	NA	ND
Nickel	ND	<10	NA	ND	ND	ND	<10	NA	ND
Selenium	<5	ND	NA	ND	ND	ND	5	NA	ND
Silver	ND	ND	NA	ND	ND	ND	ND	NA	ND
Thallium	ND	ND	NA	ND	ND	ND	ND	NA	ND
Zinc	ND	ND	NA	ND	ND	ND	<20	NA	ND
Miscellaneous Parameters									
Cyanide	<25	<25	ND	30	ND	<25	<25	ND	46
Total phenols (mg/L)	910	52.1	0.388	ND	ND	300	<50	0.140	0.073
Total organic carbon (mg/L)	ND	ND	412/412	9.7/9.8	11/11	ND	ND	5.90/5.21	17/18

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW16	MW16	MW16	MW17	MW17	MW17	MW17	MW18A	MW18A
Date:	4/85	7/85	10/85	1/85	4/85	7/85	10/85	1/85	4/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	<7	ND	ND	5
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	ND	ND	<7	ND	ND	ND	<7	ND	ND
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND	10	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	ND	<5	ND	ND	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	30	40	ND	20	50	ND
Miscellaneous Parameters									
Cyanide	ND	<25	28.3	48	ND	<25	<25	32	ND
Total phenols (mg/L)	ND	<50	<50	0.088	ND	<50	<50	ND	0.077
Total organic carbon (mg/L)	25/26	ND	ND	7.4/7.8	4.2/3.9	ND	ND	42/47	NA

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	MW18A	MW18A	MW18A	MW18B	MW18B	MW18B	MW18B	MW18B	MW19
Date:	7/85	10/85	12/86	1/85	4/85	7/85	10/85	12/86	1/85
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	NA	ND	ND	ND	ND	NA	ND
Arsenic	18	12	NA	ND	ND	0.33	ND	NA	60
Beryllium	ND	ND	NA	ND	ND	2	ND	NA	ND
Cadmium	ND	ND	NA	ND	ND	<10	ND	NA	ND
Chromium	ND	ND	NA	ND	ND	<30	ND	NA	ND
Copper	<10	ND	NA	ND	ND	120	ND	NA	ND
Lead	ND	<50	NA	ND	ND	700	ND	NA	ND
Mercury	<.2	ND	NA	ND	ND	6	ND	NA	ND
Nickel	<30	ND	NA	ND	ND	60	ND	NA	ND
Selenium	<5	ND	NA	ND	ND	ND	ND	NA	ND
Silver	ND	ND	NA	ND	ND	ND	ND	NA	ND
Thallium	ND	ND	NA	ND	ND	<5	ND	NA	ND
Zinc	40	20	NA	20	20	1600	ND	NA	20
Miscellaneous Parameters									
Cyanide	<25	<25	ND	400	170	580	141	ND	48
Total phenols (mg/L)	170	130	0.106	ND	ND	120	<50	0.097	0.120
Total organic carbon (mg/L)	ND	ND	12.5/12.5	14/17	23/23	ND	ND	11.1/10.5	46/47

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri.

Well Number:	MW19	MW19	MW19	MW19	MW20	MW20	MW20	MW20	MW20
Date:	4/85	7/85	10/85	12/86	1/85	4/85	7/85	10/85	12/86
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	ND	ND	NA	ND	ND	ND	ND	NA
Arsenic	ND	ND	<10	NA	ND	ND	<10	ND	NA
Beryllium	ND	<1	ND	NA	ND	ND	ND	ND	NA
Cadmium	ND	ND	ND	NA	ND	ND	ND	ND	NA
Chromium	ND	ND	ND	NA	ND	ND	ND	ND	NA
Copper	ND	ND	ND	NA	ND	ND	ND	<7	NA
Lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
Mercury	ND	ND	ND	NA	ND	ND	<.2	ND	NA
Nickel	ND	<30	ND	NA	20	20	<30	<10	NA
Selenium	ND	ND	ND	NA	ND	ND	ND	ND	NA
Silver	ND	<10	<8	NA	ND	ND	ND	ND	NA
Thallium	ND	ND	ND	NA	ND	ND	ND	ND	NA
Zinc	10	20	40	NA	ND	6	ND	ND	NA
Miscellaneous Parameters									
Cyanide	ND	<25	<25	ND	730	2.700	660	18400	22.5
Total phenols (mg/L)	0.200	400	852	0.399	0.94	ND	60	<50	ND
Total organic carbon (mg/L)	58/58	ND	ND	45.2/46.2	13/14	12/12	ND	ND	13.5/12.5

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	XFB1	XFB1	XFB2	XFB2	Blank	Blank	Lab Blank	Lab Blank	Lab Blank
Date:	10/85	12/86	10/85	12/86	10/84	10/84	10/84	10/84	10/84
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)									
Antimony	ND	NA	ND	NA	ND	ND	ND	ND	ND
Arsenic	ND	NA	ND	NA	ND	ND	ND	ND	ND
Beryllium	ND	NA	ND	NA	ND	ND	ND	ND	ND
Cadmium	ND	NA	ND	NA	ND	ND	ND	ND	ND
Chromium	ND	NA	ND	NA	ND	ND	ND	ND	ND
Copper	ND	NA	ND	NA	ND	ND	ND	ND	ND
Lead	ND	NA	ND	NA	ND	ND	ND	ND	ND
Mercury	ND	NA	ND	NA	ND	ND	ND	ND	ND
Nickel	ND	NA	ND	NA	ND	ND	ND	ND	ND
Selenium	ND	NA	<5	NA	ND	ND	ND	ND	ND
Silver	ND	NA	ND	NA	ND	ND	ND	ND	ND
Thallium	ND	NA	ND	NA	ND	ND	ND	ND	ND
Zinc	ND	NA	20	NA	ND	ND	ND	ND	ND
Miscellaneous Parameters									
Cyanide	<25	ND	<25	ND	NA	NA	NA	NA	NA
Total phenols (mg/L)	<50	ND	133	0.124	NA	NA	NA	NA	NA
Total organic carbon (mg/L)	ND	2.49/2.34	ND	1.4/1.5	NA	NA	NA	NA	NA

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 4-14. Summary of Metals and Miscellaneous Parameters in Ground Water, J.F. Queeny Plant, Monsanto Company, St. Louis, Missouri

Well Number:	Jar Blank
Date:	
USEPA Priority Pollutant Metals (concentrations are in ug/L, except where noted)	
Antimony	ND
Arsenic	ND
Beryllium	ND
Cadmium	ND
Chromium	ND
Copper	ND
Lead	ND
Mercury	ND
Nickel	ND
Selenium	ND
Silver	ND
Thallium	ND
Zinc	ND
Miscellaneous Parameters	
Cyanide	ND
Total phenols (mg/L)	0.051
Total organic carbon (mg/L)	1.7/1.0

* Replicate sample.
ND Not detected.
NA Not analyzed.
ug/L Micrograms per liter.
mg/L Milligrams per liter.

Table 5-1. Observed versus Computed Water Levels for the Calibrated Model, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Well	Row	Column	Observed Head (ft)	Computed Head (ft)	Residual (ft)
MW-2A	52	42	414.36	415.33	-0.973
MW-3	48	58	414.76	417.61	-2.86
MW-4	40	76	418.50	415.20	3.30
MW-5	32	64	415.34	413.24	2.10
MW-7	34	29	405.36	407.82	-2.46
MW-8	28	39	408.78	406.96	1.82
MW-9	26	58	410.13	407.88	2.25
MW-10	25	69	406.25	406.37	-0.127
MW-11A	32	84	414.02	408.28	5.74
MW-13	28	76	414.04	411.60	2.43
MW-14	35	72	422.82	424.66	-1.85
MW-15	43	83	413.26	411.88	1.37
MW-18A	32	34	405.36	407.52	-2.17
MW-19	36	55	412.74	415.69	-2.96
TW-1	30	31	404.98	407.46	-2.49
OBS-1	34	31	405.32	407.77	-2.46
QS-1	34	80	414.10	409.08	5.02
HW-1	32	100	403.73	408.13	-4.40
HW-2	33	94	410.02	408.27	1.75
HW-3	30	88	407.17	407.29	-0.120
VW-2B	24	102	403.51	407.54	-4.03

Residual = Observed water level minus calculated water level.

Table 6-1. Occurrence of Constituents Detected in All Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Frequency Detects / Total	Range of Detects Min - Max	Total Range Min - Max	Mean	UCL	EPC
VOCs						
2-Butanone (MEK)	1 / 6	160 - 160	0.055 - 160	27	80	80
Carbon disulfide*	3 / 26	0.0082 - 0.012	0.0028 - 0.012	0.0075	0.009	0.009
Chlorobenzene*	14 / 26	0.0086 - 620	0.0028 - 620	28	69	69
Ethyl methacrylate	1 / 26	57 - 57	0.0028 - 57	2.6	6.3	6.3
Iodomethane	1 / 26	49 - 49	0.0028 - 49	2.3	5.5	5.5
Methylene chloride*	3 / 26	0.0065 - 0.0082	0.0028 - 0.0082	0.0057	0.0066	0.0066
Toluene*	2 / 26	0.013 - 0.014	0.0028 - 0.014	0.0084	0.01	0.01
1,1,1-Trichloroethane*	7 / 26	0.0062 - 0.057	0.0028 - 0.057	0.025	0.033	0.033
Trichloroethene*	2 / 26	0.0089 - 0.94	0.0028 - 0.094	0.03	0.043	0.043
Xylenes*	3 / 26	0.0077 - 0.02	0.0028 - 0.02	0.011	0.013	0.013
Semi-VOCs						
Acenaphthene	1 / 10	0.58 - 0.58	0.58 - 0.99	0.74	0.87	0.58
Anthracene	1 / 10	0.99 - 0.99	0.99 - 0.99	0.99	0.99	0.99
Benzo(a)anthracene	1 / 10	3.8 - 3.8	3.8 - 3.8	3.8	3.8	3.8
Benzo(k)fluoranthene	1 / 10	0.61 - 0.61	0.61 - 0.61	0.61	0.61	0.61
Benzo(b)fluoranthene	1 / 10	0.99 - 0.99	0.99 - 0.99	0.99	0.99	0.99
Benzo(g,h,i)perylene	1 / 10	1.8 - 1.8	1.8 - 1.8	1.8	1.8	1.8
Benzo(a)pyrene	1 / 10	2.7 - 2.7	2.7 - 2.7	2.7	2.7	2.7
Dibenz(a,h)anthracene	1 / 10	0.48 - 0.48	0.48 - 0.48	0.48	0.48	0.48

* Selected as a constituent of concern.

Concentrations in milligrams per kilogram (mg/kg). All constituents were detected at least once.

Range of Detects	Range of detected values from all soil samples.
Total range	All values used in the mean and upper confidence level (UCL) calculations, including proxy concentrations for non-detects.
Mean	Arithmetic mean of the total number of samples, using proxy concentrations for non-detects.
UCL	95 percent upper confidence limit (one-tailed distribution) on the arithmetic mean.
EPC	Exposure point concentration; minimum of the maximum detect and the UCL.
VOCs	Volatile organic compounds.
Semi-vocs	Semivolatile organic compounds.
PCBs	Polychlorinated biphenyls.

Table 6-1. Occurrence of Constituents Detected in All Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Frequency Detects / Total	Range of Detects Min - Max	Total Range Min - Max	Mean	UCL	EPC
Fluoranthene*	3 / 10	3.5 - 24	3.5 - 24	8.1	12	12
Fluorene	1 / 10	1.1 - 1.1	1.1 - 1.1	1.1	1.1	1.1
Indeno(1,2,3-c,d)pyrene	1 / 10	1.3 - 1.3	1.3 - 1.3	1.3	1.3	1.3
2-Methylnaphthalene	1 / 10	41 - 41	0.23 - 41	8.6	15	15
Phenanthrene*	3 / 10	2.9 - 15	2.9 - 15	7.3	9.5	9.5
p-Phenylenediamine*	2 / 10	67 - 79	0.23 - 79	19	36	36
Pyrene*	3 / 10	6.2 - 14	4.85 - 14	7.1	8.7	8.7
Inorganics						
Arsenic	9 / 9	6.5 - 20	6.5 - 20	11	14	14
Barium	9 / 9	150 - 1600	150 - 1600	500	770	770
Beryllium	7 / 9	0.56 - 1.5	0.27 - 1.5	0.7	0.93	0.93
Cadmium*	9 / 9	0.76 - 8.3	0.76 - 8.3	4.4	5.8	5.8
Chromium	9 / 9	8 - 48	8 - 48	22	29	29
Cobalt	9 / 9	4.7 - 9.9	4.7 - 9.9	6.9	8.1	8.1
Copper*	9 / 9	5.6 - 180	5.6 - 180	66	100	100
Lead*	9 / 9	76 - 1200	76 - 1200	340	550	550
Mercury*	9 / 9	0.24 - 1.5	0.24 - 1.5	0.54	0.8	0.8
Nickel	9 / 9	15 - 32	15 - 32	24	27	27
Tin*	5 / 8	7.4 - 1000	2.7 - 1000	140	370	370

* Selected as a constituent of concern.

Concentrations in milligrams per kilogram (mg/kg). All constituents were detected at least once.

Range of Detects	Range of detected values from all soil samples.
Total range	All values used in the mean and upper confidence level (UCL) calculations, including proxy concentrations for non-detects.
Mean	Arithmetic mean of the total number of samples, using proxy concentrations for non-detects.
UCL	95 percent upper confidence limit (one-tailed distribution) on the arithmetic mean.
EPC	Exposure point concentration; minimum of the maximum detect and the UCL.
VOCs	Volatile organic compounds.
Semi-vocs	Semivolatile organic compounds.
PCBs	Polychlorinated biphenyls.

Table 6-1. Occurrence of Constituents Detected in All Soil Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Frequency Detects / Total	Range of Detects Min - Max	Total Range Min - Max	Mean	UCL	EPC
Vanadium	9 / 9	13 - 53	13 - 53	25	33	33
Zinc*	8 / 8	110 - 1800	110 - 1800	480	870	870
PCBs						
Total PCBs	1 / 10	135 - 135	0.65 - 135	17	41	41

* Selected as a constituent of concern.

Concentrations in milligrams per kilogram (mg/kg). All constituents were detected at least once.

Range of Detects	Range of detected values from all soil samples.
Total range	All values used in the mean and upper confidence level (UCL) calculations, including proxy concentrations for non-detects.
Mean	Arithmetic mean of the total number of samples, using proxy concentrations for non-detects.
UCL	95 percent upper confidence limit (one-tailed distribution) on the arithmetic mean.
EPC	Exposure point concentration; minimum of the maximum detect and the UCL.
VOCs	Volatile organic compounds.
Semi-vocs	Semivolatile organic compounds.
PCBs	Polychlorinated biphenyls.

Table 6-2. Occurrence of Constituents Detected in Ground-Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Frequency Detects / Total	Range of Detects Min - Max	Total Range Min - Max	Mean	UCL	EPC
VOCs						
Benzene	3 / 54	290 - 1,900	2.5 - 1,900	360	510	510
Chlorobenzene	29 / 54	11 - 280,000	2.5 - 280,000	18,000	29,000	29,000
Methylene chloride	1 / 54	15,000	2.5 - 15,000	590	1,100	1,100
Tetrachloroethene	2 / 54	97 - 380	2.5 - 380	120	160	160
Trichloroethene	4 / 54	330 - 1,100	2.5 - 1,100	270	360	360
Semi-VOCs						
Acenaphthene	2 / 31	11 - 14	5 - 14	5.8	6.5	6.5
Aniline	2 / 31	19 - 54	5 - 54	8.6	12	12
bis(2-Ethylhexyl)phthalate	7 / 31	10 - 220	5 - 220	20	33	33
p-Chloroaniline	5 / 31	22 - 4,000	10 - 4,000	180	410	410
2-Chlorophenol	4 / 31	16 - 36	5 - 36	8	11	11
1,2-Dichlorobenzene	6 / 31	9.8 - 38	5 - 38	8.8	11	11
1,4-Dichlorobenzene	7 / 31	13 - 43	5 - 43	10	14	14
Fluoranthene	2 / 31	14 - 22	5 - 22	6.4	7.7	7.7
Fluorene	2 / 31	10 - 18	5 - 18	6	7	7
Naphthalene	3 / 31	15 - 31	5 - 31	7.8	10	10
Phenanthrene	3 / 31	15 - 31	5 - 31	7.4	9.4	9.4

All concentrations reported in micrograms per liter (ug/L). All constituents were detected at least twice.

Range of Detects	Range of detected values from samples GM-1 through GM-5, MW-2A, MW-2B, MW-2R, MW-3, MW-4, MW-8A, MW-8B,MW-9, MW-10, MW-11A, MW-11B, MW-13, MW-14, MW-15, MW-20, TW-1, OBS-1, HW-1B, QS-1, VW-2, VW-2B, and QQC-19.
Total Range	All values used in the mean and upper confidence limit (UCL) calculations.
Mean	Arithmetic mean of the total number of samples, using proxy concentrations for non-detects.
UCL	95 percent upper confidence limit (one-tailed distribution) on the arithmetic mean.
EPC	Exposure point concentration; minimum of the maximum detect and the UCL.
VOCs	Volatile organic compounds.
Semi-VOCs	Semivolatile organic compounds.

Table 6-2. Occurrence of Constituents Detected in Ground-Water Samples, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Frequency Detects / Total	Range of Detects Min - Max	Total Range Min - Max	Mean	UCL	EPC
Pyrene	2 / 31	15 - 24	5 - 24	6.5	8.1	8.1
1,2,4-Trichlorobenzene	2 / 31	13 - 22	5 - 22	6.4	7.7	7.7
Inorganics						
Arsenic	30 / 41	10 - 280	5 - 280	41	57	57
Barium	42 / 41	45 - 2,600	45 - 2,600	770	960	960
Cadmium	6 / 41	5 - 11	2.5 - 11	3.2	3.8	3.8
Chromium	23 / 41	10 - 120	5 - 120	28	36	36
Cobalt	16 / 41	10 - 110	5 - 110	19	25	25
Copper	20 / 41	25 - 350	12.5 - 350	50	67	67
Cyanide	11 / 41	10 - 27,000	5 - 27,000	820	2,000	2,000
Lead	33 / 41	6.9 - 1,000	2.5 - 1,000	120	170	170
Mercury	13 / 41	0.24 - 4	0.01 - 4	0.35	1	1
Nickel	15 / 41	43 - 320	20 - 320	57	74	74
Silver	10 / 41	10 - 60	2.5 - 60	9.1	12	12
Sulfide	10 / 41	110 - 24,000	50 - 24,000	930	1,900	1,900
Vanadium	24 / 41	12 - 210	5 - 210	41	55	55
Zinc	27 / 41	25 - 1,400	10 - 1,400	230	300	300

All concentrations reported in micrograms per liter (ug/L). All constituents were detected at least twice.

Range of Detects	Range of detected values from samples GM-1 through GM-5, MW-2A, MW-2B, MW-2R, MW-3, MW-4, MW-8A, MW-8B,MW-9, MW-10, MW-11A, MW-11B, MW-13, MW-14, MW-15, MW-20, TW-1, OBS-1, HW-1B, QS-1, VW-2, VW-2B, and QQC-19.
Total Range	All values used in the mean and upper confidence limit (UCL) calculations.
Mean	Arithmetic mean of the total number of samples, using proxy concentrations for non-detects.
UCL	95 percent upper confidence limit (one-tailed distribution) on the arithmetic mean.
EPC	Exposure point concentration; minimum of the maximum detect and the UCL.
VOCs	Volatile organic compounds.
Semi-VOCs	Semivolatile organic compounds.

Table 6-3. Soil Exposure Dose and Risk Calculations for a Future Site Worker, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
CANCER EFFECTS					CSFo	CSFi	ELCR
VOCs							
Methylene chloride	0.0066	0.25	6.0E-09	9.6E-07	7.5E-03	1.6E-03	1.6E-09
Trichloroethene	0.043	0.25	3.9E-08	1.6E-06	1.1E-02	1.7E-02	2.7E-08
Inorganics							
Cadmium	5.8	0.17	3.9E-06	1.4E-09	NAP	6.3E+00	8.6E-09
Lead	550	0.0075	1.1E-04	1.3E-07	NA	NA	NA
						ELCR	4E-08
NON-CANCER EFFECTS					RfDo	RfDi	HQ
VOCs							
Carbon disulfide	0.009	0.25	2.3E-08	4.3E-07	1.0E-01	2.9E-03	1.5E-04
Chlorobenzene	69	0.25	1.8E-04	1.2E-03	2.0E-02	5.0E-03	2.5E-01
Methylene chloride	0.0066	0.25	1.7E-08	2.7E-06	6.0E-02	8.6E-01	3.4E-06
Toluene	0.01	0.25	2.5E-08	5.8E-07	2.0E-01	5.7E-01	1.2E-06
1,1,1-Trichloroethane	0.033	0.25	8.4E-08	4.6E-06	9.0E-02	3.0E-01	1.6E-05
Trichloroethene	0.043	0.25	1.1E-07	4.4E-06	7.4E-03	NA	1.5E-05
Xylenes	0.013	0.25	3.3E-08	6.8E-08	2.0E+00	8.6E-02	8.0E-07

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.
HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-3. Soil Exposure Dose and Risk Calculations for a Future Site Worker, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
NON-CANCER EFFECTS (continued)					RfDo	RfDi	HQ
Semi-VOCs							
Fluoranthene	12	0.11	1.7E-05	7.9E-09	4.0E-02	NA	4.2E-04
Phenanthrene	9.5	0.1	1.3E-05	6.3E-09	NA	NA	NA
Phenylenediamine	36	0.2	7.7E-05	2.4E-08	6.0E-03	NA	1.3E-02
Pyrene	8.7	0.1	1.2E-05	5.7E-09	3.0E-02	NA	4.0E-04
Inorganics							
Cadmium	5.8	0.17	1.1E-05	3.8E-09	1.0E-03	NA	1.1E-02
Copper	100	0.017	6.3E-05	6.6E-08	3.7E-02	NA	1.7E-03
Lead	550	0.0075	3.0E-04	3.6E-07	NA	NA	NA
Mercury	0.8	0.01	4.6E-07	5.3E-10	3.0E-04	8.6E-05	1.5E-03
Tin	370	0.2	7.9E-04	2.4E-07	6.0E-01	NA	1.3E-03
Zinc	870	0.033	6.6E-04	5.7E-07	2.0E-01	NA	3.3E-03
						HI	3E-01

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.
HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-4. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Former Acetanilides Production Area, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
CANCER EFFECTS					CSFo	CSFi	ELCR
VOCs							
Methylene chloride	0.0059	0.25	9.7E-11	1.2E-08	7.5E-03	1.6E-03	2.0E-11
Trichloroethene	0.45	0.25	7.4E-09	2.3E-07	1.1E-02	1.7E-02	4.0E-09
						ELCR	4E-09
NON-CANCER EFFECTS					RfDo	RfDi	HQ
VOCs							
Carbon disulfide	0.0074	0.25	7.8E-08	1.1E-06	1.0E-01	2.9E-03	3.9E-04
Chlorobenzene	14	0.25	1.5E-04	7.9E-04	2.0E-01	5.0E-02	1.6E-02
Methylene chloride	0.0059	0.25	6.2E-08	7.6E-06	6.0E-02	8.6E-01	9.8E-06
1,1,1-Trichloroethane	0.044	0.25	4.6E-07	1.9E-05	9.0E-01	3.0E+00	6.9E-06
Trichloroethene	0.45	0.25	4.7E-06	1.5E-04	7.4E-03	NA	6.4E-04
Xylenes	0.011	0.25	1.2E-07	1.8E-07	4.0E+00	8.6E-02	2.1E-06
						HI	2E-02

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.

HI Hazard index.
HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-5. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Former Quarry Area, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
CANCER EFFECTS					CSFo	CSFi	ELCR
Semi-VOCs							
Benzo(a)anthracene	3.8	0.11	2.0E-08	1.2E-11	1.2E-01	6.1E-02	2.3E-09
Benzo(a)pyrene	2.7	0.11	1.4E-08	8.8E-12	1.2E+01	6.1E+00	1.7E-07
Benzo(b)fluoranthene	0.99	0.11	5.3E-09	3.2E-12	1.2E+01	6.1E+00	6.1E-08
Benzo(k)fluoranthene	0.61	0.11	3.3E-09	2.0E-12	1.2E-01	6.1E-02	3.8E-10
Dibenz(a,h)anthracene	0.48	0.11	2.6E-09	1.6E-12	1.2E+01	6.1E+00	3.0E-08
Indeno(1,2,3-c,d)pyrene	1.3	0.11	7.0E-09	4.2E-12	1.2E-01	6.1E-02	8.0E-10
Inorganics							
Arsenic	16	0.01	3.2E-08	5.2E-11	1.75E+00	1.5E+01	5.7E-08
Cadmium	4.9	0.17	3.6E-08	1.6E-11	NAP	6.3E+00	1.0E-10
Lead	460	0.0075	8.9E-07	1.5E-09	NA	NA	NA
Nickel	30	0.17	2.2E-07	9.8E-11	NAP	8.4E-01	8.2E-11
						ELCR	3E-07

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.

HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-5. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Former Quarry Area, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
NON-CANCER EFFECTS (continued)					RfDo	RfDi	HQ
VOCs							
Chlorobenzene	0.011	0.25	7.1E-08	6.2E-07	2.0E-01	5.0E-02	1.3E-05
1,1,1-Trichloroethane	0.0074	0.25	4.8E-08	3.2E-06	0.9	3	1.1E-06
Xylenes	0.014	0.25	9.0E-08	2.3E-07	4	0.086	2.7E-06
Semi-VOCs							
Acenaphthene	0.58	0.11	2.0E-06	1.2E-09	6.0E-01	NA	3.3E-06
Anthracene	0.99	0.11	3.4E-06	2.1E-09	3.0E+00	NA	1.1E-06
Benzo(a)anthracene	3.8	0.11	1.3E-05	7.9E-09	4.0E-02	NA	3.3E-04
Benzo(a)pyrene	2.7	0.11	9.3E-06	5.6E-09	4.0E-02	NA	2.3E-04
Benzo(b)fluoranthene	0.99	0.11	3.4E-06	2.1E-09	4.0E-02	NA	8.5E-05
Benzo(g,h,i)perylene	1.8	0.11	6.2E-06	3.7E-09	4.0E-02	NA	1.5E-04
Benzo(k)fluoranthene	0.61	0.11	2.1E-06	1.3E-09	4.0E-02	NA	5.2E-05
Dibenz(a,h)anthracene	0.48	0.11	1.6E-06	1.0E-09	4.0E-02	NA	4.1E-05
Fluoranthene	3.5	0.11	1.2E-05	7.3E-09	4.0E-01	NA	3.0E-05
Fluorene	1.1	0.11	3.8E-06	2.3E-09	4.0E-01	NA	9.4E-06
Indeno(1,2,3-c,d)pyrene	1.3	0.11	4.5E-06	2.7E-09	4.0E-02	NA	1.1E-04
Phenanthrene	11	0.11	3.8E-05	2.3E-08	4.0E-02	NA	9.4E-04
p-Phenylenediamine	68	0.2	3.6E-04	1.4E-07	6.0E-02	NA	6.1E-03
Pyrene	8.2	0.11	2.8E-05	1.7E-08	3.0E-01	NA	9.4E-05

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.
HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-5. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Former Quarry Area, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
NON-CANCER EFFECTS (continued)					RfDo	RfDi	HQ
Inorganics							
Arsenic	16	0.01	2.1E-05	3.3E-08	3.0E-04	NA	6.9E-02
Cadmium	4.9	0.17	2.3E-05	1.0E-08	1.0E-03	NA	2.3E-02
Copper	120	0.017	1.7E-04	2.5E-07	3.7E-02	NA	4.7E-03
Lead	460	0.0075	5.7E-04	9.6E-07	NA	NA	NA
Mercury	0.35	0.1	1.1E-06	7.3E-10	3.0E-04	8.6E-05	3.8E-03
Nickel	30	0.17	1.4E-04	6.2E-08	2.0E-01	NA	7.1E-04
Tin	13	0	1.4E-05	2.7E-08	6.0E-01	NA	2.3E-05
Zinc	250	0	2.7E-04	5.2E-07	2.0E-01	NA	1.3E-03
						HI	1E-01

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.

HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-6. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Former Bulk Chemical Storage Terminal, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
CANCER EFFECTS					CSFo	CSFi	ELCR
VOCs							
Methylene chloride	0.0082	0.25	8.3E-11	1.6E-08	7.5E-03	1.6E-03	2.7E-11
Inorganics							
Arsenic	18	0.01	3.6E-08	5.9E-11	1.75E+00	1.5E+01	6.4E-08
Cadmium	8.1	0.17	6.0E-08	2.6E-11	NAP	6.3E+00	1.7E-10
Lead	1,000	0.0075	1.9E-06	3.3E-09	NA	NA	NA
						ELCR	6E-08
NON-CANCER EFFECTS					RfDo	RfDi	HQ
VOCs							
Carbon disulfide	0.012	0.25	7.7E-08	1.8E-06	1.0E-01	2.9E-03	6.3E-04
Chlorobenzene	520	0.25	3.3E-03	2.9E-02	2.0E-01	5.0E-02	6.0E-01
Ethyl methacrylate	48	0.25	3.1E-04	1.9E-03	NA	NA	-
Iodomethane	41	0.25	2.6E-04	3.9E-03	NA	NA	-
Methylene chloride	0.0082	0.25	5.3E-08	1.0E-05	6.0E-02	8.6E-01	1.3E-05
Toluene	0.014	0.25	9.0E-08	2.6E-06	2.0E+00	5.7E-01	4.6E-06

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.

HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-6. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Former Bulk Chemical Storage Terminal, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
NON-CANCER EFFECTS (continued)					RfDo	RfDi	HQ
Semi-VOCs							
Fluoranthene	23	0.11	7.9E-05	4.8E-08	4.0E-01	NA	2.0E-04
2-Methylnaphthalene	35	0.11	1.2E-04	7.3E-08	4.0E-02	NA	3.0E-03
Phenanthrene	12	0.11	4.1E-05	2.5E-08	4.0E-02	NA	1.0E-03
Pyrene	13	0.11	4.5E-05	2.7E-08	3.0E-01	NA	1.5E-04
Inorganics							
Arsenic	18	0.01	2.3E-05	3.7E-08	3.0E-04	NA	7.7E-02
Barium	1,400	0.2	7.5E-03	2.9E-06	7.0E-02	1.0E-03	1.1E-01
Cadmium	8.1	0.17	3.8E-05	1.7E-08	1.0E-03	NA	3.8E-02
Copper	160	0.017	2.3E-04	3.3E-07	3.7E-02	NA	6.2E-03
Lead	1,000	0.0075	1.2E-03	2.1E-06	NA	NA	NA
Mercury	1.4	0.01	1.8E-06	2.9E-09	3.0E-04	8.6E-05	6.0E-03
Tin	840	0.2	4.5E-03	1.7E-06	6.0E-01	NA	7.5E-03
Zinc	1,700	0.033	3.0E-03	3.5E-06	2.0E-01	NA	1.5E-02
						HI	9E-01

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.

HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-7. Soil Exposure Dose and Risk Calculations for a Future Excavation Worker, Boiler Slag Accumulation Pad, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cs (mg/kg)	BAF	ExDo (mg/kg/day)	ExDi (mg/kg/day)	Toxicity Values		Risk
CANCER EFFECTS					CSFo	CSFi	ELCR
Semi-VOCs							
PCBs	135	0.06	5.0E-07	4.4E-10	7.7E+00	-	3.8E-06
Inorganics							
Arsenic	6.5	0.01	1.3E-08	2.1E-11	1.75E+00	1.5E+01	2.3E-08
Cadmium	4.1	0.17	3.0E-08	1.3E-11	NAP	6.3E+00	8.4E-11
Lead	260	0.0075	5.0E-07	8.5E-10	NA	NA	NA
						ELCR	4E-06
NON-CANCER EFFECTS					RfDo	RfDi	HQ
Inorganics							
Cadmium	4.1	0.17	1.9E-05	8.5E-09	1.0E-03	NA	1.9E-02
Copper	35	0.017	5.0E-05	7.3E-08	3.7E-02	NA	1.4E-03
Lead	260	0.0075	3.2E-04	5.4E-07	NA	NA	NA
Mercury	0.44	0.01	5.7E-07	9.2E-10	3.0E-04	8.6E-05	1.9E-03
Tin	48	0.2	2.6E-04	1.0E-07	6.0E-01	NA	4.3E-04
Zinc	250	0.033	4.4E-04	5.2E-07	2.0E-01	NA	2.2E-03
						HI	3E-02

Cs Constituent concentration in soil (mg/kg).
BAF Bioavailability adjustment factor (unitless).
ExDo Soil exposure dose: oral and dermal.
ExDi Soil exposure dose: inhalation.
CSFo Cancer slope factor: oral (kg-day/mg).
CSFi Cancer slope factor: inhalation (kg-day/mg).
ELCR Excess lifetime cancer risk.
HI Hazard index.
HQ Hazard quotient
mg/kg Milligrams per kilogram.
NA Not available.
NAP Not applicable for oral, but is carcinogenic by the inhalation route.
PCBs Polychlorinated biphenyls.
RfDo Oral reference dose: oral (mg/kg/day).
RfDi Inhalation reference dose: inhalation (mg/kg/day).

Table 6-8. Exposure Dose and Risk Calculations for Adults Swimming in the Mississippi River, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cgw (ug/L)	Cgw (mg/L)	Mississippi River Concentration (mg/L)	PC (cm/hr)	ExD (mg/kg/day)	Toxicity Value	Risk
Cancer Effects						CSFo	ELCR
VOCs							
Benzene	510	0.51	4.7E-05	1.1E-01	2.9E-08	2.9E-02	8.5E-10
Methylene chloride	1,100	1.1	1.0E-04	7.3E-03	5.7E-09	7.5E-03	4.3E-11
Tetrachloroethene	160	0.16	1.5E-05	5.5E-02	4.7E-09	5.1E-02	2.4E-10
Trichloroethene	360	0.36	3.3E-05	7.1E-02	1.4E-08	1.1E-02	1.5E-10
Semi-VOCs							
Aniline	12	0.012	1.1E-06	4.1E-02	2.7E-10	5.7E-03	1.5E-12
bis(2-Ethylhexyl)phthalate	33	0.033	3.1E-06	5.7E-06	4.7E-11	1.4E-02	6.5E-13
1,4-Dichlorobenzene	14	0.014	1.3E-06	8.1E-02	6.0E-10	2.4E-02	1.4E-11
Inorganics							
Arsenic	57	0.057	5.3E-06	5.0E-04	9.5E-11	1.75E+00	1.7E-10
Cadmium	3.8	0.0038	3.5E-07	5.0E-04	6.3E-12	NAP	-
Chromium	36	0.036	3.3E-06	5.0E-04	6.0E-11	NAP	-
Lead	170	0.17	1.6E-05	5.0E-04	2.8E-10	NA	-
Nickel	74	0.074	6.8E-06	5.0E-04	1.2E-10	NA	-
						ELCR	1E-09

Cgw	Concentration in the ground-water.
cm/hr	Centimeters per hour.
CSFo	Oral cancer slope factor (kilogram-day per milligram [kg-day/mg]).
ELCR	Excess lifetime cancer risk (ExD x CSFo).
ExD	Swimming exposure dose.
HI	Hazard index (sum of hazard quotients [HQ]).
HQ	Hazard quotients (ExD/RfDo).
VOCs	Volatile organic compounds.
Semi-VOCs	Semivolatile organic compounds.
mg/kg/day	Milligrams per kilogram per day.
mg/L	Milligrams per liter.
NA	Not available.
NAP	Not applicable.
PC	Permeability constant.
RfDo	Oral reference dose (mg/kg/day).
ug/L	Micrograms per liter.
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Table 6-8. Exposure Dose and Risk Calculations for Adults Swimming in the Mississippi River, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cgw (ug/L)	Cgw (mg/L)	Mississippi River Concentration (mg/L)	PC (cm/hr)	ExD (mg/kg/day)	Toxicity Value	Risk
Non-Cancer Effects						RfDo	HQ
VOCs							
Benzene	510	0.51	4.7E-05	1.1E-01	6.9E-08	NA	-
Chlorobenzene	29,000	29	2.7E-03	5.9E-02	2.1E-06	2.0E-02	1.1E-04
Methylene chloride	1,100	1.1	1.0E-04	7.3E-03	1.3E-08	6.0E-02	2.2E-07
Tetrachloroethene	160	0.16	1.5E-05	5.5E-02	1.1E-08	1.0E-01	1.1E-07
Trichloroethene	360	0.36	3.3E-05	7.1E-02	3.2E-08	7.4E-03	4.3E-06
Semi-VOCs							
Acenaphthene	6.5	0.0065	6.0E-07	9.4E-02	7.5E-10	6.0E-02	1.3E-08
Aniline	12	0.012	1.1E-06	4.1E-02	6.3E-10	NA	-
bis(2-Ethylhexyl)phthalate	33	0.033	3.1E-06	5.7E-06	1.1E-10	2.0E-02	5.4E-09
p-Chloroaniline	410	0.41	3.8E-05	5.0E-02	2.6E-08	4.0E-03	6.5E-06
2-Chlorophenol	11	0.011	1.0E-06	3.30E-03	8.0E-11	5.0E-03	1.6E-08
1,2-Dichlorobenzene	11	0.011	1.0E-06	7.9E-02	1.1E-09	9.0E-02	1.2E-08
1,4-Dichlorobenzene	14	0.014	1.3E-06	8.1E-02	1.4E-09	NA	-
Fluoranthene	7.7	0.0077	7.1E-07	9.9E-02	9.4E-10	4.0E-02	2.3E-08
Fluorene	7	0.007	6.5E-07	9.4E-02	8.1E-10	4.0E-02	2.0E-08
Naphthalene	10	0.01	9.2E-07	9.7E-02	1.2E-09	4.0E-03	3.0E-07
Phenanthrene	9.4	0.0094	8.7E-07	9.6E-02	1.1E-09	NA	-

Cgw	Concentration in the ground-water.
cm/hr	Centimeters per hour.
CSFo	Oral cancer slope factor (kilogram-day per milligram [kg-day/mg]).
ELCR	Excess lifetime cancer risk (ExD x CSFo).
ExD	Swimming exposure dose.
HI	Hazard index (sum of hazard quotients [HQ]).
HQ	Hazard quotients (ExD/RfDo).
VOCs	Volatile organic compounds.
Semi-VOCs	Semivolatile organic compounds.
mg/kg/day	Milligrams per kilogram per day.
mg/L	Milligrams per liter.
NA	Not available.
NAP	Not applicable.
PC	Permeability constant.
RfDo	Oral reference dose (mg/kg/day).
ug/L	Micrograms per liter.
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Table 6-8. Exposure Dose and Risk Calculations for Adults Swimming in the Mississippi River, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cgw (ug/L)	Cgw (mg/L)	Mississippi River Concentration (mg/L)	PC (cm/hr)	ExD (mg/kg/day)	Toxicity Value	Risk
Semi-VOCs (cont'd)							
Pyrene	8.1	0.0081	7.5E-07	9.9E-02	9.9E-10	3.0E-02	3.3E-08
1,2,4-Trichlorobenzene	7.7	0.0077	7.1E-07	9.0E-02	8.5E-10	1.31E-03	6.5E-07
Inorganics							
Arsenic	57	0.057	5.3E-06	5.0E-04	2.2E-10	3.0E-04	7.4E-07
Barium	960	0.96	8.9E-05	5.0E-04	3.7E-09	7.0E-02	5.3E-08
Cadmium	3.8	0.0038	3.5E-07	5.0E-04	1.5E-11	1.0E-03	1.5E-08
Chromium	36	0.036	3.3E-06	5.0E-04	1.4E-10	5.0E-03	2.8E-08
Cobalt	25	0.025	2.3E-06	5.0E-04	9.7E-11	NA	-
Copper	67	0.067	6.2E-06	5.0E-04	2.6E-10	3.7E-02	7.0E-09
Cyanide	2000	2	1.8E-04	5.0E-04	7.8E-09	2.0E-02	3.9E-07
Lead	170	0.17	1.6E-05	5.0E-04	6.6E-10	NA	-
Mercury	1	0.001	9.2E-08	5.0E-04	3.9E-12	3.0E-04	1.3E-08
Nickel	74	0.074	6.8E-06	5.0E-04	2.9E-10	2.0E-02	1.4E-08
Silver	12	0.012	1.1E-06	5.0E-04	4.7E-11	3.0E-03	1.6E-08
Sulfide	1,900	1.9	1.8E-04	5.0E-04	7.4E-09	NA	-
Vanadium	55	0.055	5.1E-06	5.0E-04	2.1E-10	7.0E-03	-
Zinc	300	0.3	2.8E-05	5.0E-04	1.2E-09	2.0E-01	5.8E-09
						HI	1E-04

Cgw	Concentration in the ground-water.	mg/kg/day	Milligrams per kilogram per day.
cm/hr	Centimeters per hour.	mg/L	Milligrams per liter.
CSFo	Oral cancer slope factor (kilogram-day per milligram [kg-day/mg]).	NA	Not available.
ELCR	Excess lifetime cancer risk (ExD x CSFo).	NAP	Not applicable.
ExD	Swimming exposure dose.	PC	Permeability constant.
HI	Hazard index (sum of hazard quotients [HQ]).	RfDo	Oral reference dose (mg/kg/day).
HQ	Hazard quotients (ExD/RfDo).	ug/L	Micrograms per liter.
VOCs	Volatile organic compounds.	--	
Semi-VOCs	Semivolatile organic compounds.		

Table 6-9. Exposure Dose and Risk Calculations for Ingestion of Fish Living in the Mississippi River, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cgw (ug/L)	Cgw (mg/L)	Mississippi River Concentration (mg/L)	BCF	ExD	Toxicity Value	Risk
Cancer Effects							
						CSFo	ELCR
VOCs							
Benzene	510	0.51	4.7E-05	5.2	7.8E-08	2.9E-02	2.3E-09
Methylene chloride	1,100	1.1	1.0E-04	0.9	2.9E-08	7.5E-03	2.2E-10
Tetrachloroethene	160	0.16	1.5E-05	30.6	1.4E-07	5.1E-02	7.3E-09
Trichloroethene	360	0.36	3.3E-05	10.6	1.1E-07	1.1E-02	1.2E-09
Semi-VOCs							
Aniline	12	0.012	1.1E-06	6	2.1E-09	5.7E-03	1.2E-11
bis(2-ethylhexyl)phthalate	33	0.033	3.1E-06	30	2.9E-08	1.4E-02	4.1E-10
1,4-Dichlorobenzene	14	0.014	1.3E-06	55.6	2.3E-08	2.4E-02	5.5E-10
Inorganics							
Arsenic	57	0.057	5.3E-06	44	7.4E-08	1.75E+00	1.3E-07
Cadmium	3.8	0.0038	3.5E-07	64	7.1E-09	NA	-
Chromium	36	0.036	3.3E-06	16	1.7E-08	NA	-
Lead	170	0.17	1.6E-05	49	2.4E-07	NA	-
Nickel	74	0.074	6.8E-06	47	1.0E-07	NA	-
						ELCR	1E-07

Cgw Concentration in the ground water.
CSFo Cancer slope factor:oral (kilograms-day per milligram [kg-day/mg]).
BCF Fish bioconcentration factor.
ELCR Excess lifetime cancer risk.
ExD Exposure dose (mg/kg-day).
HI Hazard index (sum of hazard quotient [HQ]).
VOCs Volatile organic compounds.
Semi-VOCs Semivolatile organic compounds.

kg Kilograms.
mg/L Milligrams per liter.
NA Not available.
RfDo Chronic oral reference dose (milligrams per kilogram per day [mg/kg/day]).
ug/L Micrograms per liter.
--

Table 6-9. Exposure Dose and Risk Calculations for Ingestion of Fish Living in the Mississippi River, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cgw (ug/L)	Cgw (mg/L)	Mississippi River Concentration (mg/L)	BCF	ExD	Toxicity Value	Risk
Non-Cancer Effects						RfDo	HQ
VOCs							
Benzene	510	0.51	4.7E-05	5.2	1.8E-07	NA	-
Chlorobenzene	29,000	29	2.7E-03	10.3	2.0E-05	2.0E-02	1.0E-03
Methylene chloride	1,100	1.1	1.0E-04	0.9	6.8E-08	6.0E-02	1.1E-06
Tetrachlroethene	160	0.16	1.5E-05	30.6	3.3E-07	1.0E-01	3.3E-06
Trichloroethene	360	0.36	3.3E-05	10.6	2.6E-07	7.4E-03	3.5E-05
Semi-VOCs							
Acenaphthene	6.5	0.0065	6.0E-07	242	1.1E-07	6.0E-02	1.8E-06
Aniline	12	0.012	1.1E-06	6	4.9E-09	NA	-
bis(2-Ethylhexyl)phthalate	33	0.033	3.1E-06	30	6.8E-08	2.0E-02	3.4E-06
p-Chloroaniline	410	0.41	3.8E-05	20	5.6E-07	4.0E-03	1.4E-04
2-Chlorophenol	11	0.011	1.0E-06	134	1.0E-07	5.0E-03	2.0E-05
1,2-Dichlorobenzene	11	0.011	1.0E-06	55.6	4.2E-08	9.0E-02	4.6E-07
1,4-Dichlorobenzene	14	0.014	1.3E-06	55.6	5.3E-08	NA	-
Fluoranthene	7.7	0.0077	7.1E-07	1150	6.1E-07	4.0E-02	1.5E-05
Fluorene	7	0.007	6.5E-07	30	1.4E-08	4.0E-02	3.6E-07
Naphthalene	10	0.01	9.2E-07	10.5	7.2E-09	4.0E-03	1.8E-06
Phenanthrene	9.4	0.0094	8.7E-07	30	1.9E-08	NA	-
Pyrene	8.1	0.0081	7.5E-07	30	1.7E-08	3.0E-02	5.5E-07

Cgw Concentration in the ground water.
CSFo Cancer slope factor:oral (kilograms-day per milligram [kg-day/mg]).
BCF Fish bioconcentration factor.
ELCR Excess lifetime cancer risk.
ExD Exposure dose (mg/kg-day).
HI Hazard index (sum of hazard quotient [HQ]).
VOCs Volatile organic compounds.
Semi-VOCs Semivolatile organic compounds.

kg Kilograms.
mg/L Milligrams per liter.
NA Not available.
RfDo Chronic oral reference dose (milligrams per kilogram per day [mg/kg/day]).
ug/L Micrograms per liter.
--

Table 6-9. Exposure Dose and Risk Calculations for Ingestion of Fish Living in the Mississippi River, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Cgw (ug/L)	Cgw (mg/L)	Mississippi River Concentration (mg/L)	BCF	ExD	Toxicity Value	Risk
Semi-VOCs (cont'd)							
1,2,4-Trichlorobenzene	7.7	0.0077	7.1E-07	14	7.4E-09	1.31E-03	5.6E-06
Inorganics							
Arsenic	57	0.057	5.3E-06	44	1.7E-07	3.0E-04	5.7E-04
Barium	960	0.96	8.9E-05	1	6.6E-08	7.0E-02	9.4E-07
Cadmium	3.8	0.0038	3.5E-07	64	1.7E-08	1.0E-03	1.7E-05
Chromium	36	0.036	3.3E-06	16	3.9E-08	5.0E-03	7.9E-06
Cobalt	25	0.025	2.3E-06	NA	NA	NA	-
Copper	67	0.067	6.2E-06	36	1.6E-07	3.7E-02	4.5E-06
Cyanide	2000	2	1.8E-04	1	1.4E-07	2.0E-02	6.8E-06
Lead	170	0.17	1.6E-05	49	5.7E-07	NA	-
Mercury	1	0.001	9.2E-08	5500	3.8E-07	3.0E-04	1.3E-03
Nickel	74	0.074	6.8E-06	47	2.4E-07	2.0E-02	1.2E-05
Silver	12	0.012	1.1E-06	0.5	4.1E-10	3.0E-03	1.4E-07
Sulfide	1,900	1.9	1.8E-04	NA	NA	NA	-
Vanadium	55	0.055	5.1E-06	NA	NA	7.0E-03	-
Zinc	300	0.3	2.8E-05	47	9.6E-07	2.0E-01	4.8E-06
						HI	3E-03

Cgw Concentration in the ground water.
CSFo Cancer slope factor:oral (kilograms-day per milligram [kg-day/mg]).
BCF Fish bioconcentration factor.
ELCR Excess lifetime cancer risk.
ExD Exposure dose (mg/kg-day).
HI Hazard index (sum of hazard quotient [HQ]).
VOCs Volatile organic compounds.
Semi-VOCs Semivolatile organic compounds.

kg Kilograms.
mg/L Milligrams per liter.
NA Not available.
RfDo Chronic oral reference dose (milligrams per kilogram per day [mg/kg/day]).
ug/L Micrograms per liter.
--

Table 6-10. Comparison of Constituent Concentrations Detected in Ground Water with Drinking Water Standards and Criteria for Ground-Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Ground-Water UCL (mg/L)	State MCLs (mg/L)	Federal MCLs (mg/L)	Federal MCLG (mg/L)
VOCs				
Benzene	0.51*	0.005	0.005	0
Chlorobenzene	29*	0.02	0.1	0.1
Methylene chloride	1.1*	0.0047	0.005	0
Tetrachloroethene	0.16*	0.0008	0.005	0
Trichloroethene	0.36*	0.005	0.005	0
Semi-VOCs				
Acenaphthene	0.0065	0.02	-	-
Aniline	0.012	-	-	-
bis(2-Ethylhexyl)phthalate	0.033*	0.0018	0.004	0
p-Chloroaniline	0.41	-	-	-
2-Chlorophenol	0.011*	0.0001	-	-
1,2-Dichlorobenzene	0.011	0.4	0.6	0.6
1,4-Dichlorobenzene	0.014	0.075	0.075	0.075
Fluoranthene	0.0077	0.04	-	-
Fluorene	0.007	-	-	-
Naphthalene	0.001	0.1	-	0.11
Phenanthrene	0.0094	-	-	-
Pyrene	0.0081	-	-	-
1,2,4-Trichlorobenzene	0.0077	-	0.009	0.009
Inorganics				
Arsenic	0.057*	0.05	0.05	-
Barium	0.96	1	2	2
Cadmium	0.0038	0.01	0.005	0.005
Chromium	0.036	-	0.1	0.1
Cobalt	0.25	1	-	-
Copper	0.067	1	-	1.3
Cyanide	2.0*	-	0.2	0.2
Lead	0.17*	0.05	-	0

Footnotes appear on page 2.

Table 6-10. Comparison of Constituent Concentrations Detected in Ground Water with Drinking Water Standards and Criteria for Ground-Water, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Ground-Water UCL (mg/L)	State MCLs (mg/L)	Federal MCLs (mg/L)	Federal MCLG (mg/L)
Inorganics (cont.)				
Mercury	0.001	0.002	0.002	0.002
Nickel	0.074	-	0.1	0.1
Silver	0.12	0.05	-	-
Sulfide	1.9	-	-	-
Vanadium	0.055	-	-	-
Zinc	0.30	5	-	-

UCL 95 percent upper confidence level of the arithmetic mean.
MCL Maximum contaminant level.
MCLG Maximum contaminant level goal.
* Concentration detected in ground water exceeds the drinking water criteria.
mg/L Milligrams per liter.
VOCs Volatile organic compounds.
Semi-VOCs Semivolatile organic compounds.
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Table 6-11. Comparison of Estimated Surface-Water Concentrations with Appropriate Water-Quality-Criteria, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Estimated Surface-Water Concentration	Water-Quality Criteria	Does Surface-Water Concentration Exceed Criteria?
VOCs			
Benzene	4.7E-05	5.3E-02	No
Chlorobenzene	2.7E-03	5.0E-03	No
Methylene chloride	1.0E-04	1.0E+00	No
Tetrachloroethene	1.3E-05	8.4E-01	No
Trichloroethene	3.3E-05	2.19E+00	No
Semi-VOCs			
Acenaphthene	6.0E-07	5.7E-02	No
Aniline	1.1E-06	NA	No
bis(2-Ethylhexyl)phthalate	3.1E-06	3.6E-01	No
p-Chloroaniline	3.8E-05	NA	No
2-Chlorophenol	1.0E-06	2.0E-01	No
1,2-Dichlorobenzene	1.0E-06	7.6E-02	No
1,4-Dichlorobenzene	1.3E-06	7.6E-02	No
Fluoranthene	7.1E-07	1.3E-02	No
Fluorene	6.5E-07	NA	No
Naphthalene	9.2E-07	6.2E-02	No
Phenanthrene	8.7E-07	6.3E-03	No
Pyrene	7.5E-07	1.3E-02	No
1,2,4-Trichlorobenzene	7.1E-07	NA	

Footnotes appear on page 2.

Table 6-11. Comparison of Estimated Surface-Water Concentrations with Appropriate Water-Quality Criteria, J.F. Queeny Plant, Monsanto Chemical Company, St. Louis, Missouri.

Constituent	Estimated Surface-Water Concentration	Water-Quality Criteria	Does Surface-Water Concentration Exceed Criteria?
Inorganics			
Arsenic	5.3E-06	2.0E-02	No
Barium	8.9E-05	NA	No
Cadmium	3.5E-07	1.3E-02	No
Chromium	3.3E-06	4.2E-02	No
Cobalt	2.3E-06	NA	No
Copper	6.2E-06	2.9E-02	No
Cyanide	1.8E-04	5.0E-03	No
Lead	1.6E-05	2.0E-02	No
Mercury	9.2E-08	5.0E-04	No
Nickel	6.8E-06	5.0E-01	No
Silver	1.1E-06	1.2E-04	No
Sulfide	1.8E-04	NA	No
Vanadium	5.1E-06	NA	No
Zinc	2.8E-05	3.45E-01	No

Concentrations in milligrams per liter (mg/L).

NA No state of federal water-quality criteria or standards available.
VOCs Volatile organic compounds.
Semi-VOCs Semivolatile organic compounds.

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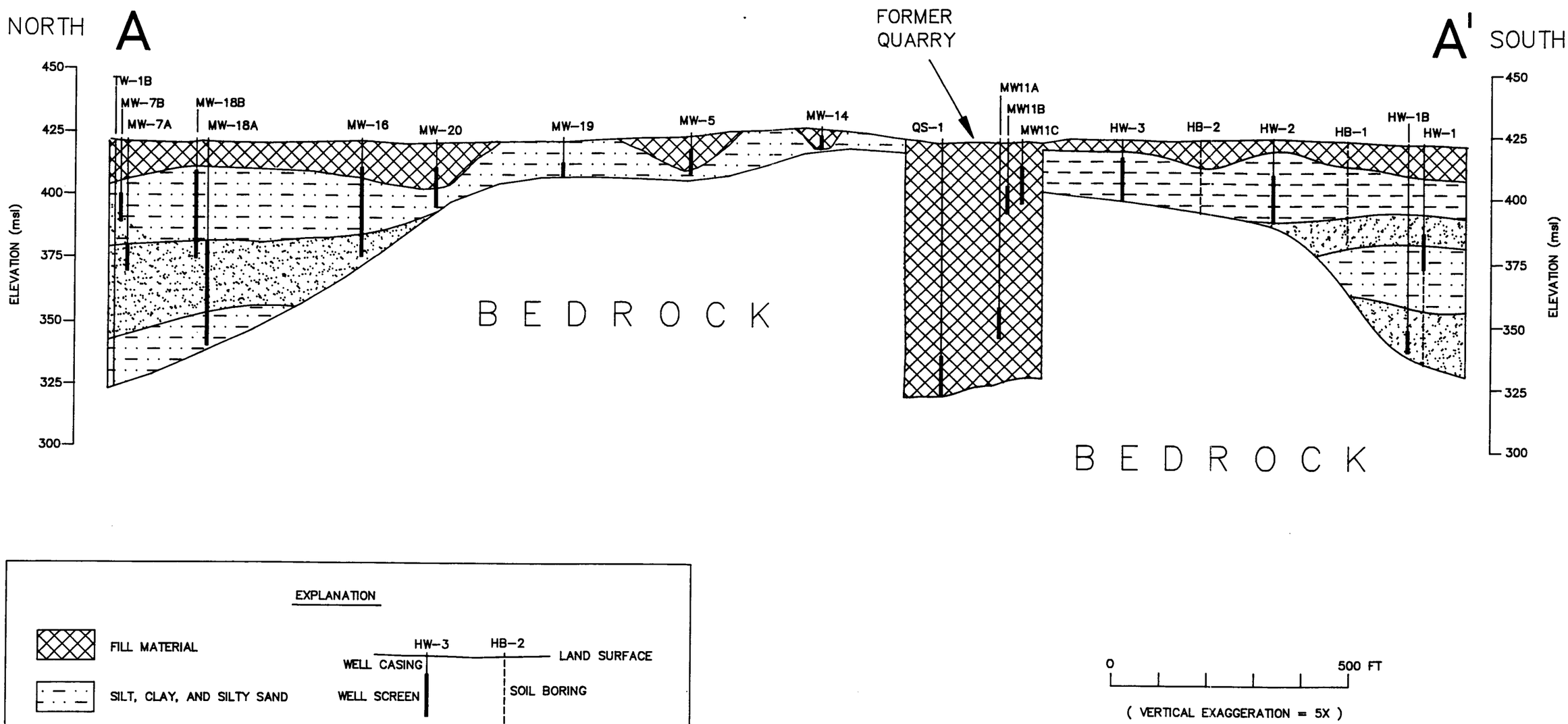


EXPLANATION

FILL MATERIAL

SILT, CLAY, AND SILTY SAND

SAND, FINE TO COARSE, SOME GRAVEL

SILTY CLAY

HW-3 HB-2 LAND SURFACE

WELL CASING

WELL SCREEN

SOIL BORING

msl MEAN SEA LEVEL.

GERAGHTY & MILLER, INC.
Environmental Services

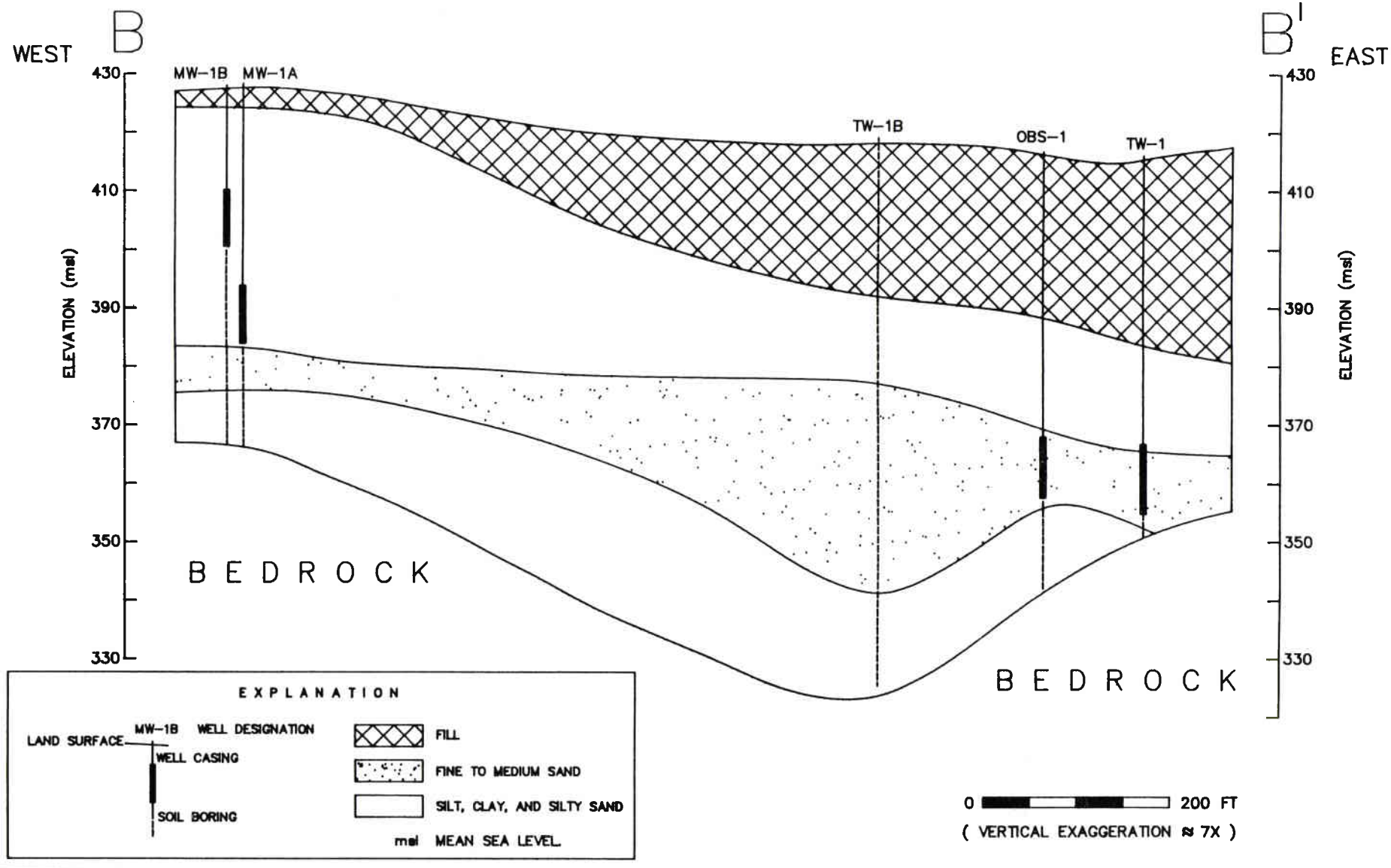
NORTH–SOUTH GEOLOGIC CROSS SECTION A–A'

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
2–1

DRAFTER:
APPROVED: LM
CHECKED: DC
DRAWING: SEC
FILE NO.: 1449
PRJCT NO.: NY02107
25-92
DWG DA

DWG DATE: 2-26-92	PRJCT NO.: NY02107	FILE NO.: 1449	DRAWING: SEC-BB	CHECKED: DC	APPROVED: LM	DRAFTER: GS



GERAGHTY & MILLER, INC.
Environmental Services

EAST-WEST GEOLOGIC CROSS SECTION B-B'

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
2-2

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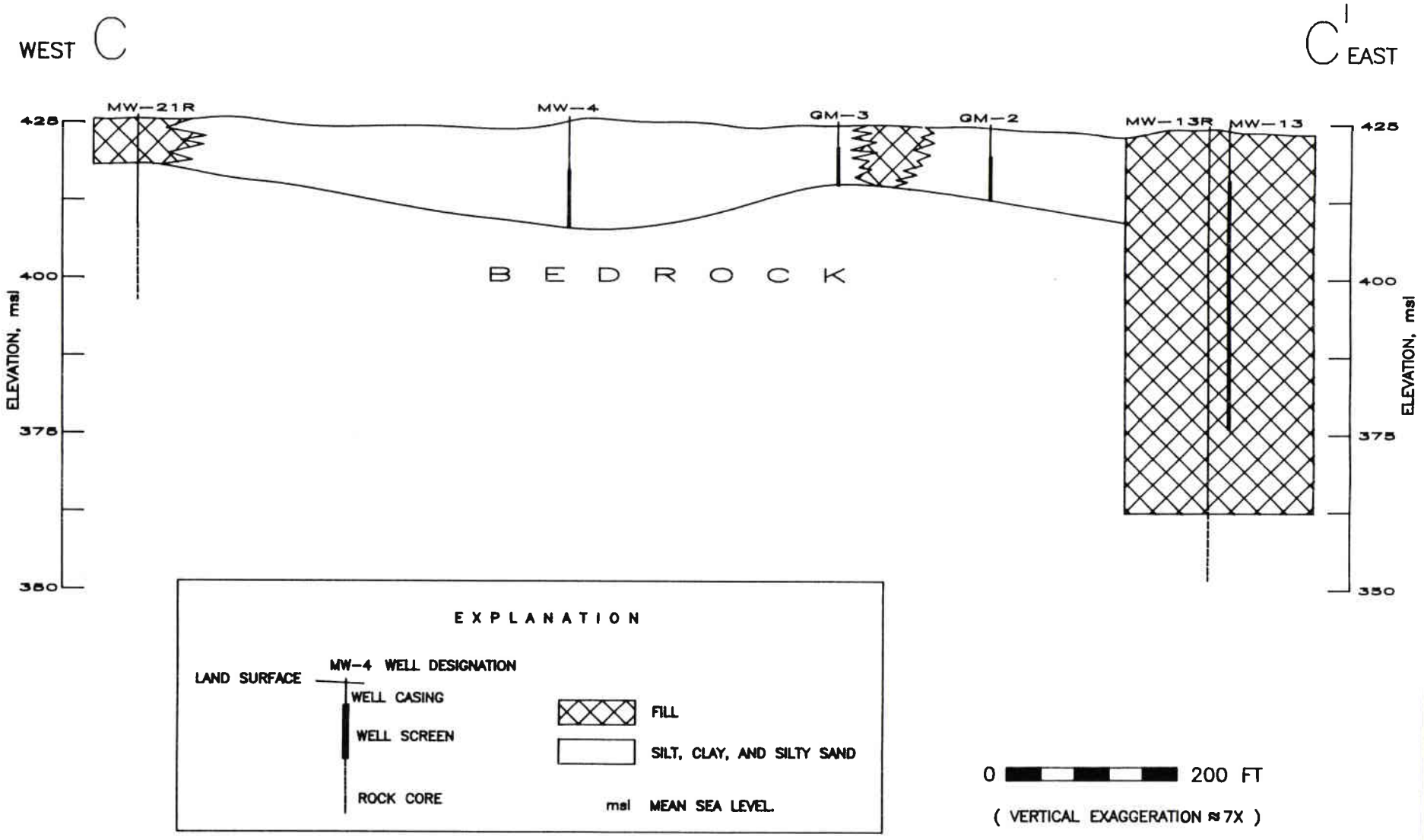


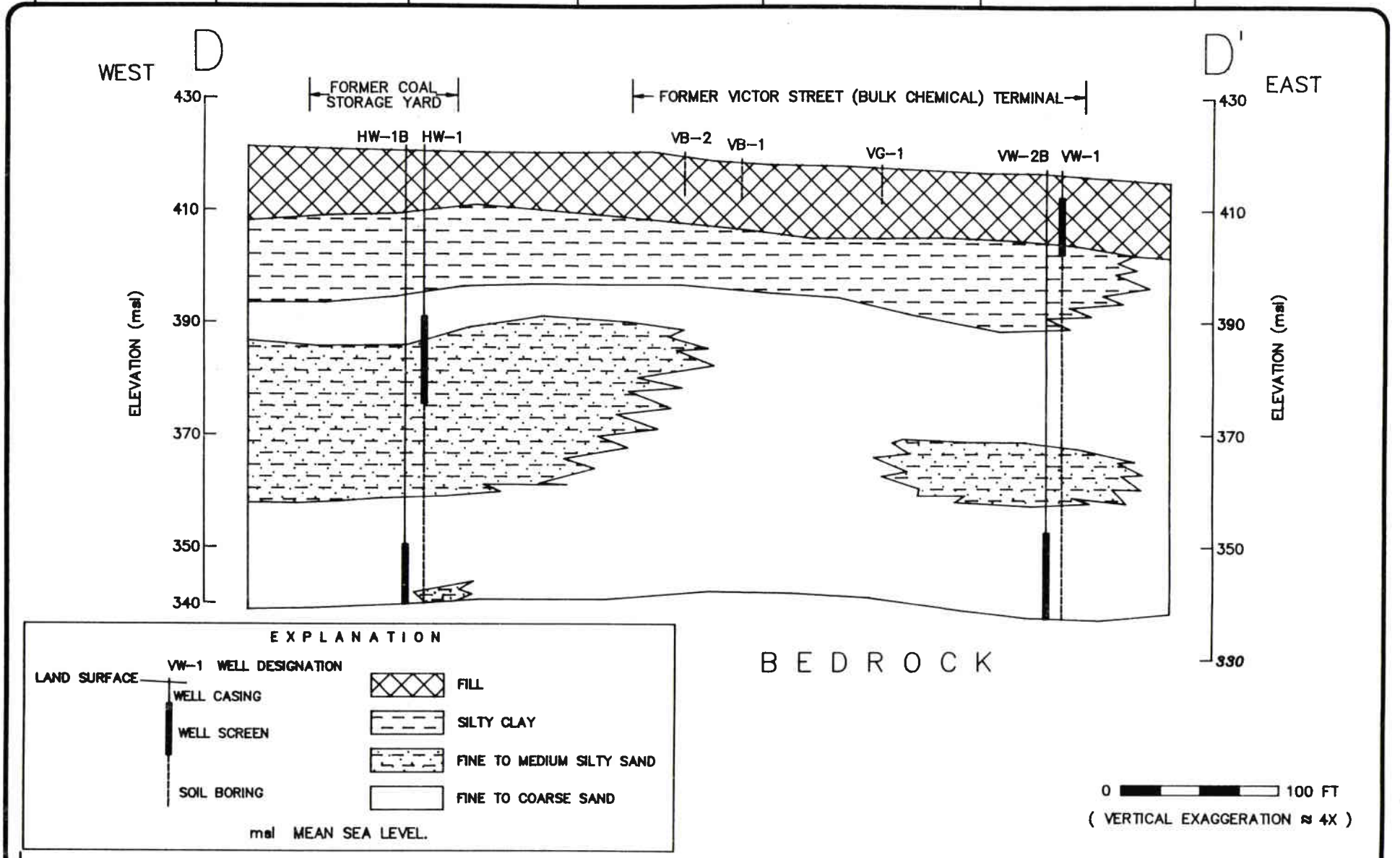
GERAGHTY & MILLER, INC.
Environmental Services

EAST-WEST GEOLOGIC CROSS SECTION C-C'

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
2-3

DWG DATE: 2-26-92	PRJCT NO.: NY02107	FILE NO.: 1449	DRAWING: SEC-DD	CHECKED: DC	APPROVED: LM	DRAFTER: GS

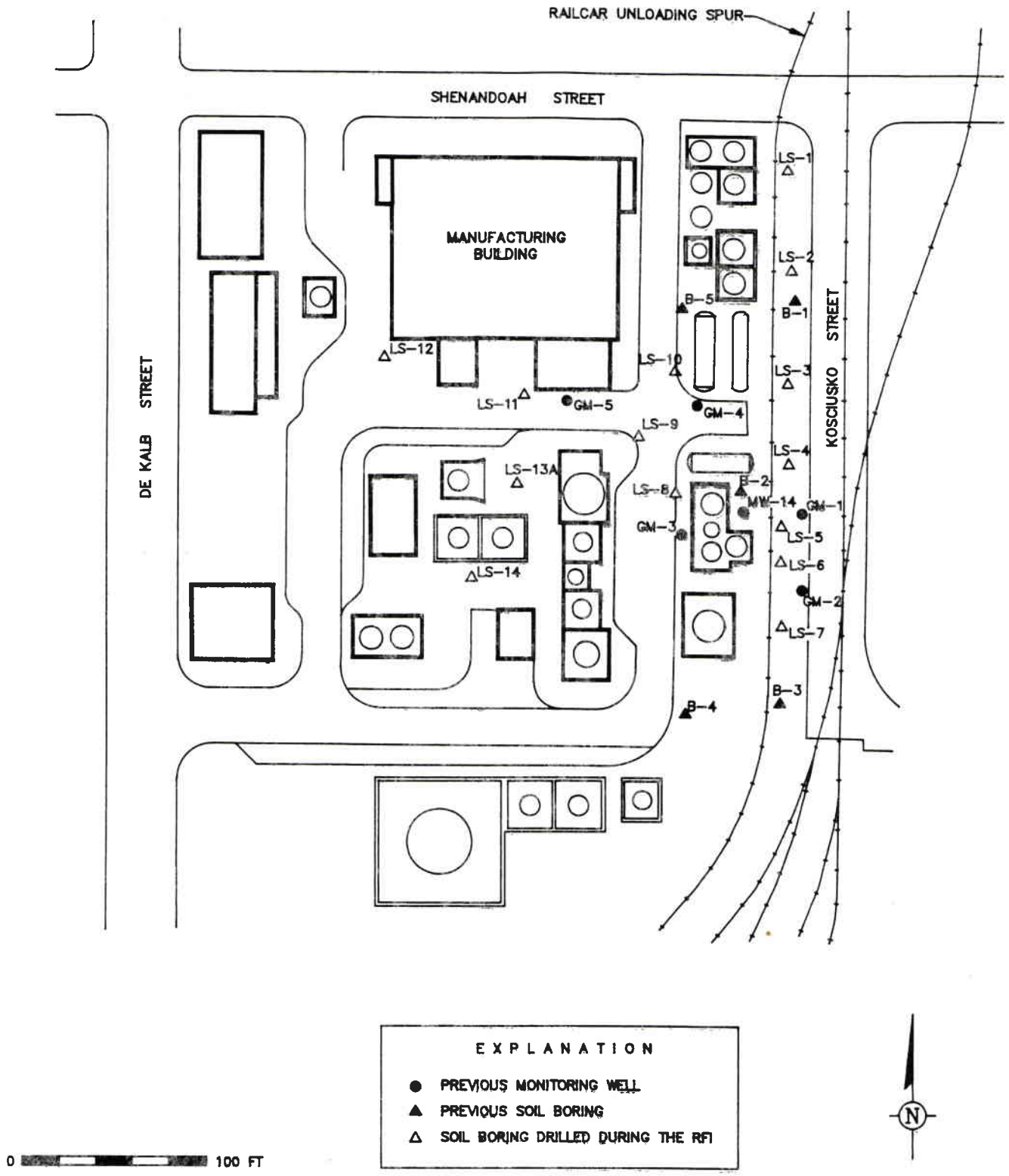


GERAGHTY & MILLER, INC.
Environmental Services

EAST-WEST GEOLOGIC CROSS SECTION D-D'

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
2-4



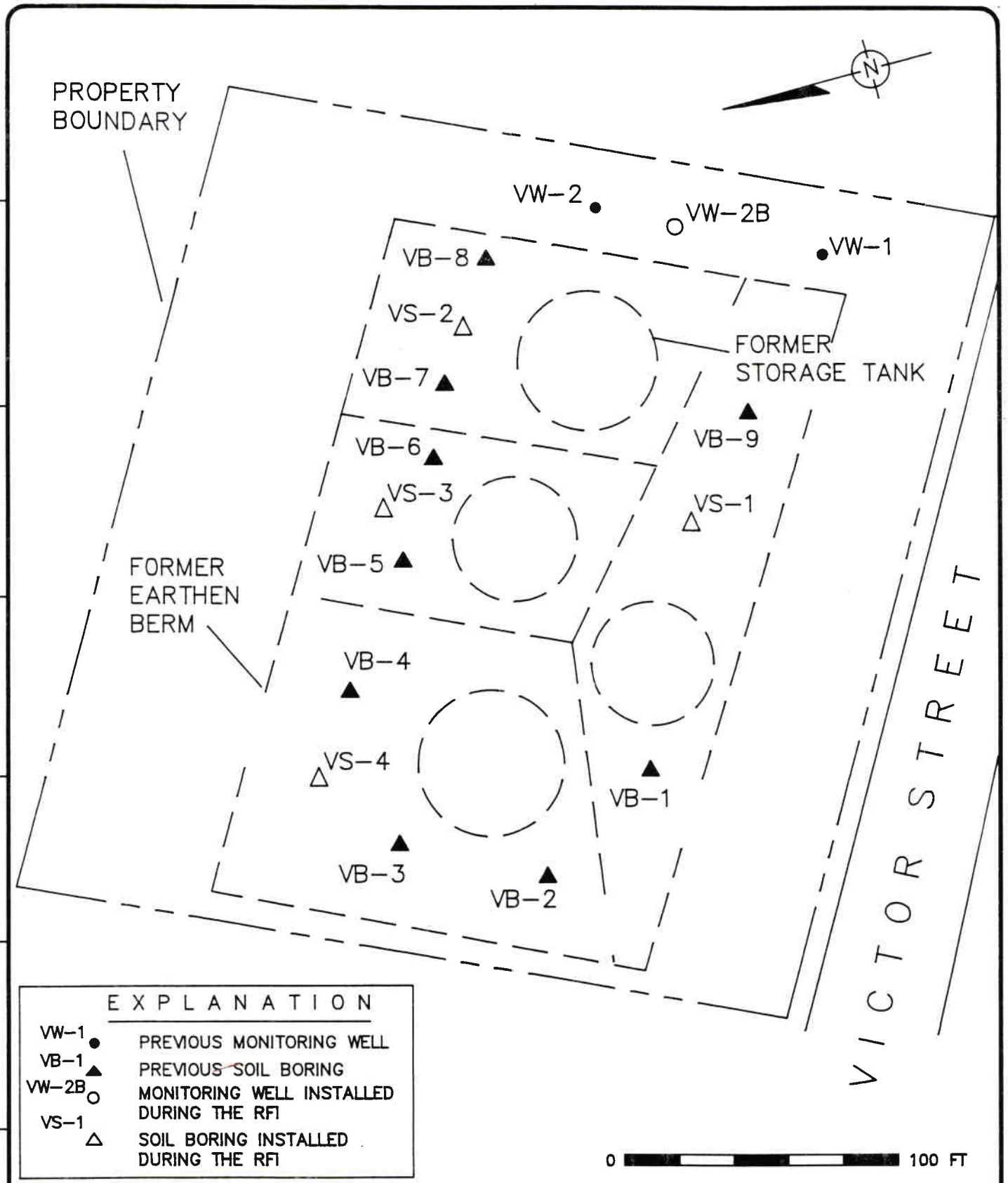
GERAGHTY & MILLER, INC.
Environmental Services

SOIL BORING AND MONITORING WELL LOCATIONS IN THE VICINITY OF THE FORMER ACETANILIDES PRODUCTION/RAILCAR UNLOADING AREA

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE 3-1

DRAFTER: GS | APPROVED: LM | CHECKED: DC | DRAWING: LASSD-2 | FILE NO.: 1449 | PRJCT NO.: NY02107 | DWG DATE: 3-9-92



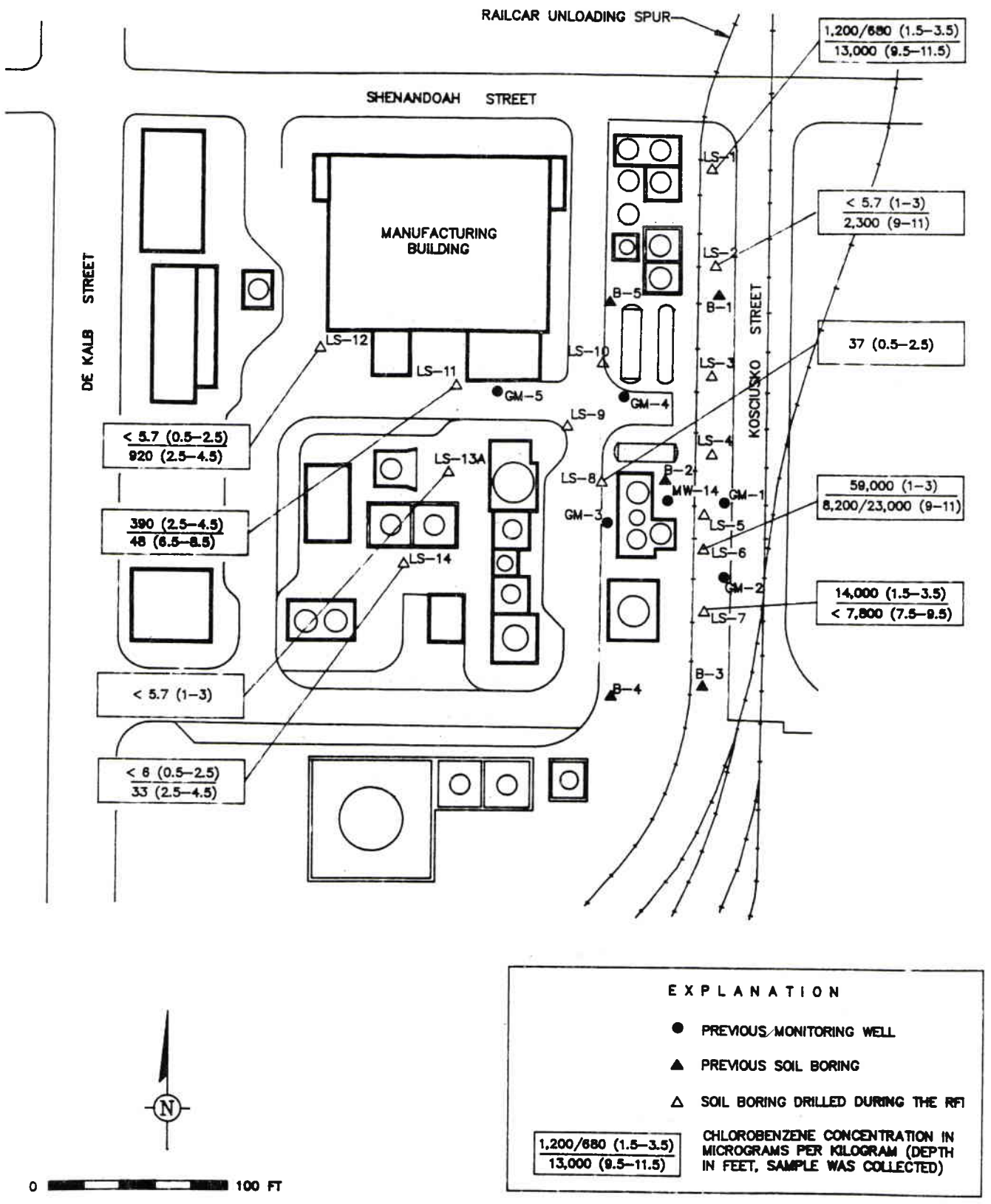
GERAGHTY & MILLER, INC.
Environmental Services

SOIL BORING AND MONITORING WELL LOCATIONS IN THE VICINITY OF THE FORMER BULK CHEMICAL STORAGE TERMINAL

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE 3-2

DRAFTER: EMJB/GS | APPROVED: LM | CHECKED: DC | DRAWING: BULK-ST2 | FILE NO.: 1449 | PRJCT NO.: NY02107 | DWG DATE: 2-28-92



GERAGHTY & MILLER, INC.
Environmental Services

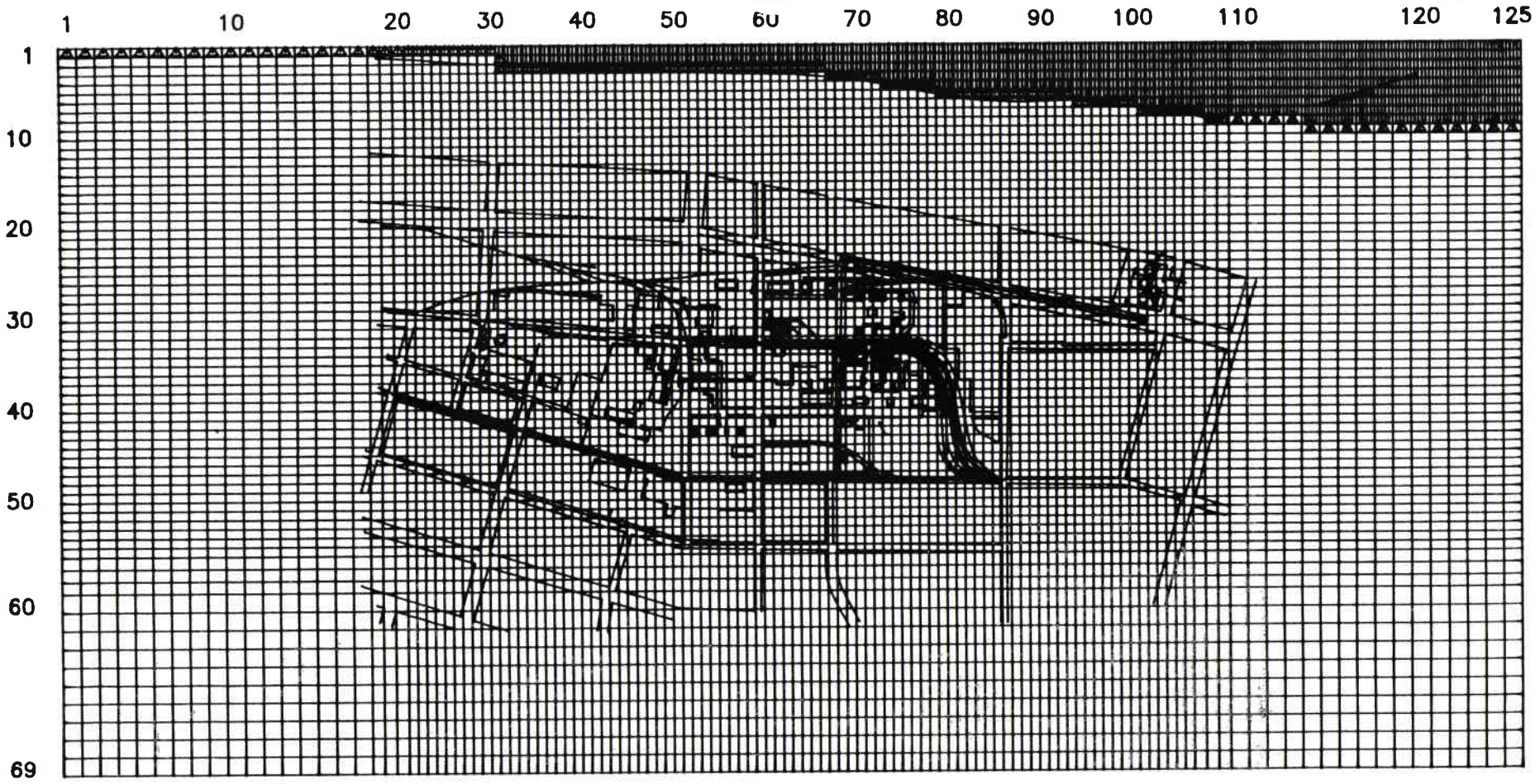
CONCENTRATIONS OF CHLOROBENZENE IN SOIL IN THE VICINITY OF THE FORMER ACETANILIDES PRODUCTION/RAILCAR UNLOADING AREA

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
4-1

DRAFTER: GS | APPROVED: LM | CHECKED: DC | DRAWING: CHLDSOIL | FILE NO.: 1449 | PRJCT NO.: NY02107 | DWG DATE: 3-9-92

DWG DA	JAN92	PRJCT NO.: NY02107	FILE NO.: 1449	DRAWING: ME	CHECKED: DC	APPROVED: LM	DRAFTEF



LEGEND

▲ Constant Head

Outside Domain

N

0 900 FEET

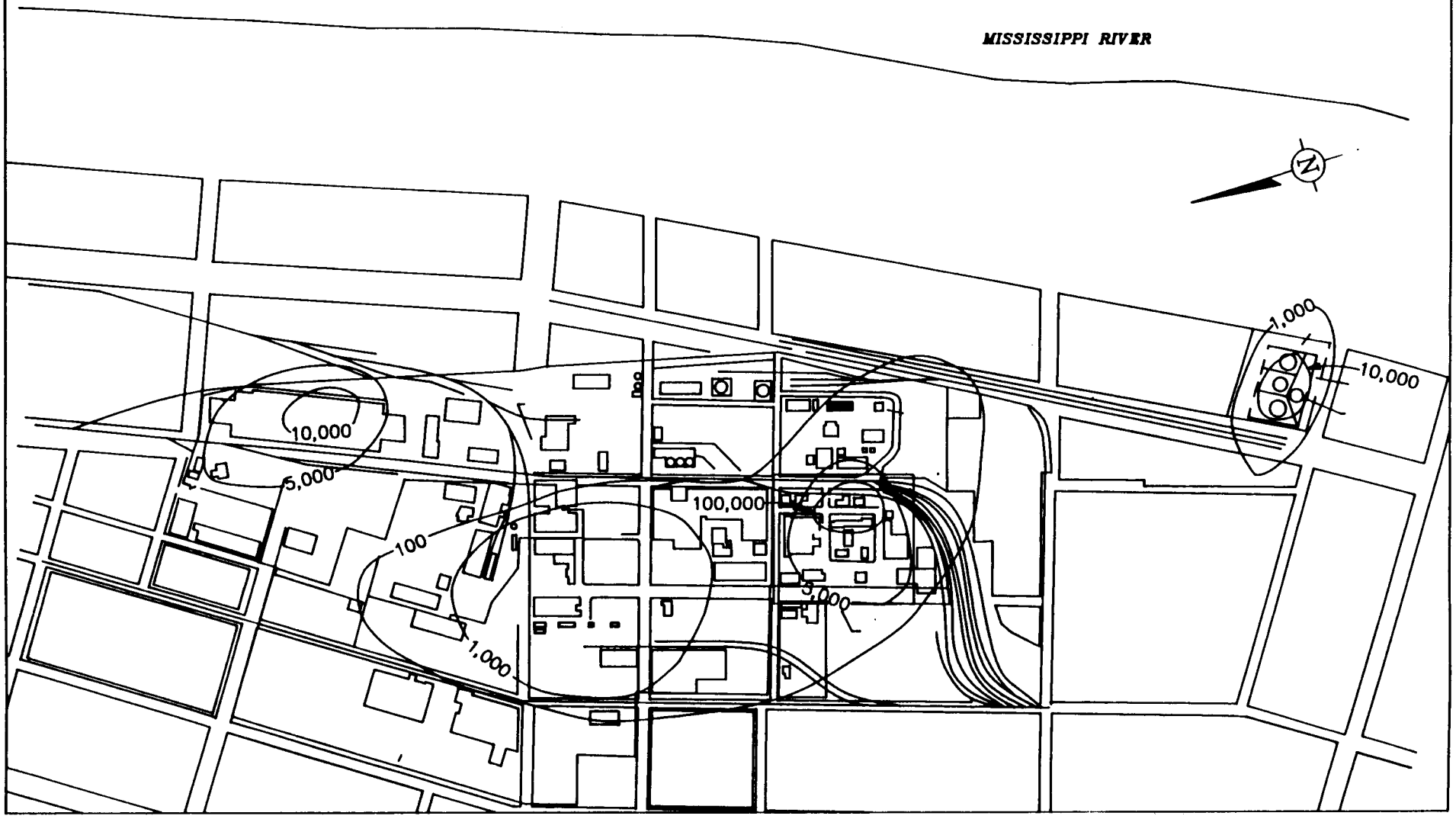
GERAGHTY & MILLER, INC.
Environmental Services

MODEL FINITE-DIFFERENCE GRID AND BOUNDARY CONDITIONS

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
5-1

DWG DATE: 12JAN92	PRJCT NO.: JF021.07	FILE NO.: 1449	DRAWING: TVOC	CHECKED: DC	APPROVED: LM	DRAFTER:



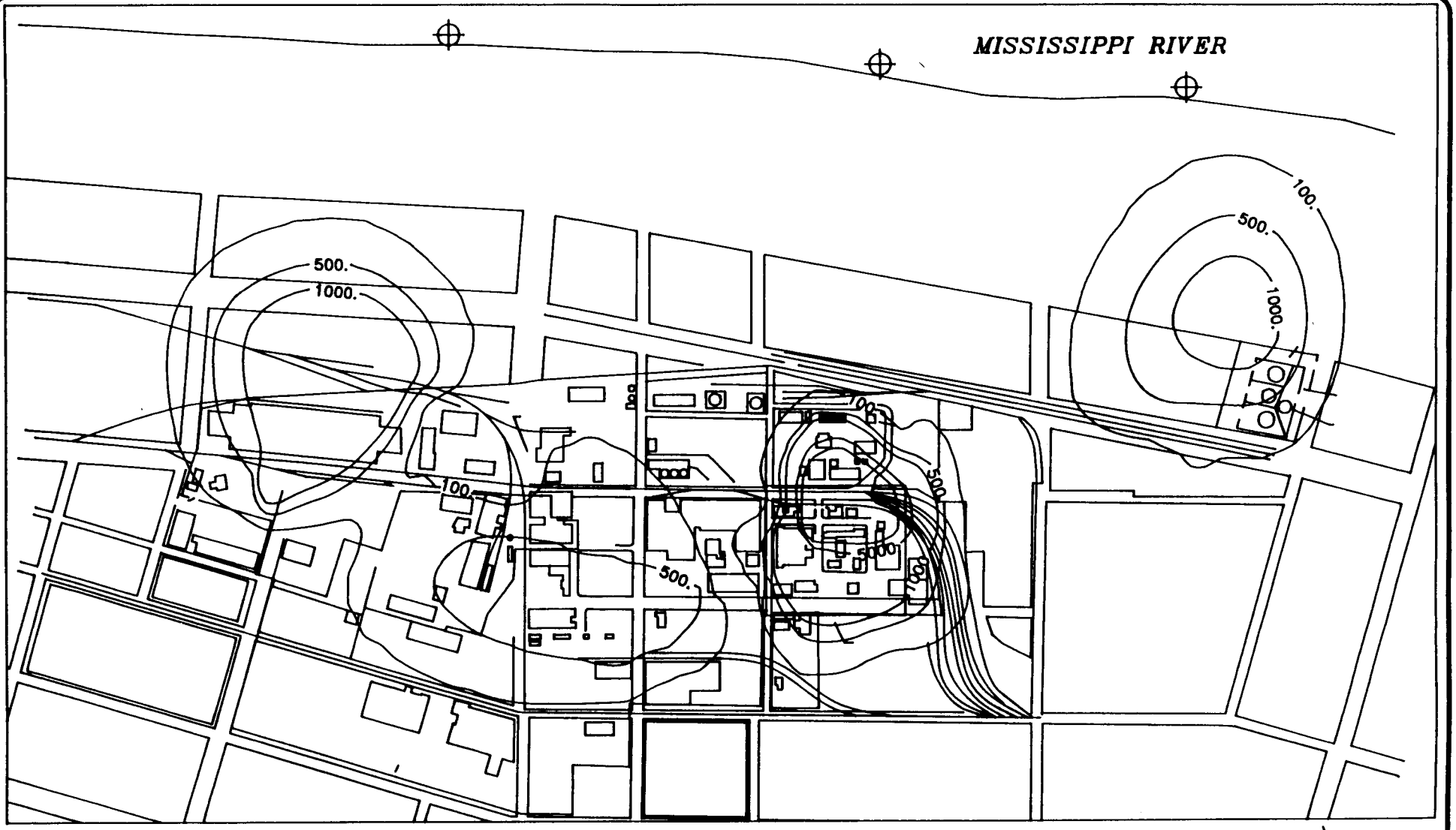
GERAGHTY & MILLER, INC.
Environmental Services

INITIAL TOTAL VOLATILE ORGANIC COMPOUND PLUME

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
5-2

DWG DA 2JAN92	PRJCT NO.: NY02107	FILE NO.: 1449	DRAWING: NS1	CHECKED: DC	APPROVED: LM	DRAFTER:



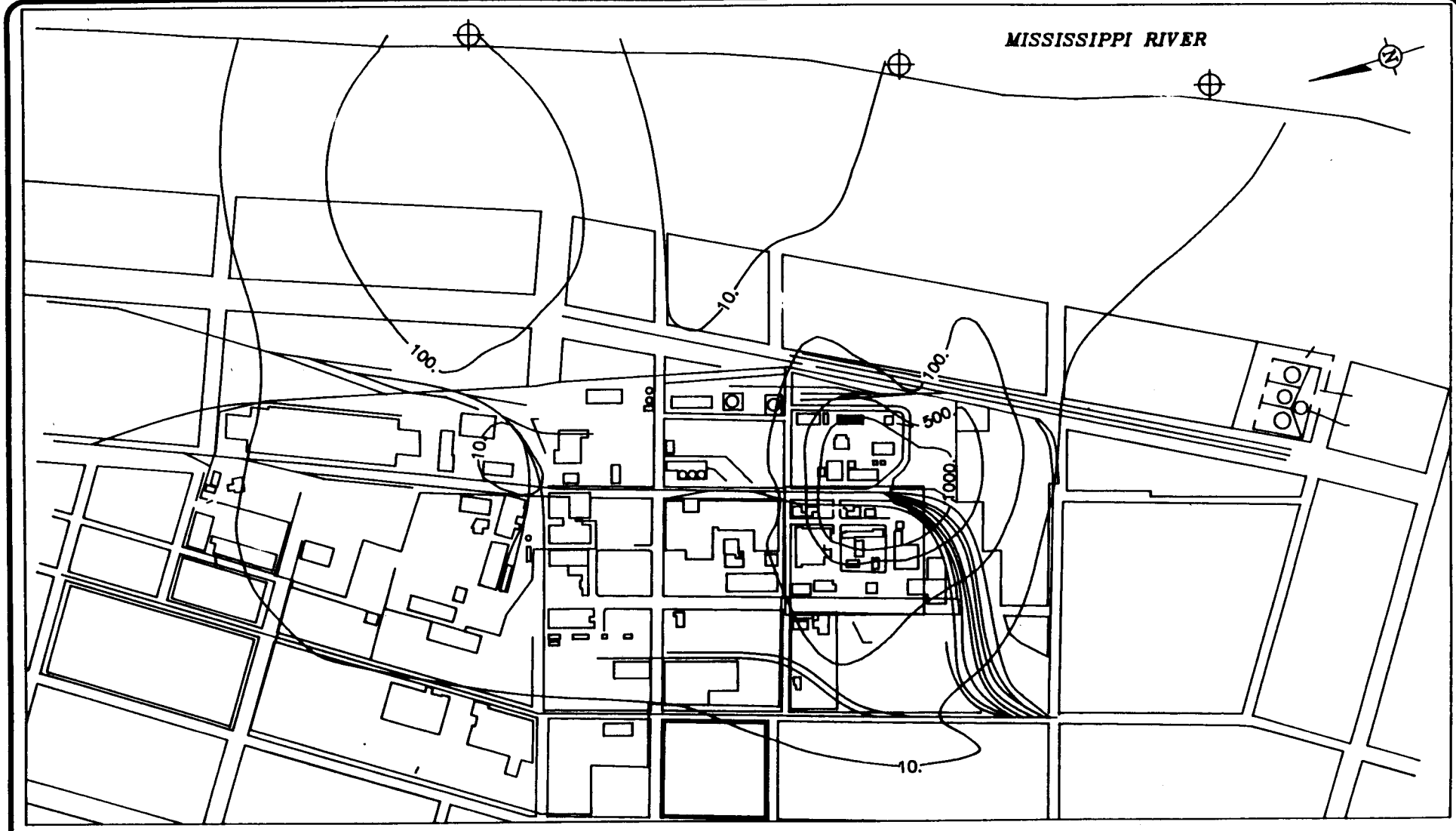
GERAGHTY & MILLER, INC.
Environmental Services

TOTAL VOLATILE ORGANIC COMPOUND PLUME AFTER 1 YEAR OF ELAPSED TIME, NO SOURCE

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
5-3

DWG DATE: 12JAN92	PRJCT NO.: NY021.07	FILE NO.: 1449	DRAWING: NS5YEAR	CHECKED: GJR	APPROVED: LM	DRAFTER: CMS



Observation Point

0 500 FEET

500. – Solute Concentration in micrograms per Liter

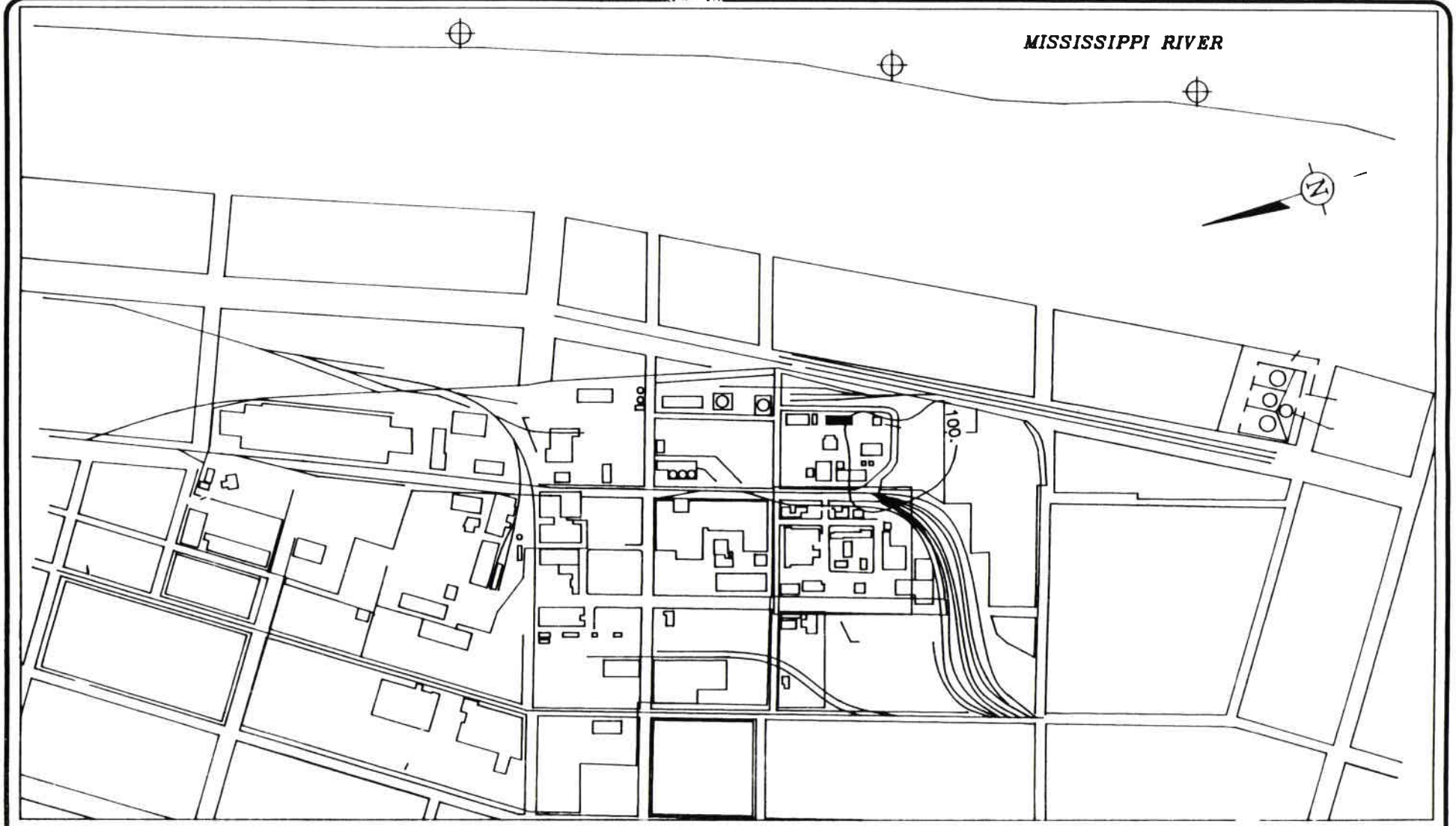
GERAGHTY & MILLER, INC.
Environmental Services

TOTAL VOLATILE ORGANIC COMPOUND PLUME AFTER 5 YEARS ELAPSED TIME, NO SOURCE

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS MISSOURI

FIGURE
5-4

DWG DATE: 12JAN92	PRJCT NO.: NY02107	FILE NO.: 1449	DRAWING: NS10YEAR	CHECKED: GJR	APPROVED: LM	DRAFTER: CMS



Observation Point

500. — Solute Concentration in micrograms per liter

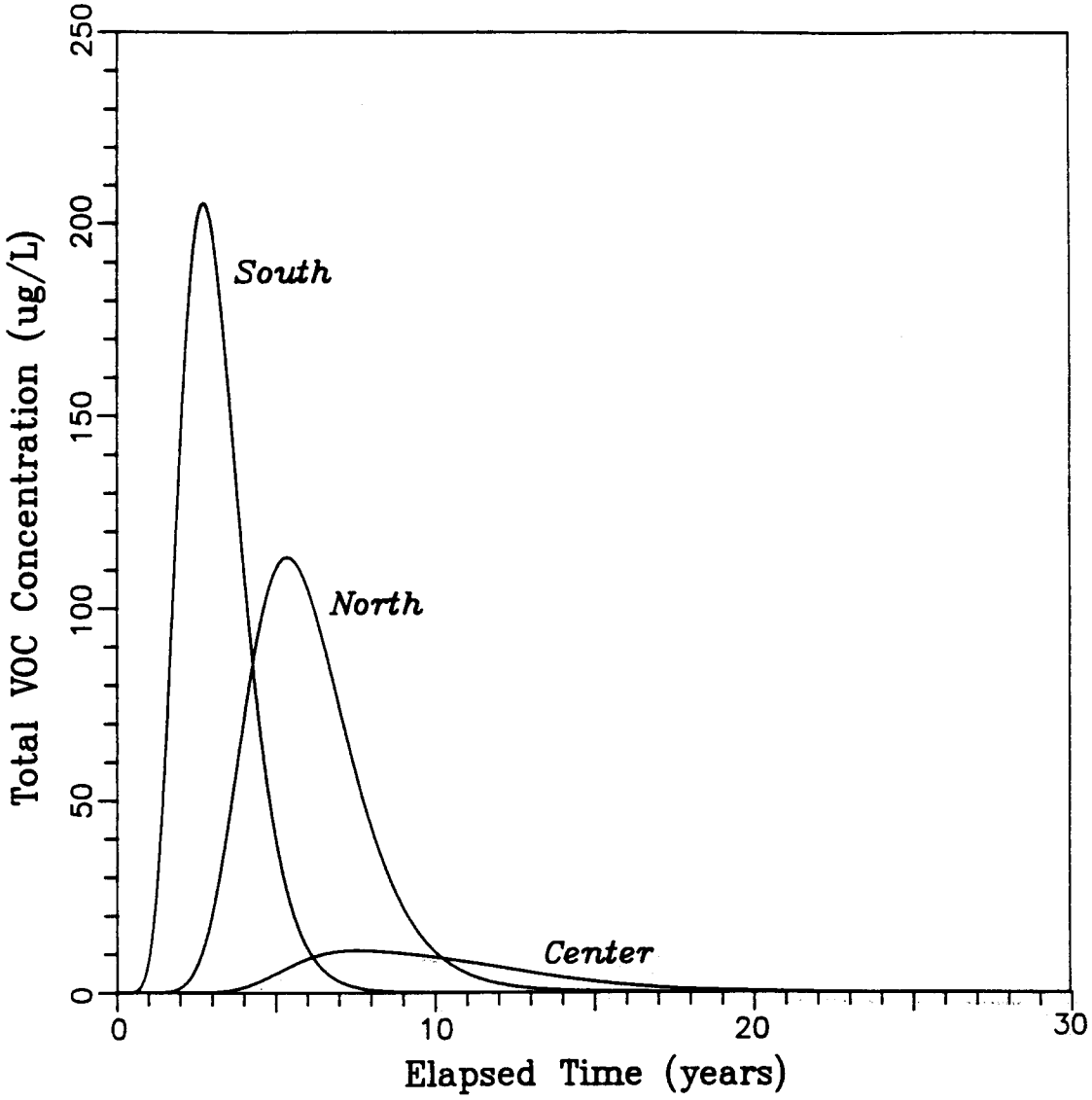
0 500 FEET

GERAGHTY & MILLER, INC.
Environmental Services

TOTAL VOLATILE ORGANIC COMPOUNDS PLUME AFTER 10 YEARS OF ELAPSED TIME, NO SOURCE

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE 5-5



VOC – Volatile Organic Compounds
ug/L – Micrograms per Liter

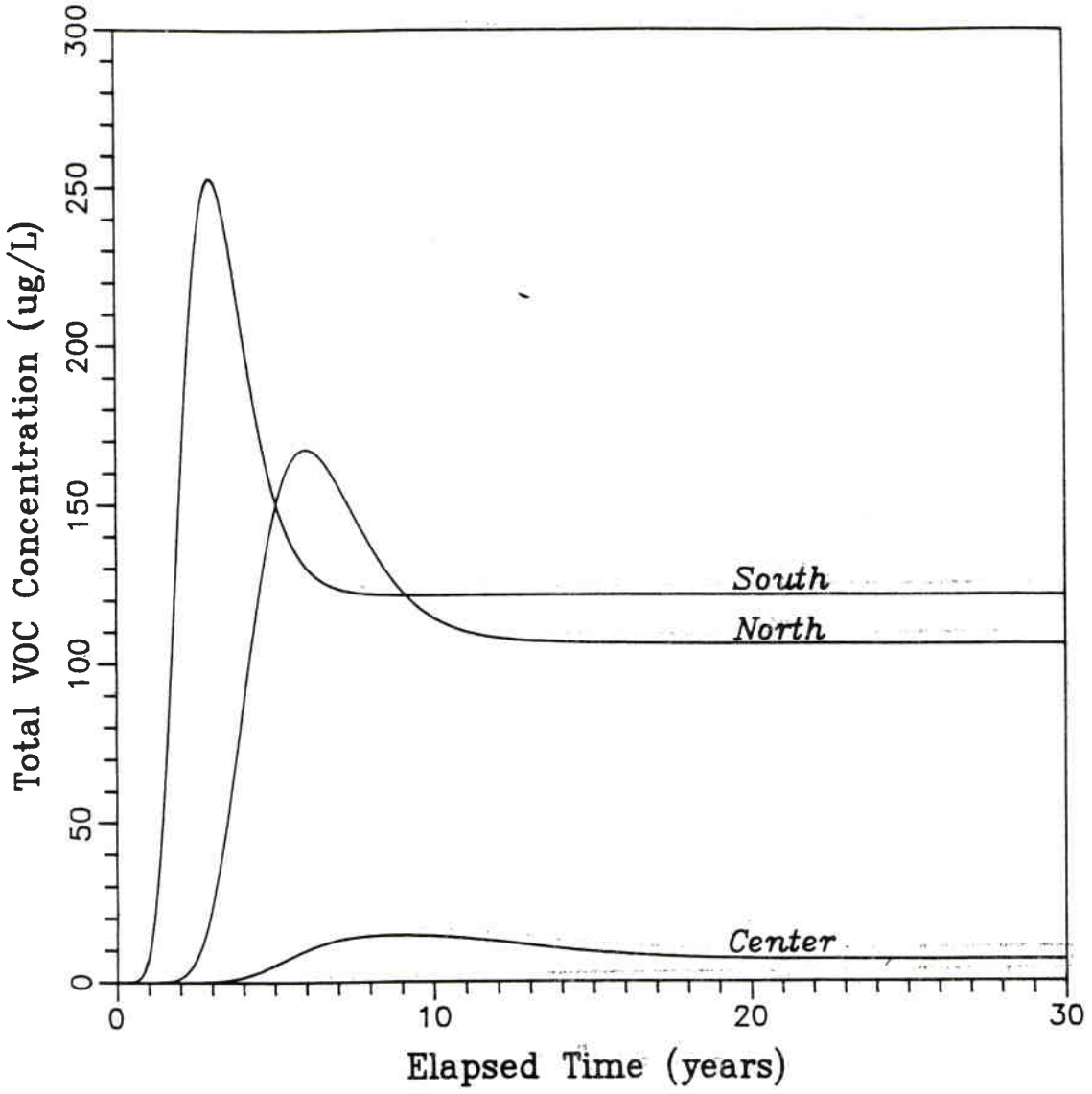
GERAGHTY & MILLER, INC.
Environmental Services

CONCENTRATION VERSUS TIME AT OBSERVATION LOCATIONS, NO SOURCE

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE
5-6

DRAFTER:
APPROVED: LM
CHECKED: DC
DRAWING: NOSOURCE
FILE NO.: 1449
PRJCT NO.: NY021.07
DWG DATE: 11JAN92



Total VOC – Total Volatile Organic Compounds
ug/L – micrograms per liter

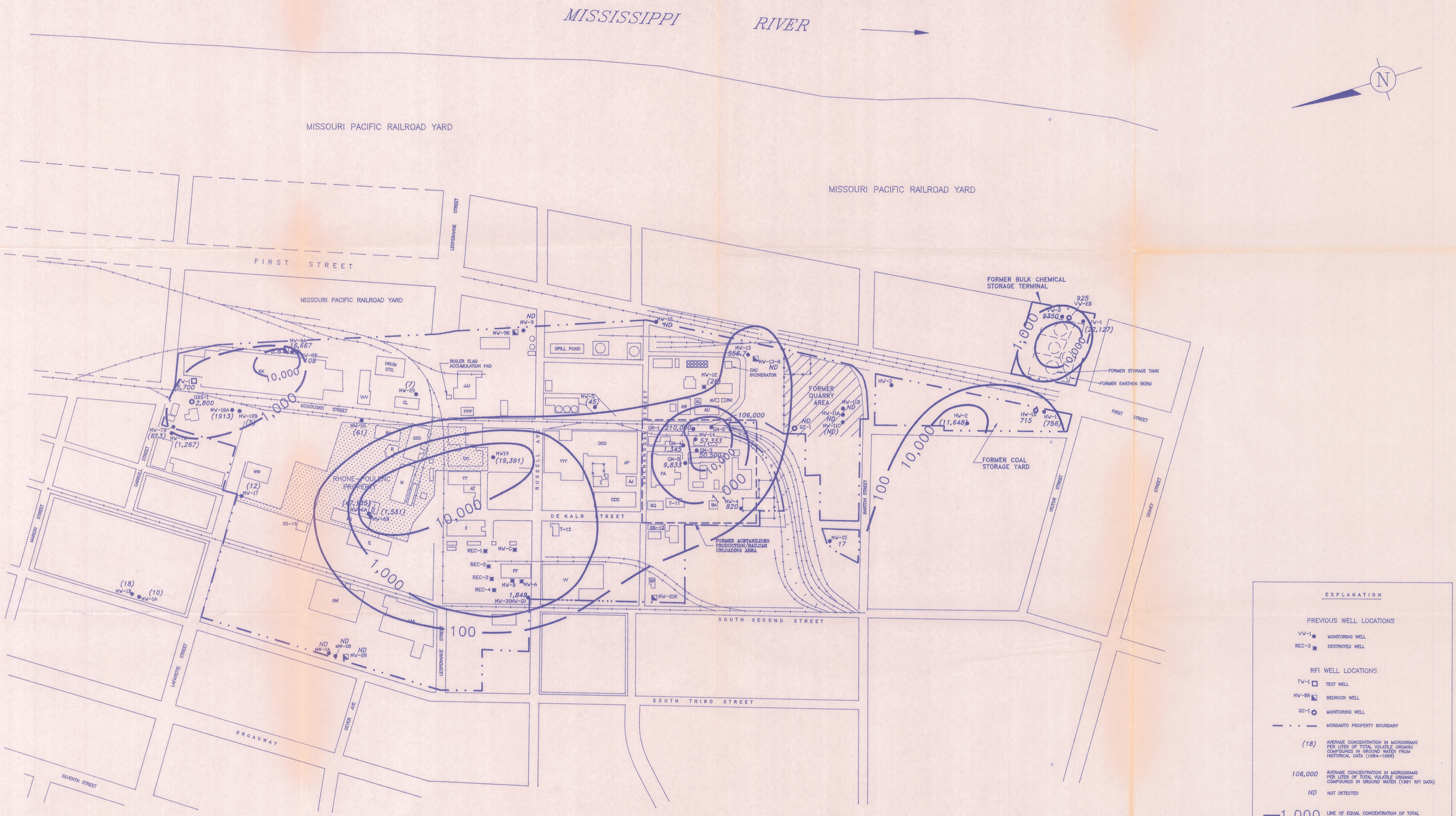
GERAGHTY & MILLER, INC.
Environmental Services

CONCENTRATION VERSUS TIME AT OBSERVATION LOCATIONS, CONSTANT SOURCE

MONSANTO CHEMICAL COMPANY
J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE 5–7

DRAFTER: | APPROVED: LM | CHECKED: DC | DRAWING: | FILE NO.: 1449 | PRJCT NO.: NY02107 | DWG D 11JAN92



EXPLANATION

PREVIOUS WELL LOCATIONS

VW-1 ●	MONITORING WELL
REC-3 ✱	DESTROYED WELL

RFI WELL LOCATIONS

TW-1 □	TEST WELL
HV-8R ◪	BEDROCK WELL
QS-1 ○	MONITORING WELL
— · · —	MONSANTO PROPERTY BOUNDARY
(18)	AVERAGE CONCENTRATION IN MICROGRAMS PER LITER OF TOTAL VOLATILE ORGANIC COMPOUNDS IN GROUND WATER FROM HISTORICAL DATA (1984–1988)
106,000	AVERAGE CONCENTRATION IN MICROGRAMS PER LITER OF TOTAL VOLATILE ORGANIC COMPOUNDS IN GROUND WATER (1991 RFI DATA)
ND	NOT DETECTED
—1,000	LINE OF EQUAL CONCENTRATION OF TOTAL VOCs (DASHED WHERE INFERRED)

VOCs VOLATILE ORGANIC COMPOUNDS.

0 500 FT

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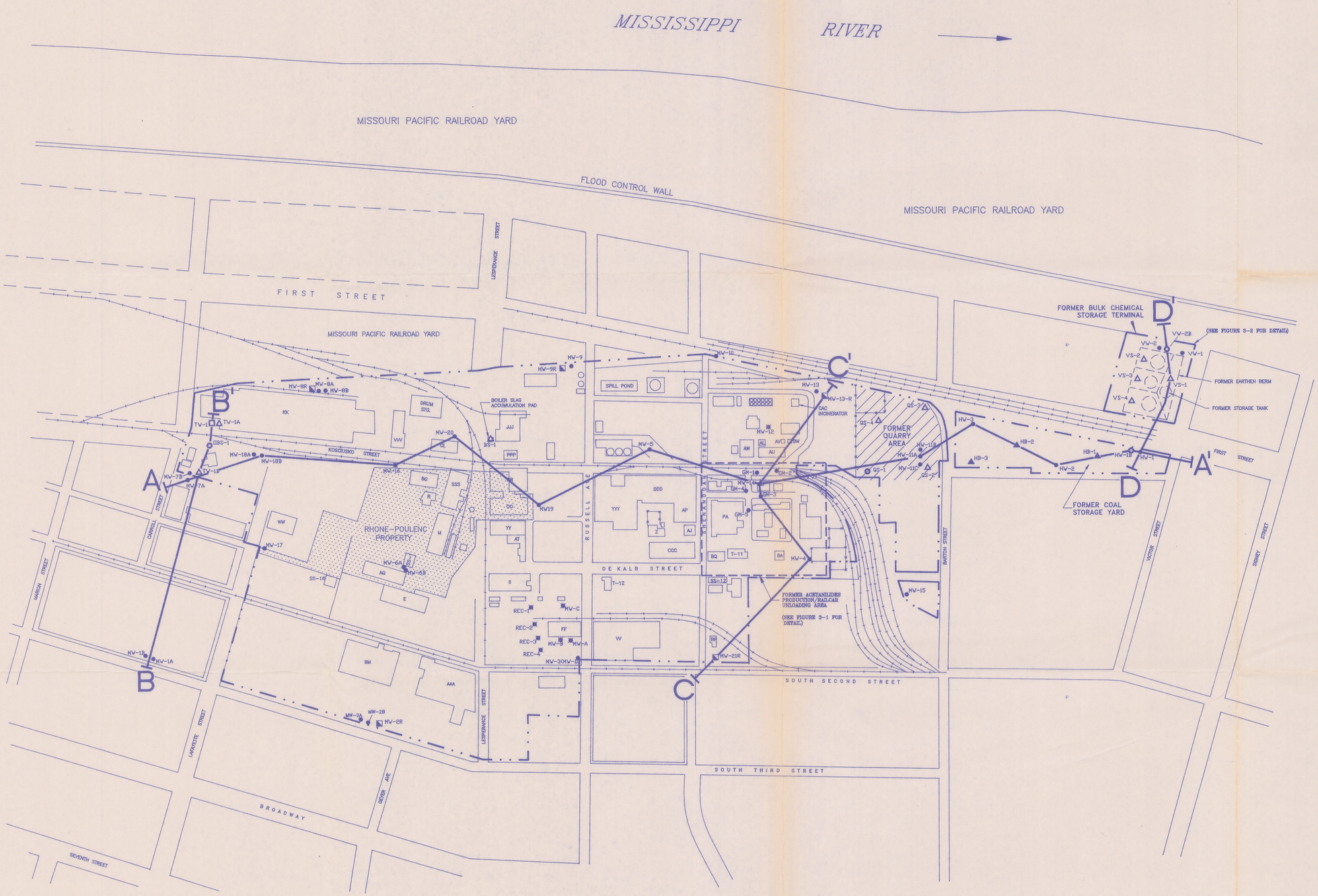
PROJECT NO.: NY02107	FILE NO: 1210
DRAWING: TVOC-UD	PLOT SIZE: 1"=200'
DRAFTED BY: E.M.D.B./G.S	DATE: 3-9-92
CHECKED BY: L. MUSIKER	DATE:
APPROVED BY: G.K. SHKUDA	DATE: 9-17-91

CONCENTRATIONS OF TOTAL VOLATILE ORGANIC COMPOUNDS IN GROUND WATER WITHIN THE UNCONSOLIDATED DEPOSITS

MONSANTO CHEMICAL COMPANY J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE 4-2



0 500 FT

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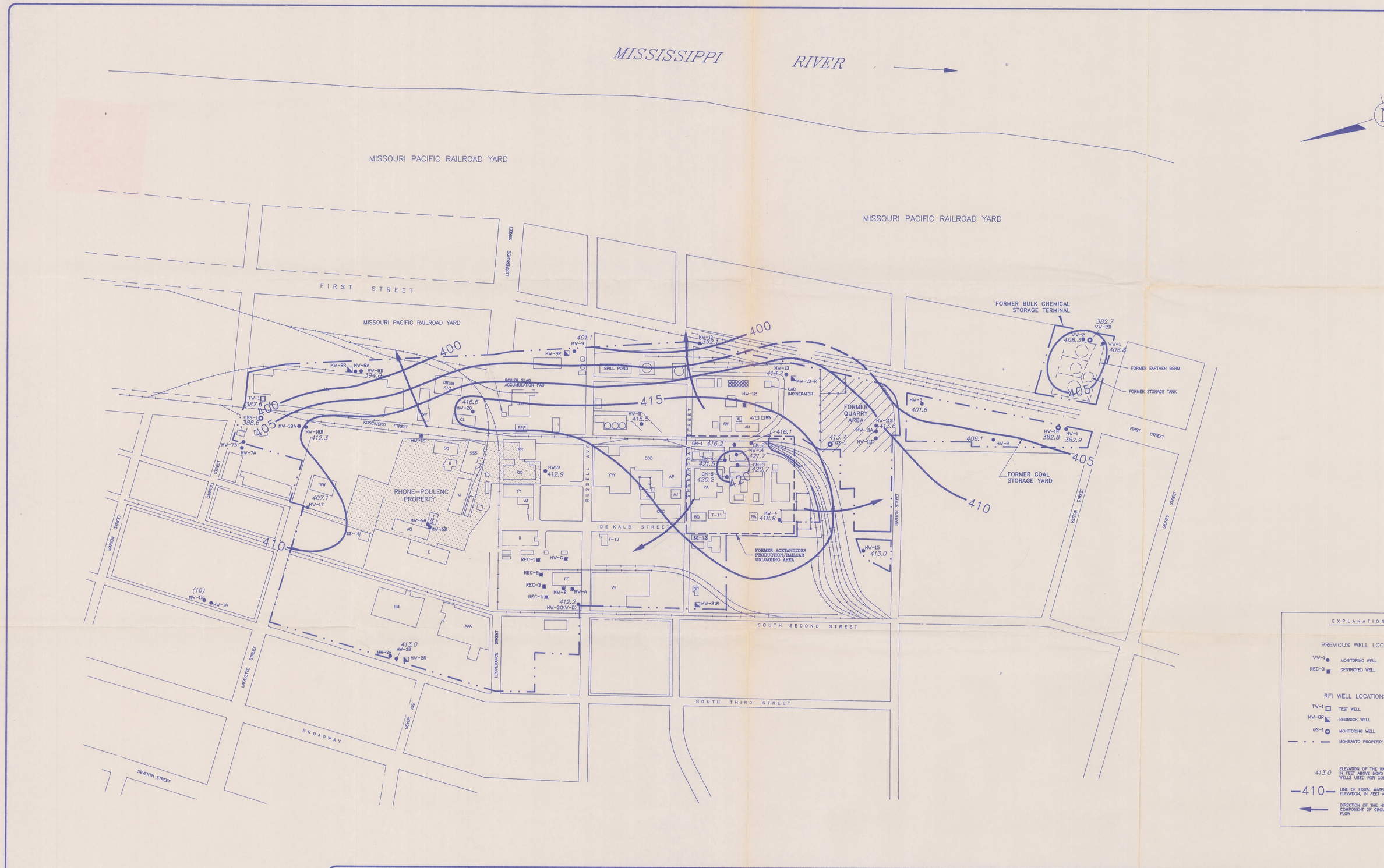
DRAWING: MV-SB-CS	PLOT SIZE: 1"=200'
DRAFTED BY: G.S.	DATE: 3-9-92
CHECKED BY: L. MUSIKER	DATE:
APPROVED BY: G.K. SHKUDA	DATE: 9-17-91

MONITORING WELLS, SOIL BORINGS, AND LINES OF CROSS SECTION

MONSANTO CHEMICAL COMPANY J.F. QUEENY PLANT ST. LOUIS, MISSOURI

FIGURE 1-1



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PROJECT NO.: NY02107	FILE NO: 1210
DRAWING: WT10-91	PLOT SIZE: 1"=200'
DRAFTED BY: G.S./E.M.D.B.	DATE: 3-10-92
CHECKED BY: L. MUSIKER	DATE:
APPROVED BY: G.K. SHKUDA	DATE: 9-17-91

CONFIGURATION OF THE WATER TABLE ON OCTOBER 28, 1991

MONSANTO CHEMICAL COMPANY J.F. QUEENY PLANT ST. LOUIS, MISS