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SITE ENVIRONMENTAL REPORT
FOR CALENDAR YEAR 1992
UNITED STATES DEPARTMENT OF ENERGY
KANSAS CITY PLANT
KANSAS CITY, MISSOURI

Environmental Protection Department

Published May 1993

MASTER

Technical Communications
Kansas City Division

 **AlliedSignal**
AEROSPACE

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SITE ENVIRONMENTAL REPORT FOR CALENDAR YEAR 1992,
UNITED STATES DEPARTMENT OF ENERGY, KANSAS CITY PLANT,
KANSAS CITY, MISSOURI

KCP-613-5171, Published May 1993

Prepared by the Environmental Compliance Department,
D. W. Brownrigg, Coordinator

This report has been prepared to fulfill the requirements of DOE Order 5400.1 for environmental monitoring by the Environmental Protection Department at AlliedSignal Inc., Kansas City Division (KCD). Environmental monitoring, including analyses and data management, is administered by the Environmental Protection Department. This report summarizes the significant information resulting from the environmental and effluent monitoring programs at the Kansas City plant in CY1992. No radioactive materials are machined or processed at the plant.

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ABBREVIATIONS AND ACRONYMS

AICO	ABANDONED INDIAN CREEK OUTFALL
AQCR	AIR QUALITY CONTROL REGION
CAA	CLEAN AIR ACT
CFC	CHLOROFLUOROCARBON
CHC	CHLORINATED HYDROCARBON
CMI	CORRECTIVE MEASURES IMPLEMENTATION PLAN
CMS	CORRECTIVE MEASURES STUDY
CS	CONFIRMATION STUDY
CSS	COMBINED SANITARY SEWER
CWA	CLEAN WATER ACT
DCE	1,2 DICHLOROETHENE
DOE	DEPARTMENT OF ENERGY
EPA	ENVIRONMENTAL PROTECTION AGENCY
ER	ENVIRONMENTAL RESTORATION
IP	INTERNAL PROCEDURE
IWPF	INDUSTRIAL WASTEWATER PRETREATMENT FACILITY
KCAO	KANSAS CITY AREA OFFICE
KCMO	KANSAS CITY, MISSOURI
KCP	KANSAS CITY PLANT
MDNR	MISSOURI DEPARTMENT OF NATURAL RESOURCES
NAAQS	NATIONAL AMBIENT AIR QUALITY STANDARDS
NAEP	NATIONAL ASSOCIATION OF ENVIRONMENTAL PROFESSIONALS
NEPA	NATIONAL ENVIRONMENTAL POLICY ACT
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PCAP	PROCESS CAPABILITY ASSURANCE PROGRAM
PCB	POLYCHLORINATED BIPHENYL
POTW	PUBLICLY OWNED TREATMENT WORKS
PPA	POLLUTION PREVENTION ACT
PPB	PARTS PER BILLION
PWA	PROCESS WASTE ASSESSMENT
QA	QUALITY ASSURANCE
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
RFI	RCRA FACILITY INVESTIGATION
RFIWP	RCRA FACILITY INVESTIGATION WORK PLAN
SARA	SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT
SCP	SPILL CONTROL PLAN
TCE	TRICHLOROETHLENE
TPH	TOTAL PETROLEUM HYDROCARBONS
TSCA	TOXIC SUBSTANCES CONTROL ACT
TSP	TOTAL SUSPENDED PARTICULATES
TTO	TOTAL TOXIC ORGANICS
VOCS	VOLATILE ORGANIC COMPOUNDS
(G)	GRAB SAMPLE
(H)	HEXAVALENT
mg/L	MILLIGRAMS PER LITER
µg/L	MICROGRAMS PER LITER

EXECUTIVE SUMMARY

The purpose of this report is to present a summary of the environmental data for the Kansas City Plant (KCP), characterize site environmental management performance, provide compliance status with applicable environmental standards and requirements, and highlight significant achievements, programs, and efforts which go beyond regulatory requirements.

This report is required by the U.S. Department of Energy (DOE) Order 5400.1 (General Environmental Protection Program). Information presented in this report is based on an environmental monitoring program conducted at the AlliedSignal Inc., Kansas City Division (KCD) in CY1992. This monitoring program is designed to measure non-radiological releases to the air, water (surface and ground), and soil during historical/routine operations and to detect any accidental non-radioactive releases.

One hundred twenty-two monitoring wells (most with multiple completions), five sampling points at the UV/ozone system, three ambient air monitoring stations, and sampling results from four outfalls, nine surface water sites, and one sanitary discharge were used in the monitoring program.

No radioactive materials are machined or processed at this plant.

COMPLIANCE SUMMARY AND ENVIRONMENTAL PROGRAM INFORMATION

A review of the Kansas City operation, applicable laws and regulations, and regulatory inspection reports revealed the following instances of noncompliance:

1. Notification level for zinc, 0.100 $\mu\text{g/L}$, was exceeded in five out of 96 samples collected in CY1992.
2. Trace levels of 1,2 Dichloroethene (DCE) continued to discharge from one outfall in CY1992, in violation of plant NPDES permit conditions.
3. Four episodes of NPDES permit violations occurred in CY1992, including one excursion of maximum pH due to an erroneous pH reading, one unauthorized discharge to a storm drain, and two exceedances of the monthly average PCB limitation.
4. One exceedance of visible air emission limits from boiler operations per the Kansas City, Missouri, Air Quality Control Code.

ENVIRONMENTAL RADIOLOGICAL PROGRAM INFORMATION

As stated earlier there are no releases of radioactive material at the Kansas City Plant.

ENVIRONMENTAL NON-RADIOLOGICAL PROGRAM INFORMATION

Non-radiological pollutants are measured in surface water, groundwater, and air as a part of the ongoing environmental monitoring programs. These media are regularly sampled and analyzed for constituents that include heavy metals, organics, PCBs, cyanide, VOCs, and petroleum hydrocarbons.

Soil has been sampled and analyzed for environmental contaminants as part of RCRA facility investigations pursuant to the 3008(h) Order on Consent and as part of general site environmental characterizations performed in support of construction projects. These samples are analyzed for constituents that include PCBs, metals, cyanide, VOCs, and petroleum hydrocarbons.

Ambient air monitoring, conducted at the three monitoring stations, indicates a negligible environmental impact on regional air quality from the operation of the Kansas City Plant. There are over 870 exhaust systems at the KCP which discharge to the atmosphere. Total solvent releases in CY1992 were reduced by 32% over CY1991.

Surface water samples collected at four storm sewer outfalls, nine surface water sites, and one sanitary discharge were analyzed for heavy metals, organics, PCBs, and volatile organics. The majority of the samples collected contained low concentrations of heavy metals.

GROUNDWATER PROTECTION

Quarterly groundwater monitoring samples were collected from 220 individual monitoring well completions. Samples were analyzed for either all or a partial set of the following parameters: VOCs, PCBs, metals, and Total Petroleum Hydrocarbons (TPH). A significant portion of the samples collected contain volatile organics.

QUALITY ASSURANCE

The Quality Assurance Program involves the following actions. Proposed and final environmental regulations relating to the generation, transportation, storage, treatment, and disposal of hazardous waste are reviewed as required to ensure KCP is in compliance with all Federal and State hazardous waste regulations.

QA also includes:

- Laboratory audits (semiannually)
- Sampler audits (quarterly)
- Sampler duplicate analysis (10% of all samples)
- Spiked sample analysis (10% of all samples)
- Blind sample analysis quarterly

SECTION 1

INTRODUCTION

This report presents summary data for the environmental monitoring program at the Kansas City Plant and brief status reports on environmental programs not requiring monitoring data. Table 1.1 summarizes the environmental programs at the Kansas City Plant. The report also provides compliance status with environmental standards and requirements and highlights significant achievements in environmental programs and efforts which go beyond regulatory requirements. It has been prepared in conformance with guidelines given in U.S. Department of Energy (DOE) Order 5400.1. This document is provided to regulatory agencies and the public for assessing the environmental performance of the Kansas City Plant.

Normally throughout this report, the data tables or figures are presented immediately following their first mention. However, in several instances, clarity requires that the data be placed at the end of the discussion section.

SITE LOCATION

The U.S. DOE Kansas City Plant is part of a federal complex in Kansas City, Missouri, which consists of facilities occupied by the General Services Administration, the United States Marine Corps, the Federal Aviation Administration, and the Internal Revenue Service, in addition to the facilities occupied by the Department of Energy. The Kansas City Plant is located 12 miles south of downtown Kansas City, Missouri, and is situated in a small river valley surrounded by low hills. The Blue River (a tributary of the Missouri River) flows from south to north along the eastern edge of the complex. Indian Creek flows from west to east along the south side of the complex and merges with the Blue River. The area around the facility is primarily residential with occasional light industry, giving the facility predominance in the immediate community (Figures 1.1, 1.2).

Table 1.1

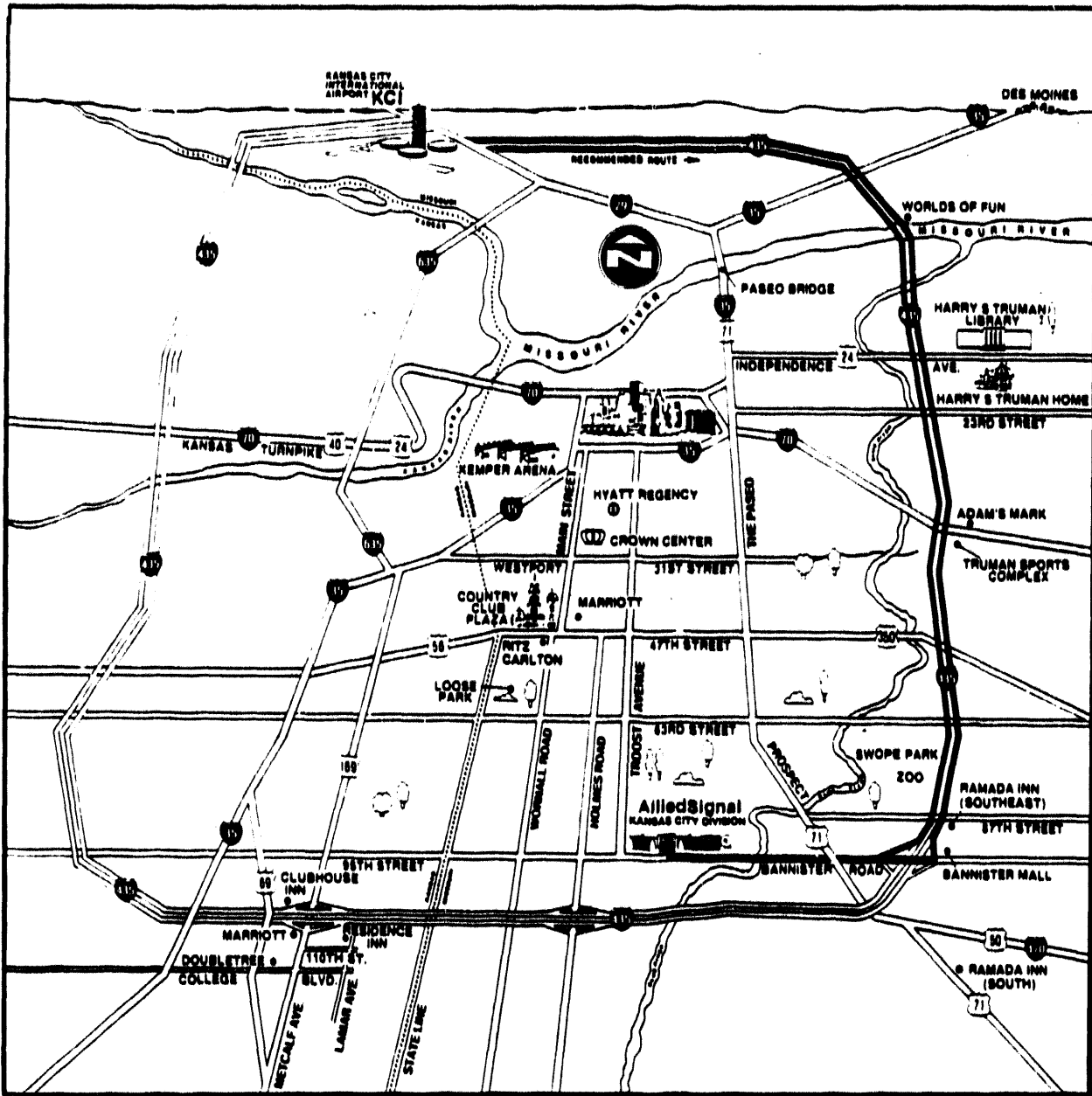
Kansas City Plant Monitoring Program

Monitoring Program	Requirement
Intake Water	To provide baseline water quality data for NPDES permit.
Outfalls to Blue River and Indian Creek	To ensure that effluents discharging to surface waters via four plant outfalls meet NPDES permit requirements.
Stream Monitoring	To assess impact of effluents and contaminated groundwater plumes on surface waters.
Sanitary to Combined Sanitary	To provide data relating to discharge of normal sanitary sewage to the combined sanitary sewer system.
Industrial Wastewater to Combined Sanitary	To provide data relating to discharge of industrial wastewater to the combined sanitary sewer system.
Combined Sanitary to Publicly Owned Sewage Treatment System	To ensure that effluent, which includes discharge from the industrial wastewater system, meets Kansas City ordinance for sanitary and pretreatment standards for industrial wastes.
Groundwater	To ensure compliance with RCRA requirements and assess the impact of operations on groundwater.
Groundwater Treatment Plant Effluent	To ensure that treated effluent discharging to the sanitary sewer system meets permit requirements.
Ambient Air	To assess the impact of air effluents discharging from plant operations.

Table 1.1 (Continued)

Kansas City Plant Monitoring Program

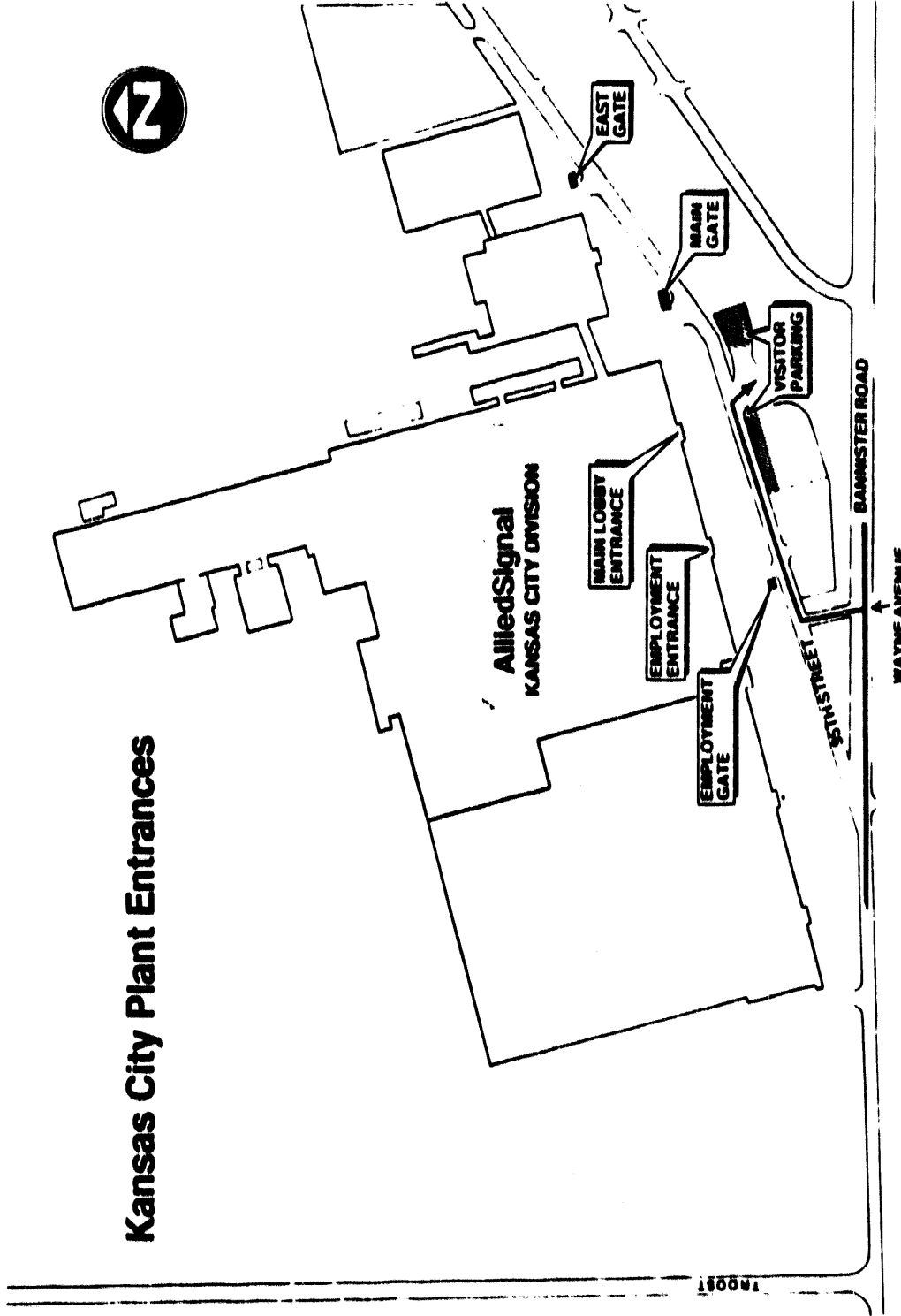
Monitoring Program	Requirement
Point Source Air Emissions	To ensure that air effluents from major air pollutant sources meet City and State standards.
Soil and Sediment	The Kansas City Plant is a non-nuclear facility. Radiological soil and sediment monitoring is not required. Soil is sampled as part of the Environmental Restoration Program to assess impacts of historic releases.



Kansas City Plant
Vicinity Map

Figure 1.1

Kansas City Plant Entrances



Kansas City Plant
Facility Site

Figure 1.2

FACILITY HISTORY AND MISSION

The Kansas City Plant is a government-owned, contractor-operated facility. AlliedSignal and its predecessors have been the operating contractors since 1949.

The principal operation performed at the Kansas City Plant is the manufacture of non-nuclear components for nuclear weapons. This activity involves metals and plastics machining, plastics fabrication, plating, microelectronics, and electrical and mechanical assembly. No radioactive materials are machined or processed.

FACILITY DESCRIPTION

The majority of the offices and manufacturing areas are under one roof, with additional outbuildings for support operations. Two boilerhouses, situated to the east and west of the main building, supply steam for space heating and chilled water for cooling to the entire federal complex. Under normal demand conditions, the West Boilerhouse supplies all the steam required at the federal complex with only two of its four boilers. The West Boilerhouse boilers are primarily natural gas-fired with No. 6 or No. 2 fuel oil utilized under emergency, training, and testing conditions. In 1985, the boilers in the East Boilerhouse were officially decommissioned, although they had not been used for several years.

CLIMATOLOGY

The most important meteorological data for this report are wind direction and wind speed. Wind direction and speed are used for calculating non-radiological emissions and for ambient air data reports. Accurate estimates for the dispersion of contaminants in the atmosphere, should such dispersion occur, require knowledge of the frequency and distribution of wind speed and direction.

The graphical form of the data, known as a wind rose, is used in this report.

AIR PROGRAM

Ambient air monitoring at the three monitoring stations has indicated a negligible environmental impact on regional air quality from the operation of the Kansas City Plant. In CY1987, the KCP's three ambient air monitoring stations became fully operational with a subcontractor performing operations and maintenance (O&M). In CY1991 O&M was transferred from the subcontractor internally. These stations were originally sited in the early 1970s. An air and meteorological monitoring station resiting study was conducted in CY1991 which indicated the need for additional ambient air and meteorological monitoring stations. The design of the new air monitoring station was initiated in CY1992. Construction will be completed in CY1994.

The Kansas City, Missouri, Air Quality Division currently shares one of the monitoring stations as a site for measuring ambient air quality in the metropolitan area. Carbon monoxide, total suspended particulates, and lead levels in the ambient air are monitored by the city. No production activities were subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) during 1992; however, asbestos abatement activities in conjunction with plant modification and construction are being undertaken at the KCP. These activities are being performed by a subcontractor in accordance with the applicable NESHAP, Toxic Substances Control Act (TSCA), and OSHA regulations.

The primary single-point source of air pollution emissions from the Kansas City Plant is the West Boilerhouse operation. The operation of the East Boilerhouse is restricted to supplying cooling capacity using steam generated at the West Boilerhouse. Steam boiler operations have been discontinued at the East Boilerhouse. Stack emission testing of the West Boilerhouse has demonstrated that airborne pollutant discharges are significant only when fuel oil rather than natural gas is consumed. Opacity monitors were installed on the boiler stacks in CY1992. Natural gas is the primary fuel for the West Boilerhouse, but historically, gas curtailments imposed by the local utility, boiler testing, training, and recalibration have required the occasional use of oil as an alternate fuel.

Emission testing of the boilerhouse in CY1987 demonstrated that emissions from 100% fuel oil consumption under normal operating conditions would still meet local codes under the current regulatory status of the boilers. Therefore, air pollution control measures for the boilerhouse to ensure regulatory compliance associated with potential burning of fuel oil are not budgeted at this time. State and local air pollution control regulations for visible emissions have been evaluated and are being met.

The KCP has multiple volatile organic compound (VOC) point sources from operations including degreasing, cleaning, and surface coating. In CY1987, the KCP performed a study of emissions from selected VOC point sources. The study concurred with past estimates of VOC emissions from degreasers and actual emissions which indicated at that time that the KCP was not required to meet state VOC degreaser regulations. Estimated KCP VOC emissions from degreasers were below the 100-tons-per-year (tpy) applicability threshold.

The state of Missouri established more stringent VOC emission regulations in CY1987 for solvent metal cleaning and surface coating operations as part of the state implementation plan designed to reduce ozone levels in the Kansas City ozone nonattainment area. (This area was designated an attainment area by EPA in June 1992, but will remain a maintenance area for the next few years). The KCP reviews incoming degreasing equipment to ensure conformance with design features required by State regulations, and in CY1991 KCP personnel received their annual degreaser operator training.

A routine report of air pollutant emissions from the plant is submitted annually to the Kansas City Air Quality section. KCP internal efforts to reduce VOC, chlorofluorocarbon (CFC), and chlorinated hydrocarbon (CHC) usage and emissions have resulted in significant waste minimization/pollution prevention achievements as shown in the Waste Minimization/Pollution Prevention section.

Normal KCP operations do not release radioactive air pollutants. No unplanned releases per DOE Order 5400.1 occurred in CY1992.

WATER PROGRAM

Contributions of nonradioactive pollutants to the water environment are determined by monitoring the four outfalls discharging effluents to Indian Creek and the Blue River. The outfall effluent monitoring program includes parameters identified in state of Missouri effluent regulations and guidelines, in addition to the parameters required by the plant's National Pollution Discharge Elimination System (NPDES) permit authorizing this discharge (see Table 2.1). The permit was originally issued in CY1973 and was most recently reissued on July 17, 1987. Although the expiration date of this permit was April 14, 1992, the permit remains fully effective and enforceable under regulatory provisions for automatic continuance of an expired permit, while permit renewal is pending. A renewal application was filed in October 1991 in accordance with regulatory requirements. The regulating agency for this permit is the Missouri Department of Natural Resources (MDNR). Permit limitations are based on intake water quality (drinking water) and the effect of the effluent on the receiving streams.

All average surface water effluent concentrations were within the NPDES permitted limits and the Missouri Effluent Guidelines in CY1992 with the exception of four permit excursions. The first excursion occurred in February 1992, when the NPDES permit limitation for maximum pH was exceeded due to an erroneous pH reading. The second excursion occurred when the March 1992 monthly average PCB concentration in one of the KCP outfalls exceeded the NPDES permit limitation. The third excursion occurred in July 1992, when an employee decided, with indifference to waste management practices and without knowledge or consent of his supervision, to drain a dilute coolant solution

into a storm sewer drain. The fourth excursion occurred when the December 1992 monthly average PCB concentration in one of the KCP outfalls exceeded the NPDES permit limitation. In addition, in February 1990, it was determined that the ongoing discharge of trace levels of chlorinated solvents constitutes a permit violation. Solvents were present in one of the KCP outfalls (see Table 2.3) during CY1992 and will continue pending completion of a groundwater restoration project in CY1993.

In addition to the effluent standards, the current NPDES permit contains a requirement to notify the permit authority of the discharge of any toxic pollutant (defined in Section 307 (a) (1) of the Clean Water Act) which is not otherwise limited in the permit. The notification limits are values greater than 100 micrograms per liter ($\mu\text{g/L}$) or five times the value of that parameter as stated in the application for the permit. Five zinc readings from a total of 2,880 readings (30 parameters monitored twice per month at each of the four outfalls) exceeded this notification standard during 1992, (see Table 2.2 and page 31). It is important to note that the exceedance of a notification level is not considered a permit violation by the regulatory authority. Source investigations are not routinely initiated on such isolated occurrences.

Historically, the discharge of polychlorinated biphenyls (PCBs) through one of the KCP outfalls has been a major compliance issue for the plant. Since 1982, the NPDES permit prohibited any release of PCBs above the quantification level of one part per billion (ppb) on a monthly average. In response to this limit, the KCP conducted a variety of activities from 1982 to 1988 to reduce PCB discharges. Actions taken include establishment of improved administrative controls, extensive cleaning and relining of storm sewer laterals, and upgrading of a contaminated outfall structure. As a result of these activities, compliance with the permit limit was achieved throughout 1989, 1990, and 1991 at all four outfalls. However, in March 1992 and December 1992, the two previously mentioned permit excursions occurred when monthly average PCB concentrations in one of the KCP outfalls exceeded the NPDES permit limitation. Monthly average PCB discharges for this period are indicated on Figure 2.1.

Normal operations at the KCP do not discharge radioactive water pollutants. Annual radiological monitoring conducted in July 1992 confirmed that all levels of radioactivity in the plant's water discharges were not significantly different from regional surface water levels. No artificially produced radionuclides were detected in any of the monitoring samples.

ENVIRONMENTAL RESTORATION PROGRAM

The Environmental Restoration Program works to ensure compliance with the RCRA 3008(h) Order on Consent entered into on June 23, 1989. The Order on Consent requires that environmental impacts associated with past and present activities at the KCP are thoroughly investigated and that appropriate corrective action is taken to protect human health and the environment. To this end, thirty-six sites have been identified for investigation of potential environmental releases. Nine of the thirty-six have been determined to require no further action while the remainder are in some phase of either investigation or remediation.

Release site investigations typically consist of soil sampling to bedrock, the completion of groundwater monitoring wells with subsequent groundwater sampling, and may include geophysical techniques such as ground penetrating radar. Samples are typically analyzed for VOCs, PCBs, metals, and TPH. Based on data collected from release site investigations, the significant contaminants at the KCP are TCE, 1,2-DCE, chloroethene, and PCBs.

Groundwater monitoring has identified at least three chlorinated solvent plumes (Northeast Area plume, TCE Still/Underground Tank Farm plume, and a plume associated with the Chip & Sales Building). Data indicates these plumes exist in the alluvium and have not contaminated underlying bedrock. A groundwater pump-and-treat system was implemented in CY1988 and utilized an ultraviolet/ozone/hydrogen peroxide process to treat groundwater. The pump-and-treat system currently utilizes 15 withdrawal wells and the UV/ozone/hydrogen peroxide process continues to treat collected groundwater. This groundwater treatment unit is planned to be replaced in CY1993, by an ultraviolet/hydrogen peroxide unit which will have more capacity.

Interim remediation measures will be completed at the D/27 (outside) release site in CY1993 and implementation of the AICO final CMI Design report was initiated in September 1992. Both remediation projects require the excavation of PCB contaminated soil.

RESOURCE CONSERVATION AND RECOVERY ACT PROGRAM (RCRA)

Quarterly groundwater monitoring initiated in 1984 continued in 1992 to identify contaminants, characterize groundwater flow, and collect background data as required by both the Consent Order and RCRA regulations that address the non-clean closure of RCRA hazardous waste surface impoundments and storage tanks. Groundwater monitoring was required after EPA classified the two wastewater lagoons (in use at the time) as RCRA hazardous waste surface impoundments. Because the lagoons and underground tank farm were not clean closed, continued groundwater monitoring at these units is required.

The varied operations of the KCP generate hazardous wastes as defined by 40 CFR 261 from processes such as plating, etching, electronic assembly, metals and plastics machining and forming, and wastewater treatment. All materials that are not reclaimed or recycled on site are contained and stored on-site as hazardous waste until transported off-site by licensed transporters. Recycling, treatment, or disposal occurs at EPA-approved, KCP-reviewed facilities. Monitoring the effects of these effluents on the environment includes routine review of plant operations which handle and store hazardous wastes and overseeing the procurement and administration of contracts with hazardous waste treatment and disposal subcontractors to ensure compliance with federal and state regulations.

On June 15, 1992, the RCRA Part A and Part B Permit Application for hazardous mixed waste storage activities was revised and subsequently submitted to EPA and MDNR. This revision also included a revised post-closure permit application.

POLLUTION PREVENTION PROGRAM

This program is primarily under the Pollution Prevention Act (PPA), RCRA and DOE Order 5400.1. The Kansas City Plant's (KCP) Pollution Prevention program is an organized and continual effort to systematically reduce material releases to all environmental media. The overall program focus is aimed at pollution prevention which involves the eventual elimination of any material release to any environmental media from all aspects of KCP operations. The KCP's program reflects the goals and policies for Pollution Prevention set by KCP management which maintains an ongoing effort to make Pollution Prevention part of the company's operating philosophy. CY1992 activities included the revision of this plan and policy, continuing significant solvent usage and emission reductions, inorganic waste reductions, ongoing material substitution developmental work, awareness training for general management and all associates, implementation of department pollution prevention plans and development of Process Waste Assessments

QUALITY ASSURANCE PROGRAM

Quality Assurance (QA) measures were incorporated into all of the monitoring activities described in this report and were documented. Surface water sampling and analysis are performed by an independent laboratory that is selected only after successful performance on standard samples prepared by another independent subcontractor. Additional QA measures include duplicate or spiked sample analysis on 10% of all samples analyzed, semiannual laboratory audits by another independent subcontractor, and

quarterly field sampler audits by KCP. The laboratory must also successfully analyze blind QA samples submitted at least quarterly, and all QA data generated by the subcontract laboratory is reviewed by another independent subcontractor.

Routine quarterly groundwater sampling and analysis was conducted by an independent laboratory selected by the same means as the surface water laboratory. This same laboratory has now been used since July 1990. Organic and inorganic analyses have been performed according to EPA approved methodologies contained in SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. The laboratory performing the analyses is an EPA certified Contract Laboratory Program laboratory. This laboratory must comply with specific quality control requirements. The QC objectives and requirements conform, in general, with the U.S. Environmental Protection Agency Federal Register, November 29, 1987 (p. 53937 or 40 CFR 792), the Food and Drug Administration Federal Register, December 22, 1978 (p. 59986 or 21 CFR 58), Quality Assurance Program Requirements for Nuclear Facilities, ANSI/ASME NQA-1, 1986 ed. and Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (U.S. Environmental Protection Agency, EPA-LO (4-84-004, QAMS-005/80). A complete description of laboratory QA requirements is presented in the Supplement to the Groundwater Quality Assessment Plans (DOE 1990).

The quality assurance requirements of DOE Order 5700.6C have been evaluated to determine impacts to the environmental program at the KCP. Applicable requirements have been documented in an environmental quality assurance program plan and implementation is ongoing.

SECTION 2

COMPLIANCE SUMMARY

It is the policy of the Kansas City Plant to conduct its operations so as to comply with all applicable environmental laws and regulations. The following is a review of those environmental requirements that are relevant to the functions at the Kansas City Plant. Table 2.1 is a summary of existing or pending state and/or federal permits. A summary assessment, providing updated information on environmental compliance activities for the period January through April 1993 is presented in Section 8.

Table 2.1

Permits

Relevant Program and/or Law	Permit #	Regulating Agency	Expiration Date
City Air Operating Permit	AQ-11	KCMO	7/31/93
CWA-NPDES Permit	MO-0004863	MDNR	4/14/92 - Renewal application filed - new permit pending
RCRA-Part B Storage	Interim Status	MDNR	Not issued yet
City Sewer Discharge Permit	Permit No. 74	KCMO	A draft city sewer discharge permit was issued 12/24/92. Final permit is pending.
RCRA-Part B Land Disposal Post Closure Permit	Pending Issuance	MDNR	Not issued yet
Groundwater Treatment Discharge	None	KCMO	12/31/88 - renewal application filed - new permit pending
D/99 South Spray Paint Booth Air Construction and Operating	535	KCMO	None
D/187 Heat Cleaning Oven	577	KCMO	None

MDNR = Missouri Department of Natural Resources
KCMO = Kansas City, Missouri

COMPLIANCE STATUS

CLEAN AIR ACT (CAA)

Radiological Information

The KCP contracted radionuclide monitoring during CY1992. The results of this monitoring indicated that no radionuclides are present in quantities exceeding background levels.

Non-Radiological Information

In CY1992 the KCP maintained compliance with the federal, state, and local air pollution regulations except for violation of the city code opacity limit from boiler operations. The violation was caused by a boiler controller malfunction during fuel oil firing. The notice of violation was later dropped by the city because of a malfunction exemption in the city code. Opacity monitors were installed as a best management practice.

In an effort to clarify compliance with local construction permitting requirements, the KCP presented a permitting proposal to the city in May 1991 to better define city requirements and streamline reporting needs with respect to the KCP. Tentative approval from the city has been received; however, formal written approval is being sought.

The State of Missouri began requiring emission inventory questionnaires for CY1992 emissions. Emission inventories were previously required only by the city.

CLEAN WATER ACT (CWA)

The KCP maintained compliance with NPDES permit limits during CY1992 with the exception of four permit excursions. The first excursion occurred in February 1992, when the NPDES permit limitation for maximum pH was exceeded due to an erroneous pH reading which was caused by inattention to detail, by a subcontractor contributed to poor equipment design (LCD readout). The second excursion occurred when the March 1992 monthly average PCB concentration in one of the KCP outfalls exceeded the NPDES permit limitation. The third excursion occurred in July 1992, when an employee decided, with indifference to waste management practices and without knowledge or consent of his supervision, to drain a dilute coolant solution into a storm sewer drain. The fourth excursion occurred when the December 1992 monthly average PCB concentration in one of the KCP outfalls exceeded the NPDES permit limitation. Monthly average PCB discharges for this period are indicated on Figure 2.1.

Sanitary and industrial wastewater from the KCP is discharged into the Kansas City, Missouri Publicly Owned Treatment Works (POTW). These discharges were in compliance with discharge limitations in CY1992 as shown in Table 2.4.

A summary of NPDES compliance, 1,2 Dichloroethene (DCE) discharge concentrations, and POTW discharge performances are provided in Tables 2.2 NPDES Performance, 2.3 Summary of Solvent Data for the Storm Sewer Outfall 001, and 2.4 Combined Sanitary Sewer Performance.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

In CY1992 the KCP maintained compliance with SARA via completing the required inventory reports (see Table 2.5). In 1992 the KCP maintained compliance with the spill reporting requirements of SARA through the use of a Spill Control Plan (SCP). The KCP had no reportable quantity (RQ) releases of any material to the environment during CY1992. The number of hazardous material spills occurring at the KCP during CY1992 is provided in Table 2.6.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

In CY1992 the KCP maintained compliance with TSCA.

SAFE DRINKING WATER ACT (SDWA)

The KCP does not operate a public water system and is therefore not covered by the Safe Drinking Water Act implementing regulations contained in 40 CFR Part 141. The drinking water system at the KCP meets all conditions for exclusion listed in 40 CFR 141.3.

ENDANGERED SPECIES ACT (ESA)

Not applicable to the KCP.

NATURAL HISTORIC PRESERVATION ACT (NHPA)

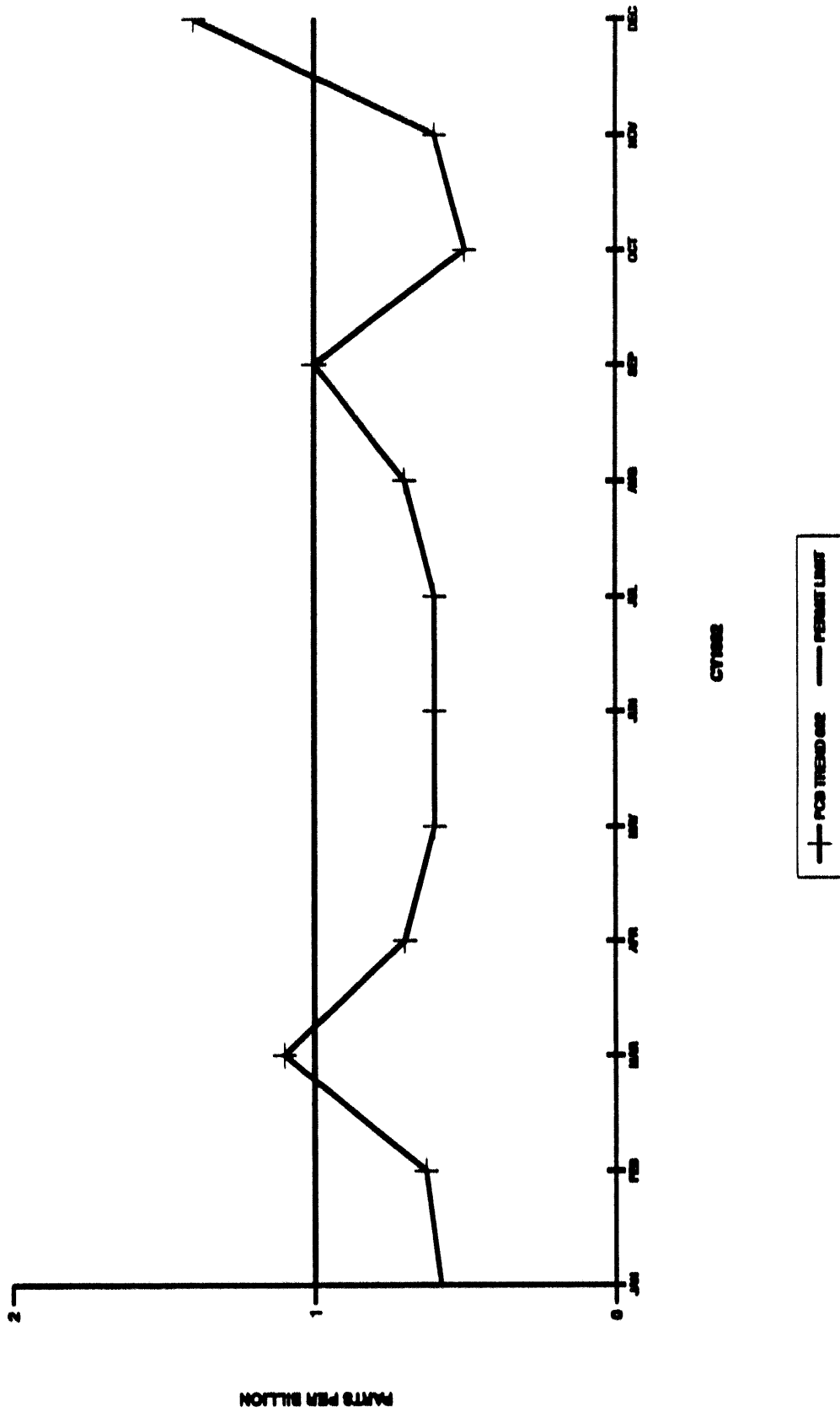
Not applicable to the KCP.

EXECUTIVE ORDER (E.O.) 11988 - FLOOD PLAIN MANAGEMENT

In CY1992 the KCP maintained compliance with E.O. 11988. As appropriate, NEPA evaluations for projects at the KCP were addressed for potential issues relating to the KCP Flood Plain.

EXECUTIVE ORDER (E.O.) 11990 - PROTECTION OF WETLANDS

In CY1992 the KCP maintained compliance with E.O. 11990. As appropriate, NEPA evaluations for projects at the KCP were addressed for potential issues relating to the prevention of wetlands.



Stormwater Outfall 002
PCB Monthly Average

Figure 2.1

Table 2.2
 NPDES Performance
 CY1992

<u>Parameter</u>	<u>Permit Limit</u>	<u>Times Exceeded</u>
pH	Between 6.0 and highest intake level	1*
Temperature	stream temperature +5°F	0
Polychlorinated Biphenyl	1.0 µg/L (monthly average)	2
<u>Notification Level</u>		
Cyanide	100 µg/L	0
Phenol	100 µg/L	0
Chloromethane	100 µg/L	0
Vinyl Chloride	100 µg/L	0
Chloroethane	100 µg/L	0
Methylene Chloride	100 µg/L	0
Trichlorofluoromethane	100 µg/L	0
1,1-Dichloroethylene	100 µg/L	0
1,1-Dichloroethane	100 µg/L	0**
Chloroform	100 µg/L	0
1,2-Dichloroethane	100 µg/L	0
1,1,1-Trichloroethane	100 µg/L	0**
Carbon Tetrachloride	100 µg/L	0
Trichloroethylene	100 µg/L	0
Tetrachloroethylene	100 µg/L	0
Benzene	100 µg/L	0
Toluene	100 µg/L	0
Ethyl Benzene	100 µg/L	0
1,1,2-Trichloro		
1,2,2-Trifluoroethane	100 µg/L	0
1,2-Dichloroethylene	100 µg/L	0**
Chromium (H)	100 µg/L	0
Chromium (T)	100 µg/L	0
Zinc	100 µg/L	5***
Cadmium	100 µg/L	0
Nickel	195 µg/L	0
Beryllium	100 µg/L	0

Table 2.2 (continued)

<u>Parameter</u>	<u>Notification Level</u>	<u>Times Exceeded</u>
Copper	100 µg/L	0
Silver	100 µg/L	0
Lead	100 µg/L	0
Thallium	100 µg/L	0
Mercury	100 µg/L	0
Selenium	100 µg/L	0
Arsenic	100 µg/L	0

- * Exceedance of the permit limit for pH was caused by an erroneous pH reading in February 1992.
- ** In February 1990, it was determined that the ongoing discharge of chlorinated solvents below the notification level constitutes a permit violation (see discussion in text).
- *** The exceedance of a notification level (zinc) is not considered a permit violation by MDNR.

Table 2.3

Summary of Solvent Data for
the 001 Storm Sewer Outfall
1992

(Concentrations in mg/L)

<u>Month</u>	<u>Number of Samples Containing Solvents</u>	<u>Lowest Concentration</u>	<u>Highest Concentration</u>	<u>Average Concentration</u>
January	1 of 2	<0.005	0.008	0.004
February	1 of 2	<0.005	0.007	0.004
March	1 of 2	<0.005	0.008	0.004
April	1 of 2	<0.005	0.011	0.006
May	1 of 2	<0.005	0.008	0.004
June	1 of 2	<0.005	0.056	0.028
July	0 of 2	<0.005	<0.005	<0.005
August	0 of 2	<0.005	<0.005	<0.005
September	1 of 2	<0.005	0.010	0.005
October	0 of 2	<0.005	<0.005	<0.005
November	2 of 2	0.012	0.030	0.021
December	2 of 2	0.042	0.046	0.044

Table 2.4
 Combined Sanitary Sewer Performance
 CY1992

Regulatory Standard (mg/L)

Parameter	Regulatory Standard (mg/L)			Times Most Restrictive Standard Was Exceeded
	Kansas City, Missouri Ordinance	Average ¹	Metal Finishing Daily Maximum ²	
Cyanide	2.0	0.65	1.20	0
Cadmium	2.0 ¹	0.01	0.020	0
Chromium (T)	10.0 ¹	0.21	0.46	0
Copper	2.0 ¹	0.26	0.56	0
Lead	0.1 ¹	0.08	0.14	0
Mercury	*	*	*	0
Nickel	3.0 ¹	0.32	0.68	0
Silver	None	0.05	0.09	0
Zinc	2.0 ¹	0.27	0.49	0
TTO	None	*	0.41	0
pH	6.0-10.0	*	*	0
Temperature	150°F	*	*	0
BOD (5 day)	None	*	*	0
Chlorinated Solvent	0.160	*	*	0
Phenol	10.0	*	*	0
Soluble Oil	100.0	*	*	0

Table 2.4 (continued)

Parameter	Regulatory Standard (mg/L)			Times Most Restrictive Standard Was Exceeded
	Kansas City, Missouri Ordinance	Metal Finishing		
		Average ¹	Daily Maximum ²	
TSS	360	*	*	0
Boron	1.0 ¹	*	*	0
Chromium (H)	5.0 ¹	*	*	0
Iron	15.0 ¹	*	*	0
Sulfides	10.0	*	*	0

1. No city ordinance limit is available. Limit given is from the Missouri Effluent Guidelines for Municipal Control of Industrial Wastes.
 2. Metal finishing standards are recalculated every six months (40 CFR433). The limits provided are the time weighted averages of standards applicable to the KCP during 1992.
- * Standard has not been established.

Table 2.5

SARA Section 313 Toxic Chemical Release Inventory for CY1991

<u>Parameter</u>	<u>Air Emissions (lbs)</u>		<u>Discharges to</u>		<u>Solid Waste (lbs)</u>	
	<u>Point Source</u>	<u>Fugitive</u>	<u>POTW</u>	<u>Water (lbs)</u> <u>Streams</u>	<u>RCRA</u>	<u>Residual*</u>
Trichloroethylene	31,000	3,500	0	0	12,345	2
1,1,1-Trichloroethane (Methyl Chloroform)	13,000	1,500	0	0	10,345	2
Freon 113 (Ethane, 1,1,2-trichloro-1,2,2-trifluoro-)	23,000	1,700	0	0	4,250	0
Sulfuric Acid	1,200	1,200	0	N/A	N/A	N/A
Nitric Acid	3,300	530	0	N/A	N/A	N/A
Toluene	3,000	280	0	0	5,100	1

* Estimate of residual that may have been present in non-regulated waste.

NOTE: Data provided is for CY1991. SARA Section 313 reports are due to EPA on July 1 of each reporting year. This is after the due date for the SER.

Table 2.6

CY1992 Spill Occurrences at the KCP

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Equipment Fail- ure	3	1	1	5	2	3	3	2	2	2	2	2	46%
Container Fail- ure	1	1	0	0	0	0	1	1	0	0	0	1	8%
Transportation/ Handling Errors	0	3	0	2	1	2	1	3	3	1	1	0	28%
Operations	0	0	1	0	3	1	0	2	3	1	0	0	18%
Total	4	5	2	7	6	6	5	8	8	4	3	3	

61 spills

NOTE: Spill occurrences at the KCP are broken into the four categories listed above. While the KCP's program for the reduction of spills covers all categories, if a particular category were to exceed control limits or were to statistically significantly increase, an investigation would be performed.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA)

In CY1992, the KCP maintained compliance with FIFRA.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

In CY1992, the KCP submitted all deliverables as required by the RCRA 3008(h) Administrative Order on Consent.

POLLUTION PREVENTION ACT (PPA)

In CY1992, no non-compliance issues were identified.

ENVIRONMENTAL RESTORATION

In CY1992, no non-compliance issues were identified under the RCRA 3008(h) Consent Order.

EPA conducted a RCRA Compliance Inspection in March 1992, at which time the North and South Lagoon caps and several groundwater monitoring wells were inspected. No compliance violations were noted at the time of the inspection.

MDNR conducted an Operation and Maintenance Inspection (O&M) of monitoring wells in July 1992. At the informal close-out meeting, the following MDNR comments were noted:

- o The KCP is conscientious about this program and no major problems were found.
- o Problems identified in the last inspection have been resolved.
- o Comparison of groundwater level field measurements between the KCD subcontractor and MDNR appeared to be in agreement.
- o Well 65 has water in the annulus. This is a common problem with flushmount wells. Care should be taken to remove the water prior to opening the well cap.
- o Installation of protective posts or patching of asphalt cracks is required at few wells in paved areas.
- o Volatile organic compounds (VOCs) were not collected in the proper order by the subcontractor. Protocol requires collection of VOCs first. (Split samples were collected).
- o Plastic ground cover was not used at well sites by the subcontractor. The groundwater elevation tape was observed to momentarily contact the ground surface.

No formal written MDNR O&M Inspection Report was received as a result of this inspection.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

In CY1992, a draft Environmental Assessment (EA) was prepared for the KCP Environmental Restoration Program. Initial DOE review comments are currently under evaluation for incorporation into the draft document. An EA prepared for an Environmental Hazardous Elimination Subproject submitted to DOE in May 1991, is pending DOE review and comment.

CURRENT ISSUES AND ACTIONS

The DOE-AL-DP Office of Inspection conducted a Technical Safety Appraisal (TSA) of KCP activities from April 21-30, 1992. The results of this TSA are documented in a report dated June 22, 1992, entitled "Technical Safety Appraisal of the KCP, KCMO." The TSA inspectors identified 19 recommendations. From those recommendations; 9 were not accepted, 4 have been completed, 2 have action plans developed and the remaining 4 were incorporated into existing action plans.

Tiger Team Issues

The Tiger Team Environment, Safety and Health Assessment of the Kansas City Plant (KCP) was completed on December 7, 1989.

Environmental Protection is responsible for 50 of the 151 Tiger Team findings requiring corrective action. In CY1992, 24 Tiger Team closure certificates were issued, 8 findings were submitted for closure, 8 of the findings DOE is responsible for closing. The following is the status of the outstanding Tiger Team findings.

Finding #2 - Better air monitoring program.

A subcontractor has been selected and completion is still expected in January 1994.

Finding #3 - Siting of meteorological tower.

A new site has been selected and completion is still expected in November 1994.

Finding #6 - Noncompliant flows from connections to storm sewers.

A "Scope of Work" change has been prepared and will be submitted to DOE by March 1993, completion is expected in July 1993.

Finding #7 - Discharge of solvents to city POTW.

This finding is on hold. Completion is expected by September 2003.

Finding #13 - Undefined extent of groundwater contamination.

The undefined horizontal and vertical extent of groundwater contamination, remains open. Closure of this finding requires the completion of RFI investigations of the 001 Outfall and TCE still consent order release sites.

Finding #18 - Improper storage of LDR hazardous waste.

A "Scope of Work" change has been issued. Closure packet will be submitted for closure in February 1993.

Finding #25 - RCRA storage within 100 year floodplain.

This finding is on schedule for completion in September 1993.

Finding #26 - Lack of sump inventor and inspection.

This finding is behind schedule due to a "Scope of Work" change which will be submitted to DOE in February 1993.

Finding #39 - Inadequate hazardous chemical inventory reporting.

This finding is behind schedule, due to a "Scope of Work" change which will be submitted to DOE in February 1993.

Findings #5, 37, 44, 46-50

These findings are the responsibility of DOE-KCAO and DOE-AL to close.

CLEAN AIR ACT (CAA)

A DOE-AL-DP compliance appraisal was conducted in April 1992, which reported 5 CAA recommendations. From those recommendations 1 was not accepted, an action plan has been proposed for 1, the remaining 3 have been incorporated into existing action plans.

A significant accomplishment by the KCP in CY1992 involved the continuing reduction of solvent emissions by greater than 95% over CY1986 via Pollution Prevention efforts.

Review of new sources and modifications is an additional air issue to be resolved with the city. The KCP presented a proposal to the city in 1991. Tentative approval was received; however, formal approval is being sought.

CLEAN WATER ACT (CWA)

A DOE-AL-DP compliance appraisal was conducted in April 1992, which reported 3 CWA recommendations. From those recommendations 1 was not accepted and the remaining 2 have been completed.

KCP water effluents which flow directly to receiving streams are regulated by National Pollutant Discharge Elimination System (NPDES) permit #MO-0004863, issued by the Missouri Department of Natural Resources (MDNR). Effluents discharged from the plant into the Kansas City, Missouri, Publicly Owned Treatment Works (POTW) are regulated by Kansas City, Missouri, Discharge Permit #74 and city ordinances administered by the Kansas City, Missouri, Water and Pollution Control Department (KCMO) and by U. S. EPA Pretreatment Standards for the Metal-Finishing Category (40 CFR 433.17).

NPDES Issues

The KCP maintained compliance with NPDES permit limits in CY1992, with the exception of four permit excursions. One excursion occurred in February 1992, when the NPDES permit limitation for maximum pH was exceeded due to an erroneous pH reading. Another excursion occurred in July 1992, when an employee decided, with indifference to waste management practices and without knowledge or consent of his supervision, to drain a dilute coolant solution into a storm sewer drain. Two other permit excursions occurred when the March 1992 and December 1992 monthly average PCB concentrations in one of the KCP outfalls exceeded the NPDES permit limitation.

The notification level for zinc, 100 µg/L, was exceeded in five out of 96 samples collected. It is important to note that the exceedance of a notification level is not considered a permit violation by MDNR (Table 2.2). A source investigation report was prepared and issued in March 1991, which associated elevated zinc with rainwater runoff from vehicles in parking areas, and from galvanized equipment and fencing on roofs and grounds of the KCP facility.

Discharges of 1,2-Dichloroethylene (DCE) at trace levels below the NPDES permit notification level have been occurring at one of the KCP NPDES-permitted outfalls for some time. The source of this contamination is contaminated ground water which enters the storm sewer system through pipe joints and defects and through groundwater discharges in an open channel of the drainage system. In 1989, the DOE/KCAO requested clarification from MDNR on whether these discharges constitute an NPDES permit violation.

In February 1990, MDNR informed the DOE/KCAO that the ongoing discharge of trace levels of DCE is a violation of the KCP NPDES permit. In response, KCP developed an "Action Plan to Eliminate Solvents From Stormwater Outfall 001 Effluent" and initiated several sewer system rehabilitation projects to reduce this contamination.

These activities were effective in reducing the DCE concentration at the outfall. However, trace discharges will continue in the area of the open channel section of the drainage system until completion of the groundwater restoration effort ongoing in the vicinity. For this reason, an interim project was identified in 1991 that would facilitate the interception and treatment of the groundwater beneath the open channel.

In September 1992, a contract was awarded to implement 001 Outfall interim remediation measures designed to prevent the infiltration of VOC contaminated groundwater into the 001 outfall drainage pipe. The project is scheduled to be completed in CY1993.

Final corrective measures were initiated at the Abandoned Indian Creek Outfall (AICO) in October 1992. This remediation project involves the excavation of an estimated 20,000 tons of PCB contaminated soil. It has been identified by the KCP to further address the NPDES compliance issue of residual PCB contamination in the Outfall #002 system.

POTW Discharge Issues

In CY1992 the KCP maintained full compliance with federal metal finishing pretreatment standards and with KCMO sewer discharge limitations. There were no compliance issues with POTW discharges in CY1992.

In January 1989, KCMO informed the KCP of its intention to include a limit of 0.1 $\mu\text{g}/\text{L}$ for polychlorinated biphenyls (PCBs) when a new POTW discharge permit is issued. In response to this anticipated requirement, the KCP has provided KCMO with a "Plan to Reduce PCB Discharges to the KCMO Sewer System" and has proactively initiated source investigation and remediation activities outlined in this plan.

In January 1992, draft revisions to the KCMO Sewer Use Ordinance were reviewed, in which KCMO proposed a 0.1 $\mu\text{g}/\text{L}$ PCB limit. On February 27, 1992, a meeting was held with KCMO, in which the KCP contested the 0.1 $\mu\text{g}/\text{L}$ PCB limit. In November 1992, KCMO provided DOE-KCAO with a draft revised Sewer Use Ordinance.

Upon finalization, this revised ordinance will establish a maximum daily PCB limitation of 1.0 $\mu\text{g/L}$, instead of 0.1 $\mu\text{g/L}$. However, if the PCB limit applies to grab samples, periodic noncompliance may be unavoidable. Another proposed revision accentuates a prohibition against discharging groundwater, subsurface drainage, condensate, deionized water, and unpolluted industrial wastewater to the KCMO sewer. Comments were provided to KCMO on December 4, 1992,

In December 1992, KCMO sent DOE-KCAO a draft POTW discharge permit for the KCP. The draft permit proposed a maximum daily limit of 1 $\mu\text{g/L}$ PCB. The KCP prefers a final 1 $\mu\text{g/L}$ monthly average PCB limit, to avoid possible periodic noncompliance. In addition, the draft permit fails to include KCP discharges from the groundwater treatment system, reverse osmosis deionized water (RO/DI) system flushes, carbon treatment, cooling tower water, footing tile/foundation drains, the proposed organics treatment building, etc. The draft permit also contained some significant errors with regard to the federal pretreatment category of the KCP and misapplication of flow weighted average limits to the Industrial Wastewater Pretreatment Facility effluent. Comments were provided to KCMO on January 19, 1993.

In addition, design work was completed in 1991 on a contaminated flow collect and treat system. This system will consist of new piping to route all KCP wastewater contaminated with chlorinated solvent and TTO to a new organics treatment facility, where it will be treated prior to discharge to the POTW. Construction of this system is awaiting a NEPA determination. It is expected to be completed and operational within 2 1/2 years after NEPA review, at a total cost of approximately \$1,600,000.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

The Tiger Team assessment of the KCP indicated a Best Management Practice Finding that the KCP had not formalized a procedure in which the appropriate regulatory authorities are notified within three months when an extremely hazardous substance becomes present in an amount exceeding the respective threshold planning quality. Interim procedures have been instituted to ensure appropriate notification where possible. However, to ensure notification in instances when a material currently present at the facility increases, the KCP's Hazardous Material Information System will be used when the inventory phase is implemented. Implementation will occur in March 1993, the finding will be submitted for closure.

The Tiger Team assessment of the KCP found the reporting matrix of the Spill Control Plan and the report distribution to be incomplete. Reporting matrix and distribution issues were resolved in CY1990.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

A DOE-AL-DP compliance appraisal was conducted in April 1992, which reported 1 TSCA recommendation. From that recommendation it was not accepted.

TSCA requires that no TSCA-regulated PCB materials be stored over 30 days in a 100-year flood plain area whether or not the area is protected from such a flood. Actions continued in CY1992 to ensure that TSCA-regulated PCB materials are sent to an offsite TSCA disposal facility prior to being stored at the KCP for 30 days.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA)

The Tiger Team assessment presented one FIFRA Best Management Practice Finding. One item of a pesticide spray equipment was not properly labeled. This issue was resolved during the Tiger Team visit, and a comprehensive pesticide procedure has been finalized which ensures that all other aspects of FIFRA are addressed.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

A DOE-AL-DP compliance appraisal was conducted in April 1992, which reported 8 RCRA recommendations. From those recommendations 5 were not accepted, 2 have been completed, and the remaining 1 recommendation has been incorporated into existing action plans.

The KCP detonates small devices such as squibs prior to the reclamation process. This practice is driven by safety requirements during reclamation. There was a concern that these DOD Hazard Class 1.4 explosives would be regulated as RCRA reactive waste and thereby the detonation practice would become regulated under RCRA. A meeting with the Missouri department of Natural Resources (MDNR) was held March 5, 1992, where it was determined that the DOD Hazard Class 1.4 explosive is not a RCRA waste.

MDNR regulations state that in completing the RCRA Part B Permit application, information must be provided to the MDNR to determine if the applicant is a habitual violator. The regulations also require submittals of names of specific employees, a list of all permits held by the applicant, the structure of the company (AlliedSignal Inc. and the DOE Complex), and identification of all violations incurred by the corporation and the DOE relating to hazardous waste management. The KCP is maintaining that we should provide only information relevant to this facility because of the unique GOCO/DOE relationship. If the MDNR does not agree with this position, the granting of the KCP Part B Permit application may be contingent on the submittal of large volumes of information on the DOE Complex or AlliedSignal Corporation.

The Tiger Team assessment of the KCP found undefined vertical and horizontal extent of groundwater contamination. RCRA facility investigations (RFI) have been initiated or scheduled as required by the 3008(h) Administrative Order on Consent which will define vertical and horizontal extent. The Tiger Team also found no documentation recording the abandonment of wells. An Internal Procedure (IP) has been developed and is being followed to correct this finding.

The Missouri Department of Natural Resources (MDNR) maintains RCRA authority over the KCP groundwater monitoring program. MDNR reviews KCP's annual groundwater monitoring report, quarterly groundwater data, and groundwater quality assessment plans.

The most recent annual RCRA inspection was conducted by U.S. EPA - Region VII March 11 and 12, 1992. This inspection resulted in the issuance of a Notice of Violation on March 13, 1992, that contained five (5) citations. A response to these citations was provided on March 23, 1992. These citations and KCP's corrective actions are as follows.

1. 40 CFR 268.50(C) - Storage of LDR hazardous waste more than one year not to include Hg waste per EPA/DOE past discussions.

Corrective Action - Pending further EPA Review.

2. 10 CSR 25-7.265(2) (I)2.A - Cracks in secondary containment acid pad.

Corrective Action - Cracks repaired March 18, 1992 with epoxy sealant.

3. 40 CFR 265.15 - Failure to adequately inspect/document leaking pump north solvent tank farm.

Corrective Action - Leak investigated and found to be steam leak which was repaired. Evidence of prior oil leak was removed. Documentation of investigation and repair completed and filed. Improved conduct of inspection program addressed in response to following citation.

4. 10 CSR 25-7.265(2) (I)3 - Failure to adequately inspect acid pad cracks.

Corrective Action - Procedures were revised for conduct of storage lot inspections and importance of those procedures was reinforced to applicable personnel through internal memorandum.

5. 40 CFR 262.34(c)(1)(i) - Open satellite containers.

Corrective Action - Satellite storage procedures and monitoring program revised to reflect new interpretation of "closed" container to assure continued compliance.

FEDERAL FACILITIES COMPLIANCE ACT (FFCA)

The Federal Facilities Compliance Act (FFCA) was signed on October 6, 1992. Pursuant to the FFCA, the KCP prepared and submitted required inventory reports and a list of on-site treatment capabilities in December 1992 for inclusion in the DOE 180-Day Mixed Waste Inventory report.

POLLUTION PREVENTION ACT (PPA)

In CY1992, the KCP continued to develop and enhance elements of the KCP Pollution Prevention policy and plan. Several actions to

continue implementation of these Pollution Prevention practices have resulted in notable achievements as discussed in the Environmental Non-Radiological Program information section.

ENVIRONMENTAL RESTORATION

Interim remediation fieldwork started in July 1992, and was completed in October 1992. Excavation consisted of 200 yds of PCB contaminated soil.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

In CY1992 the KCP identified NEPA Compliance Coordinators for each division. The NEPA Compliance Coordinators completed the KCP NEPA Compliance Program document. This document outlines the roles and responsibilities required by each division to maintain compliance with NEPA. The NEPA Compliance Coordinators also revised the KCP NEPA Implementation procedure and published divisional NEPA procedures. An outline for NEPA Awareness training was developed in CY1992. NEPA Awareness training sessions will be conducted in 1993.

KCP continues to submit requests for NEPA determination for General Plant Projects and Construction Line Items. In CY1992 the DOE expanded its baseline of projects requiring NEPA documentation to include some expense-funded projects. In accordance with a DOE Order supplemental directive, the DOE Kansas City Area Office and the KCP have successfully implemented the use of a NEPA Compliance record to document decisions made by the DOE-KCAO Line Management Official. The KCP provided information to DOE on a total of 29 specific projects in CY1992 for the purpose of obtaining NEPA determinations. Included among those submittals is the annual proposal to conduct miscellaneous routine operating and administrative activities throughout the year under the KCP "umbrella" environmental checklist. In CY1992 the DOE published its final NEPA rules.

PERMIT STATUS

CLEAN AIR ACT (CAA)

Overall KCP operations are regulated by an annual Air Operating Permit issued by the city. Construction and operating permits for new or modified sources are shown in Table 2.1.

CLEAN WATER ACT (CWA)

The KCP stormwater discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit number MO-0004863, and the sanitary and industrial wastewater discharges are regulated by KCMO Discharge Permit #74 (Table 2.1).

A proposed new discharge permit application was submitted to KCMO in March 1988 and was tentatively accepted by KCMO with minor revisions. The city intended to issue a new discharge permit to the KCP in March 1989 incorporating all regulated discharges to the POTW; however, a final permit had not been issued by the end of 1992. In December 1992, KCMO sent DOE-KCAO a draft sewer

discharge permit for the KCP. The draft permit contained some significant errors with regard to the federal pretreatment category of the KCP and misapplication of flow weighted average limits to the Industrial Wastewater Pretreatment Facility effluent. The draft permit proposed a maximum daily limit of 1 µg/L PCB; however, the KCP prefers a final 1 µg/L monthly average PCB limit to avoid possible periodic noncompliance. Furthermore, the draft permit fails to include KCP discharges from the groundwater treatment system, reverse osmosis deionized water (RO/DI) system flushes, carbon treatment, cooling tower water, footing tile/foundation drains, the proposed organics treatment building, etc. Comments were provided to KCMO on January 19, 1993. KCP, with KCMO approval, continues to discharge under the terms of its original discharge permit (Permit #74) and the proposed permit application submitted in March 1988, pending issuance of the final sewer discharge permit.

The expiration date of the NPDES permit (Permit #MO-0004863) was April 14, 1992. The NPDES permit remains fully effective and enforceable under regulatory provisions for automatic continuance of an expired permit, while a permit renewal is pending. In accordance with regulatory requirements, an application for permit renewal was prepared and submitted to MDNR in October 1991.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

There are no permits for SARA (Table 2.1).

TOXIC SUBSTANCES CONTROL ACT (TSCA)

There are no permits for TSCA (Table 2.1).

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA)

There are no permits for FIFRA (Table 2.1).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

See Table 2.1.

POLLUTION PREVENTION ACT (PPA)

There are no permits for PPA.

ENVIRONMENTAL RESTORATION

The discharge permit for the groundwater treatment unit has expired. A new permit has been requested; however, the city has not acted on this request. A letter from the city gives DOE permission to continue to operate.

See Table 2.1.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

There are no permits for NEPA.

SECTION 3

ENVIRONMENTAL PROGRAM INFORMATION

SELF-ASSESSMENT

Various audits were conducted and documented by plant personnel of the analytical subcontractor retained for NPDES and groundwater monitoring. Laboratory audits are conducted on a semiannual basis and field crews are audited on a quarterly basis. Only minor procedural deficiencies were noted. Audit summaries are generated and corrective action requested as required.

The following are major self-assessments and achievements in CY1992:

PROVIDE SUPPORT TO DOE FOR REGULATORY AND PROGRAMMATIC REVIEWS, AUDITS, AND MEETINGS. ASSURE THAT COMMUNICATIONS (THROUGH THE KCAO) WITH BOTH REGULATORS AND THE PUBLIC, ARE SUPPORTIVE OF THE DOE MISSION AND ENVIRONMENTAL STRATEGIES, PROGRAM PLANS AND INITIATIVES, GOALS AND OBJECTIVES. PERFORMANCE MEASURES WILL INCLUDE REVIEWS BY DOE, THE MISSOURI DEPARTMENT OF NATURAL RESOURCES (MDNR), EPA, AND THE PUBLIC.

Major Local Industry Meetings - On January 23, 1992, KCD personnel hosted a meeting among several major local industries to expand information sharing on environmental protection programs and related issues. Those industries participating were AT&T, Ford, Hallmark, Marion Merrell Dow, Miles Inc. (formerly Mobay) as well as AlliedSignal. From these roundtable discussions, information shared has been very beneficial. KCD personnel proposed that, on a quarterly basis, each site host a meeting to share information and issues that are of importance to them. All of the attendees agreed this would be a good approach, and they would participate. AlliedSignal hosted the first exchange in April and subsequent ones were hosted by Miles Inc. and AT&T.

On April 8, 1992, KCD personnel participated in a teleconference to initiate a local chapter or section of the National Association of Environmental Professionals (NAEP) in this four-state region. The NAEP is a national organization dedicated to the promotion of ethical practice in the environmental field and recognition of the environmental profession as a distinct career path. The purpose of this initial teleconference was to investigate incorporation of the local chapter or section, and appoint bylaws, nominating, and membership committees. KCD personnel will serve on the nominating committee.

On April 14, 1992, the KCP hosted an environmental protection information exchange with seven other local companies represented. KCP personnel presented information on the RCRA 3008(h) Order on Consent, PCBs in the combined sanitary sewer, and construction air permitting. The exchange also included a tour of the Industrial Wastewater Pretreatment Facility and the UV/Ozone groundwater treatment plant. The next quarterly information exchange will be hosted by Miles, Inc. (formerly Mobay) in July 1992.

Environmental Protection Audits and Briefings - Various members of the KCP Environmental Restoration and Waste Management Programs were singled out by KCAO for their efforts in successfully completing a series of audits, briefings, reviews and meetings which occurred during recent weeks. These requirements were mandated by the Albuquerque Field Office, DOE Headquarters, Office of Management and Budget and the Corps of Engineers. They included the Independent Cost Evaluation (ICE) Review, FY92 Baseline submittal, OMB/COE Review, ER Year-End Review as well as several others.

On June 22-26, 1992, a DOE-HQ EM-45 Assessment of the KCP Department 26 RCRA Facility Investigation (RFI) was conducted. The areas assessed were program management, quality assurance, health and safety, and technical and analytical management, for which D/922 was largely responsible. A summary of D/26 fieldwork was presented by D/922 personnel, and technical questions were responded to during interviews conducted by the assessment team. The D/922 ER subcontractor, Oak Ridge National Laboratory (ORNL), was given instructions in preparation for this assessment and was a direct participant. The assessment noted, as a strength, the strong project level involvement early on by ORNL and the KCP's efforts to build a highly qualified ER staff.

The assessment identified 22 findings, 7 of which were identification of strengths. The majority of the findings for improvement were in the management area. The overall rating was good, on a scale of poor, fair, good, and excellent.

DEMONSTRATE A CORPORATE CULTURE THAT IS FULLY SUPPORTIVE OF DOE POLLUTION PREVENTION POLICY, PROGRAMS AND GUIDANCE, AND MANAGEMENT INTENT OF SEN 37-92, "WASTE MINIMIZATION CROSSCUT PLAN IMPLEMENTATION." ACTIVELY PARTICIPATE IN LOCAL AND NATIONAL WASTE MINIMIZATION AND POLLUTION PREVENTION INITIATIVES, INCLUDING THE VOLUNTARY REDUCTION PROGRAM BEING COORDINATED BY THE GREATER KANSAS CITY AREA CHAMBER OF COMMERCE.

MANAGE AN AGGRESSIVE POLLUTION PREVENTION PROGRAM THAT INCLUDES SOURCE REDUCTION, RECYCLING, AND THE COMPLETION OF PROCESS WASTE ASSESSMENTS IN ACCORDANCE WITH THE PREVIOUSLY DISTRIBUTED SCHEDULE. MEASURE AND REPORT GAINS FROM WASTE MINIMIZATION. CONTINUE EXPANSION AND FORMALIZATION OF THE POLLUTION PREVENTION PROGRAM, INCLUDING THE DEVELOPMENT OF GENERATOR WASTE ACCEPTANCE CRITERIA AND CERTIFICATION PROGRAMS THAT ARE SUPPORTIVE OF WASTE MINIMIZATION AND POLLUTION PREVENTION.

Pollution Prevention Awareness - On January 9-10, 1992, the KCD conducted two one-day workshops on Pollution Prevention Awareness for Pollution Prevention Leaders. The workshop was led by HAZWRAP, a government contractor experienced in the development of pollution prevention training courses. The purpose of the workshop was to further instill the pollution prevention ethic into KCD personnel directly linked to the success of the pollution prevention. All KCD directors, business unit managers, business unit coordinators, and several DOE personnel attended the workshop. The workshop was introduced by John Marchetti, DOE-HQ; Earl Bean, DOE-KCAO; David Caughey, DOE-KCAO; and Karen Clegg, AlliedSignal, and reaffirmed DOE's and AlliedSignal's commitment to pollution prevention. The workshop created a heightened awareness of pollution prevention and was well received by the attendees.

KCD personnel are supporting DOE pollution prevention initiatives to develop a 33/50 program, measure progress on source reduction and recycling projects, and to format the new Annual Waste Reduction Report (SEN-37-92). In addition, a KCD employee has been selected to work full time for one year with DOE-HQ, EM-352, the Waste Minimization Division, beginning October 15, 1992.

The KCD initiated a computerized pollution prevention quarterly progress reporting system in July 1992. This initiative will enhance the timeliness, efficiency, and effectiveness of this internal reporting.

The KCD has initiated a program among several local industries to exchange environmental protection information on a quarterly basis. KCD hosted the first exchange in April 1992 and Miles Inc. the second in July 1992. Local industries include AT&T, Ford, Hallmark, Marion Merrell Dow, Miles, Inc., Olin, and Sprint.

On September 21-24, 1992, the KCP hosted two two-day Advanced Environmental Law courses conducted by Government Institutes. The course was conducted by three environmental attorneys well versed in environmental laws, regulations, and court interpretations. Course attendees included representatives from the DOE/KCAO and the Environmental Protection, Waste Management, Law, Engineering and Quality Assurance departments. That course was well received by most attendees, and plans are being made to make this an annual training course.

On October 23, 1992, KCD personnel presented Pollution Prevention at DOE's Kansas City Plant at a local Chamber of Commerce-sponsored Waste Reduction and Recycling Seminar. The KCD presentation focused on Process Waste Assessments, solvent reductions, and technology transfer. Approximately 50 people attended; representing large and small industry, government, higher education, and news media. The seminar was moderated by KMBC-TV.

KCD personnel have developed and submitted several project proposals to EM-352 for FY1993 funding. These proposals include off-site and on-site PWA technical assistance for other DOE sites, assistance with use of the KCD Graded Approach to PWAs at DP laboratories, the development of methodologies to perform product Life Cycle Analyses (LCAs), and the development of a DOE-wide voluntary reduction program. To date, the KCD has been informally notified by DOE-HQ personnel that the KCD will be the "Center of Excellence" for the development of PWAs within DOE and that the KCD will work with INEL to develop the LCA methodology(ies).

REDUCE CRITERIA POLLUTANTS, HAZARDOUS AIR POLLUTANTS (HAP) UNDER TITLE III OF THE CLEAN AIR ACT OF 1990, AND OZONE DEPLETING CHEMICALS BY 5% OVER PREVIOUS YEAR.

The plantwide emissions inventory for CY1992 was completed and submitted to DOE-KCAO.

For CY1992 the use of CFCs and CHCs has been reduced over 25% as compared to CY1991.

In 1991, the City of Kansas City, Missouri, Air Quality Section received a grant to study methylene chloride air emissions in the Kansas City area. Two major sources of methylene chloride air emissions were chosen: KCP and Marion Merrell Dow. The purpose of the study was to find alternative processing methods and model the impact of methylene chloride air emissions. The KCP supported the study with data on methylene chloride usage and replacement costs. The modeling data was based on 1987 usage rates; and predicted ambient concentration were higher than the proposed state ambient air standard for methylene chloride. However, the City noted in their May 1992 draft report that the KCP has and is adequately addressing the issue using the best approach - material substitution.

KCD personnel have developed a release matrix which identifies Hazardous Air Pollutants (HAPs), Ozone Depleting Chemicals (ODCs), and Extremely Hazardous Substances (EHSs) used at the KCP. The matrix includes those chemicals identified versus quantities used, departments used in, and major using processes. This initiative will be used to support the development of risk management plans for both routine and accidental releases.

On October 12, 1992, KCD submitted to DOE-KCAO a briefing packet on air emission reductions due to pollution prevention activities at the KCP. The briefing packet summarized solvent and incomplete combustion product reductions to date and highlighted a few major examples of how these reductions occurred. The packet also summarized planned solvent spray booth pollution prevention activities. The packet is to be forwarded to the City and State air quality officials to demonstrate the KCP's proactive approach to reducing air emissions.

Sandia National Laboratories - Livermore is developing sensors determining heavy metal air emissions. KCP personnel are supporting this effort with plating air emission data determined from a stack testing study conducted in CY1991 and by supplying facility information. The "in-situ" sensors, if proven, will provide an accurate, low-cost method of determining air emissions.

COMPLY WITH THE PROVISIONS OF ENVIRONMENTAL DISCHARGE PERMITS. EVALUATION WILL BE BASED ON COST-EFFECTIVE REDUCTION OF POLLUTANTS BELOW PERMIT LEVELS, IMPROVEMENTS IN WASTE WATER TREATMENT AND EFFORTS TO CONTROL CONTAMINATES BEFORE PERMIT EXCURSIONS.

On February 27, 1992, KCD personnel took part in a meeting with the Kansas City Water and Pollution Control Department and KCAO to discuss the draft proposal for a revised Sewer Use Ordinance. The KCD developed and made a presentation on the status of PCB discharges to the sanitary sewer, planned and completed actions to reduce the level of PCBs in the discharge, and the conclusions of a risk assessment performed on this discharge. The KCD also provided an update of the risk assessment in a timely manner in case the information was requested by the City. Although the results of our efforts are not yet known, the City made it clear that the information presented will be carefully considered in the development of the PCB discharge standard in the Ordinance.

SUPPORT THE DOE NONNUCLEAR FACILITY CONSOLIDATION EFFORT AS IT RELATES TO ES&H FOR NEW PROCESSES, PLANT LAYOUT WITH EMPHASIS ON FIRE PROTECTION ENGINEERING, ENVIRONMENTAL IMPACT AND OPERATIONAL READINESS FOR NEW PROCESSES.

Eight soil borings were drilled by Environmental Protection in response to requests from the reconfiguration planning effort. The proximity of these borings to Department 26 (D/26) and existing data from the D/26 RCRA Facility Investigation (RFI) resulted in these additional borings supporting the RFI fieldwork. Six of these borings were requested one week prior to the D/26 drilling activities, but two additional borings were requested during drilling operations. Department 26 drilling efforts had found contamination within the D/26 area which would have resulted in the additional borings being drilled to define the extent of contamination. Planned fieldwork for D/26 was delayed to meet the requested drilling needs. Samples were sent to Pace Laboratories for quick turn-around to ensure timely data for reconfiguration planning and to K-25 to maintain continuity for the D/26 fieldwork.

ES&H supported consolidation through a planned and systematic review of all products and processes to be transferred to the KCP from the donor sites. Open issues were identified and resolved. On November 18, 1992, an ES&H representative attended a meeting in Washington, D.C., to provide support in the area of ES&H for presentation to DOE-HQ. Currently, ES&H is coordinating review of the Environmental Assessment for consolidation. Plantwide review will be complete and comments will be provided to KCAO in January 1993. In addition, a survey of all process engineers for processes to be transferred to the KCP was conducted which will enable the KCP to make any necessary air permitting determinations early in the transfer process. Thus far, all responses requested of ES&H were completed by or prior to the assigned due date.

**IMPLEMENT CONTRACTOR RESPONSIBILITIES SPECIFIED IN
SUPPLEMENTAL DIRECTIVE AL 5440.1D, "DEPARTMENT OF ENERGY
ALBUQUERQUE FIELD OFFICE NATIONAL ENVIRONMENTAL POLICY ACT
(NEPA) COMPLIANCE PROGRAM."**

The KCD Environmental Protection Department developed a NEPA training program during November and December 1992. Training will begin in January 1993 and will be completed in February 1993. Divisions requiring new or revised procedures were identified and were published.

The KCP has revised OP-229, National Environmental Policy Act Implementation, in response to Tiger Team Findings and to reflect requirements of the new 10 CFR 1021. Additionally, a NEPA compliance strategy has been drafted for the KCD. The new strategy requires each division to name a NEPA compliance coordinator. Drafts of new and existing procedures are being prepared to implement the strategy which was developed by a team of divisional NEPA strategy coordinators.

**DEMONSTRATE IMPLEMENTATION OF ENVIRONMENTAL MONITORING
PROGRAM REQUIREMENTS CONTAINED IN CHAPTER IV OF
DOE ORDER 5400.1 AND IN ACCORDANCE WITH APPROVED
ENVIRONMENTAL MONITORING PROGRAM PLANS.**

A computer consultant was hired to aid in implementation of a personal computer-based database system for tracking environmental monitoring data. Environmental Compliance had purchased and was using PC Focus, a database software package. Surface water monitoring data was being manually entered into the system. The consultant set up the program to allow automatic loading of data from diskettes sent by the laboratory. Report generation and trending capabilities were also enhanced through pre-defined database commands set up by the consultant. The database can now be more efficiently utilized to track and trend data from the environmental monitoring program.

SECTION 4

ENVIRONMENTAL RADIOLOGICAL PROGRAM INFORMATION

No radioactive materials are machined or processed at this plant. There are no releases of radioactive material at the Kansas City Plant.

SECTION 5

ENVIRONMENTAL NON-RADIOLOGICAL PROGRAM INFORMATION

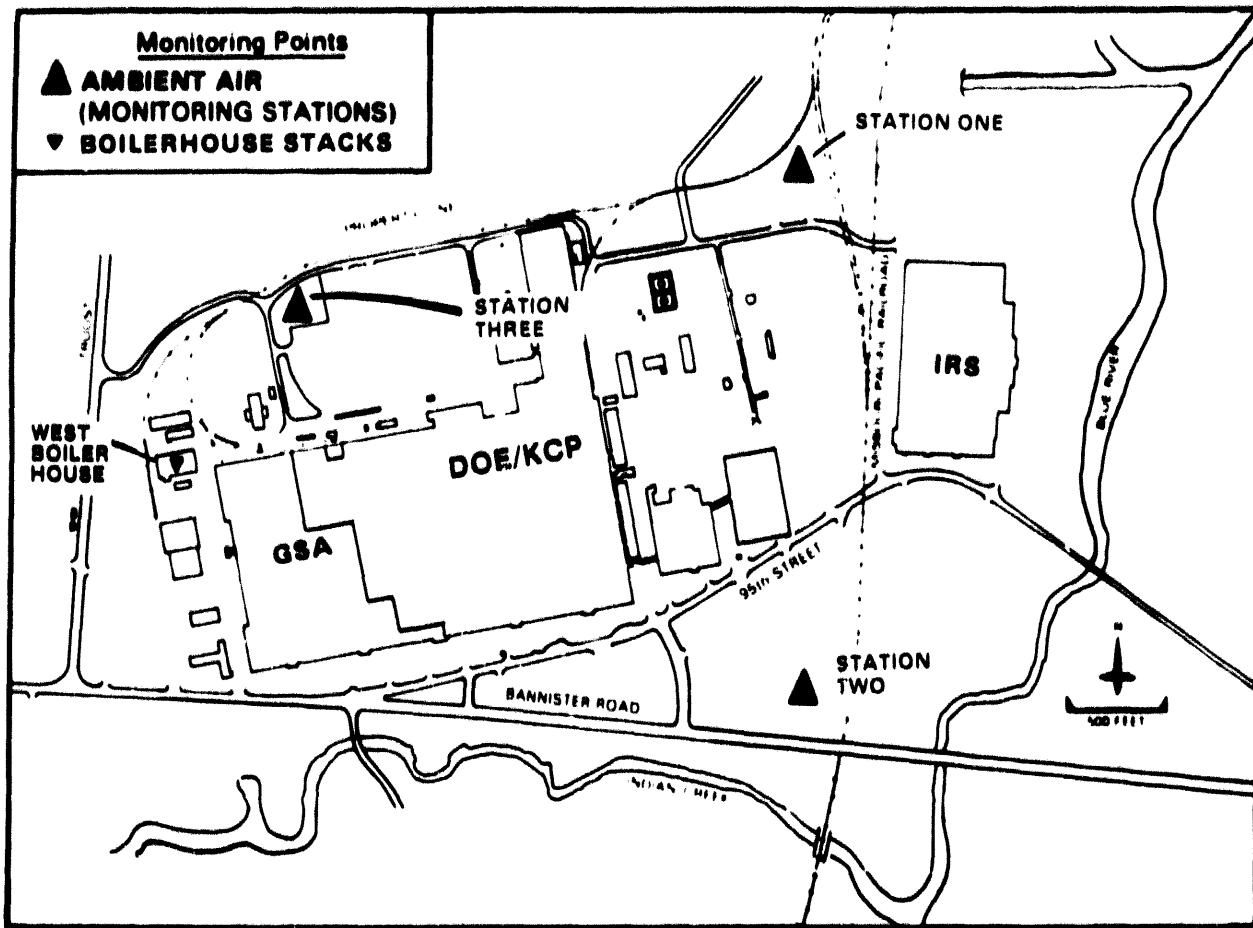
AIR

Ambient

The program for monitoring ambient air at three site perimeter locations (Figure 5.1) to assess plant contributions to regional air pollutant levels has shown that pollutant levels for carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), hydrogen sulfide (H₂S), particulates less than ten microns (PM-10), and lead (Pb) were within federal and state ambient air standards for CY1992 (Table 5.1). The three ambient air monitoring stations were fully equipped to monitor all National Ambient Air Quality Standards (NAAQS) pollutants and hydrogen sulfide in late 1987. Previously, the KCP relied on limited city data from station one. A hydrocarbon analyzer was installed at Station One in 1990.

Ambient air monitoring for pollutants in past years has indicated that the levels have been within the federal ambient standards. Only during periods of heavy automobile and train traffic and hot weather have these levels approached or exceeded these standards. Plant contributions affecting pollutant levels have significance only during periods of air stagnation. Communications with local regulatory officials have been maintained in conjunction with the continued monitoring program. After a CY1981 request by the city to establish an ambient air monitoring station on the federal complex, total suspended particulates, carbon monoxide, and lead levels in ambient air have been measured for southern Kansas City, Missouri, at Station One (Figure 5.1). This program was implemented in CY1983. City technicians work at the station once weekly with a KCP technician. This city monitoring is performed separately from the KCP-subcontracted monitoring at all three stations.

All of the monitoring equipment was installed between September and November 1987. Table 5.1 shows a yearly summary of the data collected in 1992, including each parameter's maximum or average one-hour readings per site, as well as the applicable federal and state air quality standards. Monthly summaries of these data for each site and each pollutant are presented in Figures 5.2 through 5.25.



Air Monitoring Sites at the Kansas City Plant

Figure 5.1

Table 5.1
 CY1992 Air Monitoring Station (AMS) Results at DOE/KCP as Compared to Applicable Standards

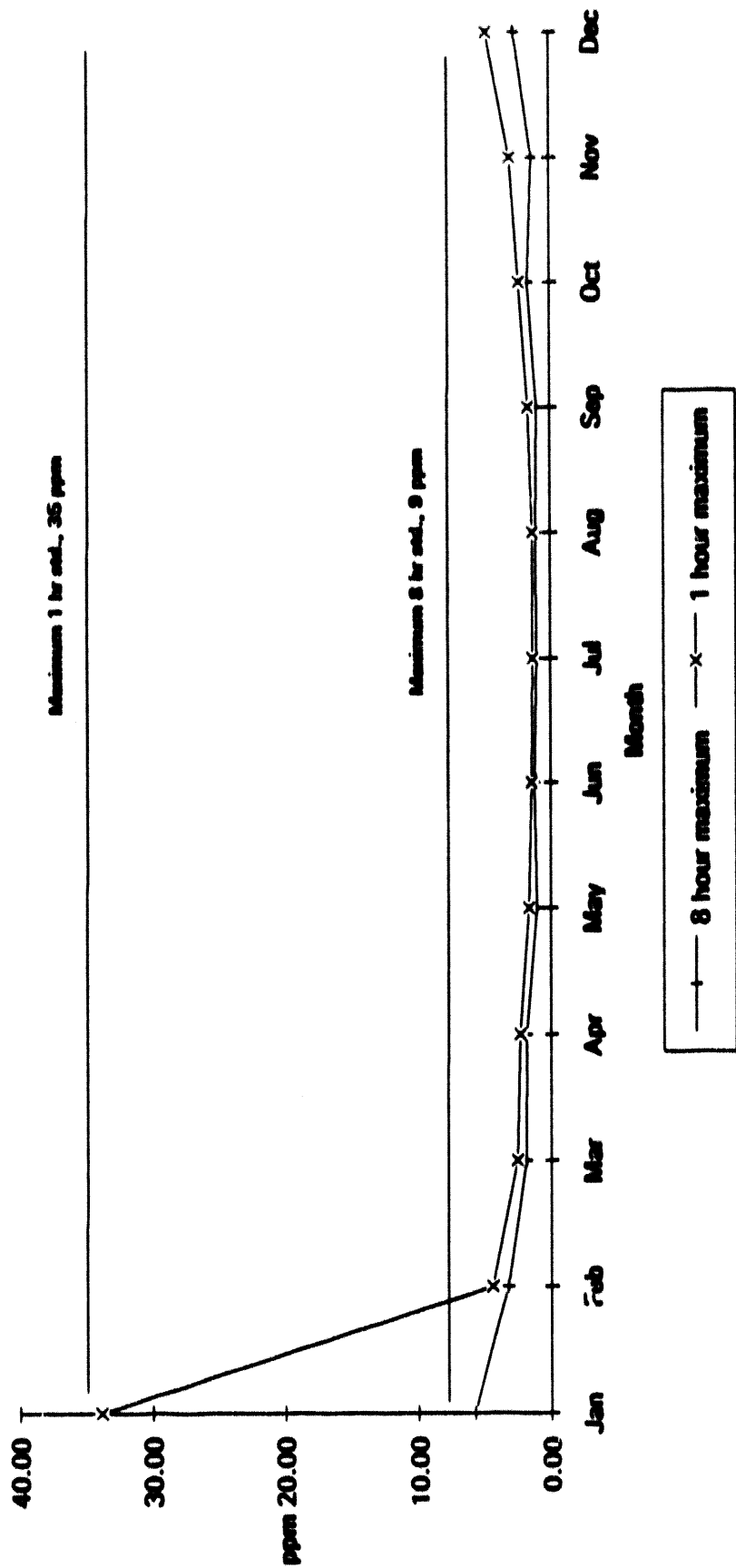
Parameter (Averaging Time) (See Note 1)	Location (AMS)	Measured Maximum	Applicable Maximum Standards (See Note 2)	Units
Sulfur Dioxide, SO ₂ (Annual Average)	1	1.7	30	PPB
	2	2.6	30	PPB
	3	1.9	30	PPB
Carbon Monoxide, CO (Maximum 1-hour Average)	1	1.1	35	PPM
	2	1.2	35	PPM
	3	1.9	35	PPM
Ozone, O ₃ Ⓐ (Maximum 1-hour Average)	1	38	120	PPB
	2	29	120	PPB
	3	32	120	PPB
Nitrogen Dioxide, NO ₂ (Annual Average)	1	11	53	PPB
	2	12	53	PPB
	3	14	53	PPB
Hydrogen Sulfide, H ₂ S (Maximum 1-hour Average) (See Note 3)	1	3	30	PPB
	2	7	30	PPB
	3	15	30	PPB
Suspended Particulates, TSP (Annual Average) (See Note 4)	1	40	50	μg/m ³
	2	44	50	μg/m ³
	3	43	50	μg/m ³

Table 5.1 (continued)
 CY1992 Air Monitoring Station (AMS) Results at DOE/KCP as Compared to
 Applicable Standards

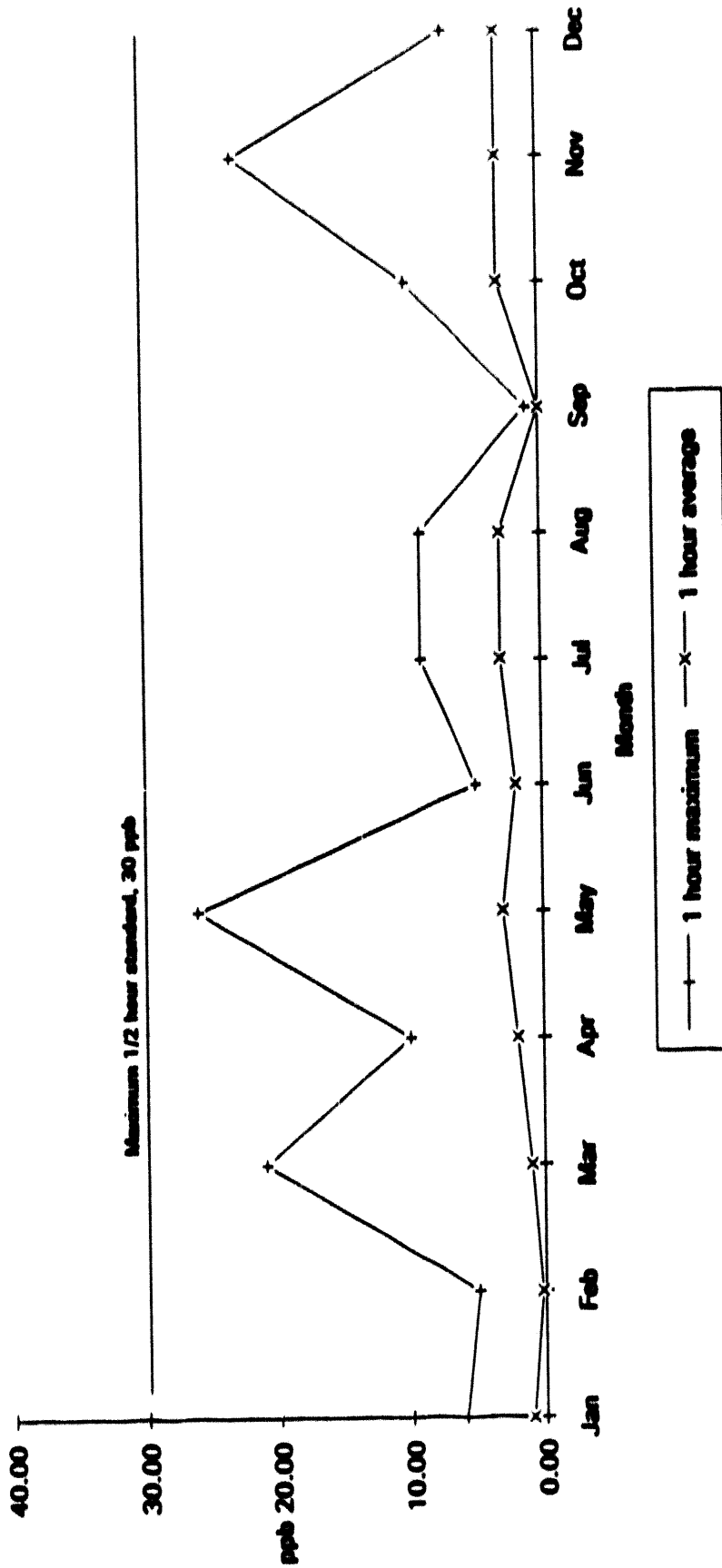
Parameter (Averaging Time) (See Note 1)	Location (AMS)	Measured Maximum	Applicable Maximum Standards (See Note 2)	Units
Particulates Less Than 10 Microns, PM-10 (Annual Average)	1	23.03	50	$\mu\text{g}/\text{m}^3$
	2	25.02	50	$\mu\text{g}/\text{m}^3$
	3	20.71	50	$\mu\text{g}/\text{m}^3$
Lead, Pb (Maximum 3-month Average)	1	<0.1	1.5	$\mu\text{g}/\text{m}^3$
	2	<0.1	1.5	$\mu\text{g}/\text{m}^3$
	3	<0.1	1.5	$\mu\text{g}/\text{m}^3$

46
 Note:

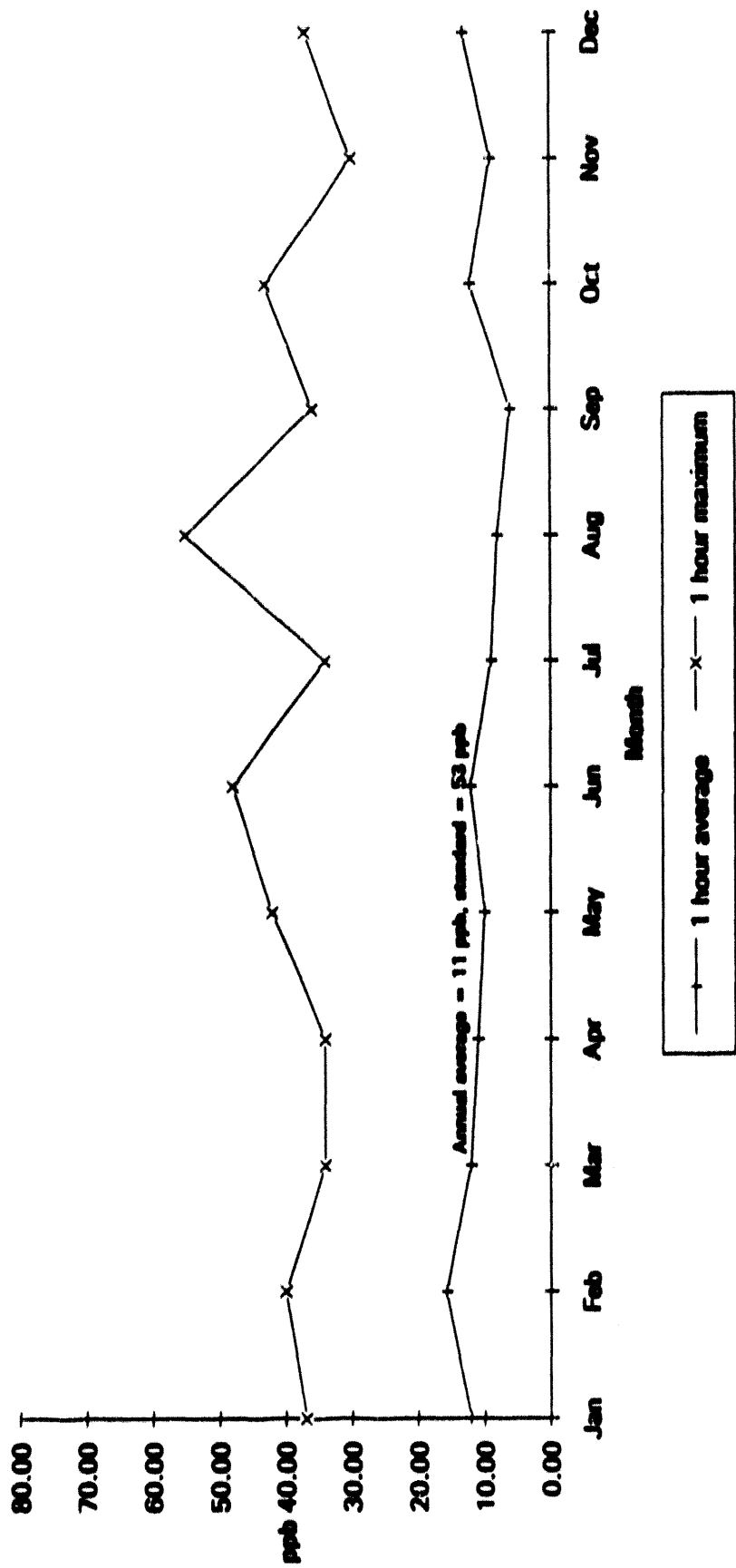
- Information in parentheses indicates the averaging time of the actual results. Except where noted for hydrogen sulfide, applicable standards are for the same averaging standard.
- All of these standards were obtained from 40 CFR 50 except where noted.
- The hydrogen sulfide standards were obtained from Chapter 6 of the Missouri Air Quality Standards. Note that the 30 ppb standard is a one-half hour standard whereas the actual results are the maximum one-hour averages for CY1989.
- The federal and state TSP standards have been rescinded; however, TSP monitoring continues because lead analyses must be performed on TSP filters.



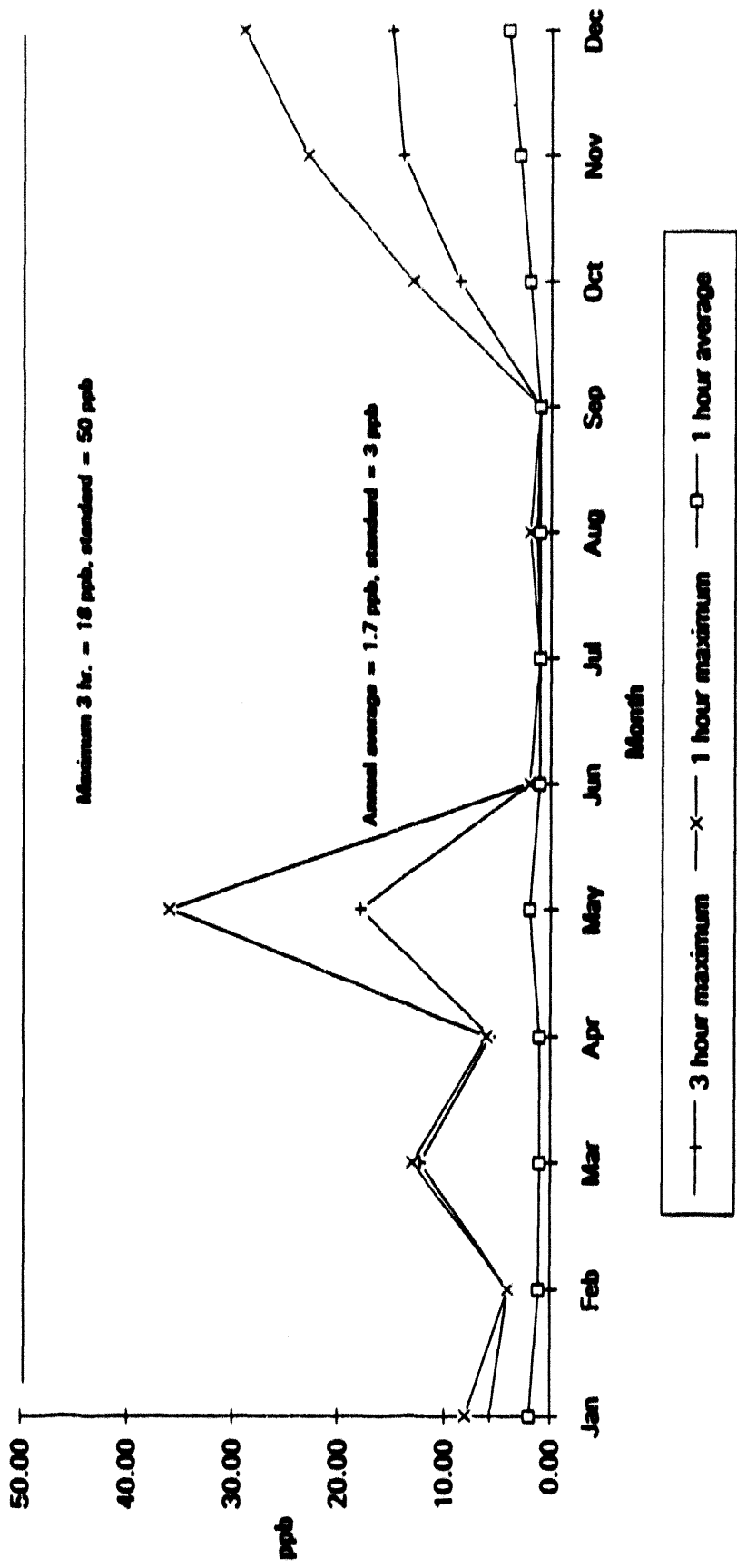
DOE/KCP Carbon Monoxide Average and Maximum 1 Hour Data at Station One, CY1992
Figure 5.2



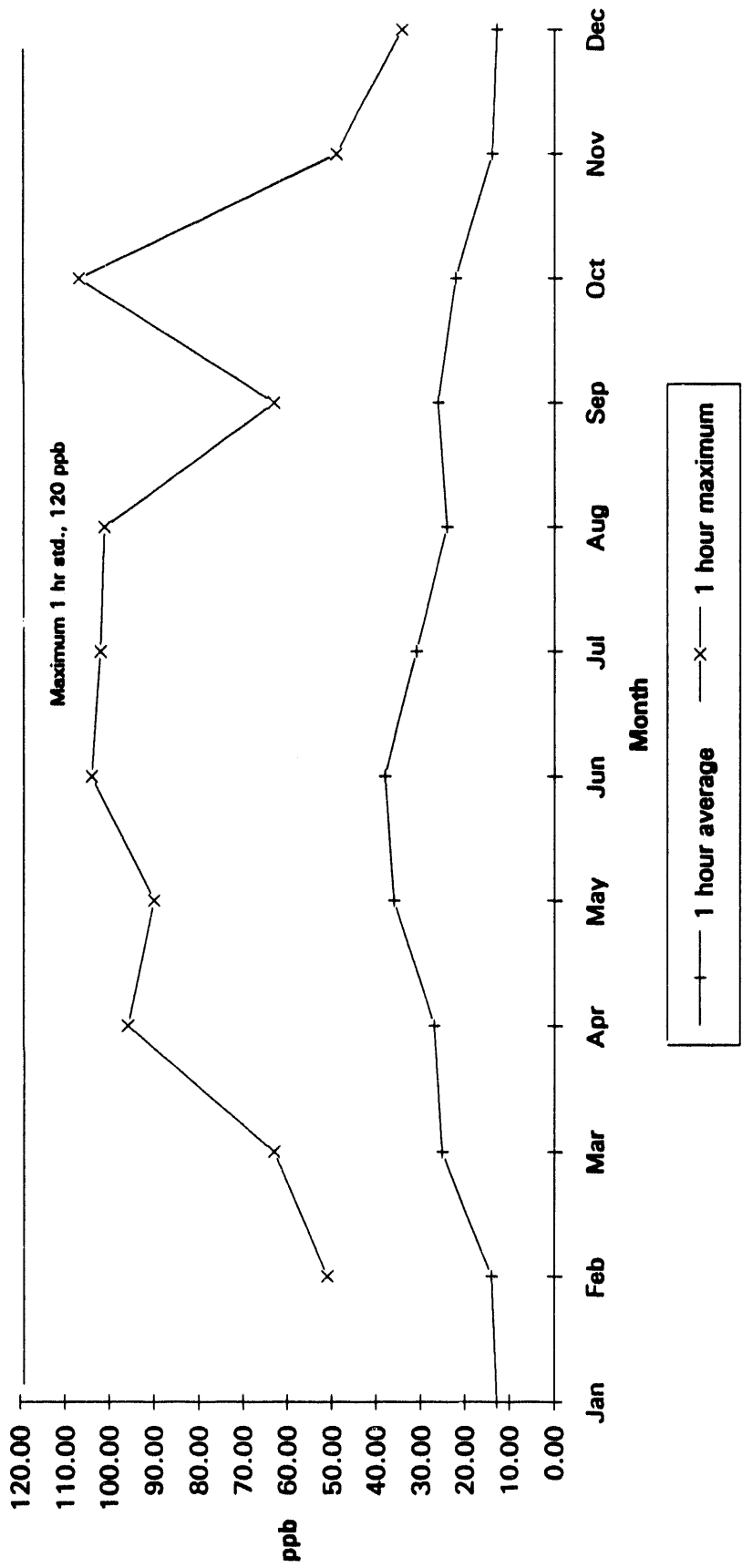
DOE/KCP Hydrogen Sulfide Average and Maximum 1 Hour Data at Station One, CY1992
 Figure 5.3



DOE/KCP Nitrogen Dioxide Average and Maximum 1 Hour Data at Station One, CY1992
Figure 5.4

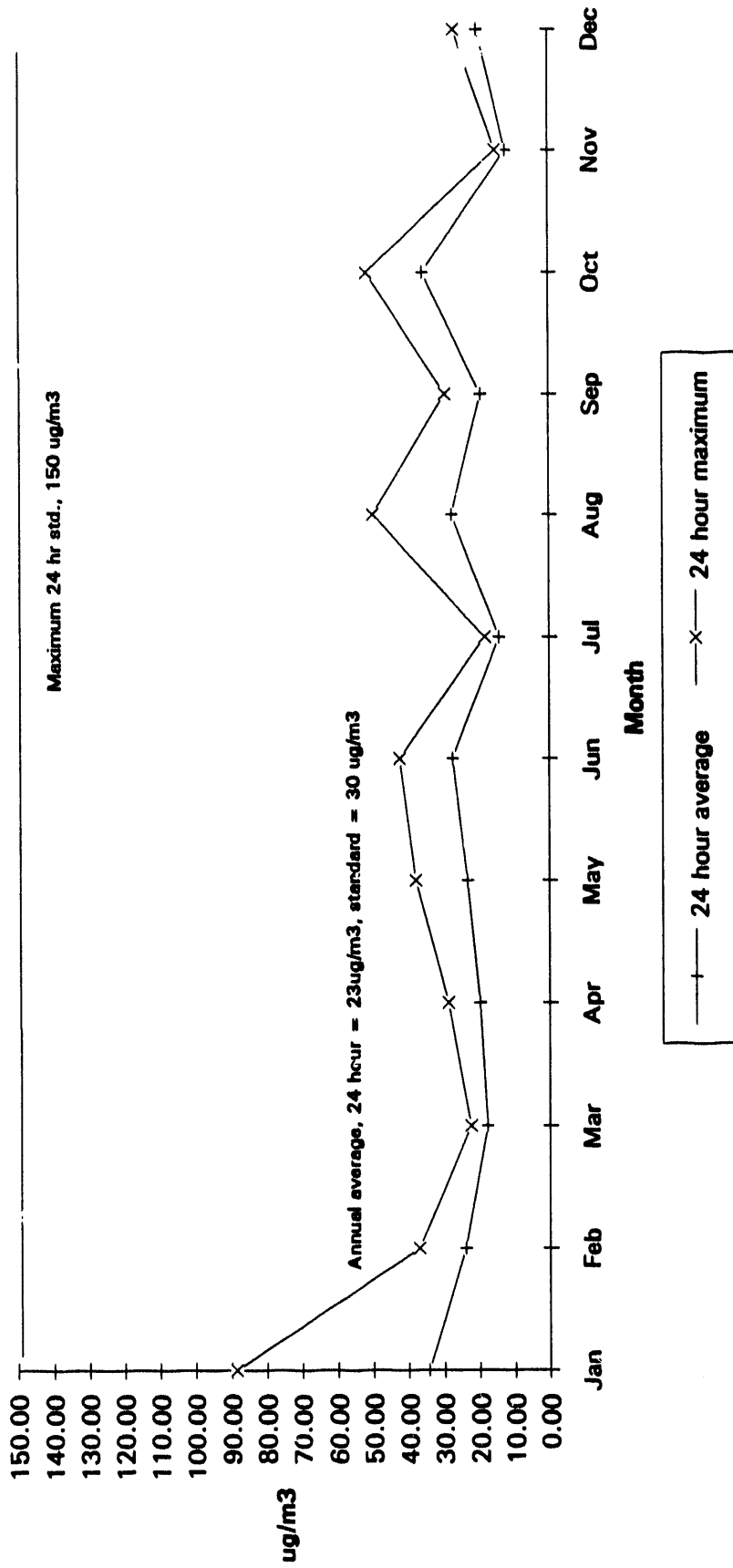


DOE/KCP Sulfur Dioxide Average and Maximum 1 Hour Data at Station One, CY1992
Figure 5.5

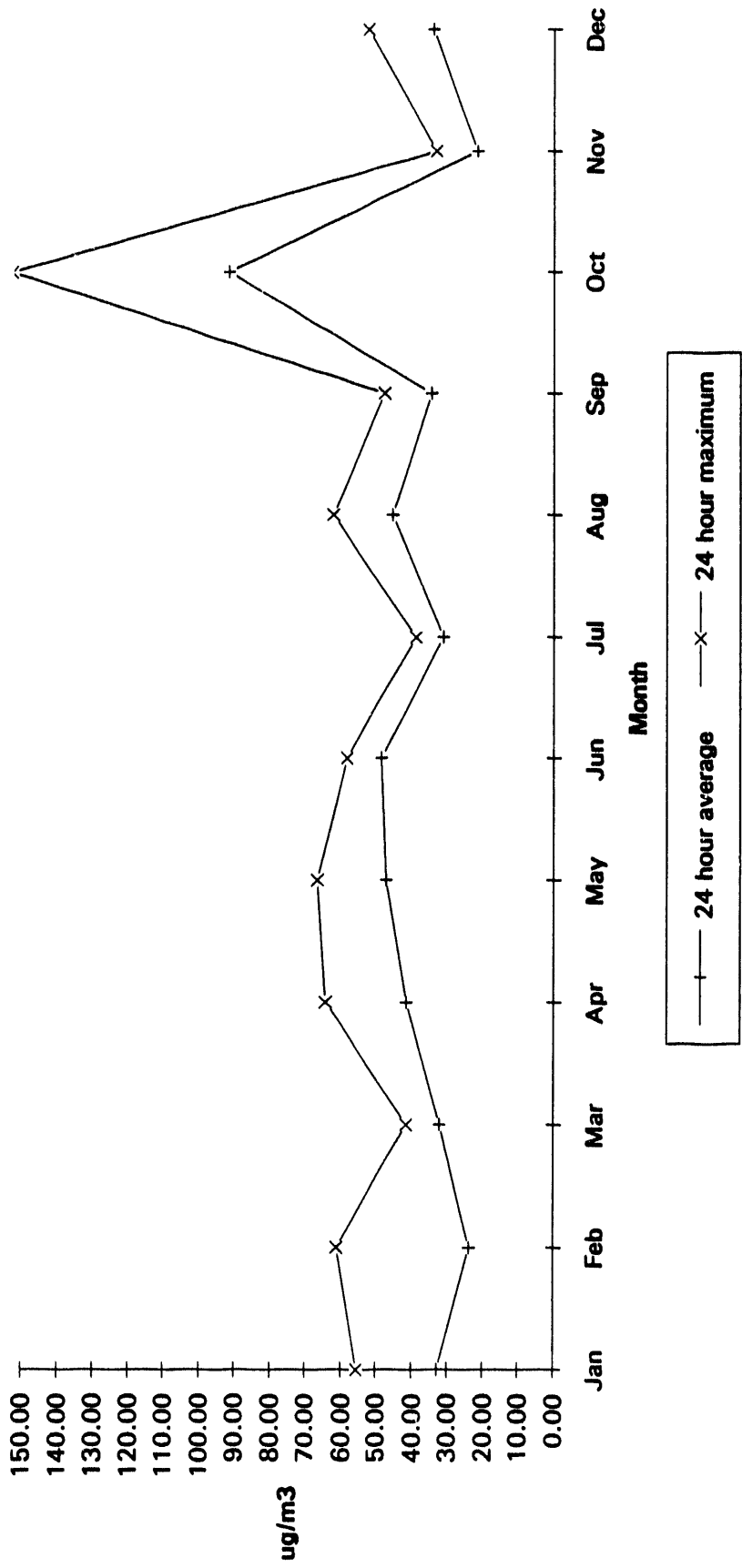


NOTE: Instrument out of calibration during January sampling.

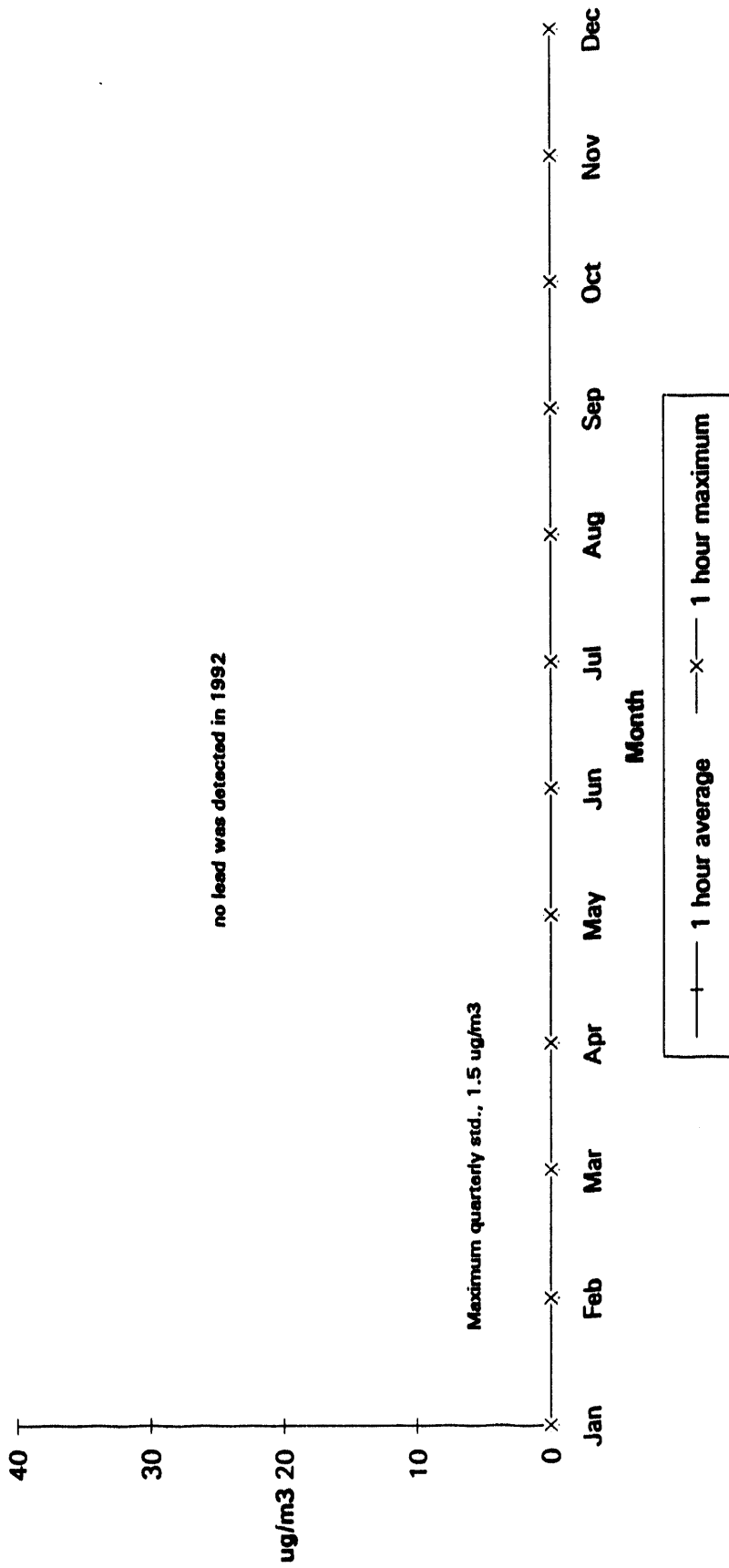
DOE/KCP Ozone Average and Maximum 1 Hour Data at Station One, CY1992
Figure 5.6



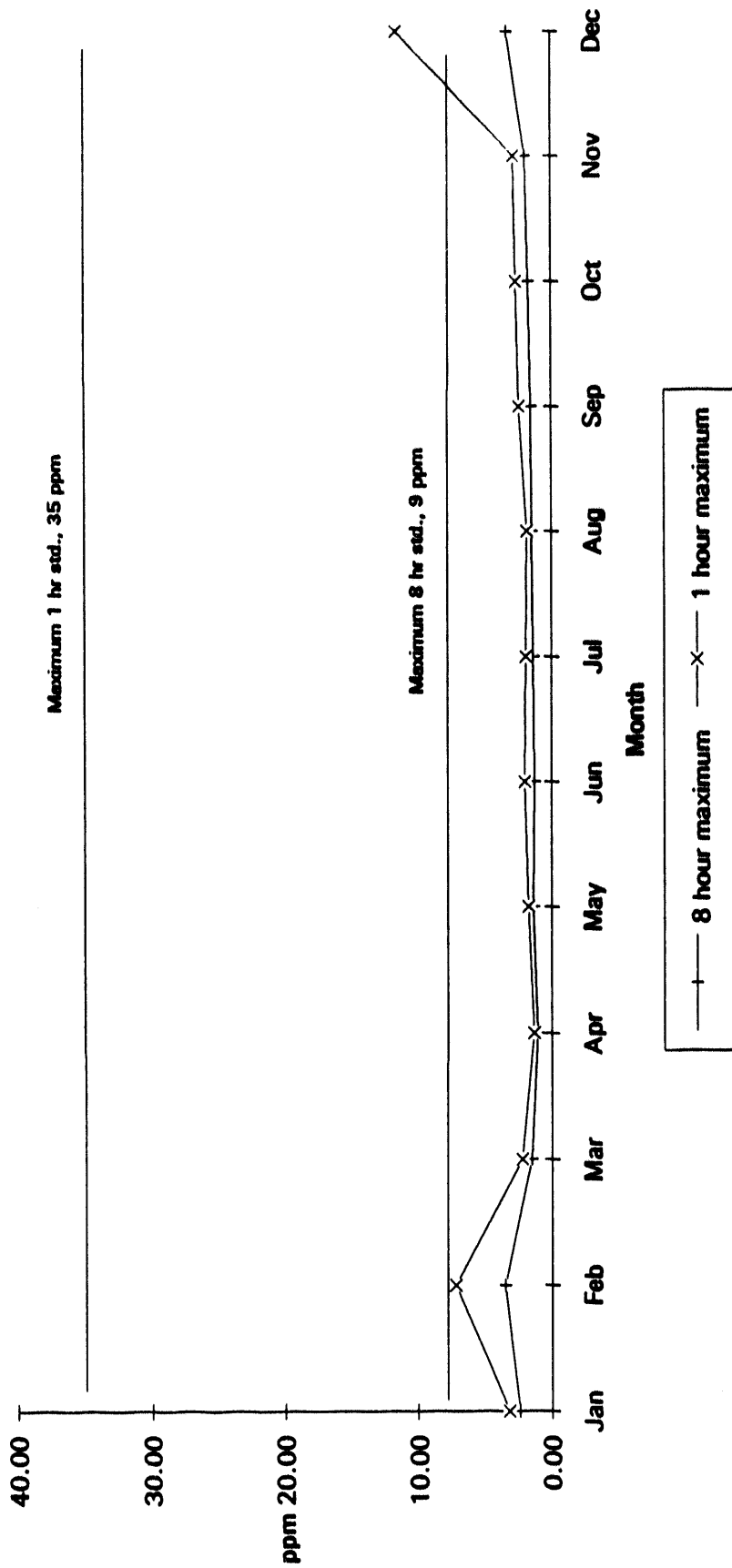
DOE/KCP PM-10 Average and Maximum 24 Hour Data at Station One, CY1992
Figure 5.7



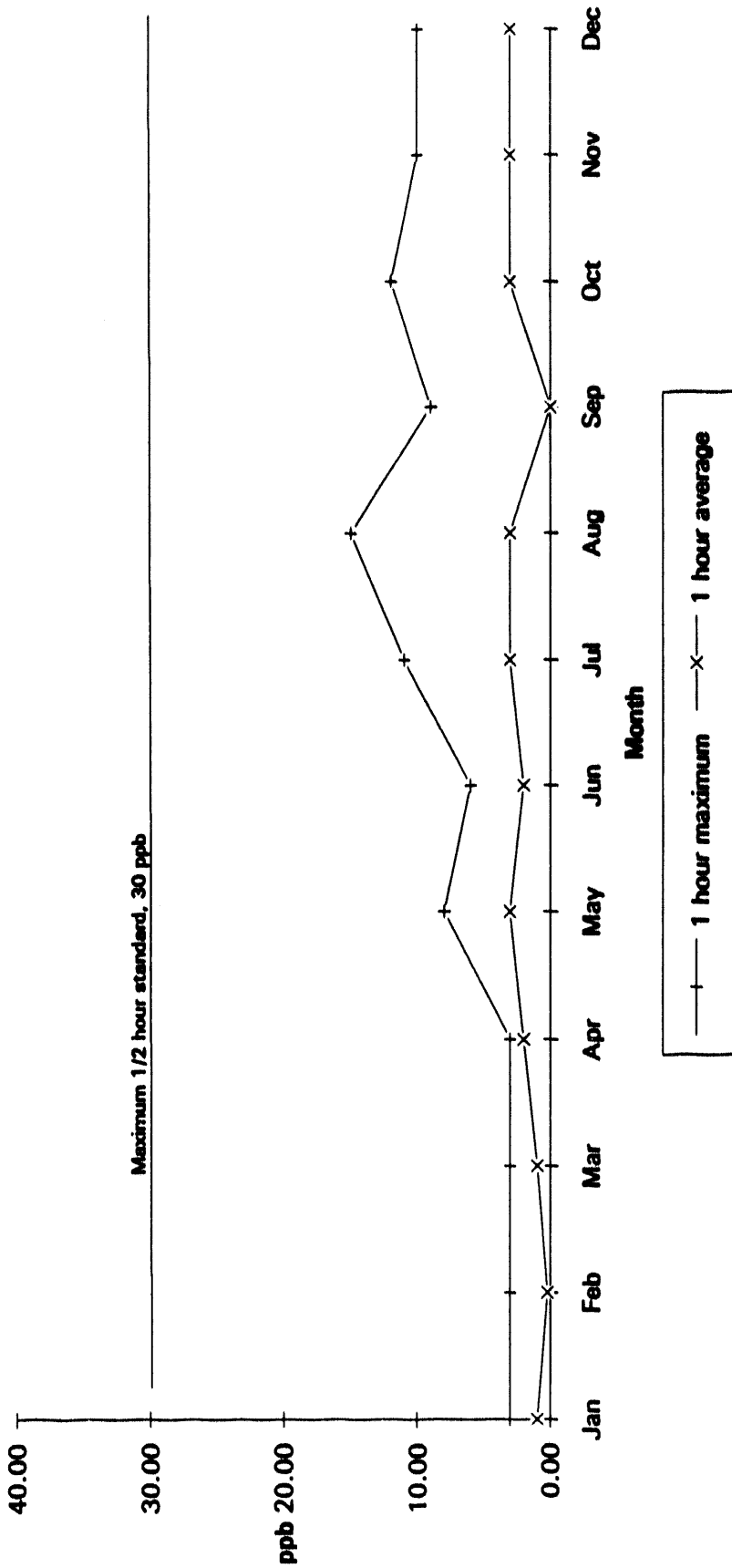
DOE/KCP TSP Average and Maximum 24 Hour Data at Station One, CY1992
Figure 5.8



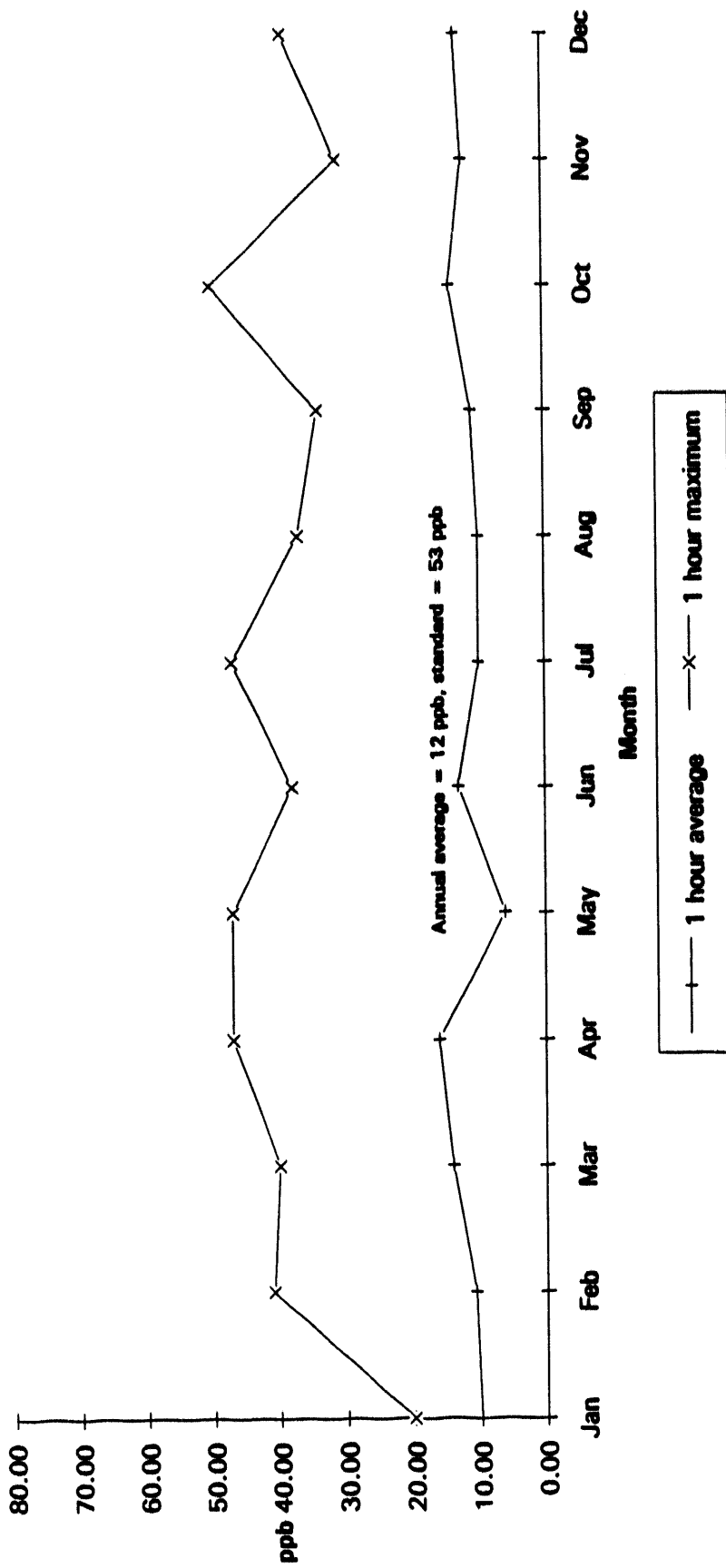
DOE/KCP Lead Average and Maximum 24 Hour Data at Station One, CY1992
 Figure 5.9



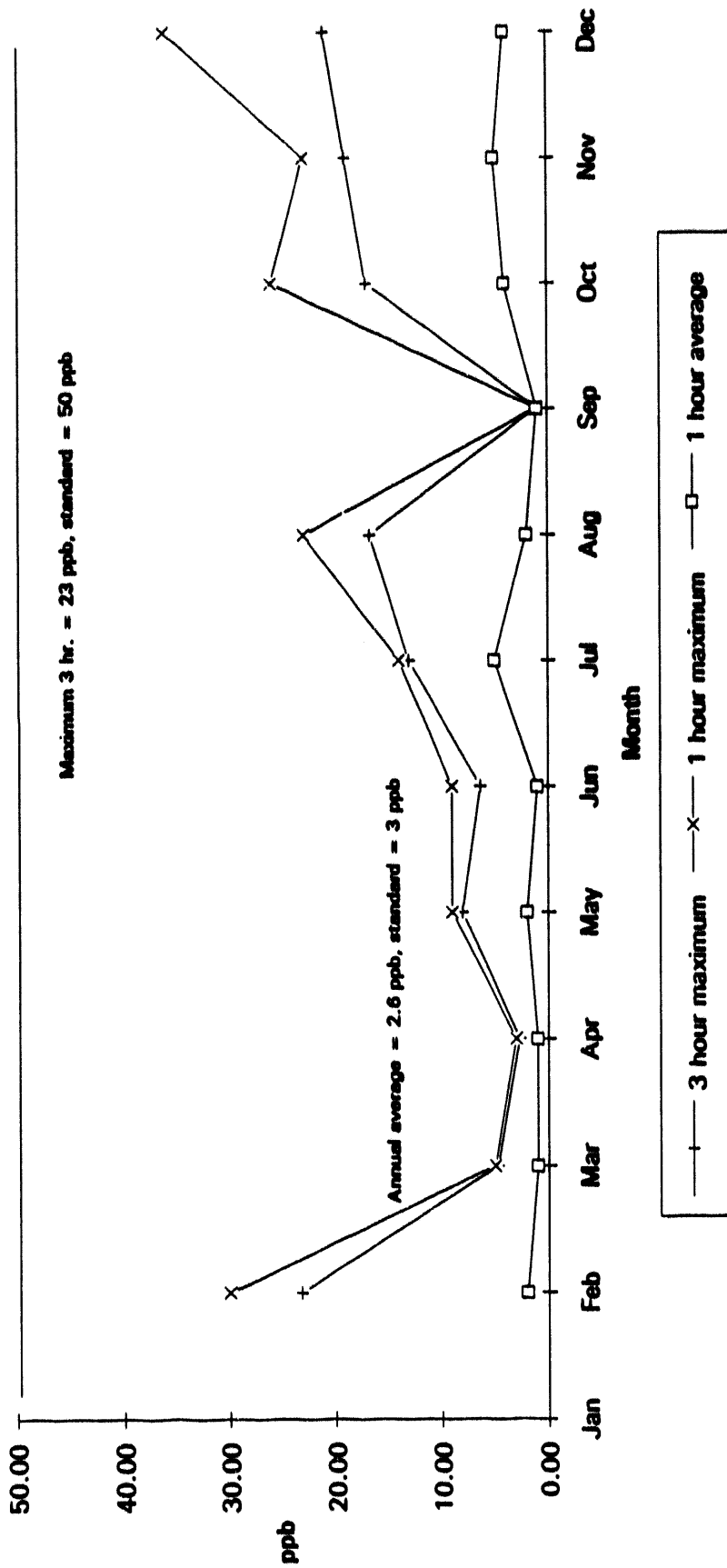
DOE/KCP Carbon Monoxide Average and Maximum 1 Hour Data at Station Two, CY1992
Figure 5.10



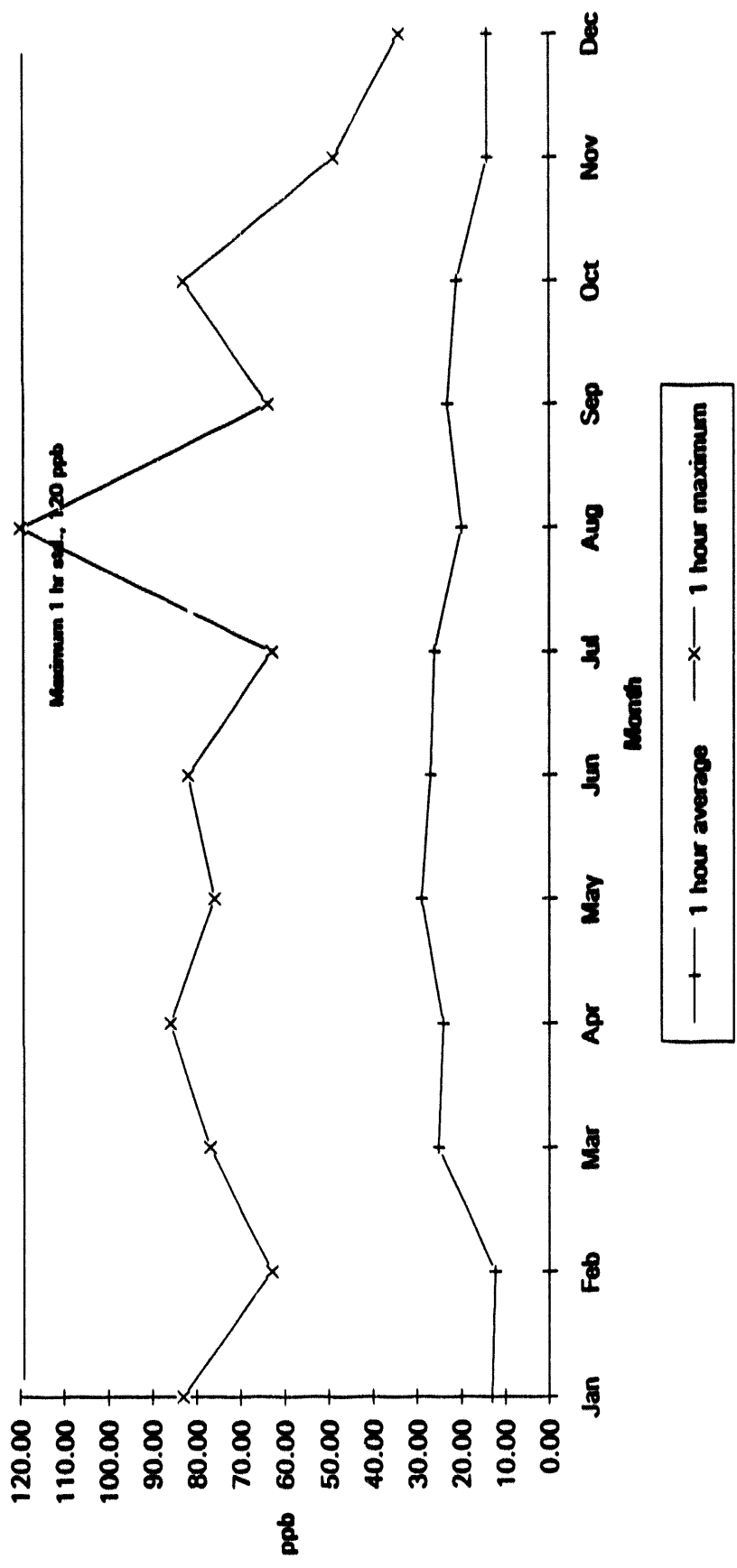
DOE/KCP Hydrogen Sulfide Average and Maximum 1 Hour Data at Station Two, CY1992
Figure 5.11



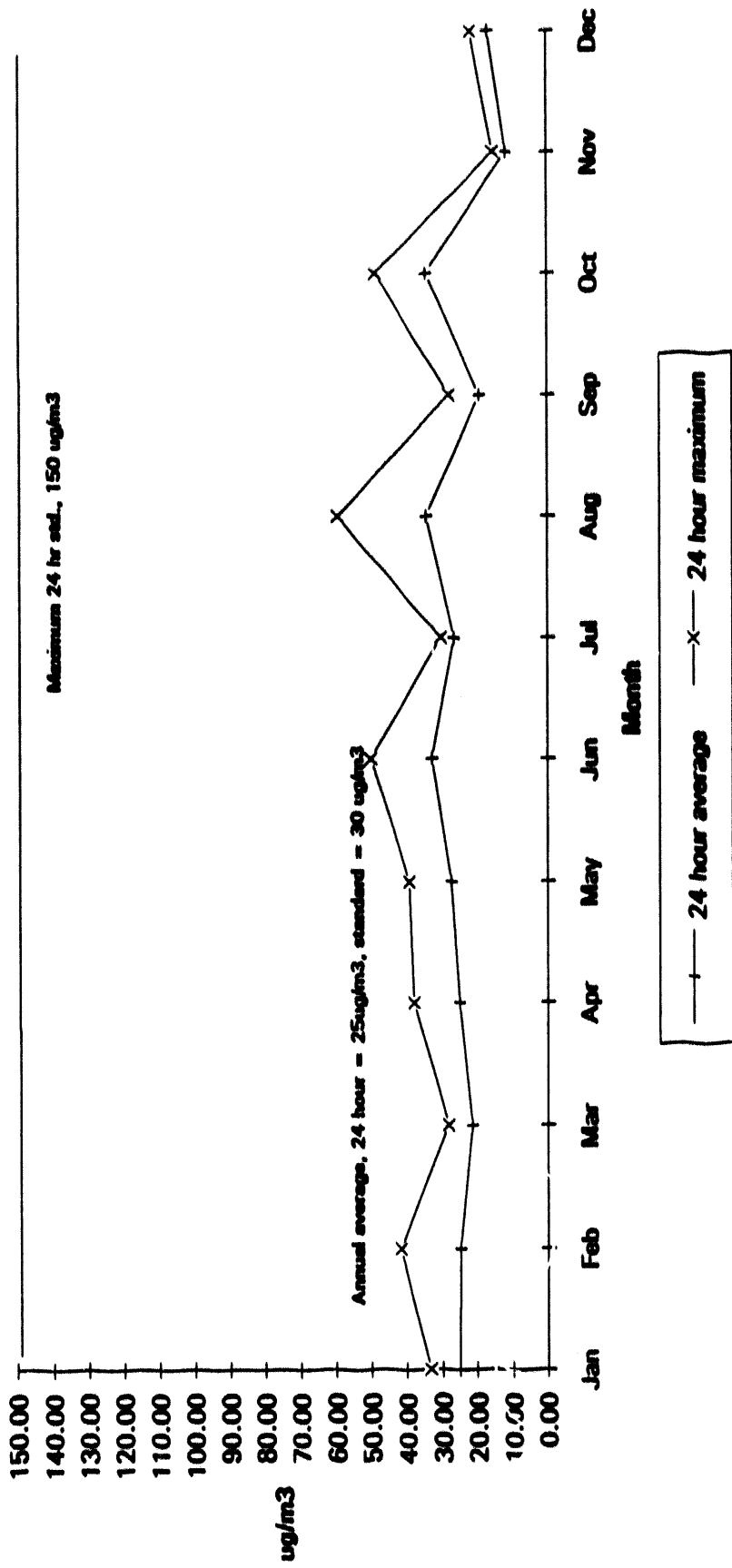
DOE/KCP Nitrogen Dioxide Average and Maximum 1 Hour Data at Station Two, CY1992
Figure 5.12



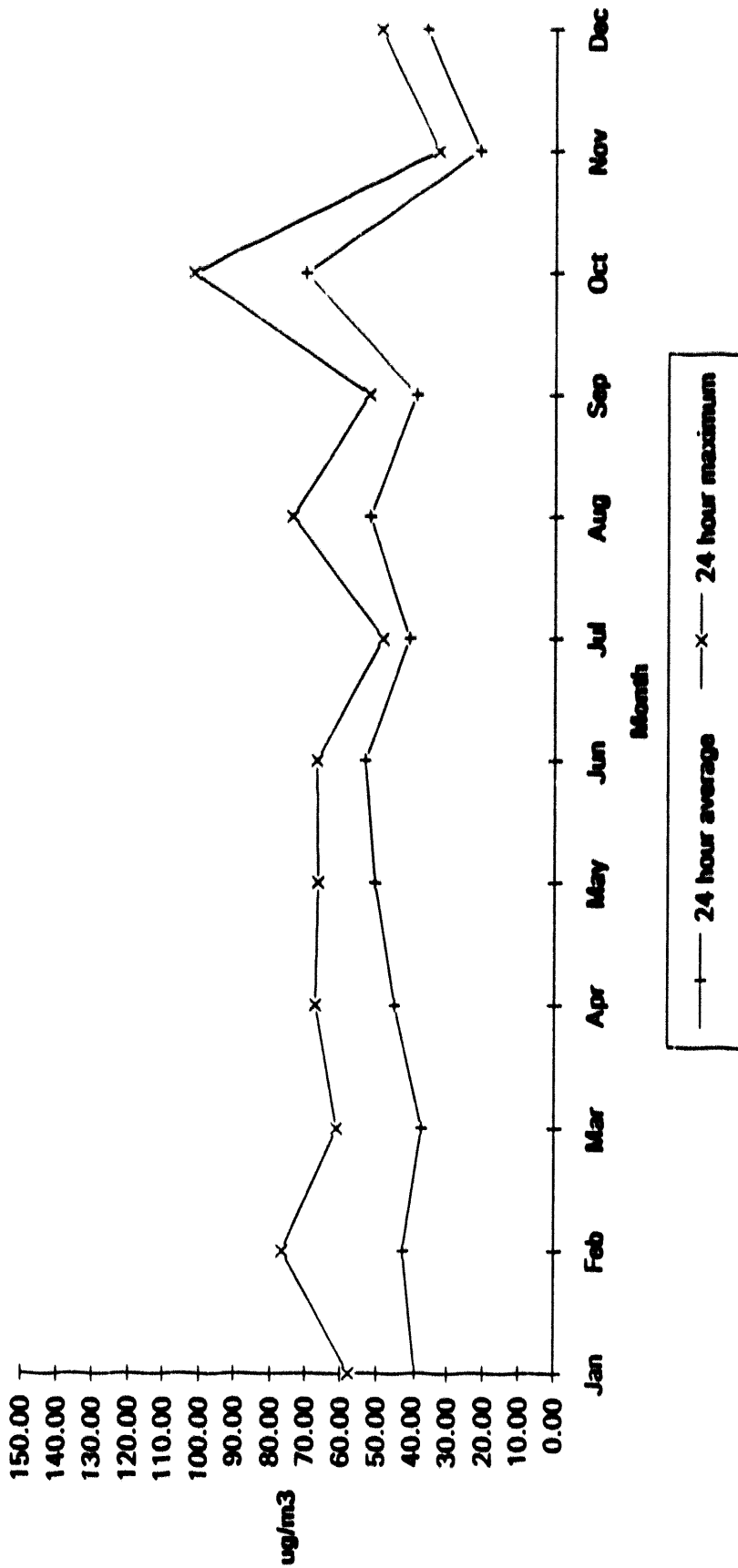
DOE/KCP Sulfur Dioxide Average and Maximum 1 Hour Data at Station Two, CY1992
 Figure 5.13



DOE/KCP Ozone Average and Maximum 1 Hour Data at Station Two, CY1992
Figure 5.14



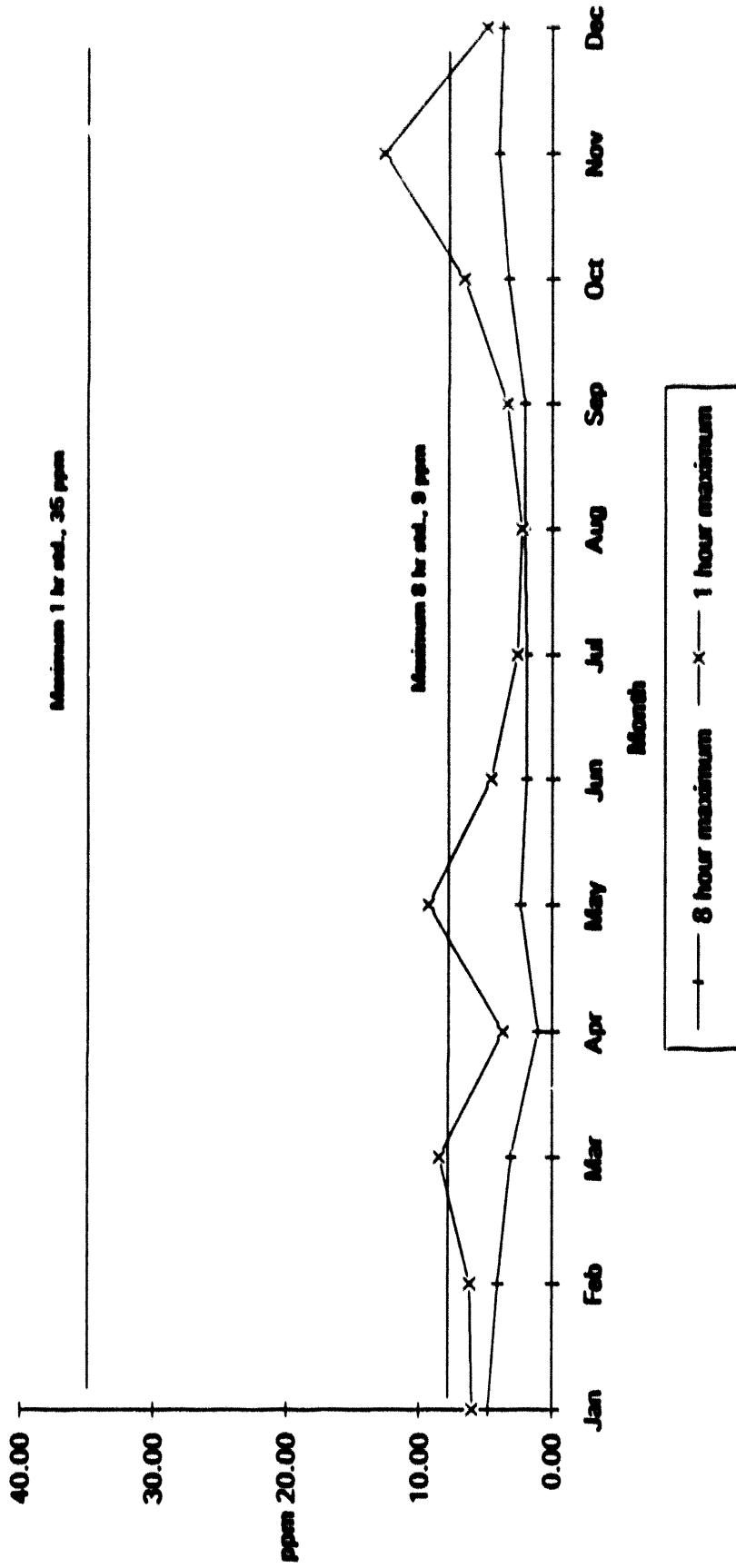
DOE/KCP PM-10 Average and Maximum 24 Hour Data at Station Two, CY1992
Figure 5.15



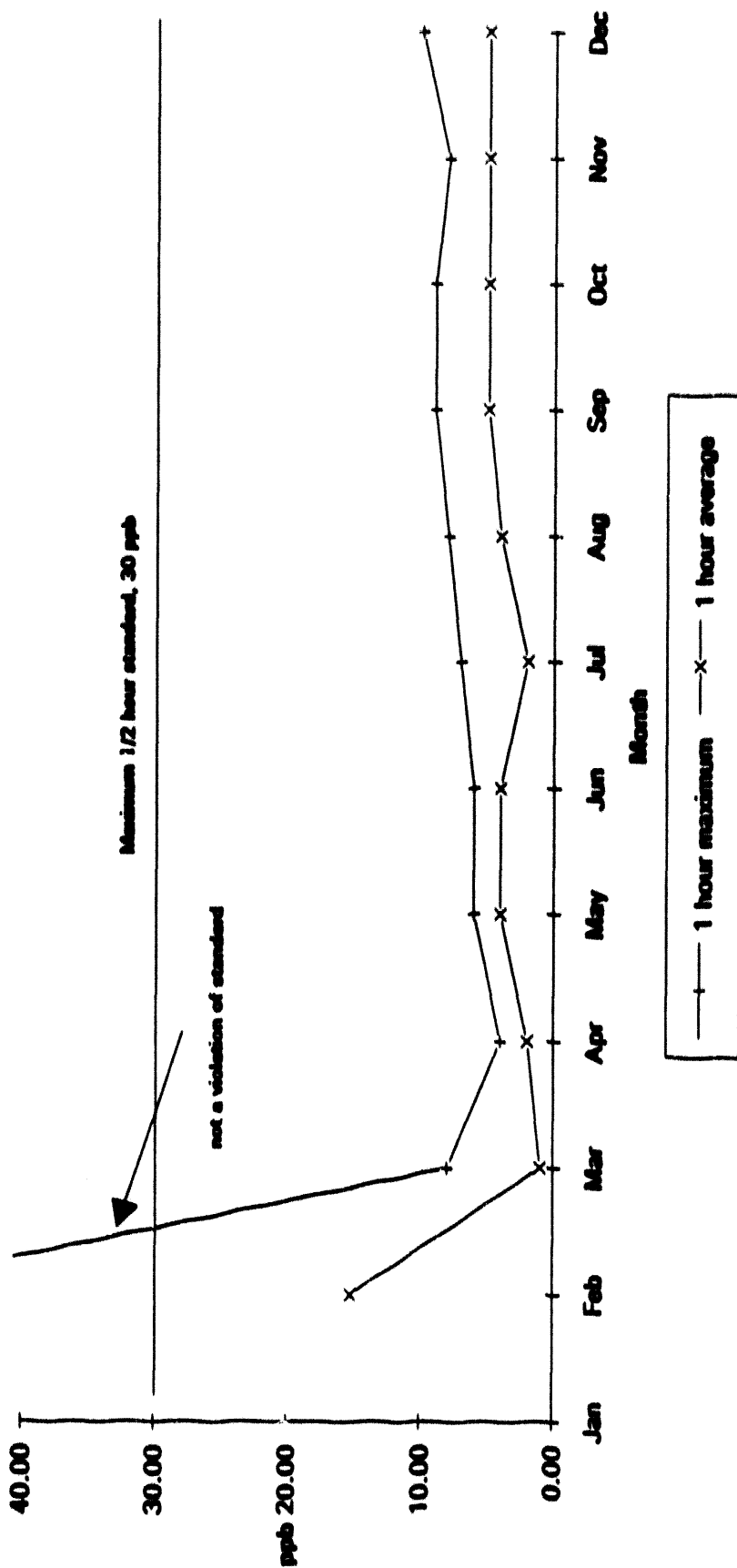
DOE/KCP TSP Average and Maximum 24 Hour Data at Station Two, CY1992
Figure 5.16



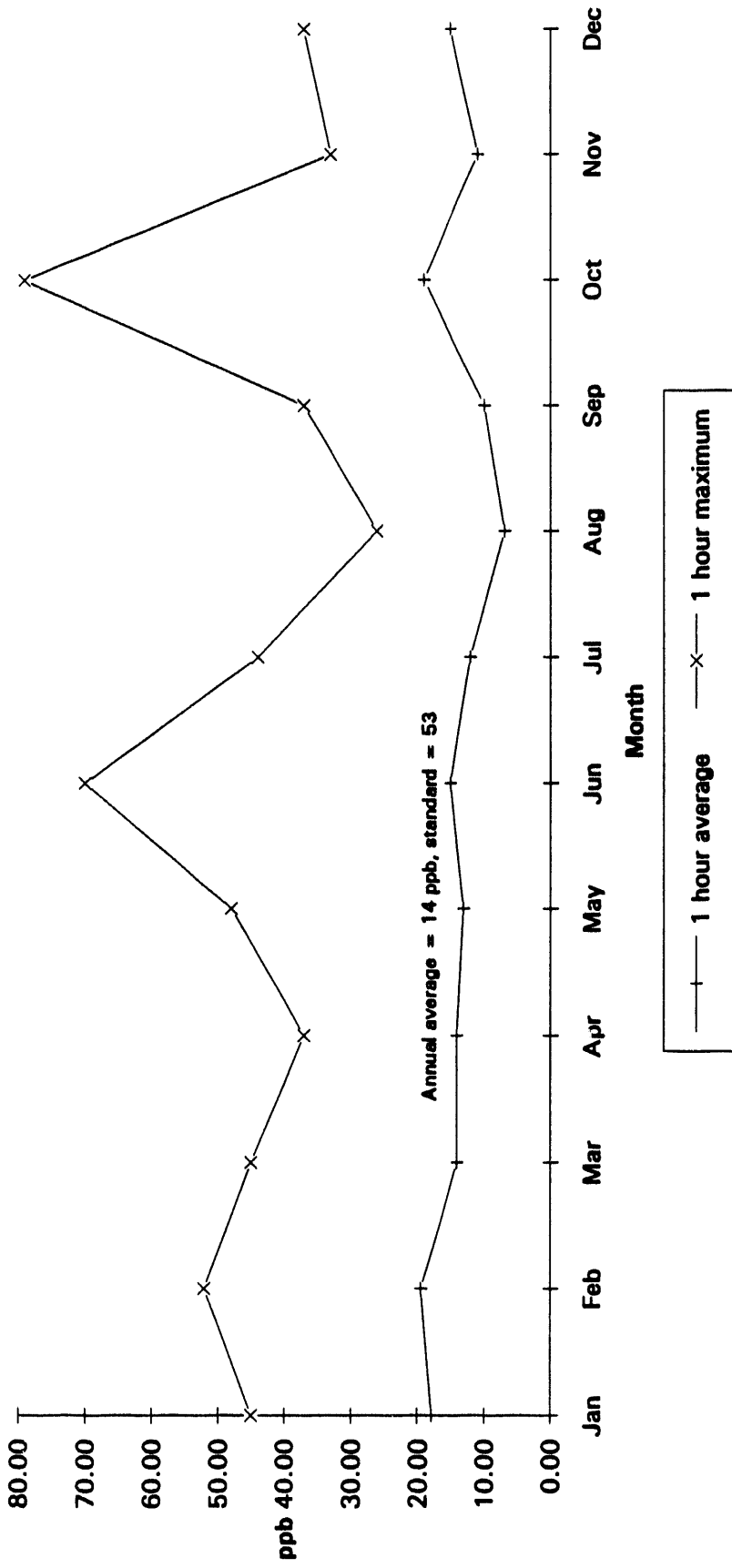
DOE/KCP Lead Average and Maximum 24 Hour Data at Station Two, CY1992
 Figure 5.17



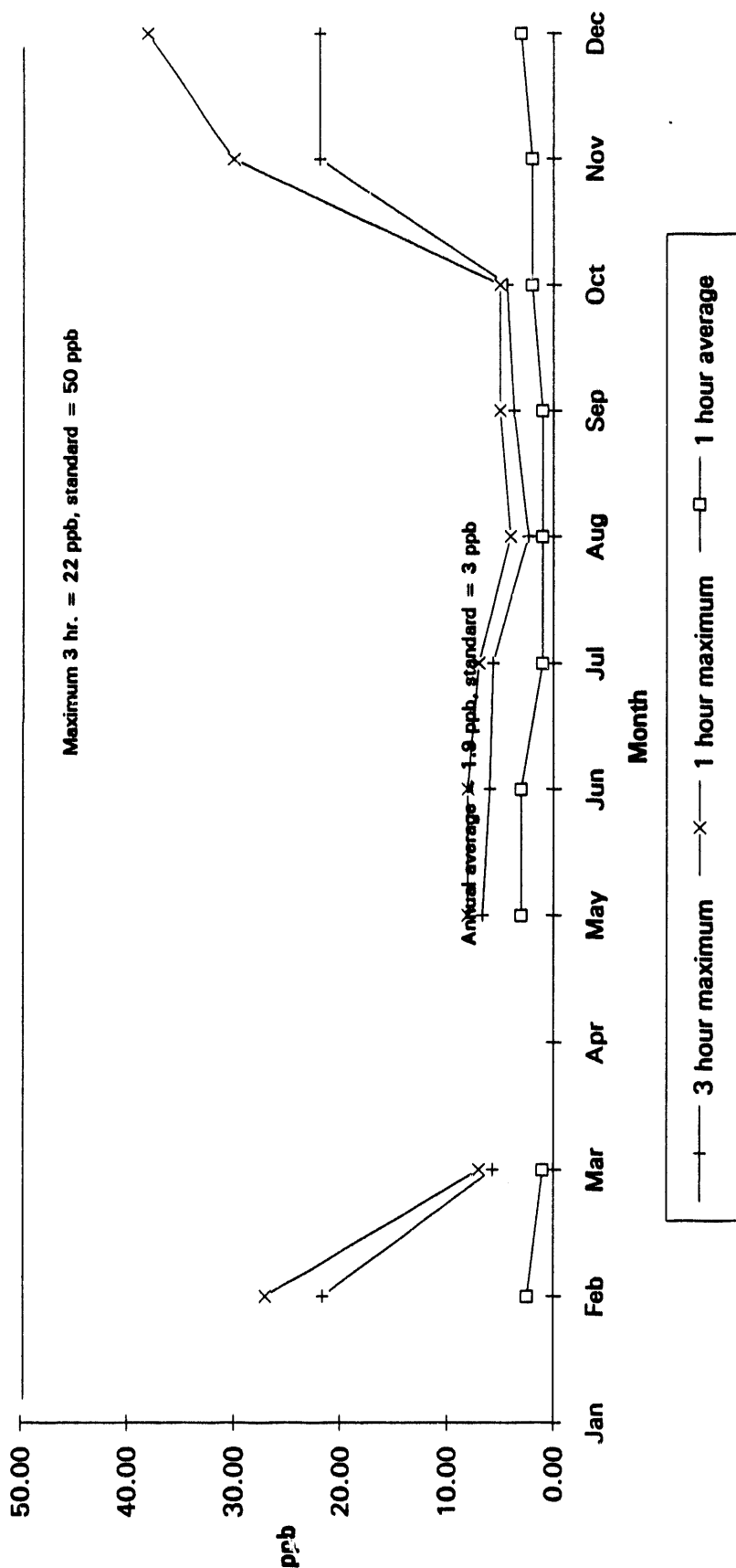
DOE/KCP Carbon Monoxide Average and Maximum 1 Hour Data at Station Three, CY1992
 Figure 5.18



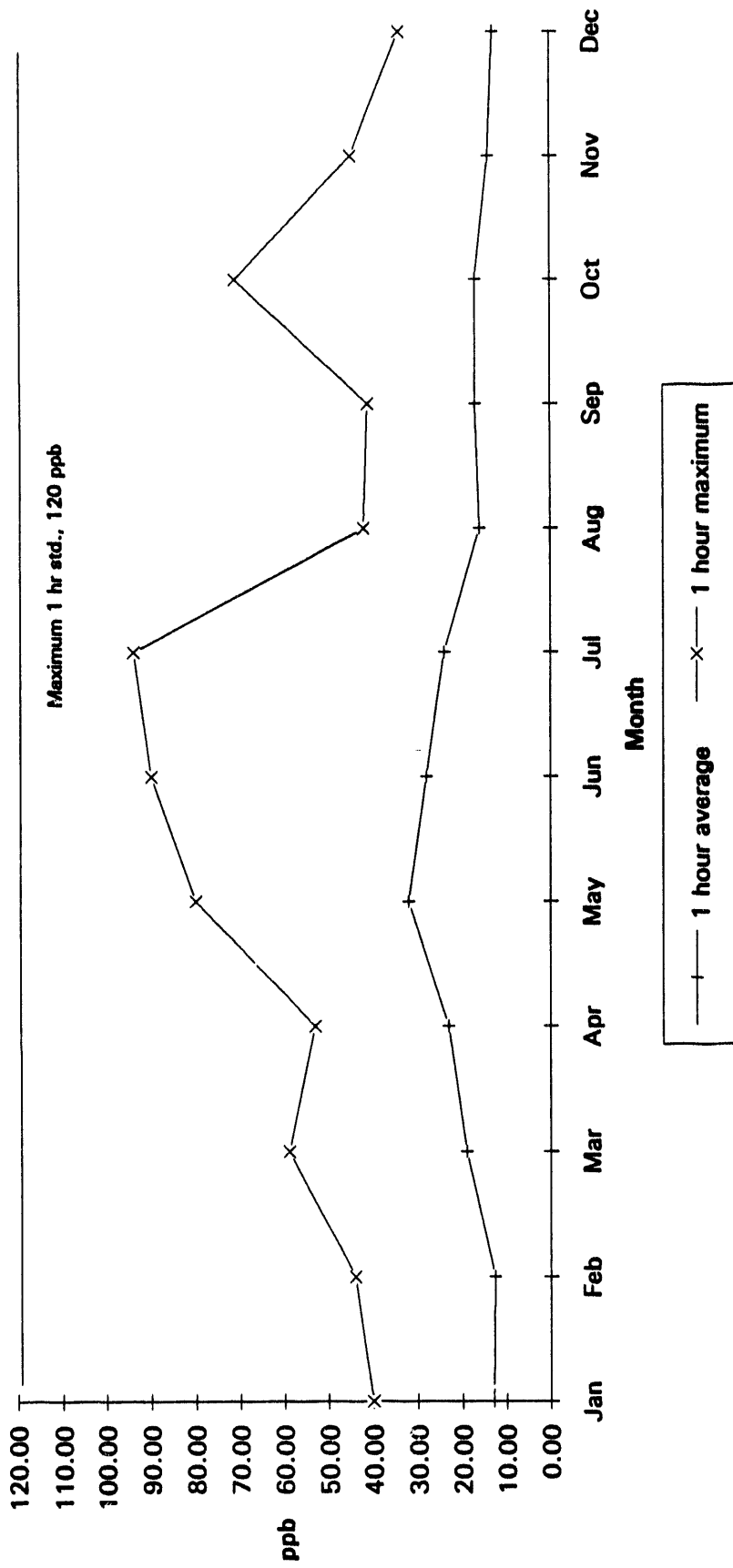
DOE/KCP Hydrogen Sulfide Average and Maximum 1 Hour Data at Station Three, CY1992
Figure 5.19



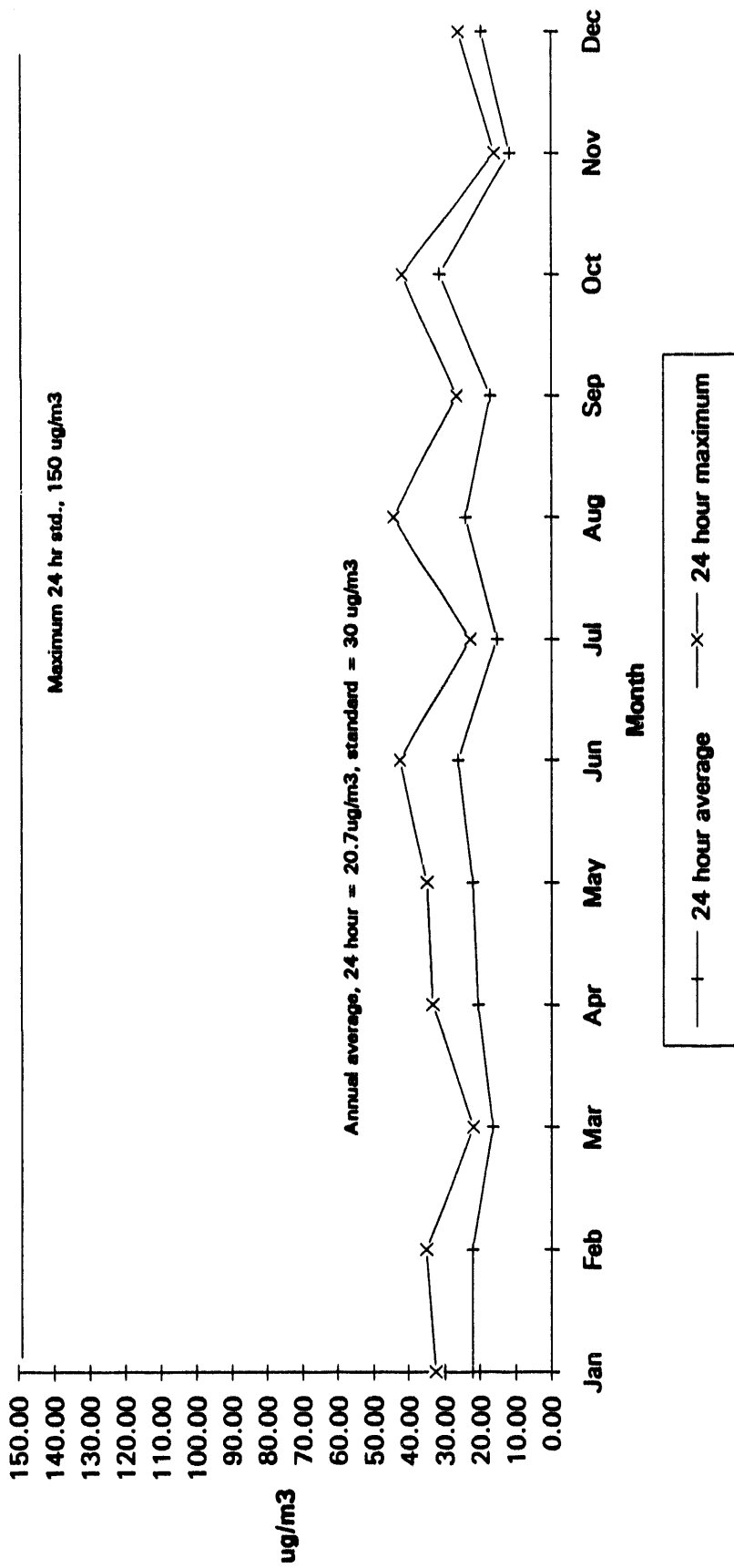
DOE/KCP Nitrogen Dioxide Average and Maximum 1 Hour Data at Station Three, CY1992
Figure 5.20



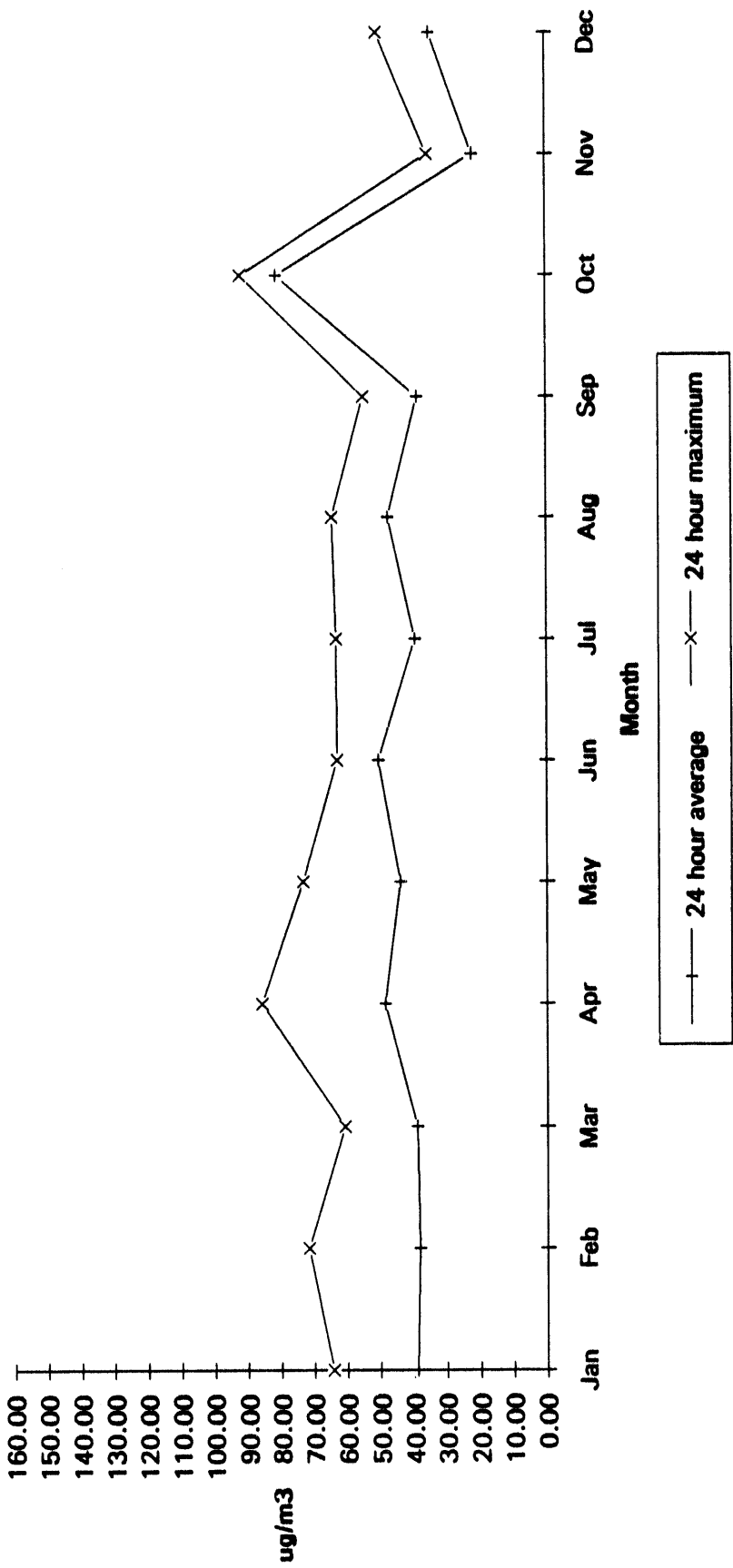
DOE/KCP Sulfur Dioxide Average and Maximum 1 Hour Data at Station Three, CY1992
 Figure 5.21



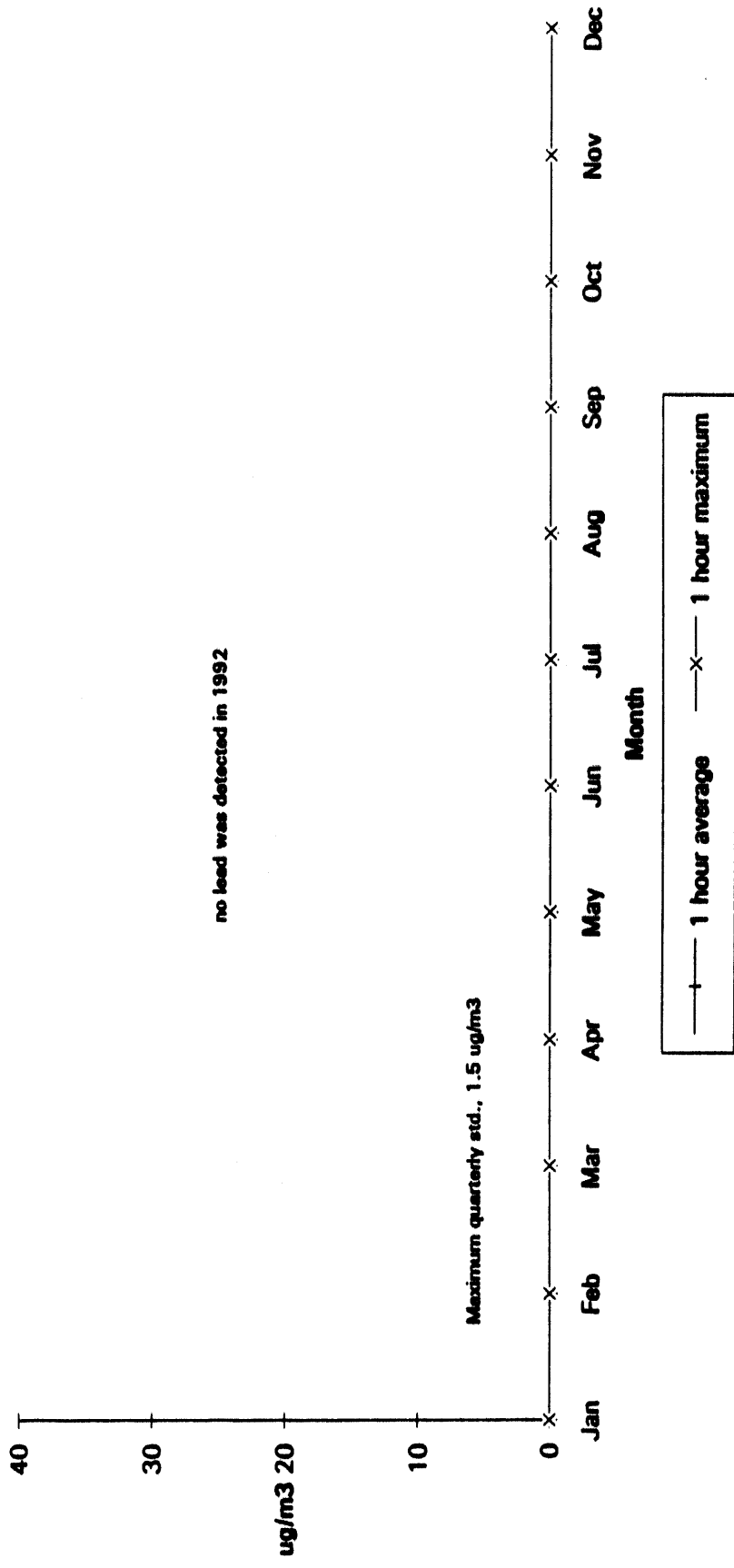
DOE/KCP Ozone Average and Maximum 1 Hour Data at Station Three, CY1992
Figure 5.22



DOE/KCP PM-10 Average and Maximum 1 Hour Data at Station Three, CY1992
Figure 5.23



DOE/KCP TSP Average and Maximum 24 Hour Data at Station Three, CY1992
 Figure 5.24



DOE/KCP Lead Average and Maximum 24 Hour Data at Station Three, CY1992

Figure 5.25

Effluent

Several air pollutant effluent regulations (State of Missouri, Air Pollution Control Regulations and City of Kansas City, Missouri, Air Quality Control Code) currently apply to the KCP. These include effluent standards for particulates, sulfur dioxide, and visible emissions from indirect heating sources such as the boilerhouses. VOC emissions from degreasing and surface coating operations at the KCP are also regulated. These state standards have been adopted and are enforced by the city. Testing for mercury emissions from sludge drying operations was required under the NESHAPS prior to operation of the sludge drier.

Stack emissions testing of the West Boilerhouse pollutant discharges was conducted by an engineering consultant firm in 1987. The test results indicated that the KCP would be in compliance with the particulate and sulfur dioxide standards even if No. 6 fuel oil was used in the boilers 100% of the time at the maximum load under normal operating conditions under the current regulatory status of the boilers. In addition, nitrogen oxides, carbon monoxide, sulfur acid mist emissions, and particulate nature and sizes were monitored and measured during this testing.

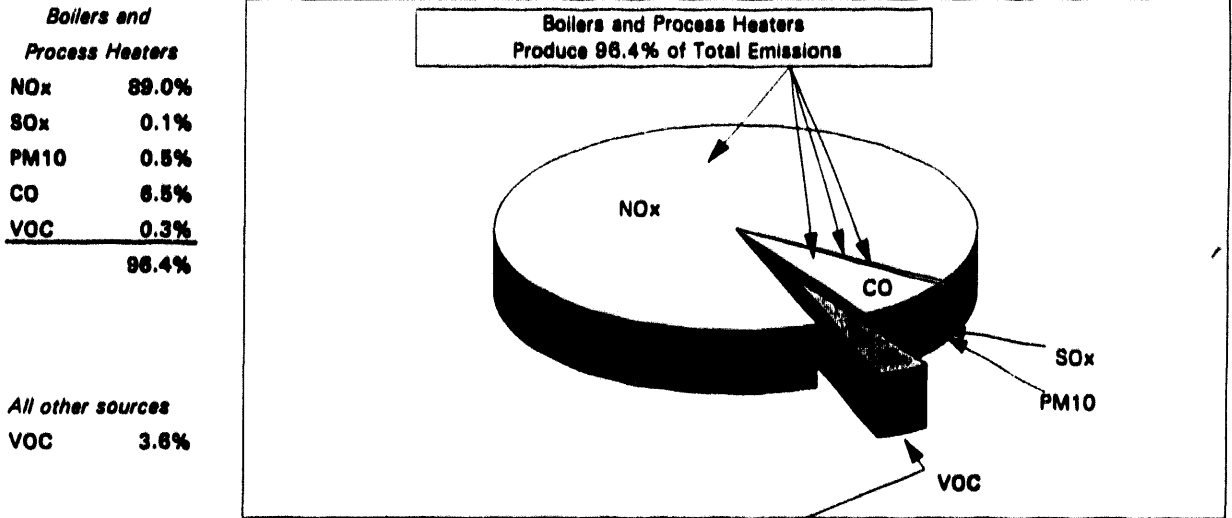
The West Boilerhouse boilers accounted for nearly all of the emissions from KCP indirect heating sources. Other indirect heating sources include molding process heaters, process ovens, and cafeteria ovens and french fryers. The boilers consumed both natural gas and No. 2 fuel oil. All other indirect heaters consumed natural gas. The emissions from indirect heating have been calculated and are tabulated below (see also Figure 5.26).

Pollutant	No. 2 Fuel	Natural Gas	Natural Gas	Total	Allowed
	Oil Boilers	Boilers	Other Heaters		
	Tons/Year	Tons/Year	Tons/Year		Tons/Year
Particulate		1.17		1.17	87
SO ₂	0.05	0.23		0.23	6.4M
NO ₂	0.07	212.32	0.35	212.74	
VOC		0.54		0.54	
CO	0.02	15.44		15.46	

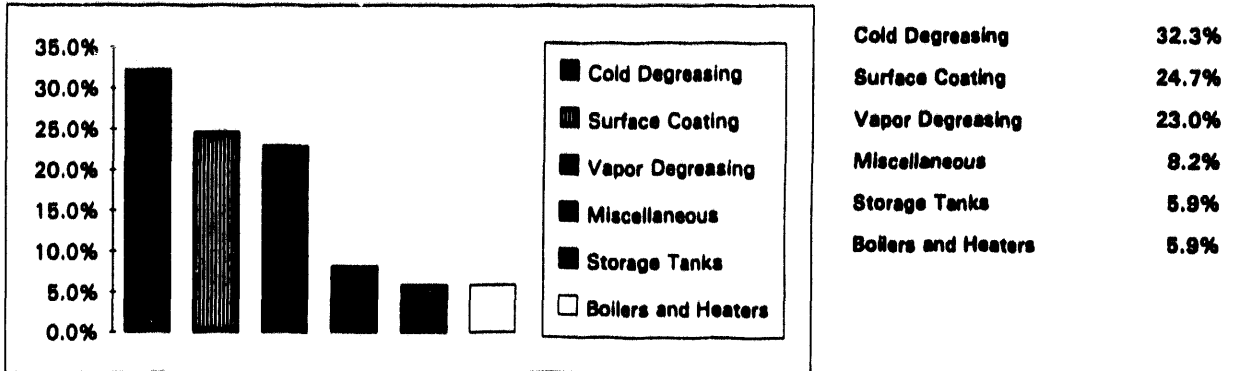
* All amounts below 0.01 tons/year not reported.

The Kansas City, Missouri, standard limiting visible emissions from the boilerhouse has also been evaluated under normal operating conditions with no problems encountered (see compliance summary activity, January 1 through April 1, 1992.) The most significant adverse effect resulting from boilerhouse operations has been the temporary upset conditions which occur during the necessary changeover of fuels and the upsets from boiler maintenance and adjustment. As a result of a DOE/AL recommendation in CY1986, the Kansas City Division provides written forecasts to the KCAO on expected fuel switchovers. This communication supplements the previously established verbal notification to the city. In CY1992, there were no utility-imposed curtailments of natural gas.

PERCENTAGE OF TOTAL EMISSIONS PER CRITERIA POLLUTANT



PROCESS CONTRIBUTIONS TO VOC EMISSIONS



AIR EMISSIONS CONSTITUENTS

FIGURE 5.26

Under the Missouri Air Conservation Law, the KCP submits an emissions inventory questionnaire to the city and state annually. This inventory contains emission information on total solvents, plant solvent usage, solvents from degreasing, solvents from surface coating, and incomplete combustion products from boilerhouse operations.

In CY1987, the state of Missouri revised its solvent metal cleaning regulations that are intended to control VOC emissions from degreaser operations. Previously, these regulations were applicable only to those facilities emitting over 100 tpy VOC from degreasing operations. This did not include the KCP; however, KCP personnel felt that degreasers in the plant were essentially in compliance with the equipment specifications, due to KCP internal review of purchase requisitions for degreasing equipment. The new regulations were applicable to the KCP, and, as a result, two minor degreaser equipment modifications in late 1987 and January 1988 were required to meet equipment specifications. Monitoring of the degreaser inventory ensures continued compliance. Annual degreaser operator training is conducted. These regulations are also being expanded to all other KCP non-VOC solvent degreasers.

Also in 1987, the state significantly lowered the applicability threshold from 100 to 2.7 tpy VOCs on regulations which limit VOC emissions from surface coating operations. These regulations specify a VOC concentration in surface coatings (as applied) for facilities which can emit over 2.7 tons VOC per year (tpy) from such operations. Subsequently, the KCP has continued operations through the use of alternative compliant paints, offsite vendors, and a permitted emissions control device.

Storage and Disposal Facilities (TSDF) were promulgated in 1990. Compliance testing was performed on an affected unit at KCP. Air emissions from the unit were found to be well below the minimum regulated level.

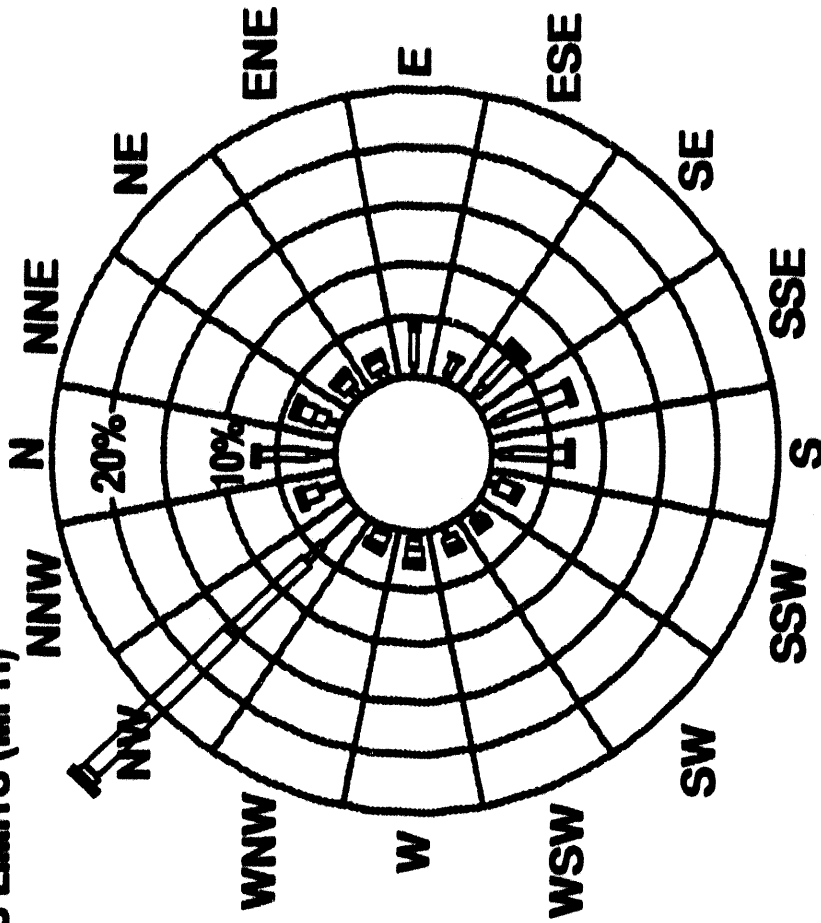
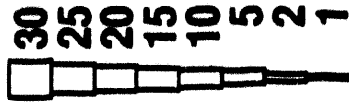
In summary, air monitoring has indicated that normal plant operations have a negligible effect on air quality in the surrounding area.

Meteorological Monitoring/Wind Rose

Meteorological monitoring is performed at the KCP to determine local weather conditions. This system monitors wind direction, wind speed, temperature, dew point, relative humidity, precipitation, and barometric pressure. Figures 5.27 through 5.30 show quarterly wind roses using captured data for CY1992.

DCN ID: BM SITE: KCP MET

WS CLASS LIMITS (MPH)



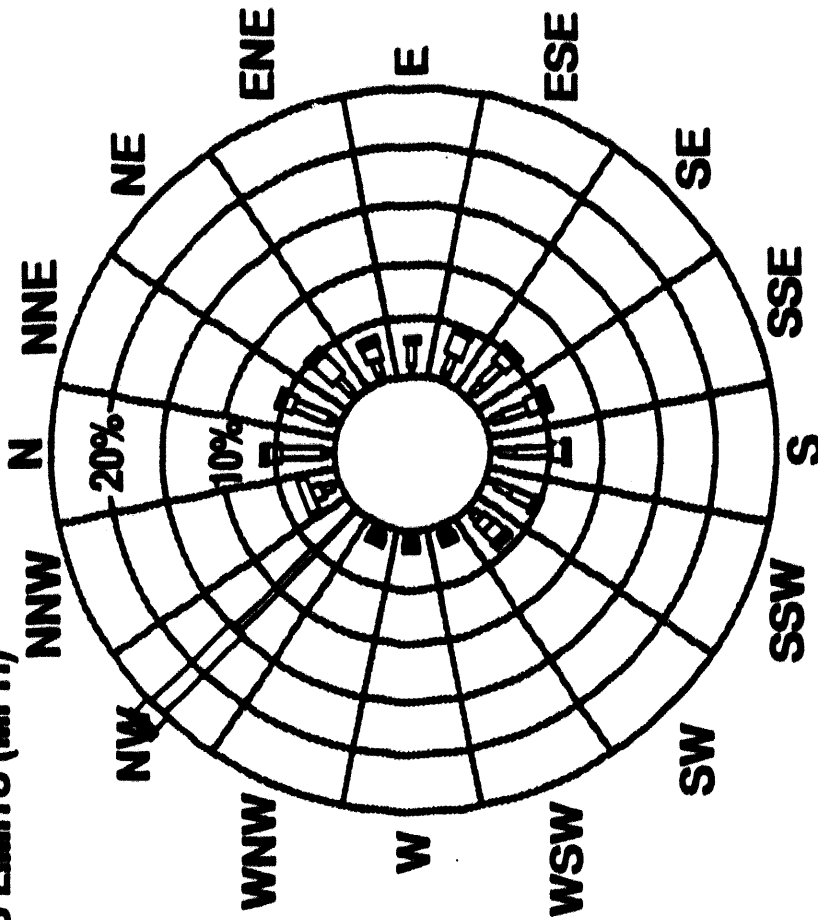
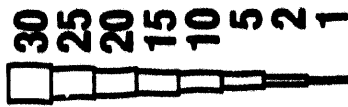
PERIOD: 1/1/92 - 3/31/92

Quarterly Wind Rose, 1/1/92 - 3/31/92

Figure 5.27

DCN ID: BM SITE: KCP MET

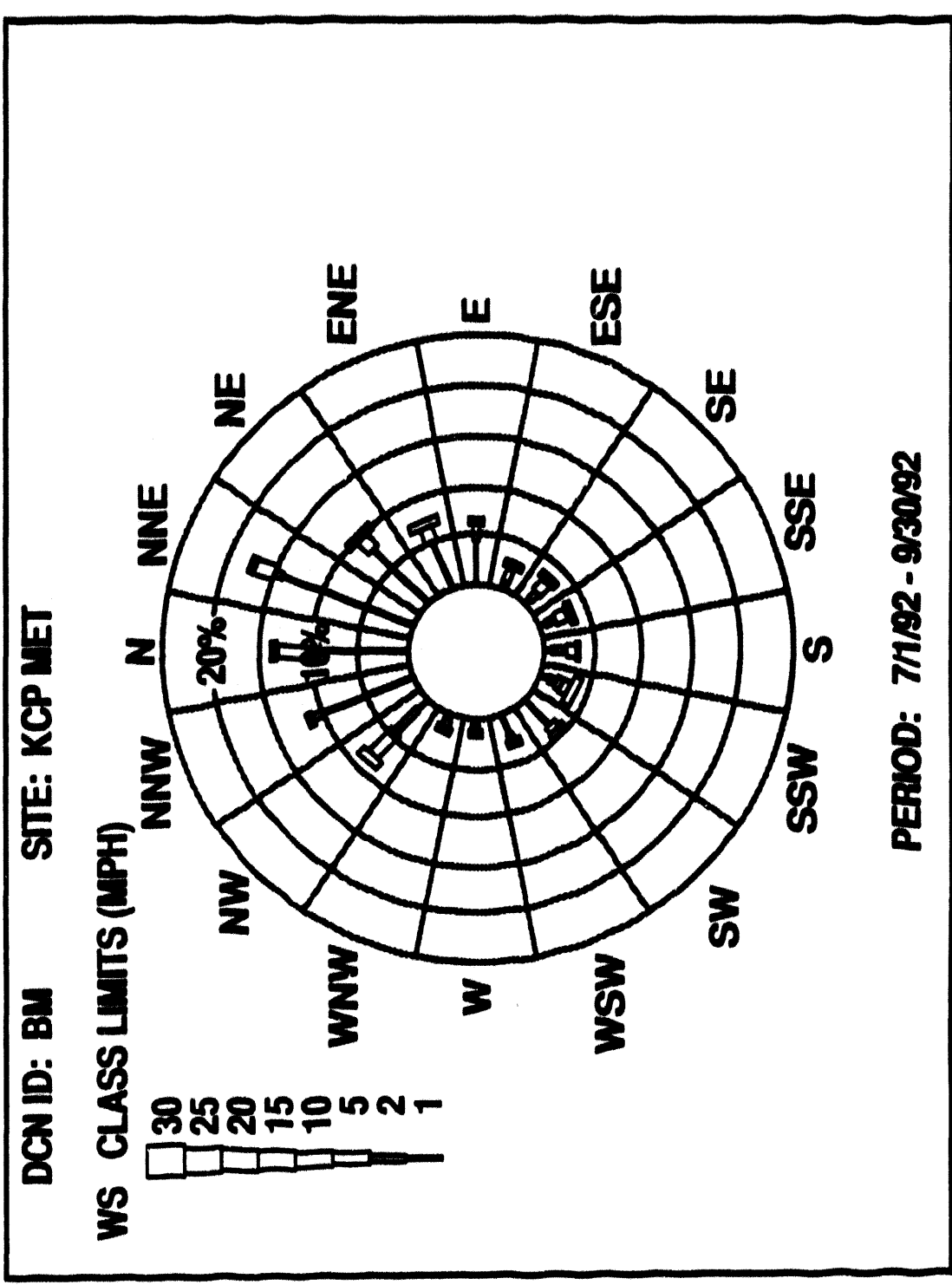
WS CLASS LIMITS (MPH)



PERIOD: 4/1/92 - 6/30/92

Quarterly Wind Rose, 4/1/92 - 6/30/92

Figure 5.28

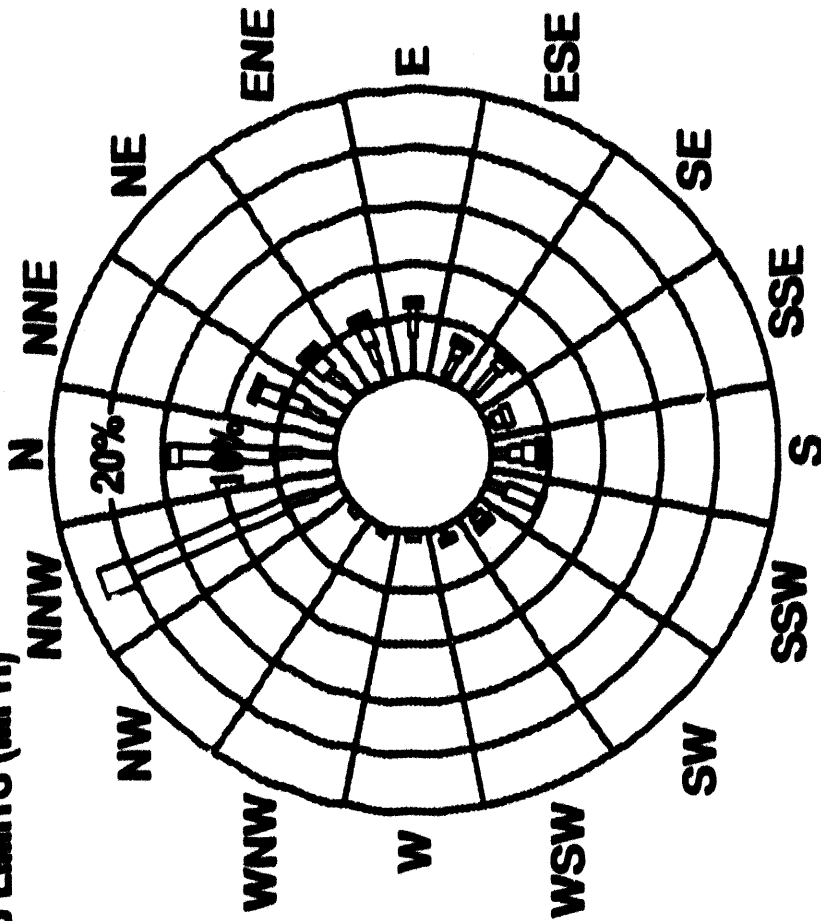
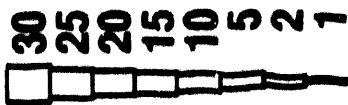


Quarterly Wind Rose, 7/1/92 - 9/30/92

Figure 5.29

DCN ID: BM SITE: KCP MET

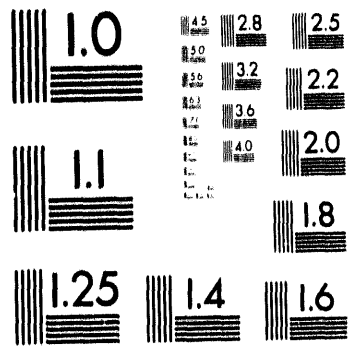
WS CLASS LIMITS (MPH)



PERIOD: 10/1/92 - 12/31/92

Quarterly Wind Rose, 10/1/92 - 12/31/92

Figure 5.30



2 of 3

WATER

The KCP water monitoring program includes regular monitoring of plant discharges to receiving streams and the KCMO POTW. Routine monitoring of upstream and downstream receiving water quality and plant intake water quality is also conducted, and three internal locations in the plant POTW collection system are monitored. All monitoring locations are summarized in Table 5.2 and indicated on Figure 5.31. Surface water effluent, receiving stream, and POTW effluent monitoring locations are discussed in more detail below.

Surface Water Effluent

Storm water and uncontaminated single-pass, non-contact cooling water are discharged from the KCP to the Blue River through outfall 001 and to Indian Creek through outfalls 002, 003, and 004. These four outfalls are monitored semimonthly for comparison with applicable regulatory limits. As discussed in Section 2 of this report, the KCP maintained compliance with NPDES permit limits during CY1992, with the exception of four permit excursions. One excursion occurred in February 1992, when the NPDES permit limitation for maximum pH was exceeded due to an erroneous pH reading. Another excursion occurred in July 1992, when an employee decided, with indifference to waste management practices and without knowledge or consent of his supervisor, to drain a dilute coolant solution into a storm sewer drain. Two other permit excursions occurred when the March 1992 and December 1992 monthly average PCB concentration in one of the KCP outfalls exceeded the NPDES permit limitation.

Table 5.3 presents a summary of the parameters monitored at these sites, the average discharges of each, and the estimated total quantity of each parameter discharged from the KCP to Indian Creek and the Blue River during 1992.

Receiving Stream Monitoring

Water quality in Indian Creek and the Blue River is monitored at six sites on a monthly basis. Two monitoring sites, one on Indian Creek and one on the Blue River, are located upstream of plant outfalls. Additional monitoring points are located downstream of each plant outfall and at the confluence of Indian Creek and the Blue River. These sites are monitored for all parameters monitored in the outfalls.

Three additional sites on the Blue River are monitored quarterly. These sites are located at the point where a groundwater plume contaminated with chlorinated solvents discharges into the Blue River.

Water quality in Indian Creek and the Blue River are highly variable because of contamination introduced upstream of the KCP by discharges from several POTWs and by general urban run-off. Table 5.4 provides a summary of average stream analytical data upstream and downstream of KCP discharges.

POTW Effluent

KCP discharges to the KCMO POTW include untreated sanitary sewage and treated industrial wastewater effluent from the KCP Industrial Wastewater Pretreatment Facility (IWPF). Regulatory compliance for the KCP was monitored at the point where these two flows join and enter the POTW. This point is identified as the Combined Sanitary Sewer (CSS) sampling location (see Figure 5.31).

Regulations, as implemented by KCMO require monitoring of the CSS for six-day periods twice each year to determine compliance with regulatory limits. The results of this monitoring were reported to KCMO in June 1992 and December 1992, as part of a "Semiannual Report for Significant Industrial Users." In addition to this required monitoring and reporting, the KCP monitors the CSS on a more frequent basis. Monitoring was conducted monthly during all of CY1992.

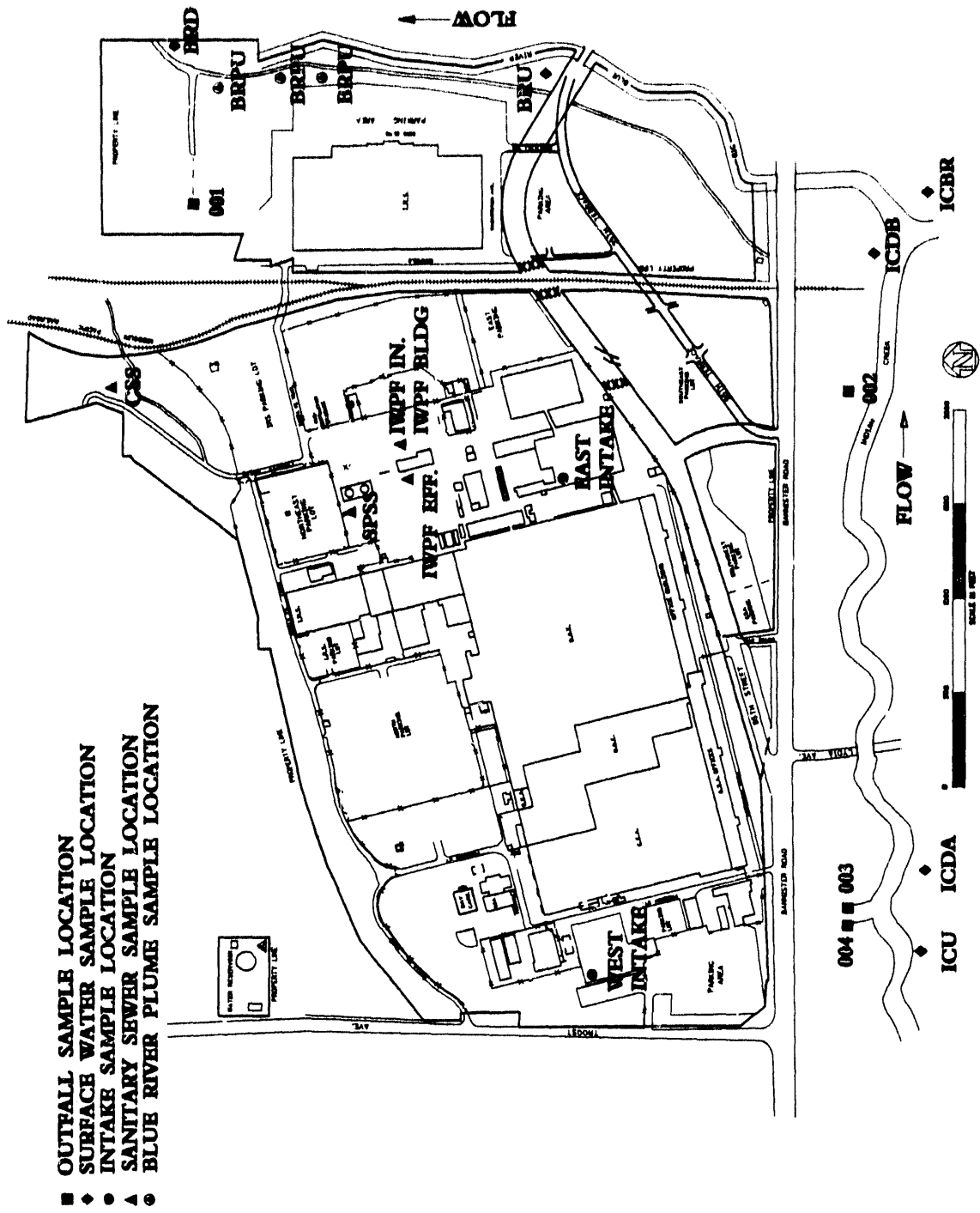
No discharge limits were exceeded during the required monitoring periods in CY1992. As discussed in Section 2 of this report, during CY1992 the KCP maintained full compliances with Federal Metal Finishing Pretreatment Standards, KCMO sewer discharge limits, and Missouri Effluent Guidelines limits.

Table 5.5 presents a summary of the parameters monitored at the CSS, a comparison of the average concentrations discharged in 1992 with regulatory standards, and the estimated total quantity of each parameter discharged from the KCP to the KCMO POTW during 1992.

Table 5.2

Water Monitoring Locations and Purposes

<u>Location</u>	<u>Designation</u>	<u>Purpose</u>
Storm Sewer	001,002,003,004	To ensure that outfalls' effluents discharged to Indian Creek and the Blue River are in compliance with NPDES permit requirements.
POTW Combined Discharge	CSS	To ensure that effluents discharged to the KCMO POTW are in compliance with city ordinance limits and pretreatment standards.
Internal POTW Collection System Locations	SPSS, IWPFF-In., IWPFF-Eff.	To determine the efficacy of IWPFF treatment and the relative contributions of industrial wastewater and sanitary sewage to the combined discharge.
Surface Waters	ICU, ICDA, ICDB, ICBR, BRU, BRPU, BRPC, BRPD, BRD	To measure the impact of KCP discharges and contaminated groundwater plumes, on the water quality of Indian Creek and the Blue River.
City Water Intakes	East and West Intakes	To provide baseline water quality data for other water monitoring programs.



Water Monitoring Locations

Figure 5.31

Table 5.3

CY1992 Surface Water Effluent Monitoring Data -
Annual Average

Parameter	Concentration (mg/L)			Total Est. Quantity Released During 1992 (kg)
	Parameter Detect Limit	Combined Flow- Weighted Outfall Average	NPDES Permit Limit	
pH (Units) (G)		8.2	10.8 (max)	N/A
Temperature (°F) (G)		62	stream temp. ±5°F	N/A
Total Dissolved Solids	1	398	No Limit	604,880
Aluminum	0.050	0.520	No Limit	790
Arsenic	0.006	<0.006	0.020 ¹	<9
Barium	0.010	0.062	No Limit	92
Beryllium	0.001	<0.002	0.005 ¹	2*
Boron	0.030	0.095	No Limit	142
Cadmium	0.002	<0.01	No Limit	<3*
Chromium (Total)	0.020	<0.020	0.050 ¹	<30*
Chromium (Hexavalent)	0.01	<0.01	No Limit	<15*
Copper	0.010	<0.010	0.020 ¹	<15*
Cyanide (G)	0.01	<0.010	0.005 ¹	<15*
Iron	0.020	1.0	1.000 ¹	1,520
Lead	0.050	<0.050	0.050 ¹	<76
Mercury	0.001	<0.001	0.0005 ¹	<2*
Nickel	0.050	<0.050	0.100 ¹	<76*
Selenium	0.005	<0.005	0.010 ¹	<8
Silver	0.030	<0.030	0.005 ¹	<46
Zinc	0.020	0.040	0.100 ¹	61
BOD	2	9.6	No Limit	N/A
COD	4	14.4	No Limit	N/A
Ammonia	0.01	0.06	No Limit	91
Oil and Grease (G)	0.5	0.7	No Limit	1,064
PCBs	0.0001	0.0002	0.001	<1
Chloride	1.0	63.38	No Limit	96,325
Chlorinated Solvents	0.005	0.005	No Limit	8
Nitrate	0.01	4.498	No Limit	6,806
Phenol (G)	0.005	<0.005	0.100 ¹	<46*
Phosphorus	0.01	0.241	No Limit	366
Total Suspended Solids	1.0	11.0	No Limit	16,718
Sulfate	1.0	116	No Limit	176,297
Therminol 66	0.002	0.002	No Limit	3

Table 5.3 (continued)

Parameter	Concentration (mg/L)			Total Est. Quantity Released During 1992 (kg)
	Parameter Detect Limit	Combined Flow-Weighted Outfall Average	NPDES Permit Limit	
Gold	0.050	<0.050	No Limit	<76*
Strontium	0.060	0.241	No Limit	366
Tantalum	1.0	<1.0	No Limit	<1600
Titanium	0.010	<0.010	No Limit	<15
Thallium	0.010	<0.010	No Limit	<15
Tungsten	1.0	<1.0	No Limit	<1600

¹No NPDES permit limit. "Limit" is maximum state ambient limitation for the protection of aquatic life.

* Total estimated quantity released during CY1992 for this parameter is an estimated maximum based on the parameter detect limit. Actual release during CY1992 was less than the estimated maximum, but cannot be accurately quantified.

N/A = Not Applicable

(G) = Grab Sample. All other parameters are analyzed in 24-hour composite samples.

Table 5.4

CY1992 Surface Water Monitoring Data - Annual Average (mg/L)

Parameter	Parameter Detect Limit	Indian Creek Upstream ¹	Indian Creek Downstream ² A	Indian Creek Downstream ³ B	Blue River and Indian Creek Confluence ⁴
Temperature (G)		60	60	60	59
pH (G)		8.0	8.1	8.2	8.1
Cyanide (G)	0.01	<0.010	<0.010	<0.010	<0.010
Oil & Grease (G)	0.5	0.7	0.7	<0.5	0.6
Phenol (G)	0.005	<0.005	<0.005	<0.005	<0.005
Chlorinated hydrocarbons (G)	0.005	<0.005	<0.005	<0.005	<0.005
Silver	0.030	<0.030	<0.030	<0.030	<0.030
Aluminum	0.050	0.827	0.705	0.890	0.855
Arsenic	0.006	<0.006	<0.006	<0.006	<0.006
Gold	0.050	<0.050	<0.050	<0.050	<0.050
Boron	0.030	0.142	0.139	0.135	0.071
Barium	0.010	0.060	0.055	0.056	0.089
Beryllium	0.001	<0.001	<0.001	<0.001	<0.001
B.O.D. (5 day)	2.0	13	8	21	9
Cadmium	0.002	<0.002	<0.002	<0.002	<0.002
Chloride	1.0	80	80	76	47
C.O.D.	4.0	24	23	26	17
Chromium-hexavalent	0.01	<0.010	<0.010	<0.010	<0.010
Chromium-Total	0.02	<0.02C	<0.020	<0.020	<0.020
Copper	0.010	0.130	<0.010	<0.010	<0.010
Iron	0.020	0.888	0.757	0.941	1.08
Mercury	0.001	<0.001	<0.001	<0.001	<0.001
Nitrate (N)	0.01	17.04	16.82	13.14	5.26
Ammonia (N)	0.01	0.19	0.22	0.23	0.18
Nickel	0.050	<0.050	<0.050	<0.050	<0.050

Table 5.4 (continued)

CY1992 Surface Water Monitoring Data - Annual Average (mg/L)

Parameter	Parameter Detect Limit	Indian Creek		Indian Creek		Blue River and Indian Creek Confluence ⁴
		Upstream ¹	Downstream ²	Downstream ³	Downstream ⁴	
Phosphorus (P)	0.01	2.33	1.91	1.87	0.58	
Lead	0.05	<0.05	<0.05	<0.05	<0.05	
PCB	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Selenium	0.005	<0.005	<0.005	<0.005	<0.005	
Sulfate	1.0	103.71	103.50	101.99	70.49	
Strontium	0.060	0.256	0.248	0.247	0.278	
Tantalum	1.0	<1.0	<1.0	<1.0	<1.0	
Solids-Total	1.0	469	469	460	361	
Dissolved						
Thallium	0.010	<0.010	<0.010	<0.010	<0.010	
Solids-Total Suspended	1.0	22.6	22.8	28.4	31.5	
Terphenyls	0.002	<0.002	<0.002	<0.002	<0.002	
Titanium	0.010	<0.010	<0.010	<0.010	<0.010	
Tungsten	1.0	<1.0	<1.0	<1.0	<1.0	
Zinc	0.020	0.039	0.028	0.037	0.048	

Table 5.4 (continued)

CY1992 Surface Water Monitoring Data - Annual Average (mg/L)

Parameter	Parameter Detect Limit	Blue River ⁵ Upstream		Blue River ⁶ Downstream		Blue River ⁷ Plume Upstream		Blue River ⁸ Plume Center		Blue River ⁹ Plume Downstream	
		60.00	8.2	60.00	8.2	61.1	8.2	61.0	8.1	60.8	8.2
Temperature (G)		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH (G)	0.01	0.6	0.6	0.6	0.6	0.2	0.2	0.15	0.4	0.4	0.4
Cyanide (G)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Oil & Grease (G)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenol (G)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorinated hydrocarbons (G)	0.005	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Silver	0.030	0.922	0.922	1.172	1.172	1.434	1.434	2.522	1.446	1.446	1.446
Aluminum	0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Arsenic	0.050	0.119	0.119	0.112	0.112	0.068	0.068	0.079	0.065	0.065	0.065
Gold	0.030	0.063	0.063	0.072	0.072	0.067	0.067	0.086	0.065	0.065	0.065
Boron	0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.001	14	14	8	8	4	4	9.9	3.2	3.2	3.2
Beryllium	2.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	0.003	0.003	0.003
B.O.D. (5 day)	0.002	71	71	72	72	53.08	53.08	51.05	53.40	53.40	53.40
Cadmium	1.0	23	23	24	24	21.8	21.8	26.2	21.6	21.6	21.6
Chloride	4.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
C.O.D.	0.01	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chromium-hexavalent	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium-hexavalent	0.01	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Copper	0.010	0.995	0.995	1.320	1.320	1.515	1.515	2.715	1.602	1.602	1.602
Iron	0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Mercury	0.001	13.40	13.40	11.56	11.56	5.3	5.3	4.9	5.2	5.2	5.2
Nitrate (N)	0.01	0.22	0.22	0.19	0.19	0.24	0.24	0.19	0.14	0.14	0.14
Ammonia (N)	0.01	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nickel	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Table 5.4 (Continued)

CY1992 Surface Water Monitoring Data - Annual Average (mg/L)

Parameter	Detect Limit	Blue River Upstream ²	Blue River Downstream ⁶	Blue River Plume Upstream ⁷	Blue River Plume Center ⁸	Blue River Plume Downstream ⁹
Phosphorus (P)	0.01	1.52	1.68	1.02	1.18	1.10
Lead	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
PCB	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Selenium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sulfate	1.0	96.53	95.91	68.0	69.0	67.8
Strontium	0.060	0.267	0.270	0.213	0.208	0.193
Tantalum	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Solids-Total Dissolved	1.0	433.0	434.0	353.0	344.8	349.5
Thallium	0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Solids-Total Suspended	1.0	30.2	40.8	40.5	85.0	42.2
Terphenyls	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Titanium	0.010	<0.010	0.010	0.016	0.034	0.018
Tungsten	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	0.020	0.033	0.042	0.035	0.052	0.035

¹This sampling point is approximately 50 yards upstream on Indian Creek of the 003 and 004 outfalls.
²This sampling point is approximately 50 yards downstream on Indian Creek of the 003 and 004 outfalls.
³This sampling point is on Indian Creek downstream of 002, 003 and 004 outfalls.
⁴This sampling point is upstream on the Blue River just before the confluence of Indian Creek and Blue River.
⁵This sampling point is downstream of the confluence of the Blue River and Indian Creek and upstream of 001 outfall.
⁶This sampling point is just downstream of the 001 outfall beyond the mixing zone on the Blue River.
⁷This sampling point is 450 yards upstream of the 001 outfall.
⁸This sampling point is 400 yards upstream of the 001 outfall.
⁹This sampling point is 350 yards upstream of the 001 outfall.

Table 5.5
CY1992
Combined Sanitary Sewer Effluent Monitoring

Parameter	Regulatory Standards (mg/L)			KCP Annual ³ Average (mg/L)	Total Estimated Quantity Released in 1992 ³ (kg)
	Kansas City, Missouri Ordinance	Metal Finishing ² Average	Daily Maximum		
Cyanide (G)	2.0 ₁	0.65	1.2	<0.010	<8**
Cadmium	2.0 ₁	0.01	0.020	<0.002	<2**
Chromium (T)	10.0 ₁	0.21	0.46	<0.020	<30**
Copper	2.0 ₁	0.26	0.56	0.015	11
Lead	0.1 ₁	0.08	0.14	<0.050	<38**
Mercury	* ₁	*	*	<0.001	<1
Nickel	3.0 ₁	0.32	0.68	<0.050	<38**
Silver	None ₁	0.05	0.09	<0.030	<23**
Zinc	2.0 ₁	0.27	0.49	0.091	68
TTO	None	*	0.41	0.043	32
pH (G)	6.0-10.0 units	*	*	8.2	N/A
Temperature (G)	150 F	*	*	73	N/A
BOD (5 day)	300	*	*	125	94,180
Chlorinated Solvents (G)	0.160	*	*	0.036	27
Phenol (G)	10.0	*	*	0.016	12
Soluble Oil (G)	100.0	*	*	11.61	8,630
TSS	360.0 ₁	*	*	46	33,609
Boron	1.0 ₁	*	*	0.155	116
Chromium (H)	5.0 ₁	*	*	<0.010	4
Iron	15.0 ₁	*	*	0.584	437
Sulfides	10.0 ₁	*	*	0.4	299
PCBs	<0.0001 ²	*	*	0.0004	<1

¹ No city ordinance limit is available. Limit given is from the Missouri Effluent Guidelines for Municipal Control of Industrial Wastes.

² Metal finishing standards are recalculated every six months (40 CFR 433). Therefore, three different standards are applied to each parameter. The limits provided are the time weighted average of the three standards applicable to KCP during 1992.

³ KCP Annual Average and Total Estimated Quantity Released in 1992, are based on April 2-8, 1992, and September 16-22, 1992, semiannual samples for 1992.

* - Standard has not been established.

** - Total estimated quantity released during CY1992, for this parameter is an estimated maximum based on the parameter detection limit. Actual release is less than the estimated maximum but cannot be accurately quantified.

N/A - Not Applicable

(G) - Grab sample

(T) - Total

(H) - Hexavalent

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The KCP is regulated by the EPA and the Missouri Department of Natural Resources (MDNR) hazardous waste regulations and is subject to RCRA inspections on an annual basis. All reporting requirements to these agencies, including the KCP's Part B application for treatment and storage of hazardous waste, have been met.

Hazardous waste is generated by many departments performing a variety of operations at the KCP. Operations that constitute the major contributors of hazardous wastes include wastewater treatment, plating and etching processes, degreasing operations, and remedial action.

Hazardous wastes are stored on-site in compliance with RCRA facility standards. The KCP is operating pursuant to an interim status authorization, having filed both Part A and B Permit applications with the state of Missouri and the EPA.

All waste streams generated at the KCP that are not reclaimed or recycled on-site are treated or disposed of at off-site EPA-approved facilities or treated on-site prior to discharge to the local municipality's POTW. Site visits and reviews of regulatory agency files are performed by the KCP on all off-site treatment and disposal facilities before a site is utilized.

Rinse waters from the alkaline and acid plating operations are discharged to the industrial wastewater system and ultimately to the POTW. These rinse waters are not listed as hazardous wastes as defined by 40 CFR 261. Concentrated alkaline and acid liquid wastes were disposed of off-site until November 1988, when treatment of a portion of these wastes in the newly constructed Industrial Wastewater Pretreatment Facility (IWPF) was initiated.

For additional information about hazardous waste disposal see Table 5.6.

A Satellite Storage Monitoring Program ensures compliance with RCRA waste storage regulations. The program consists of quarterly inspections of generating departments which are selected on a random basis. An inventory and deficiencies data base is maintained to provide reports on compliance trends and plant performance.

In September 1991, a Hazardous Waste Satellite Storage Critical Process team was established to develop a consistent, viable Satellite Storage management system. Satellite storage training was developed and presented to plant personnel. Other recommendations of this team are being evaluated for implementation.

TABLE 5.6

HAZARDOUS WASTE DISPOSAL
ANNUAL SUMMARY - CY1992
WASTE MANAGEMENT

MATERIAL	ISDF	DISPOSAL METHOD	SUM DRUMS	SUM POUNDS	NO. OF SHIPMENTS	TOTAL COST
ACID LIQUID, BULK	RES, TX	INCINERATION		20,840	1	\$ 9,676.06
AEROSOL CANS, OVERPACKS	RES, TX	INCINERATION	18	3,200	*	5,700.40
ALKALINE LIQUID, BULK	RES, TX	INCINERATION		11,660	1	5,665.04
ALKALINE LIQUID, MACDERMID	SCCC, TX	RECOVERY	34	16,160	1	1,344.00
COMPRESSED GAS CYLINDERS	NSSI, TX	TREATMENT/ INCINERATION		2,305	2	44,701.00
CRUSHED CONTAINERS (RCRA EMPTY) (NON-REGULATED)	USPCI, OK	LANDFILL	74	19,680	*	3,256.00
FLAMMABLE LIQUIDS (OVERPACKS - ADHESIVES RESINS, CURING AGENTS, PAINT, AND RUBBER)	RES, TX	INCINERATION		33,040	2	79,039.35
FUEL OIL NO. 6 (TANK CLEAN-OUT)	RES, LA	INCINERATION		122,740	3	65,409.45
INFECTIOUS MED/LAB WASTE (NON ETIOLOGICAL)	BFI, KS	INCINERATION	431	17,500	1	6,832.02
IMPV F006/F019 SLUDGE	USPCI, OK	STABILIZATION/LANDFILL		174,440	6	35,774.96

Table 5.6 (continued)

Hazardous Waste Disposal
Annual Summary - CY1992
Waste Management

<u>MATERIAL</u>	<u>ISDF</u>	<u>DISPOSAL METHOD</u>	<u>SUM DRUMS</u>	<u>SUM POUNDS</u>	<u>NO. OF SHIPMENTS</u>	<u>TOTAL COST</u>
LAB REAGENTS (MISC.) & OFF-SPEC COMMERCIAL PRODUCT	RES, TX	INCINERATION		4,206	1	75,792.12
LEAD CONTAMINATED DEBRIS (FILTERS, SOIL)	USPCI, OK	LANDFILL		1,260	1	2,311.00
MERCURY CONTAMINATED DEBRIS (THERMOMETERS, BULBS, SWITCHES)	USPCI, OK	LANDFILL	2	740	1	1,029.50
MERCURY METALLIC LIQUID	QUICKSILVER, CA	RECLAMATION	17	5,380	1	251,536.80
METHYLENEDIAMILINE DEBRIS (NON-REGULATED)	RES, TX	INCINERATION	63	8,080	1	14,222.90
METHYLENEDIAMILINE CONTAMINATED EQUIPMENT	USPCI, OK	LANDFILL		10,240	2	2,874.84
OIL, BULK	RES, TX	INCINERATION		97,200	3	30,069.20
OIL/SOLVENT CONTAMINATED DEBRIS	RES, LA	INCINERATION	1,252	141,400	7	160,951.95
SOLVENT CONTAMINATED DEBRIS (STEP CAN WASTE)	RES, TX	INCINERATION	617	88,520	6	133,705.36
PCB LIQUID	RES, TX	INCINERATION	5	760	*	1,765.90
	RES, TX	INCINERATION		38,700	3	29,092.05(A)
	APTUS, KS	INCINERATION		54,060	8	36,018.57(B)

TABLE 5.6 (CONTINUED)

HAZARDOUS WASTE DISPOSAL
ANNUAL SUMMARY - CY1992
WASTE MANAGEMENT

<u>MATERIAL</u>	<u>ISDF</u>	<u>DISPOSAL METHOD</u>	<u>SUM DRUMS</u>	<u>SUM POUNDS</u>	<u>NO. OF SHIPMENTS</u>	<u>TOTAL COST</u>
PCB SOLID DEBRIS						
- BALLASTS & SM. CAPACITORS	CWM, AL USPCI, UT	LANDFILL LANDFILL	15 8	7,810 4,280	8 5	16,989.94 14,479.20
- TRANSFER (2 EA.)	USPCI, UT	LANDFILL		17,700	1	4,863.78(F)
- TRANSFORMER (9 EA.)	CWM, AL	LANDFILL		54,720	4	29,900.68(F)
- D/161	USPCI, UT CWM, AL	LANDFILL LANDFILL		175,040 66,680	10 7	51,665.02(D) 24,058.50(D,E)
- D/27 SOIL	CWM, AL	LANDFILL		736,320	19	155,652.73(C)
- TRICHLOROETHYLENE CONTAMINATED SOIL/DEBRIS	RES, TX APTUS, KS	INCINERATION INCINERATION	4	2,300 12,520	* 1	2,573.70 14,045.90
SOLVENT, CHL	RES, TX	INCINERATION		148,120	5	46,856.83
SOLVENT/TDI	RES, LA	INCINERATION	49	20,720	1	26,584.75
TRICHLOROETHYLENE CONTAMINATED SOIL BORINGS (ASSESSMENT)	USPCI, OK	LANDFILL		173,760	6	22,874.51
TOTALS			2,909	2,293,521	118	\$1,420,029.05

* COMBINED LOAD

(A) \$18,088.29 - PROJECT 1661 (D/171 CHARGE)

(B) \$14,579.73 - PROJECT 1661, \$2,966.17 - PROJECT (D/171 CHARGE)

(C) PROJECT 1705 (D/171 CHARGE)

(D) INCLUDES D/20 AND D/90 CONSOLIDATION (CONSTRUCTION PROJECT)

(E) \$1,836.20 - PROJECT 1661 (D/171 CHARGE)

(F) Project 1661 (D/171 charge)

POLLUTION PREVENTION (PPA)

The Kansas City Plant (KCP) Pollution Prevention Program was established in 1985 with the publication of a Management Policy Statement (MPS) which was updated in 1990. Beyond that, a program plan has been issued which describes in greater detail the minimum program requirements. The program is an organized and continual effort to systematically reduce material releases. The program strives towards the eventual elimination of any pollutant release to any environmental media. Initially, the program focused on solvent reductions; however, efforts were expanded to all material releases. Program accomplishments include solvent usage, F006 plating waste, sulfur dioxide and particulate air emission, and spill reductions, Environmentally Conscious Manufacturing (ECM), solid waste recycling; Departmental Pollution Prevention Plan and Process Waste Assessment (PWA) development; and increased plant-wide awareness.

The following summarizes the five most significant CY1992 Pollution Prevention highlights:

- o A 95 percent usage reduction (approximately 400 tons) of chlorofluorocarbon (CFC) and chlorinated hydrocarbon (CHC) solvents was realized since 1986. Most of the overall reduction was due to Pollution Prevention; however, a portion can be attributed to production slow-down. During 1992, there was a 45 percent reduction. The goal is to eliminate CFC and CHC solvents in production to the maximum extent possible by July 1993. In addition, the KCP is pursuing and has obtained other significant chemical reductions such as F006 plating waste.
- o Site-specific PWA guidance was initially issued in October 1991, and most recently updated in December 1992. Through CY1992, 494 PWAs out of 1247 processes identified were completed with a goal to complete all initial PWAs by September 1994; in the interim, 376 PWA completions are scheduled for CY1993. Performance-based PWA training was given to approximately 290 associates. The KCP developed a Graded Approach to PWAs placing less emphasis on the mass balance portion, but maintaining the options generated portion. DOE selected the KCP to lead development of this approach at laboratory sites and to provide PWA technical assistance to other DOE sites. Pollution Prevention and NEPA procedures are being tried by using a new PWA as a signal for NEPA review.
- o The KCP Pollution Prevention Program was chosen as Region VII EPA's 1992 nominee for the EPA Administrator's Awards Program for Pollution Prevention. This nomination was based on a detailed application submitted by the KCP.

KCP associates participate on a local Voluntary Chemical Reduction Program steering committee (33/50-like). Focus on the Environment articles about the KCP are distributed to the surrounding community. Recent articles have been about ECM, recycling, and PWAs.

- o The KCP continues to support DOE Pollution Prevention initiatives including the temporary assignment of a KCP associate to EM-352. KCP diverted process development dollars to hazardous and waste minimization development projects that searched for alternate solvents, polymers, and plating chemicals; modified processes; and supported PWA methodology efforts. The KCP manages the Miscellaneous Waste Stream (MWS) of the DOE-AL Waste Minimization Managers Group (WMMG). Projects to develop Environmentally Conscious Manufacturing (ECM) products continued as well as the presentation of numerous papers at technical and programmatic conferences. Best practices learned are being taught to small area businesses. Quarterly highlights of KCP accomplishments are distributed internally and externally.
- o The KCP made significant strides to increase awareness through General Management Awareness training and an all associate awareness training video. Pollution Prevention articles in several plant-wide publications help to stimulate awareness. The 1992 Annual Report on Waste Generation and Waste Minimization Progress as required by SEN-37-92 and DOE Order 5400.1 is referenced for more detail on CY1992 activities.

To fully implement the Pollution Prevention Program, a comprehensive process baseline of KCP operations is being developed. Process Waste Assessments (PWAs) are being completed by all manufacturing and non-manufacturing business units. Goals for 1993 are that PWAs be completed in CY1993. Completion of all initial PWAs, currently numbering nearly 1,271, is scheduled for September 1994.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

The KCP has completed annual reporting requirements in accordance with SARA section 311 and 312 since 1987 and in accordance with Section 313 since 1988. Section 312 inventory data for CY1992 is shown in Table 8.2. Section 313 release data for CY1991, is shown in Table 2.5. No SARA reportable quantity releases occurred in CY1992, as shown in Section 2.

ENVIRONMENTAL RESTORATION PROGRAM

Historical Summary

The Environmental Restoration Program (ERP) began as two separate activities which have been merged into one. Both the Kansas City Plant Site Characterization Program and the DOE/AL Comprehensive Environmental Assessment and Response Program (CEARP) began in early 1984. While the former was specific to the KCP, the CEARP was designed to coordinate efforts at each of the Albuquerque Operations plants. Due to the larger scope of the CEARP, the Site Characterization Program advanced more rapidly until 1988, when the two programs were merged.

The Site Characterization Program was prompted by the discovery of volatile organic contamination in the alluvial aquifer underlying that portion of the facility known as the Underground Tank Farm Area. Monitoring wells were installed across the facility in the fall of 1984 for the purpose of characterizing the groundwater quality and site hydrology. In the summer of 1985, a second series of monitoring wells was installed and a soil sampling program was initiated at several potentially contaminated sites. During 1986, groundwater modeling (computer simulation) was conducted for the Underground Tank Farm Area and the TCE Still Area. These computer models simulated the potential migration of contaminants in both the alluvial aquifer and the underlying bedrock layer known as Knobtown Sandstone. Finally, a series of remedial action alternatives was developed for the Underground Tank Farm Area such that remedial action could commence in 1987.

The CEARP generated a Phase I Installation Assessment, a Phase II Installation Generic Monitoring Plan, and several investigation plans and reports from 1984-1988.

In 1989, the Secretary of Energy combined the Environmental Restoration Program with Corrective Activities and Waste Management in a new program called the Five-Year Plan. The Five-Year Plan includes versions from each Area Office, each Field Office and a summary version from Headquarters. Implementation of the Five-Year Plan is documented in Site Specific Plans for each site. All funding for environmental restoration is received through the Five-Year Plan submittals. This was true for all activities conducted in 1992.

Department 27 and Miscellaneous PCB Sites

A remedial investigation for these areas was initiated in 1989. The areas include the former location of the D/27 heat transfer system (outside and north of the main building), the oil house, the East Boilerhouse and a sanitary sewer pump station. The D/27 (outside area, the Oil House and the East Boilerhouse were all

found to be contaminated to some degree. On EPA's recommendation, a decision was made to remediate these areas under Interim Measures. The sanitary sewer pump station was found to have no significant contamination and was consequently removed from the consent order. Investigation of the Oil House continued as part of the TCE Still Area RFI project. An Interim Measure Plan for the D/27(outside) area consisting of the excavation and off-site disposal of soils containing 10 ppm or greater PCBs was approved by EPA in June 1991. Implementation of the interim remediation measure was begun in July 1992 and completed in October 1992. A total of approximately 200 yds³ of PCB contaminated soil was removed from the D/27(outside) area at the completion of the project.

Plating Building

The Plating Building, also known as Building 57, provided on-site metal plating services. The superstructure of Building 57 was removed in the summer of 1989. Several investigations were performed in this area prior to the completion of RFI fieldwork in 1991. TPH and PCBs were detected in significant concentrations in both the southern and northern ends of the study area. The completed RFI fieldwork generally defines the area of TPH and PCB contamination in both the northern and southern areas. PCBs were detected at concentrations up to 6400 ppm and TPH up to 12,000 ppm. The response to the RFI Report was submitted to the EPA in September 1992. EPA comments received December 1992 are currently being incorporated for an April 1993 submittal.

Abandoned Indian Creek Outfall (AICO)

The final Corrective Measures Implementation Plan (CMI) was approved by EPA in September 1992. Mobilization of field crews at the project site commenced in October. The remediation of AICO will require the excavation and off-site disposal of approximately 20,000 tons of PCB contaminated soil. The EPA approved cleanup level is 10 ppm PCBs in soil. The project is scheduled to be completed sometime during summer of CY93.

Groundwater Treatment and Restoration

An ozone/ultraviolet radiation/hydrogen peroxide treatment unit to treat the solvent-contaminated groundwater began operation in May 1988. A permit to discharge the treated groundwater to the sanitary sewer was received from the Kansas City, Missouri, Pollution Control Department prior to operation of the facility. In 1990 treatment commenced on two additional plumes; the TCE Still Area and the Northeast Area. Table 5.7 provides a comparison of the permit limits to the monthly average discharges. Throughout 1992 all effluent standards were met. The unit continues to operate under KCMO discharge permit No. 74. For additional information of permit issues, refer to page 6 under the heading "Clean Water Act."

The treatment unit treated in CY1992 an average of approximately 144,152 liters per day drawn from the 15 production wells; configured to contain three contaminant plumes.

The existing treatment system was to have been replaced in CY1992 with an ultraviolet/hydrogen peroxide system designed to treat a larger flow rate (100 gpm). The new system though, did not meet performance standards and was not accepted for service by KCD. A unit utilizing a more powerful UV source and pH adjustment of both influent and effluent is planned to be tested and installed pending acceptable results in CY1993.

Underground Tank Farm Area

Groundwater monitoring in the former Underground Tank Farm area has identified the presence of trichloroethene, 1,2-trans-dichloroethene, and chloroethene in the alluvial aquifer. Three recovery wells equipped with pumps deliver water to the groundwater treatment unit where the contaminants are destroyed and the water discharged to the sanitary sewer system.

TCE Still Area

Groundwater monitoring in the former TCE Still area has identified trichloroethene, 1,2-trans-dichloroethene, and chloroethene contamination in the alluvial aquifer. Seven recovery wells are operating within the TCE Still plume to remove contaminated groundwater from the alluvium and deliver it to the groundwater treatment system.

CY1992 TCE Still Area RFI fieldwork consisted of the sampling of soil during the completion of five investigative soil borings, the installation of three temporary wells (one of which was later converted to a permanent well), the installation of one dual-completion monitoring well, the installation of a multi-completion well for use in an isotope study of the KCP groundwater, and the investigation of suspect areas by using geophysical means. Results of these investigations are to be provided in the TCE Still Area RFI Report which is scheduled for completion in FY93.

Miscellaneous Contaminated Sites

This grouping of release sites has included the Abandoned fuel Lines, Buildings 16 and 54, the Fuel Oil Tank Loading/Unloading Area, and the North Lot. RFI fieldwork conducted in CY1992 (11 soil borings, 66 soil samples) resulted in the completion of the RFI fieldwork phase for this project. The investigations of Building 54 and the area west of Building 74 will continue as part of the Maintenance Vehicle Repair Shop Sump project as contamination found in these two areas indicate the possibility of a source other than the Abandoned Fuel Lines.

A draft RFI report was delivered to EPA in September 1992. No soil contamination is indicated at the North Lot. At the Building 16 site, PCBs were detected in one sample at a concentration just above the detection limit (1.0 ppm) and TPH was detected in one sample obtained from below the water table. These findings indicate there is no soil contamination problem at the Building 16 site. At the Fuel Oil Tank Loading/Unloading Area both BTEX and TPH constituents were detected generally at or above the water table. This contamination appears to be the result of localized petroleum releases. The investigation of the Abandoned Fuel Lines revealed the majority of VOCs in soil to be located below the groundwater table. The VOCs are attributed to the Tank Farm Plume which encompasses a large portion of the AFL area. With the exception of one sample, all TPHs were found at or above the groundwater table, indicating possible petroleum releases from the abandoned fuel lines. However, soil data from borings and wells west of Building 74 suggest that an unknown source may be responsible for the contamination in this area. As a result, the investigations of these two areas will be completed under the Maintenance Vehicle Repair Shop Sump RFI project.

Department 26

Department 26 RFI fieldwork was conducted in CY1992. The investigation concentrated on defining the presence of subsurface soil contamination within the interior portions of D/26 only. Fieldwork consisted of twenty soil borings, two of which were completed into bedrock. PCBs were reported at concentrations ranging up to 10,000 mg/kg. The highest concentrations were found at the base of the alluvium at a location where a past spill had occurred. In addition to PCB contamination, the following chlorinated solvents were found: trichloroethene (up to 290,000 $\mu\text{g}/\text{kg}$); 1,2-dichloroethene (up to 9500 $\mu\text{g}/\text{kg}$); and chloroethene (up to 180 $\mu\text{g}/\text{kg}$). Concentrations of TPH were also detected up to 2500 mg/kg. The RFI report is scheduled to be submitted to EPA in FY93.

Table 5.7

CY1992 Groundwater Treatment Plant Effluent Monitoring
Data - Annual Average

<u>Parameter</u>	<u>Effluent Average</u>	<u>Permit Limit</u>	<u>Comparison To Limit</u>	<u>Total Estimated Quantity Released During 1992 (kg)</u>
Flow (Liters/day)	*144152	167100	Within Limit	52,388,427 (Liters)
pH (Units)	7.6	6.0-10.0	Within Limit	
BOD	7.6	No Limit	None	
Total Suspended Solids	7.6	No Limit	None	398.15
Sulfide	1.0	10	Within Limit	52.388
Oil & Grease	1.175	100	Within Limit	61.557
Total Cyanide	0.0	2	Within Limit	0.0
Total Organic Halogen	0.044	0.16	Within Limit	2.305
Arsenic	0.0185	0.25	Within Limit	0.969
Boron	0.134	1	Within Limit	7.02
Cadmium	0.010	0.69	Within Limit	0.524
Chromium	0.0	2.77	Within Limit	0.0
Copper	0.0	3.38	Within Limit	0.0
Iron	2.687	100	Within Limit	140.768
Lead	0.0	0.69	Within Limit	0.0
Manganese	4.143	20	Within Limit	217.045
Nickel	0.0	3.98	Within Limit	0.000
Zinc	0.0345	2.61	Within Limit	1.807

All averaged values reflect only quantities above minimum detection limit. Effluent average and permit limit are in mg/L unless otherwise noted.

Average flow is sum of all monthly totals (in gallons) times 3.785 L/gal, divided by 365. PH, BOD, and TSS are the sums of daily measurements divided by total number of measurements obtained during CY1992.

Northeast Area

Groundwater monitoring in the Northeast Area has identified VOC contaminants. Five recovery wells have been installed to withdraw contaminated groundwater from the alluvium and deliver it to the groundwater treatment system. One of these recovery wells is located in a trench which serves to intercept contaminated groundwater before it reaches the Blue River.

RFI fieldwork in CY1992 consisted of soil sampling from three investigative boreholes in an area where ponds previously existed.

001 Outfall Area

RFI fieldwork in CY1992 consisted of the installation and soil of four temporary monitoring wells (three of which were later abandoned) and the sampling of soil from each well, the completion of two monitoring wells to serve as observation wells during a scheduled aquifer test, and the sampling soil from five investigative borings. The RFI report is scheduled to be submitted to EPA in FY1993.

South Lagoon Area

The South Lagoon was constructed in 1975 to assist the North Lagoon in receiving industrial wastewaters and was in operation until 1988. The industrial wastewater system carried rinse-waters, drain input, and treated cooling waters from various processes including electroplating and degreasing operations. The South Lagoon was decommissioned in 1988 by removing contaminated sediments, backfilling with uncontaminated soil, and covering the site with a clay cap, topsoil, and vegetation. Per RCRA post-closure requirements, groundwater monitoring continued on a quarterly basis after closure. The RFI report and associated revisions were submitted to EPA in CY1991. The report focused on groundwater data and concluded that additional groundwater monitoring would be required to determine the presence of organic contaminants. Data collected during the RFI indicated that after draining and decommissioning, no further plume development occurred and that a Corrective Measures Study (CMS) was not required at that time. In correspondence dated 11/21/91 EPA states that at that time no Corrective Measures Study is required. Groundwater monitoring continued in CY1992.

Of the four primary groundwater contaminants at the KCP (1,1-DCA, TCE, 1,2-DCE, and chloroethene), three were sporadically detected at the South Lagoon during monitoring conducted in CY1992: 1,1-DCE was detected once in the first, third, and fourth quarters (6 $\mu\text{g/L}$, 11 $\mu\text{g/L}$, 7 $\mu\text{g/L}$); 1,2-DCE was detected in three wells in the third quarter (9.2 $\mu\text{g/L}$, 26.0 $\mu\text{g/L}$, 6.0 $\mu\text{g/L}$); and chloroethene was detected once in the fourth quarter (62.0 $\mu\text{g/L}$).

Unusual Occurrence Reporting

The Operational Surety Department currently has the responsibility for implementing the Occurrence Reporting system as required by DOE Order 5000.3A; Occurrence Reporting and Processing of Operations Information. A program has been established, as defined in Operating Procedure #571, which assures the reporting of occurrences to the DOE. Both written and verbal notification of reportable events within a specified time period for the three categories (Emergency, Unusual or Off-Normal) of occurrences are required per DOE Order 5000.3A. In addition, the Operational Surety Department is required to submit a Daily Operations and Event Report (DOER) to the DOE-KCAO ES&H Branch each morning by 0800 hours. The DOER includes any unplanned event related to the operation of the KCD facility having actual or potentially adverse consequences in regard to environment, safety, and health concerns, security, safeguards, emergency preparedness, programmatic impact, contract negotiations, personnel issues, layoffs, planned demonstrations, VIP visits, meetings with elected officials, and any other information deemed to be worthy of reporting as required by Governmental Assistance and Operations Division DOE-GAOD-1-01 Rev. 1; Daily Operations and Event Reporting.

Seven environmental occurrences involving the NPDES permit were reported in CY1992, in accordance with DOE Order 5000.3A. A summary of these occurrences is as follows:

Three occurrences were reported when pollutant releases were reported to an outside agency in a format other than routine monthly or quarterly reports. In all of these occurrences, zinc concentrations higher than the NPDES notification limit were reported to the MDNR. It is important to note that the exceedance of a notification level is not considered a permit violation by MDNR. No corrective actions have been undertaken for these types of occurrences, and none were recommended. A source investigation report was prepared and issued in March 1991, which associated elevated zinc with rainwater runoff from vehicles in parking areas, and from galvanized equipment and fencing on roofs and grounds of the facility.

Four occurrences were reported when it was known or reasonably believed that NPDES permit limitations were violated. In February 1992, the NPDES permit limitation for maximum pH was exceeded due to an erroneous pH reading by a subcontractor laboratory. In March 1992, the monthly average PCB concentration in one of the KCP outfalls exceeded the NPDES permit limitation. In July 1992, an employee decided, with indifference to waste management practices and without knowledge or consent of his supervisor, to drain a dilute coolant solution into a storm sewer drain. Also in July 1992, a release from a chromium plating

exhaust stack was presumed to have entered a storm sewer drain. The discharge of dilute coolant solution, or a chrome-contaminated runoff, violates the NPDES permit authorization to discharge only stormwater and uncontaminated cooling water. Corrective actions for these occurrences included reprimands, counseling, procedural changes, modifying storm sewer piping, and cleaning contaminated surfaces.

SECTION 6

GROUNDWATER PROTECTION

Introduction

This section provides an overview of the groundwater protection program at the Kansas City Plant. The groundwater monitoring program and its interrelationship with ongoing environmental cleanup activities is discussed. In addition the hydrostratigraphy and a discussion of the type and extent of groundwater contamination including selected contaminant trend graphs are also provided.

Hydrostratigraphy

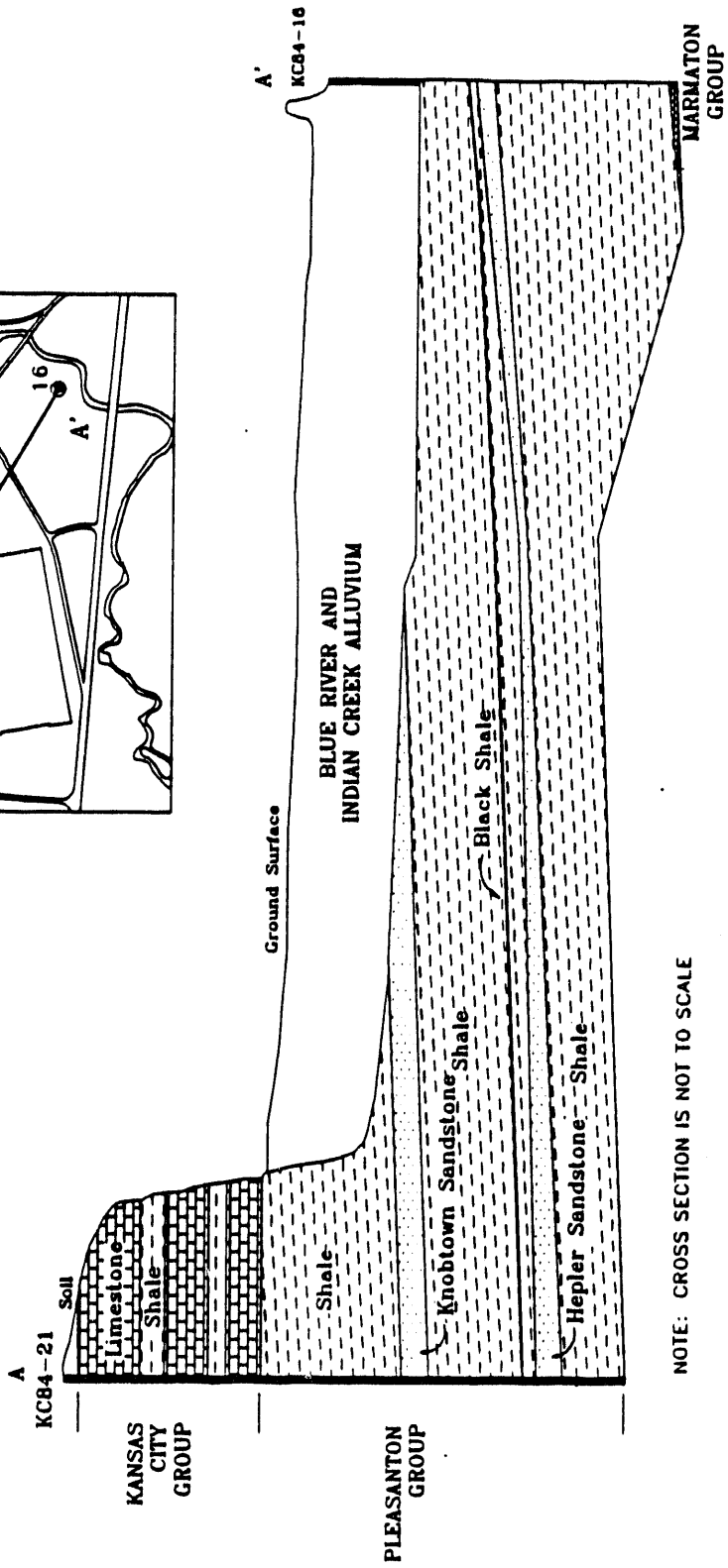
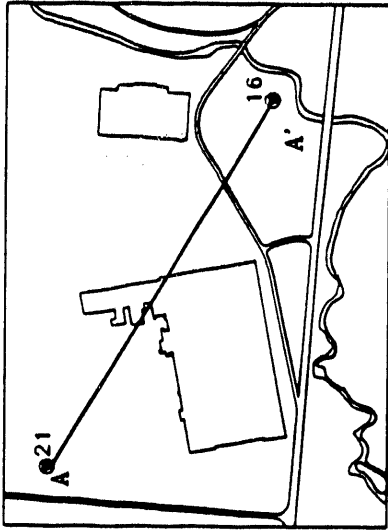
The hydrostratigraphy at the KCP can be divided into two major units: the unconsolidated alluvium and the underlying bedrock.

In general the alluvium consists of continuous and discontinuous zones of clayey-silt, sand and gravel. Two more permeable water bearing zones are present within the alluvium, an upper sand-clay-silt and a basal gravel with a sand-silt-clay matrix. The two more permeable zones are separated in certain areas by a olive to blue green clayey silt. The two more permeable zones (basal gravel and sand-clay-silt) and the intervening clayey silt all transmit water and comprise the alluvial aquifer.

Figure 6.1 presents the alluvial fence diagram for the Northeast Area at the KCP. This figure is presented as an overview of KCP stratigraphy because it exhibits all of the features found in the alluvium throughout the site. The stratigraphy is complicated throughout the KCP by the presence of fill and because portions have been removed by erosion.

The bedrock underlying the KCP consists of the Pleasanton group consisting of alternating sandstones and shales. A schematic cross section of the bedrock and the alluvium present at the KCP is provided in Figure 6.2. Groundwater sampling from bedrock wells at the KCP has shown that no contamination exists. Therefore, all further discussion will concentrate on the area where groundwater contamination is found, the alluvium.

LOCATION MAP



NOTE: CROSS SECTION IS NOT TO SCALE

Schematic Cross Section of the Bedrock and the Alluvium at the KCP

Figure 6.2

Groundwater Monitoring Program/Environmental Restoration

The Kansas City Plant is currently performing an environmental clean up pursuant to a Corrective Action Order with EPA under the authority of Section 3008(h) of the Resource Conservation and Recovery Act (RCRA). As stated in Section 1, page 13, twenty seven (27) sites are actively being addressed under the RCRA Consent Order. These 27 are being addressed under 10 separate corrective actions in various stages of completion, the process of which is described below.

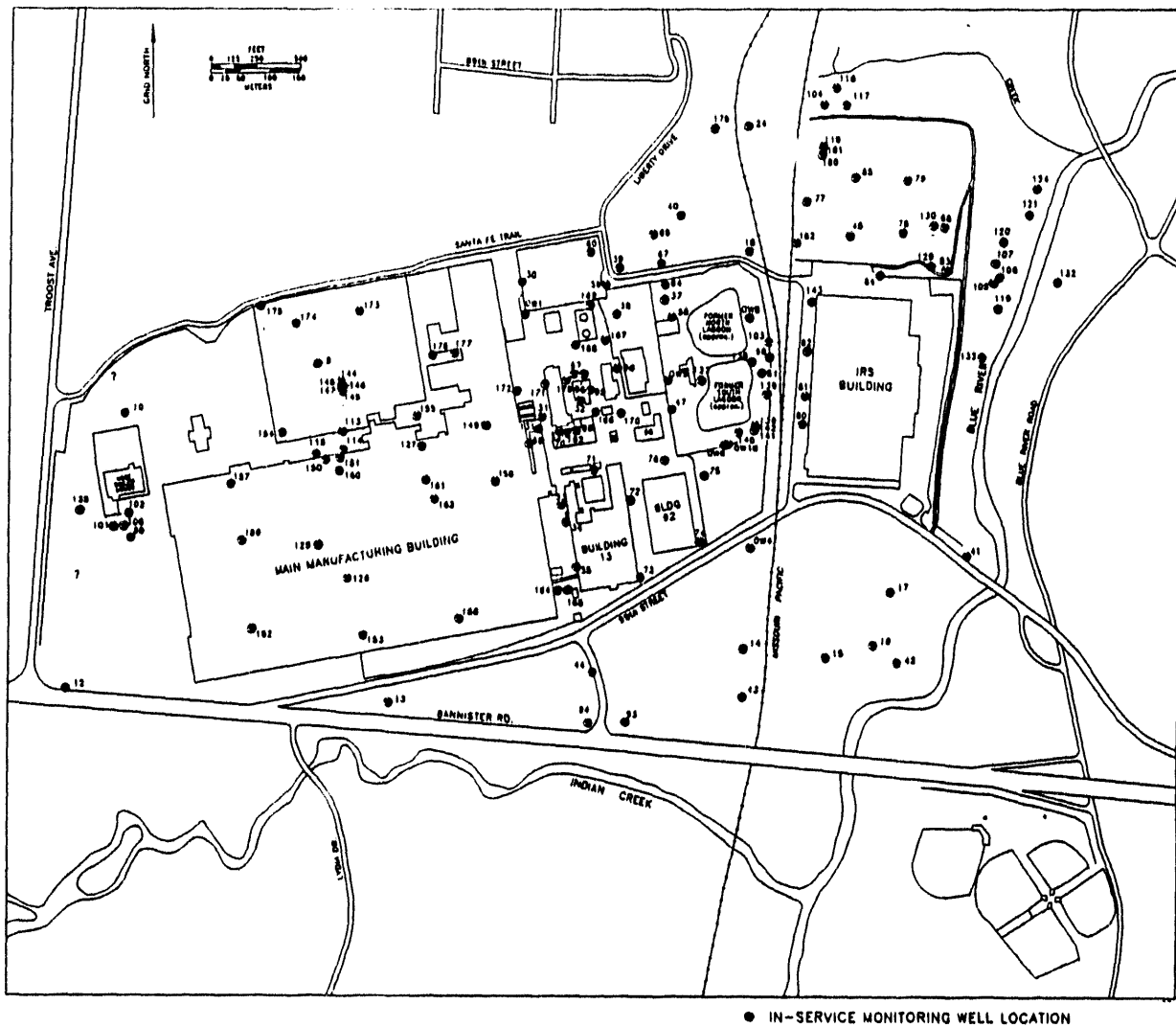
RCRA corrective actions are carried out in three phases: 1) The RCRA Facility Investigation (RFI) where potential environmental release sites are investigated, in part, through the installation of groundwater monitoring wells, along with the collection of soil, and if applicable, surface water samples. The RFI is followed by the Corrective Measures Study (CMS) where different technologies and methods to clean up contamination found at release sites are evaluated, ranked for effectiveness and overall protection of human health and the environment. Recommended technology or technologies are submitted to EPA and the Missouri Department of Natural Resources (MDNR) for approval. Public comment on the proposed remediation strategy is also solicited. Should anyone (public or regulatory agencies) disagree with the remediation strategies proposed, a formal response is provided and pursued until all parties are satisfied or, if required, an alternative technology is chosen. The CMS is followed by Corrective Measures Implementation (CMI) where the approved technology is implemented and contamination in all media (e.g., soil, groundwater) is removed to specified levels.

The groundwater monitoring program at the KCP is currently driven by the RCRA Order on Consent. That is wells installed and sampled at the KCP were, for the most part, installed to detect contamination from release sites.

Monitoring Wells

Figure 6.3 depicts all active groundwater monitoring well locations at the KCP. Each well is identified by an alpha-numeric code which provides the year the well was completed and a unique number to the well. As an example, well KC91-160-U signifies that it is a Kansas City Plant Well completed in 1991 and is the upper completion of well 160. Other identifiers after the well number include "M" and "L" which respectively mean middle and lower completions. Many wells at the Kansas City Plant have three wells installed in the same borehole. This regulatory approved method of well installation allows the KCP to collect representative depth discreet groundwater samples while at the same time achieving significant cost savings by drilling only one hole per well instead of two or three.

Background water quality has historically been defined by monitoring wells located upgradient to the facility, thereby ensuring that groundwater monitored by these wells has not been impacted by KCP operations. Upgradient groundwater monitoring wells show no evidence of contamination.



Active Groundwater Well Locations at the KCP

Figure 6.3

Groundwater Contamination

Groundwater contamination at the KCP is derived from the release of volatile organic compounds (VOC's). These compounds consist of solvents. The solvent most closely associated with KCP groundwater contamination is trichloroethene or TCE. This compound, if present in soil or groundwater at the KCP degrades over time into other compounds, specifically dichloroethylene (DCE) and chloroethene. Together these three compounds make up the vast majority VOC's comprising the groundwater plume and were used in creating Figure 6.4. This figure shows the plume of groundwater contamination present at the KCP. A detailed description of all compounds detected in the groundwater at the KCP and their extent can be found in the 1992 RCRA Annual Groundwater Monitoring Report.

Another class of organic compounds (Polychlorinated byphenyls or PCB's) have also been detected in soils at the KCP. However a plume of PCB groundwater contamination does not exist. This is due to the extremely low solubility of PCB's in water. Monitoring of PCB's in groundwater at specified locations continues, however.

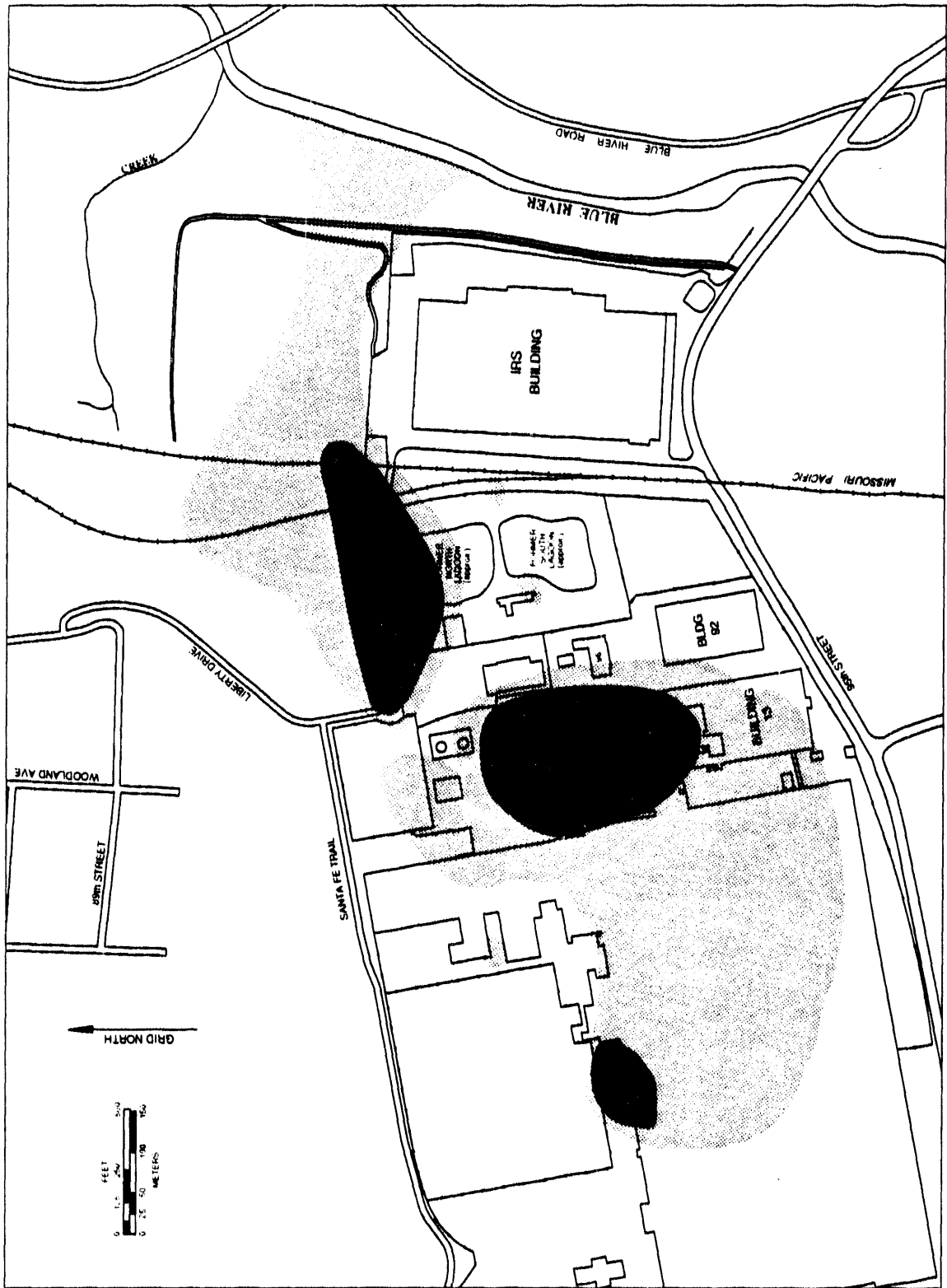
Groundwater monitoring at the KCP has confirmed that contamination exists only in the unconsolidated material (soil) which comprises the upper 40 to 50 feet of subsurface material below the KCP. No contamination of groundwater in bedrock exists based on results from bedrock groundwater monitoring wells installed and routinely sampled throughout the facility.

Quarterly Groundwater Monitoring

Routine groundwater monitoring occurs quarterly as required by 40CFR Part 265 Subpart F (RCRA groundwater monitoring requirements). The rationale for the groundwater sampling is based on the following:

- o Monitoring wells used to estimate the contamination boundary are sampled with the highest frequency. If one of these wells becomes contaminated, clean wells further downgradient are sampled. If necessary additional wells may be proposed.
- o Monitoring wells in the source area sampled with the lowest frequency.

The 1992 sampling frequency for both alluvial monitoring and bedrock wells installed at the KCP is depicted in Table 6.1. For additional information on results from this monitoring one is referred to the KCP's Annual Groundwater Monitoring Report for Calendar Year 1992 which is submitted to EPA and MDNR by March 1st of each year.



U.S. DEPARTMENT OF ENERGY
 KANSAS CITY PLANT
 KANSAS CITY, MO

■ GROUNDWATER CONTAMINATION >1000 ppb total VOC.
 ▨ GROUNDWATER CONTAMINATION <1000 ppb total VOC.

JANUARY 1, 1993

Groundwater VOC Plumes at the KCP

Figure 6.4

Table 6.1
 Kansas City wells CY1992 sampling frequency

MONITOR WELL	1ST QTR				2ND QTR				3RD QTR				4TH QTR			
	VTR	VOC	SEM	MET	VTR	VOC	SEM	MET	VTR	VOC	SEM	MET	VTR	VOC	SEM	MET
KC84-006-L	✓	✓							✓	✓						
KC84-006-M	✓	✓														
KC84-006-U																
KC84-008-L	✓	✓			✓	✓										
KC84-008-U	✓	✓			✓	✓										
KC84-009-L									✓	✓						
KC84-009-M									✓	✓						
KC84-009-U									✓	✓						
KC84-010-L									✓	✓						
KC84-010-U									✓	✓						
KC84-012-L																
KC84-012-U																
KC84-014-L									✓	✓						
KC84-014-U									✓	✓						
KC84-018-L	✓	✓		✓	✓		✓		✓	✓						
KC84-018-M	✓	✓		✓												
KC84-018-U	✓	✓		✓					✓	✓			✓	✓		
KC84-019-U																
KC84-020-U																
KC84-021																
KC84-022																
KC84-024	✓	✓							✓	✓			✓	✓		
KC85-025																
KC85-026																
KC85-027	✓	✓			✓	✓										
KC85-030	✓	✓							✓	✓			✓	✓		
KC85-031-L									✓	✓						
KC85-031-M																
KC85-031-U									✓	✓						
KC85-032-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC85-032-M	✓	✓														
KC85-032-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC85-033-L																
KC85-033-M																
KC85-033-U																
KC85-034-L																
KC85-034-M																
KC85-034-U																
KC85-035-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC85-035-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC85-037-L	✓	✓		✓	✓		✓		✓	✓						
KC85-037-M	✓	✓		✓												
KC85-037-U	✓	✓		✓	✓		✓		✓	✓						
KC85-038-L	✓	✓			✓	✓			✓	✓						
KC85-038-M	✓	✓														
KC85-038-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC85-039-L	✓	✓		✓	✓		✓		✓	✓						
KC85-039-M	✓	✓		✓												
KC85-039-U	✓	✓		✓	✓		✓		✓	✓						
KC85-040-L	✓	✓							✓	✓						
KC85-040-M	✓	✓							✓	✓						
KC85-040-U	✓	✓		✓					✓	✓						
KC85-043-L									✓	✓						
KC85-043-M									✓	✓						
KC85-043-U									✓	✓						
KC85-044	✓	✓	✓		✓	✓			✓	✓			✓	✓		
KC85-045-L									✓	✓						
KC85-045-U									✓	✓						
KC86-047-L									✓	✓						
KC86-047-U									✓	✓						
KC86-051-L	✓	✓			✓	✓			✓	✓						
KC86-051-U	✓	✓			✓	✓			✓	✓						
KC87-058-L	✓	✓			✓	✓			✓	✓						
KC87-058-U	✓	✓			✓	✓			✓	✓						
KC87-059-L	✓	✓			✓	✓			✓	✓						
KC87-059-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-060-L	✓	✓							✓	✓						
KC87-060-U	✓	✓							✓	✓						
KC87-064-L	✓	✓		✓					✓	✓						

Table 6.1
 Kansas City wells CY1992 sampling frequency continued

MONITOR WELL	1ST QTR				2ND QTR				3RD QTR				4TH QTR			
	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET
KC87-064-U	✓	✓		✓					✓	✓						
KC87-064-L	✓	✓		✓	✓	✓			✓	✓						
KC87-064-U	✓	✓		✓	✓	✓			✓	✓						
KC87-067-L	✓	✓		✓				✓	✓	✓						
KC87-067-U	✓	✓		✓					✓	✓			✓	✓		
KC87-068-L									✓	✓						
KC87-068-U									✓	✓						
KC87-069-L									✓	✓						
KC87-069-U									✓	✓						
KC87-070-L									✓	✓						
KC87-070-U									✓	✓						
KC87-071-L									✓	✓						
KC87-071-U									✓	✓						
KC87-072-L									✓	✓						
KC87-072-U									✓	✓						
KC87-073-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-073-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-074-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-074-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-075-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-075-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-076-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC87-076-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC88-077-L	✓	✓							✓	✓			✓	✓		
KC88-077-U	✓	✓							✓	✓			✓	✓		
KC88-078-L									✓	✓			✓	✓		
KC88-078-U									✓	✓			✓	✓		
KC88-079	✓	✓			✓	✓			✓	✓			✓	✓		
KC88-080-L									✓	✓			✓	✓		
KC88-080-U									✓	✓			✓	✓		
KC88-081-L									✓	✓			✓	✓		
KC88-081-U									✓	✓			✓	✓		
KC88-082-L									✓	✓			✓	✓		
KC88-082-U									✓	✓			✓	✓		
KC88-083-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC88-083-U									✓	✓			✓	✓		
KC88-084-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC88-084-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC88-085	✓	✓			✓	✓			✓	✓			✓	✓		✓
KC88-085	✓	✓			✓	✓			✓	✓			✓	✓		✓
KC88-093	✓	✓	✓		✓	✓	✓		✓	✓	✓		✓	✓	✓	
KC88-094-L	✓	✓	✓		✓	✓	✓		✓	✓	✓		✓	✓	✓	
KC88-094-U									✓	✓			✓	✓		
KC88-095-L									✓	✓			✓	✓		
KC88-095-U									✓	✓			✓	✓		
KC89-096-L									✓	✓			✓	✓		
KC89-096-U									✓	✓			✓	✓		
KC89-097-L	✓	✓							✓	✓			✓	✓		
KC89-097-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-098-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-098-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-099-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-099-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-100-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-100-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-101-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-101-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-102-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-102-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-103-L									✓	✓			✓	✓		
KC89-103-U									✓	✓			✓	✓		
KC89-104-L	✓	✓							✓	✓			✓	✓		
KC89-104-U	✓	✓							✓	✓			✓	✓		
KC89-105									✓	✓			✓	✓		
KC89-106	✓	✓							✓	✓			✓	✓		
KC89-107									✓	✓			✓	✓		
KC89-113-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-113-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-114-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC89-114-U	✓	✓			✓	✓			✓	✓			✓	✓		

Table 6.1
 Kansas City wells CY1992 sampling frequency continued

MONITOR WELL	1ST QTR				2ND QTR				3RD QTR				4TH QTR			
	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET
KC89-115-L	✓	✓			✓	✓			✓	✓						
KC89-115-U	✓	✓			✓	✓			✓	✓						
KC89-116																
KC89-117	✓	✓														
KC89-118	✓	✓							✓	✓						
KC89-119	✓	✓							✓	✓						
KC89-120									✓	✓						
KC89-121	✓	✓							✓	✓						
*KC89-122	✓	✓			✓	✓							✓	✓		
*KC89-123	✓	✓			✓	✓							✓	✓		
*KC89-124	✓	✓			✓	✓							✓	✓		
KC89-125-L					✓	✓			✓	✓						
KC89-125-U					✓	✓			✓	✓						
KC89-126-L					✓	✓			✓	✓						
KC89-126-U					✓	✓			✓	✓						
KC89-127	✓	✓			✓	✓										
KC89-128																
KC90-131-L									✓	✓						
KC90-131-U									✓	✓						
KC90-132									✓	✓						
KC90-133	✓	✓			✓	✓			✓	✓			✓	✓		
KC90-134	✓	✓			✓	✓			✓	✓			✓	✓		
KC90-135	✓	✓			✓	✓		✓	✓	✓						
KC90-136-L					✓	✓			✓	✓						
KC90-136-U					✓	✓			✓	✓						
KC90-137-L					✓	✓			✓	✓			✓	✓		
KC90-137-U					✓	✓			✓	✓			✓	✓		
KC90-138-L					✓	✓			✓	✓						
KC90-138-U					✓	✓			✓	✓						
KC90-139-L	✓	✓			✓	✓			✓	✓						
KC90-139-U	✓	✓			✓	✓			✓	✓						
KC90-140-L					✓	✓			✓	✓						
KC90-140-U					✓	✓			✓	✓						
KC90-141					✓	✓			✓	✓						
KC90-143-L					✓	✓			✓	✓			✓	✓		
KC91-149-L					✓	✓			✓	✓						
KC91-149-U					✓	✓			✓	✓						
KC91-150-L					✓	✓			✓	✓						
KC91-150-U					✓	✓			✓	✓						
KC91-151-L					✓	✓			✓	✓						
KC91-151-U					✓	✓			✓	✓						
KC91-152-L					✓	✓			✓	✓						
KC91-152-U					✓	✓			✓	✓						
KC91-153-L					✓	✓			✓	✓						
KC91-153-U					✓	✓			✓	✓						
KC91-154-L					✓	✓			✓	✓						
KC91-154-U					✓	✓			✓	✓						
KC91-155-L					✓	✓			✓	✓						
KC91-155-U					✓	✓			✓	✓						
KC91-156-L					✓	✓			✓	✓						
KC91-156-U					✓	✓			✓	✓						
KC91-157-L					✓	✓			✓	✓						
KC91-157-U					✓	✓			✓	✓						
KC91-158-L					✓	✓			✓	✓						
KC91-158-U					✓	✓			✓	✓						
KC91-159-L					✓	✓			✓	✓						
KC91-159-U					✓	✓			✓	✓						
KC91-160-L					✓	✓			✓	✓						
KC91-160-U					✓	✓			✓	✓						
KC91-161-L					✓	✓			✓	✓						
KC91-161-U					✓	✓			✓	✓						
KC91-162-L					✓	✓			✓	✓						
KC91-162-U					✓	✓			✓	✓			✓	✓		
KC91-163-L					✓	✓			✓	✓						
KC91-163-U					✓	✓			✓	✓						
KC91-164-L					✓	✓			✓	✓						
KC91-164-U					✓	✓			✓	✓			✓	✓		
KC91-165-L					✓	✓			✓	✓			✓	✓		
KC91-165-U					✓	✓			✓	✓						
KC91-166-L					✓	✓			✓	✓						
KC91-166-U					✓	✓			✓	✓						

Table 6.1
 Kansas City Wells CY1992 Sampling Frequency continued

MONITOR WELL	1ST QTR				2ND QTR				3RD QTR				4TH QTR			
	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET	WTR	VOC	SEM	MET
KC91-167-L	✓	✓			✓	✓			✓	✓						
KC91-167-U	✓	✓			✓	✓			✓	✓						
KC91-168-L	✓	✓			✓	✓			✓	✓						
KC91-168-U	✓	✓			✓	✓			✓	✓						
KC91-169-L	✓	✓			✓	✓			✓	✓						
KC91-169-U	✓	✓			✓	✓			✓	✓						
KC91-170-L	✓	✓			✓	✓			✓	✓						
KC91-170-U	✓	✓			✓	✓			✓	✓						
KC91-171-L	✓	✓			✓	✓			✓	✓						
KC91-171-U	✓	✓			✓	✓			✓	✓						
KC91-172-L	✓	✓			✓	✓			✓	✓						
KC91-172-U	✓	✓			✓	✓			✓	✓						
KC91-173-L	✓	✓			✓	✓			✓	✓						
KC91-173-U	✓	✓		✓	✓	✓			✓	✓						
KC91-174-L	✓	✓			✓	✓			✓	✓						
KC91-174-U	✓	✓			✓	✓			✓	✓						
KC91-175-L	✓	✓			✓	✓			✓	✓						
KC91-175-U	✓	✓		✓	✓	✓			✓	✓						
KC91-176-L	✓	✓	✓		✓	✓			✓	✓						
KC91-176-U	✓	✓	✓		✓	✓			✓	✓						
KC91-177-L	✓	✓			✓	✓			✓	✓						
KC91-177-U	✓	✓	✓		✓	✓			✓	✓						
KC91-178-L	✓	✓			✓	✓			✓	✓						
KC91-178-U	✓	✓			✓	✓			✓	✓						
KC91-179-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC91-179-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC91-182-L	✓	✓			✓	✓			✓	✓						
KC91-182-U	✓	✓		✓	✓	✓			✓	✓						
KC91-183-L	✓	✓			✓	✓			✓	✓			✓	✓		
KC91-183-U	✓	✓			✓	✓			✓	✓			✓	✓		
KC92-184-L									✓	✓			✓	✓	✓	
KC92-184-U									✓	✓			✓	✓	✓	
KC92-185-L									✓	✓			✓	✓	✓	
KC92-185-U									✓	✓			✓	✓	✓	
KC92-186-L									✓	✓			✓	✓	✓	
KC92-186-U									✓	✓			✓	✓	✓	
KC92-187-L									✓	✓			✓	✓	✓	
KC92-187-U									✓	✓			✓	✓	✓	
KC92-188-L																
KC92-188-U																
QM-1																
QM-10																
QM-4																
QM-5																
QM-6																
QM-8																

*Bedrock wells sampled for VOCs.

NOTE:

- WTR = Water Level Elevation
- VOC = Volatile Organic Compounds
- SEM = Semi-Volatile Organic Compounds
- MET = Metals

RCRA Compliance Monitoring Wells

Three RCRA regulated units exist at the KCP. These units are identified as regulated because they were constructed, permitted and operated to manage hazardous waste as identified under RCRA. All three either have been or are being addressed under the RCRA Order on Consent. They are the North Lagoon, South Lagoon and the Underground Tank Farm. Each of these units has been closed under an EPA approved closure plan. Since the type of closure performed for these units did not require the removal of all traces of contamination, groundwater monitoring is still required to assure that contamination remaining is defined and found not to be spreading through groundwater.

Compliance point wells are wells which define the boundary where groundwater cleanup standards must be met for each RCRA regulated unit. Compliance point wells have been selected and approved for the South Lagoon and the Underground Tank Farm and have been proposed by the KCP for the North Lagoon. The compliance point wells are as follows:

South Lagoon wells to be sampled quarterly - KC86-51, KC89-98, KC90-139, KC90-140, KC90-141. Wells to be sampled annually - KC88-80, KC88-81, KC88-82 AND KC90-143.

Underground Tank Farm - KC87-61, KC87-62, KC87-63.

NOTE: These wells are groundwater pumping wells which extract contaminated groundwater and pipe it to a common point for treatment. All groundwater from pumping wells at the KCP is treated by a ultraviolet light/hydrogen peroxide system which effectively destroys contamination as opposed to merely stripping contaminants from the water and passing it to another environmental media (e.g., air stripping).

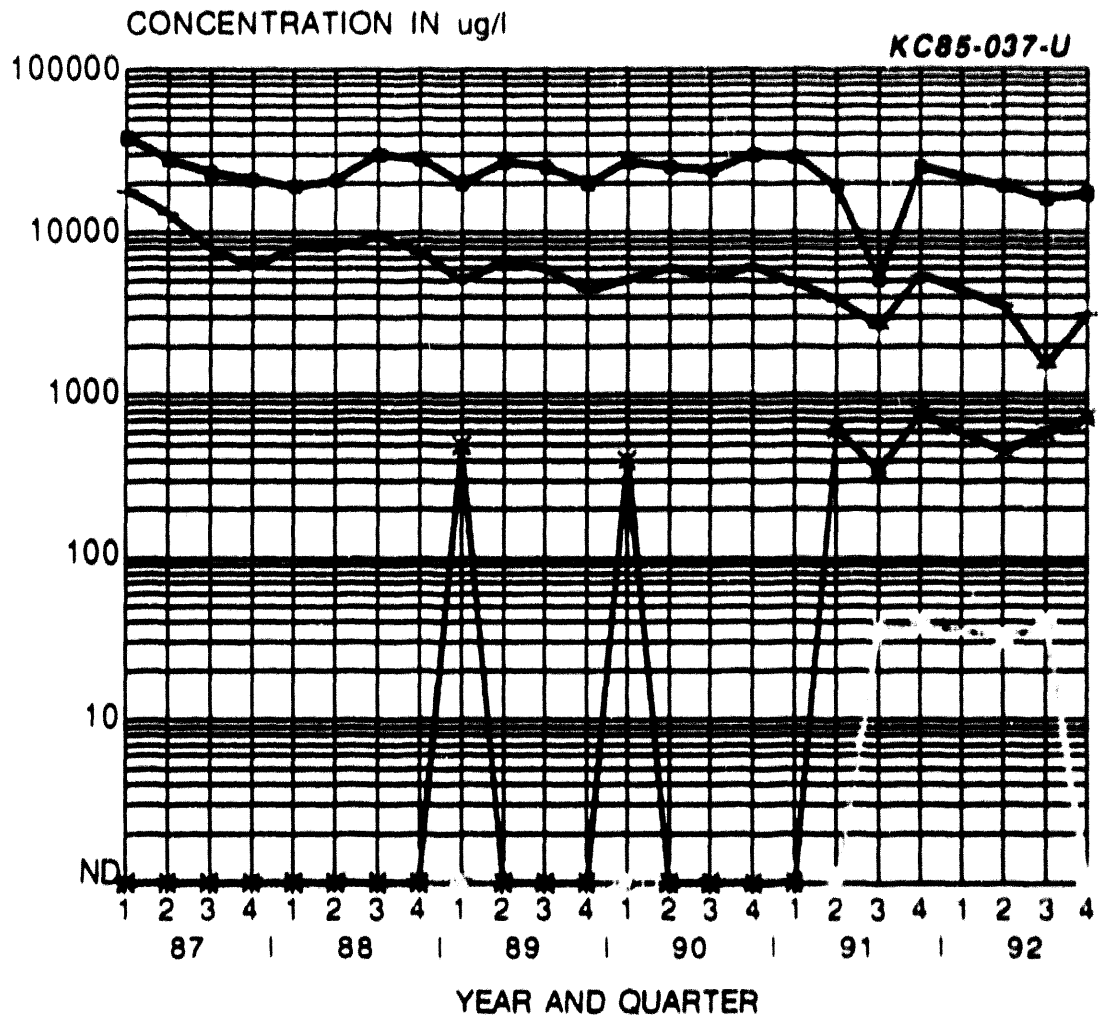
Northeast Area/Outfall 001 well KC88-108 is the recommended compliance point well for the North Lagoon. Well 108 is a groundwater pumping well located within a groundwater cutoff trench located hydraulically downgradient of the lagoon. The cut-off trench is designed to capture contaminated groundwater from the Northeast Area/Outfall 001 Consent Order Site of which the North Lagoon is a part. EPA and MDNR have yet to comment on this proposed compliance point well. A public notice and comment period for this consent order site and EPA comments on the RFI report proposing the compliance point well are expected sometime in FY1994.

Groundwater Contaminant Trends

Contaminant trend graphs for selected wells are provided to show the type and quantity of contamination present. Representative wells from each separate corrective action comprising the 27 release sites are provided along with a brief narrative describing the type, depth and reason why the well was installed. A title heading identifies the corrective action (e.g., Northeast Area). The selected contaminant trend graphs are intended to represent contamination from within moderate to highly contaminated areas of the groundwater plume. The three regulated units are discussed first followed by other corrective actions. A complete description and trend graphs for all wells at the KCP can be found in the 1992 Annual Groundwater Monitoring Report.

Northeast Area-

The Northeast Area/Outfall 001 is in the northeastern section of the KCP and encompasses an open land area formally occupied by the now re-channalized Blue River. Over 40 permanent monitoring wells have been installed to monitor groundwater contamination in the area. The rate and extent of groundwater contamination in this area has been defined. Four wells are selected to identify contamination in this area. Well KC85-37 located near the source area for Northeast Area Contamination, well KC88-78 located within the plume (downgradient of the North Lagoon) and wells KC89-119 and KC89-120 located downgradient of the interceptor trench and the compliance point well for the area.

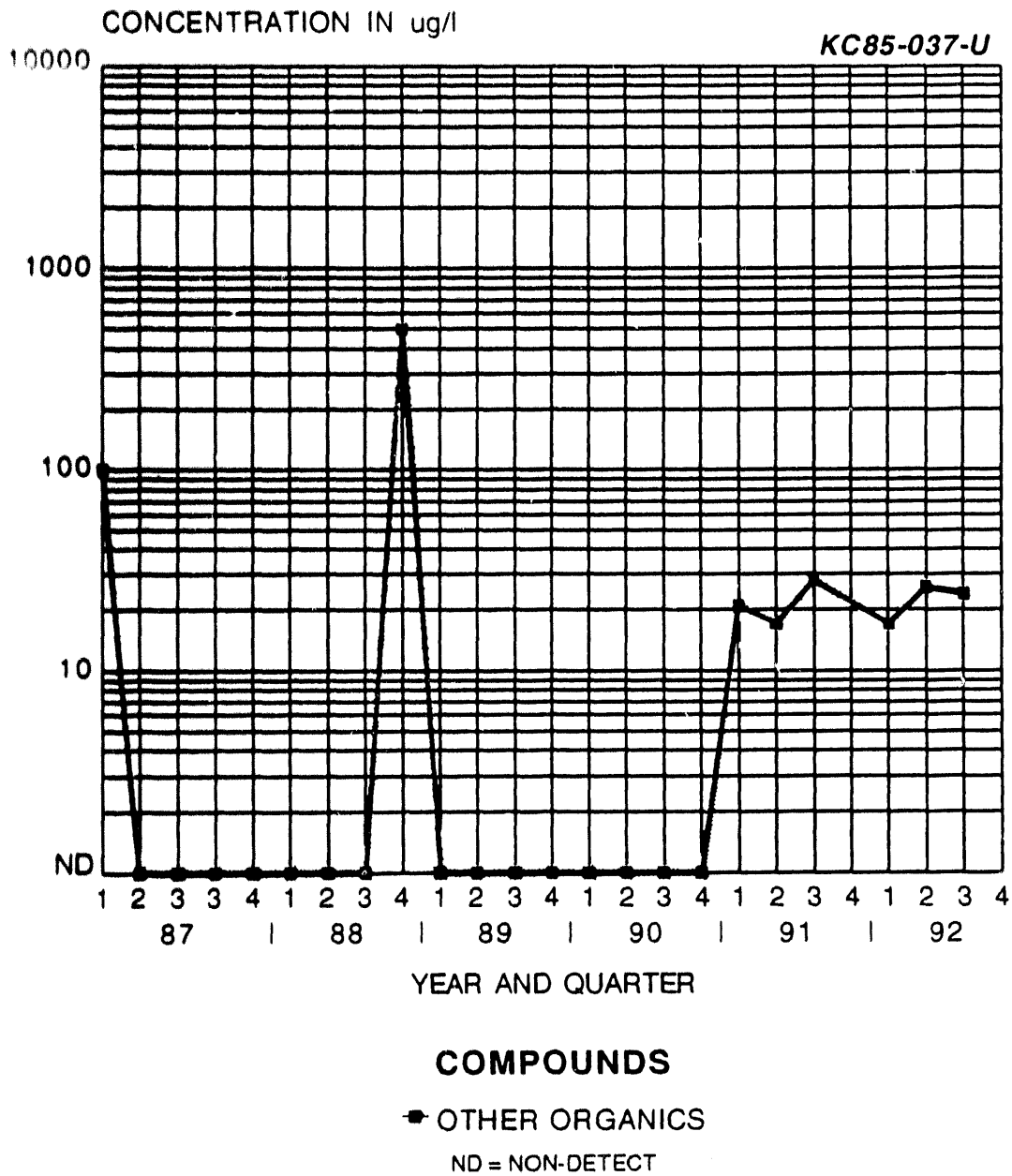


COMPOUNDS

◆ 1,2-DICHLOROETHENE + TRICHLOROETHENE
 * CHLOROETHENE / BENZENE
 ND = NON-DETECT

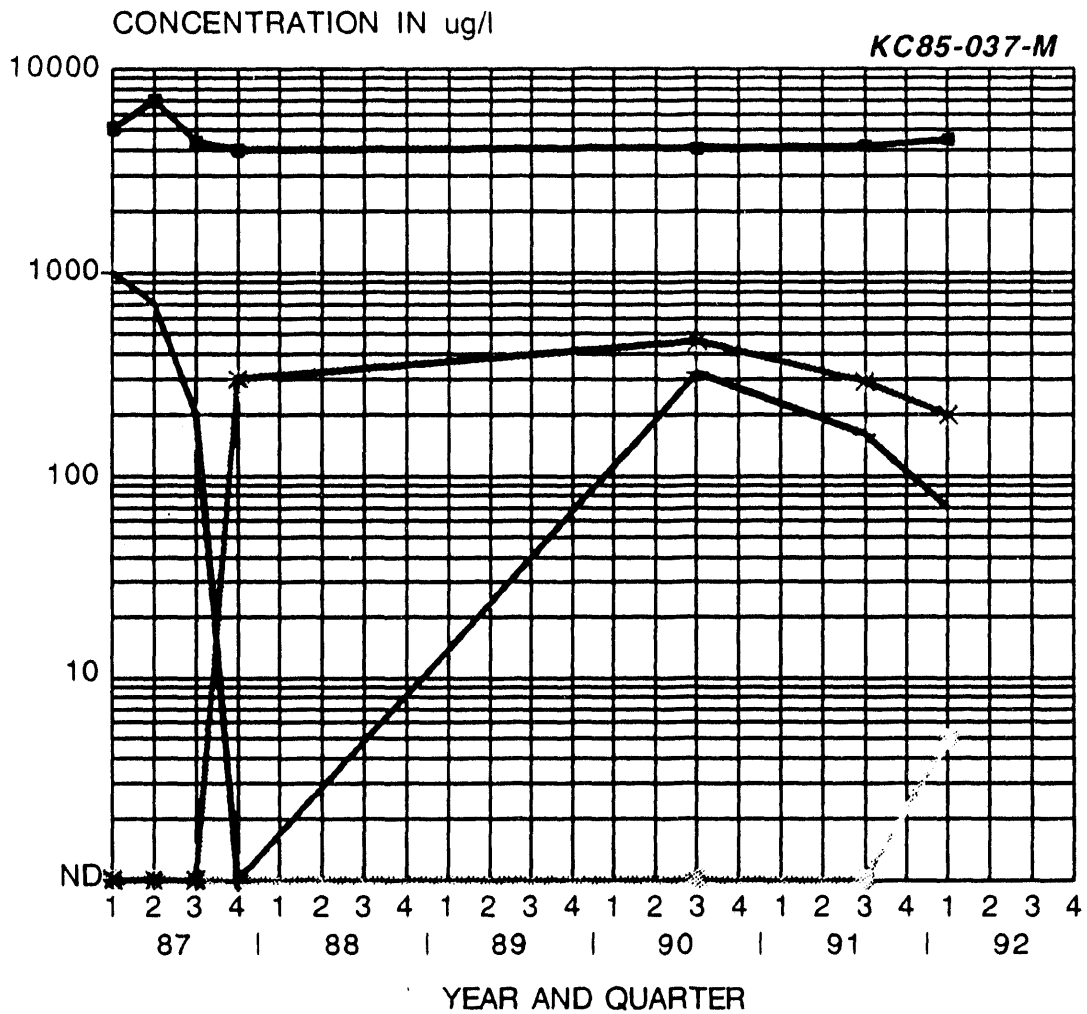
Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-037-U

Figure 6.5



Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-037-U

Figure 6.6



COMPOUNDS

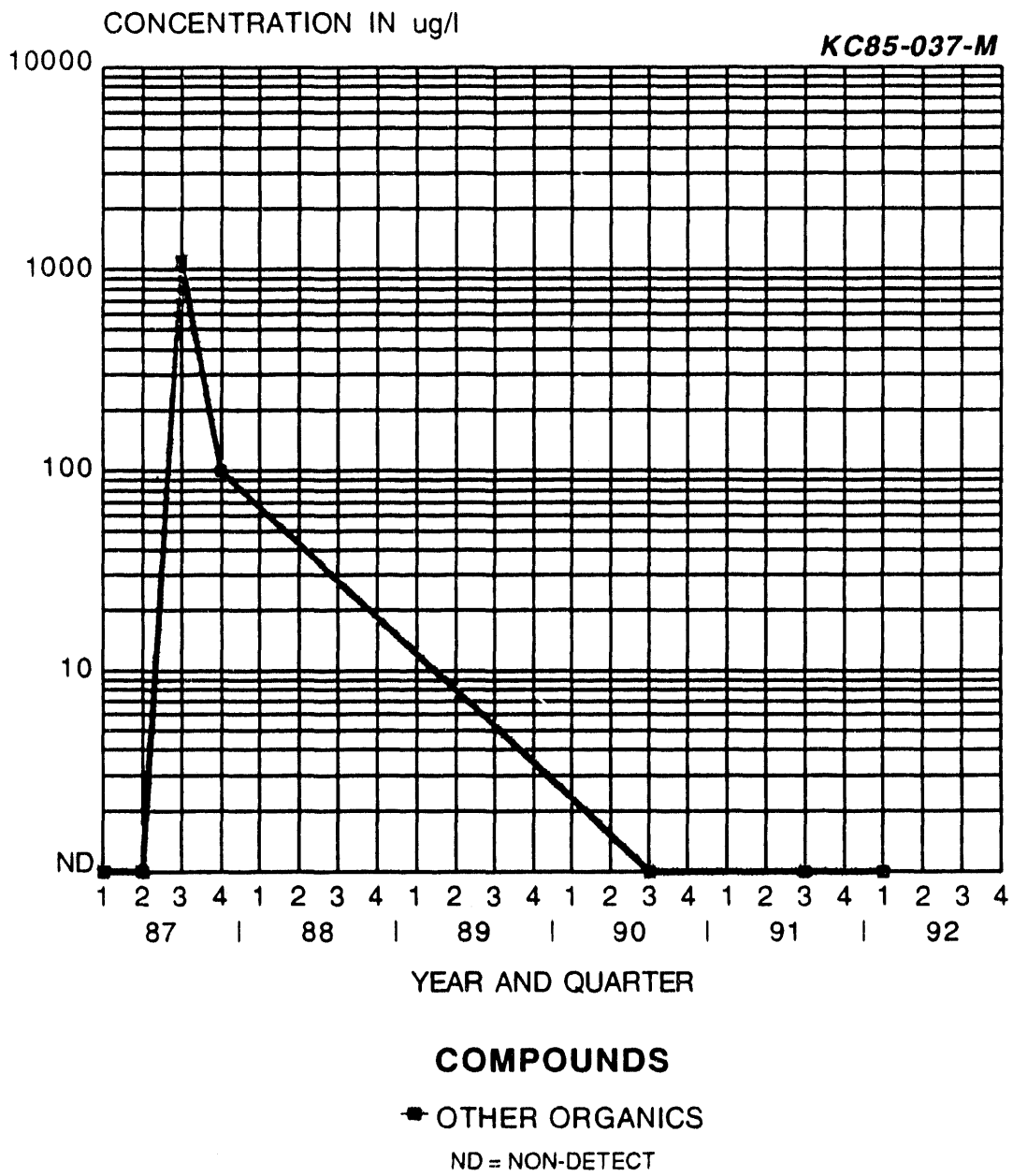
● 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◆ BENZENE

ND = NON-DETECT

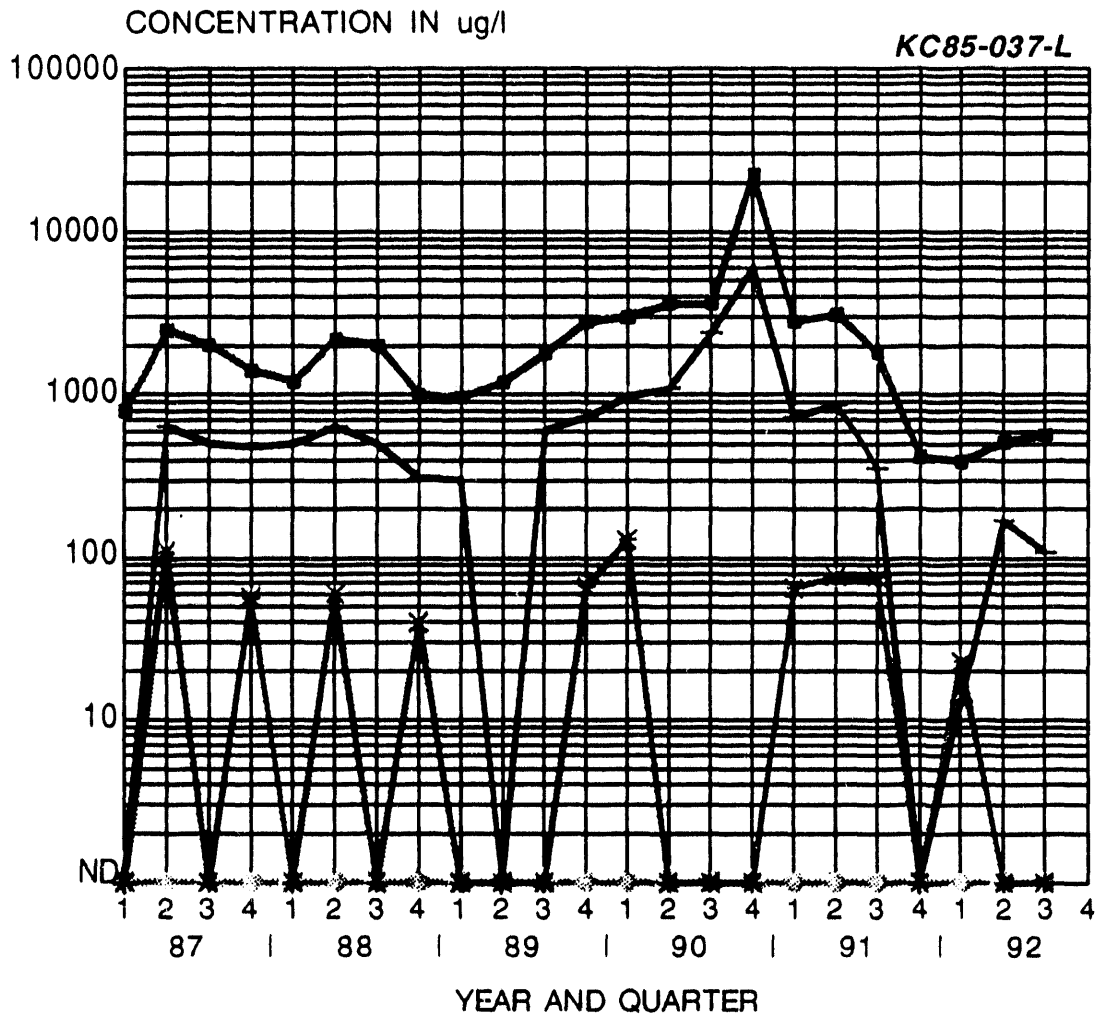
Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-037-M

Figure 6.7



Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-037-M

Figure 6.8



COMPOUNDS

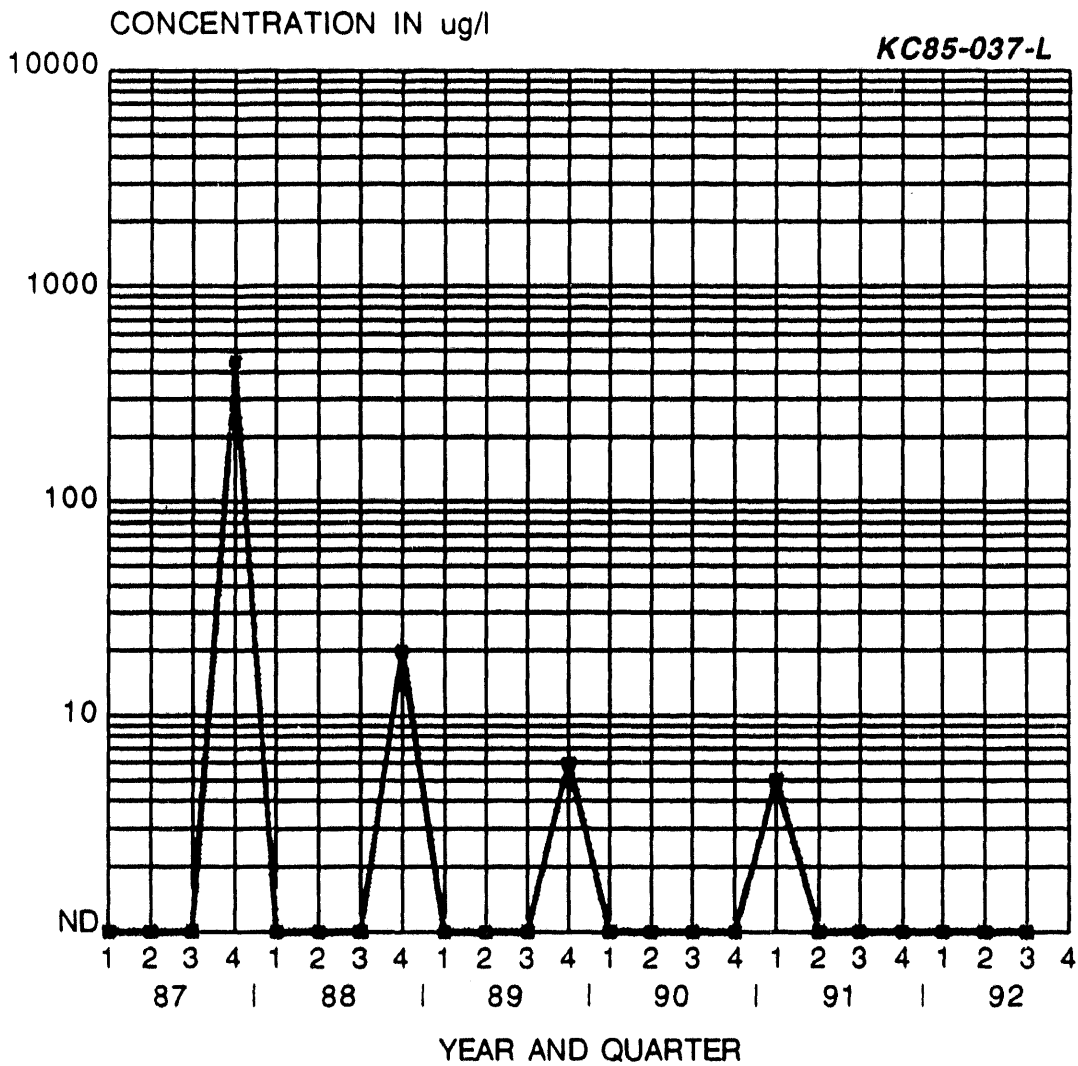
■ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◇ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-037-L

Figure 6.9



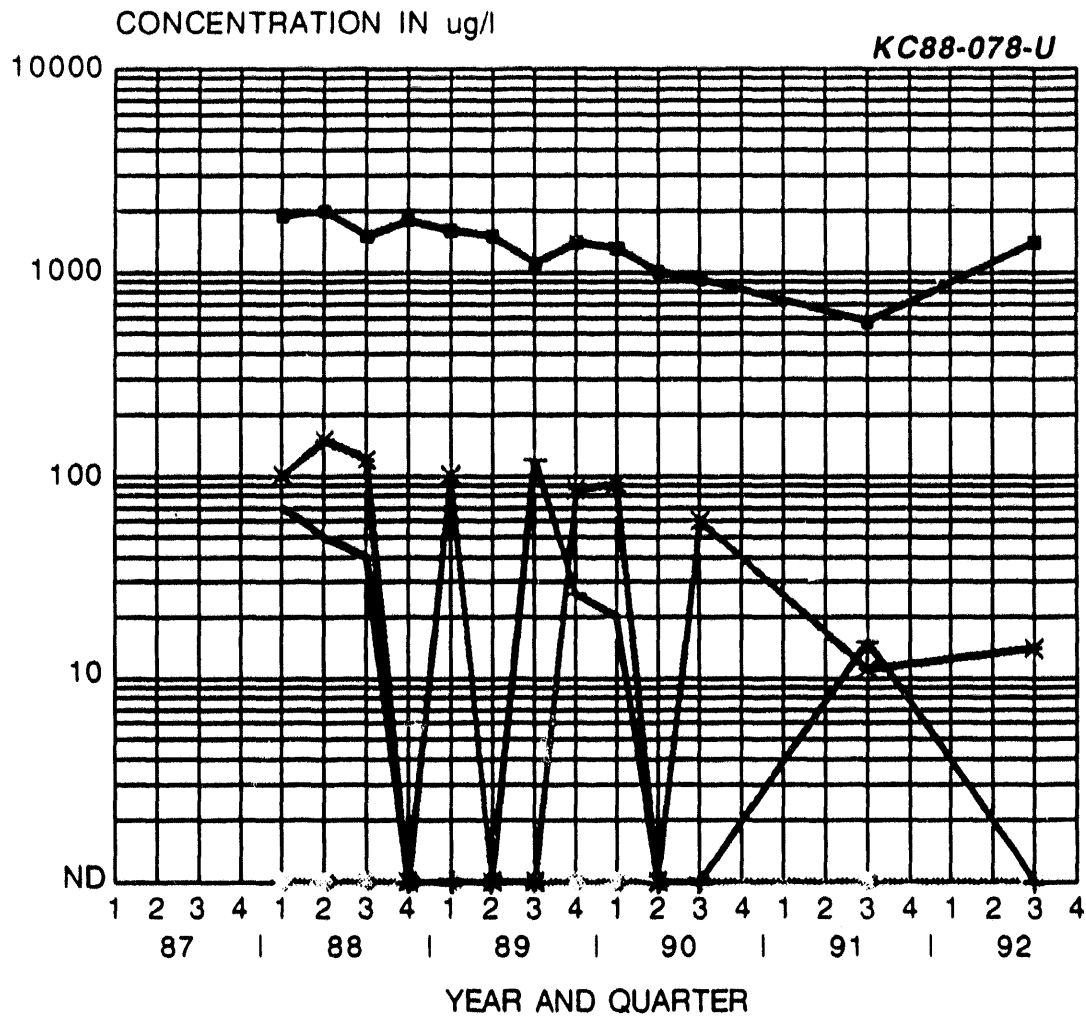
COMPOUNDS

● OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-037-L

Figure 6.10



COMPOUNDS

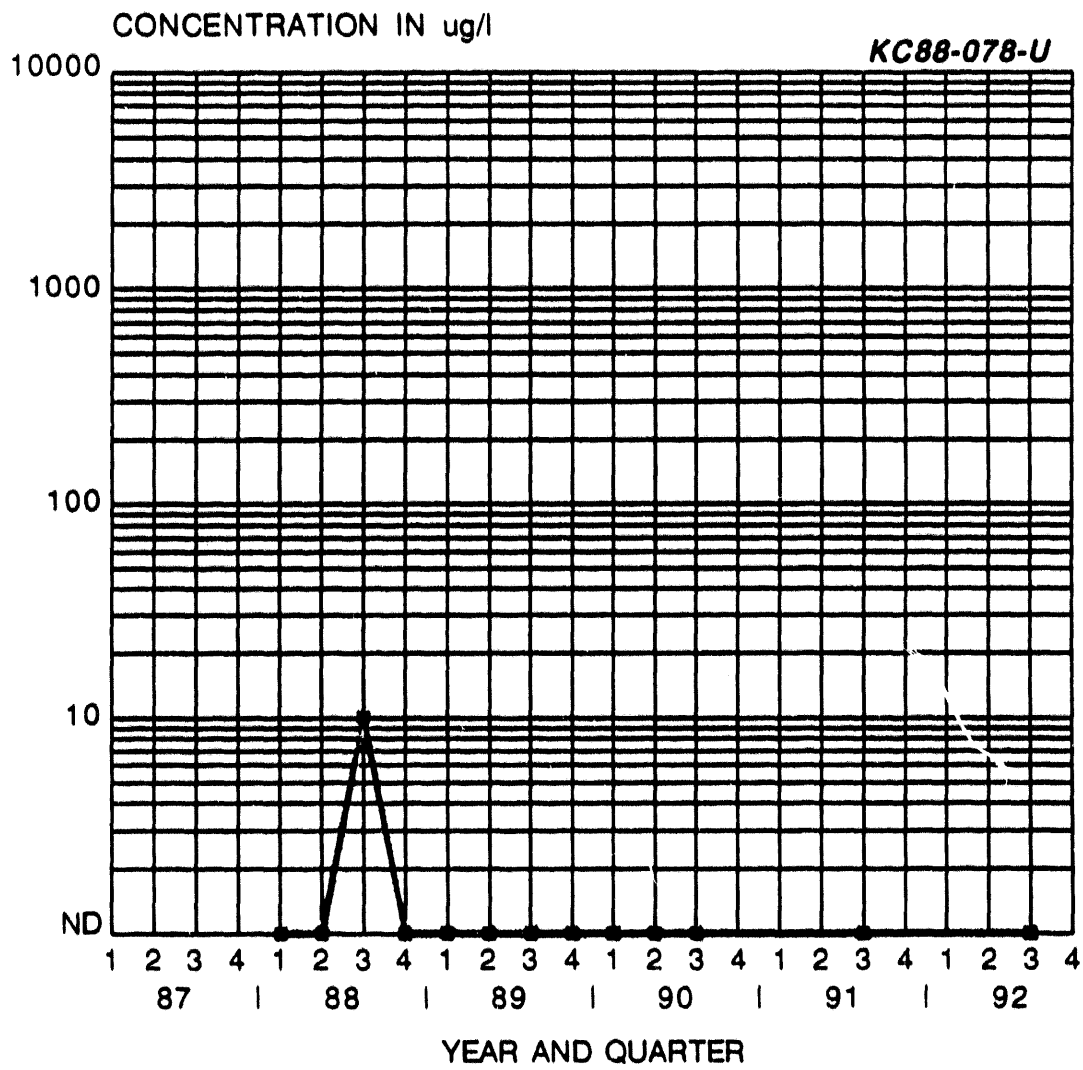
■ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ▸ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-078-U

Figure 6.11



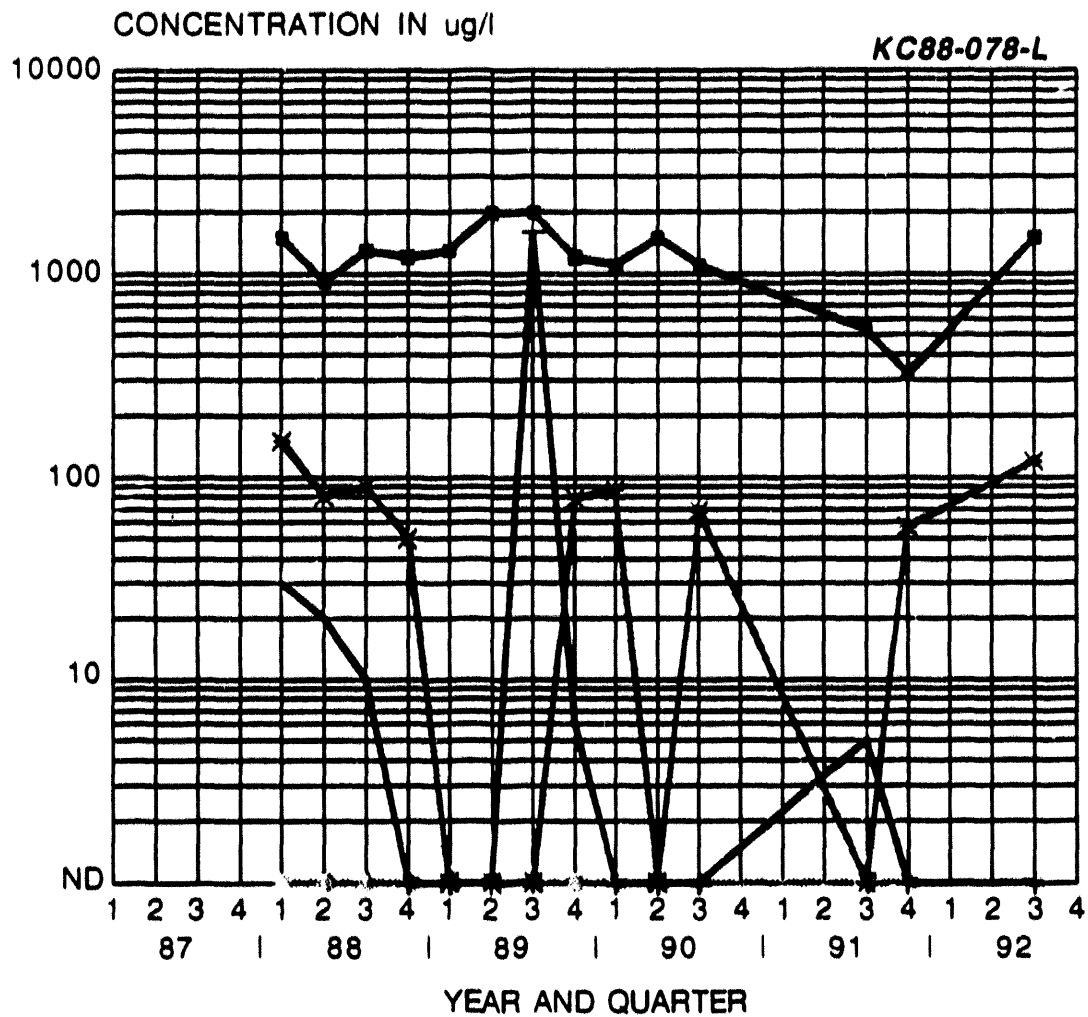
COMPOUNDS

◆ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-078-U

Figure 6.12



COMPOUNDS

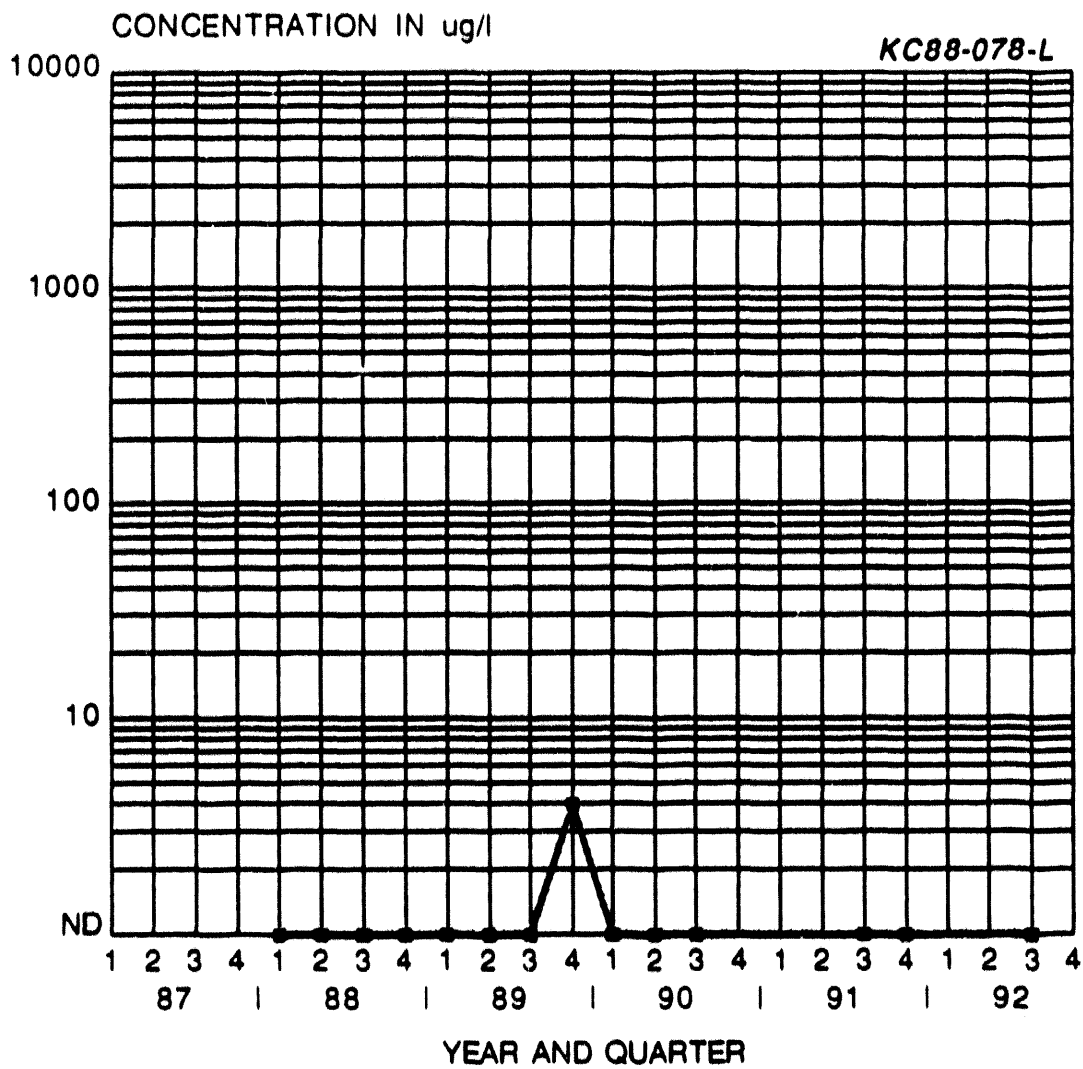
● 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE △ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-078-L

Figure 6.13



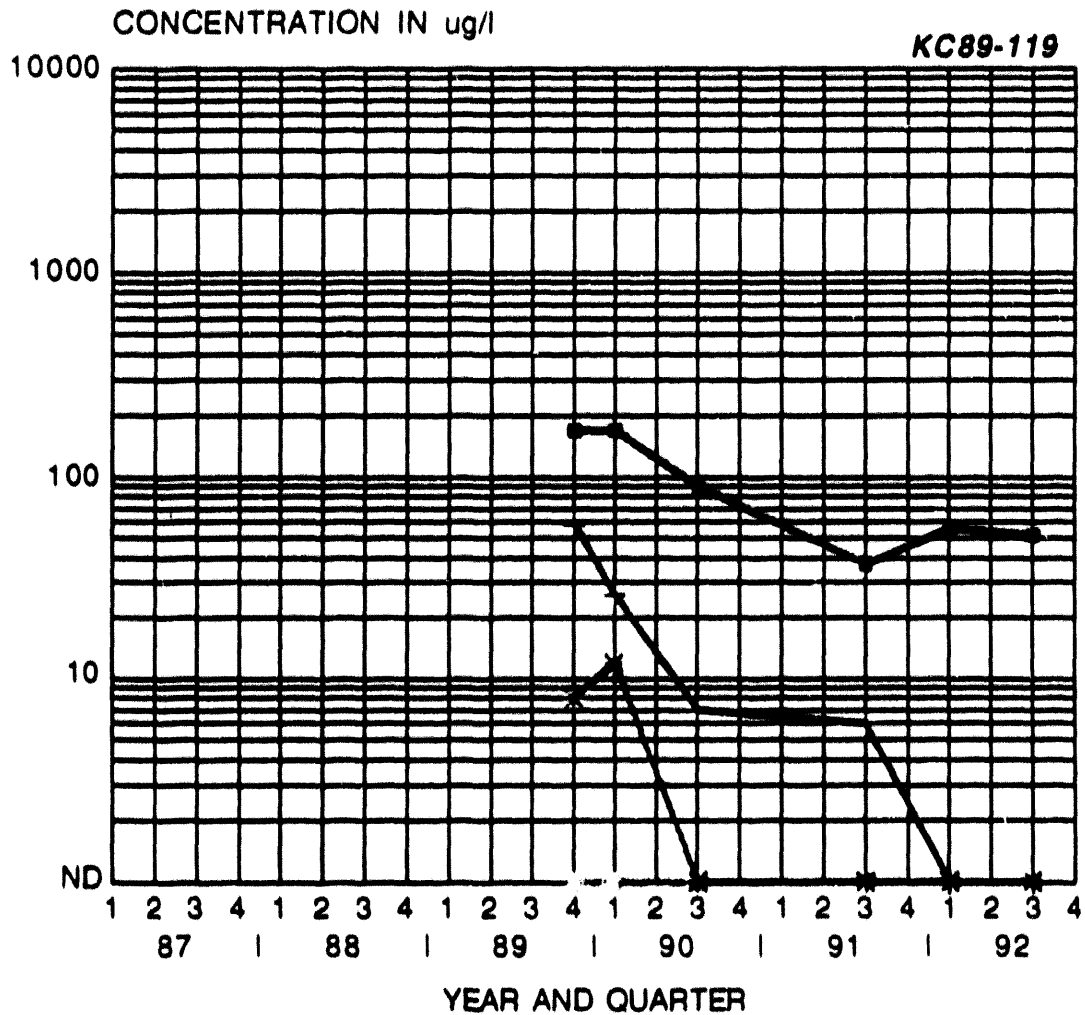
COMPOUNDS

● OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-078-L

Figure 6.14



COMPOUNDS

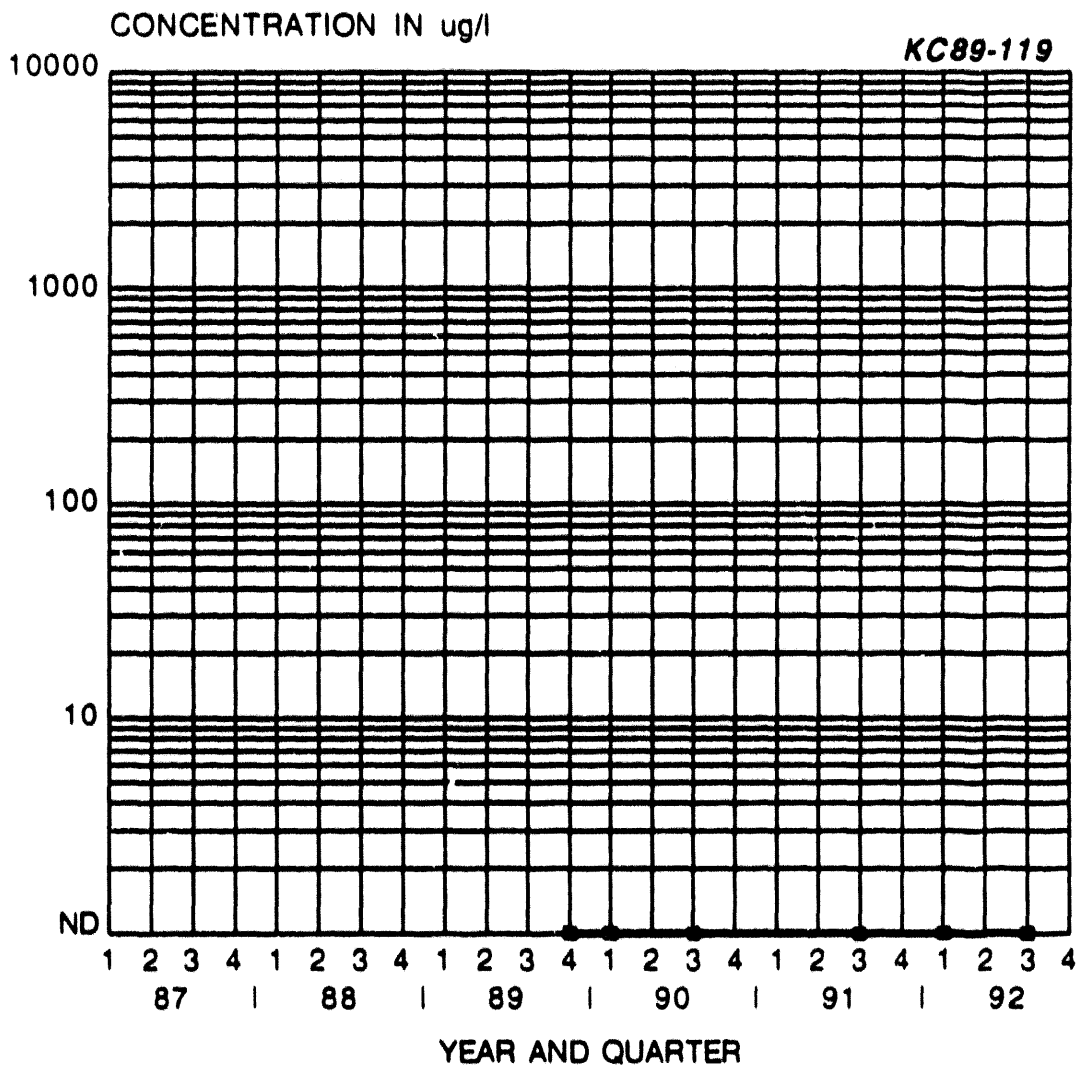
● 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ▾ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-119

Figure 6.15



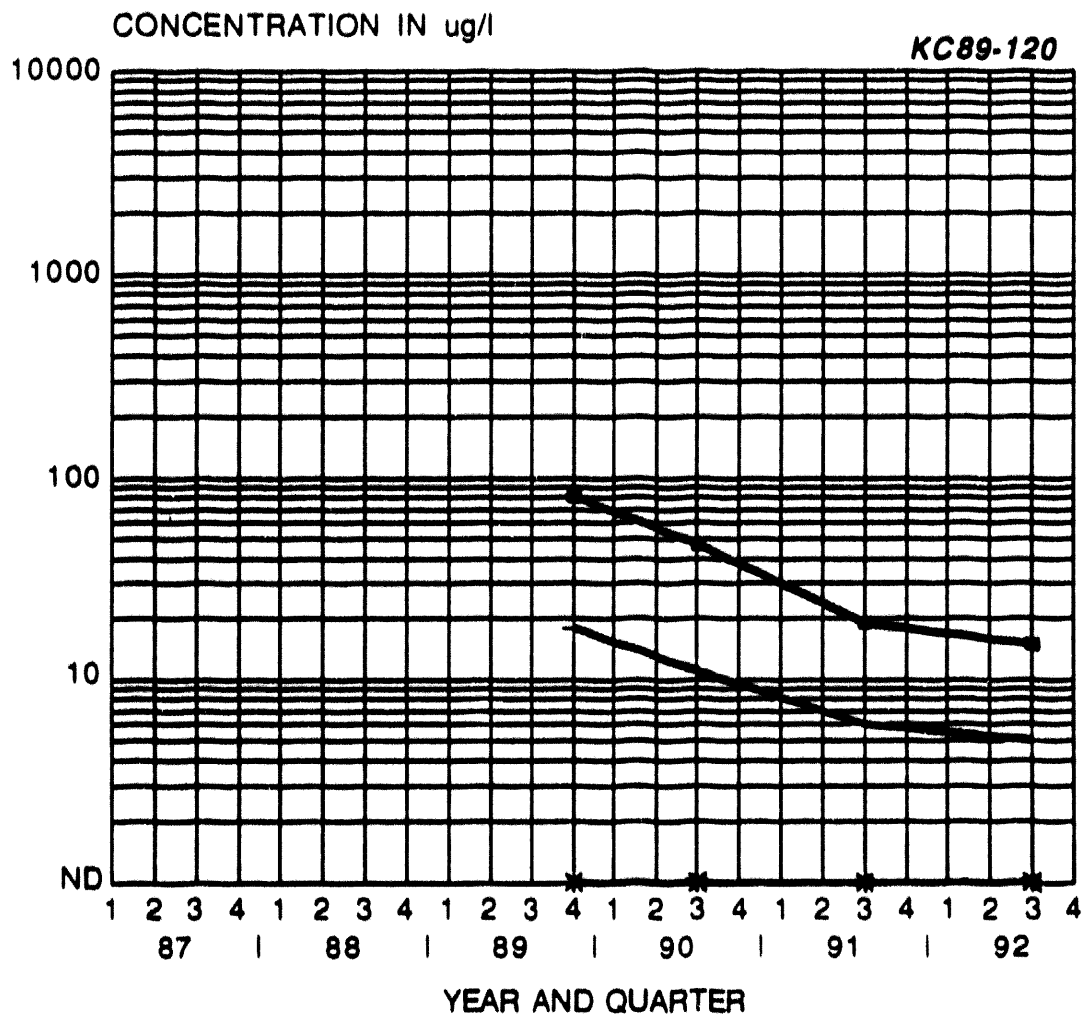
COMPOUNDS

● OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-119

Figure 6.16



COMPOUNDS

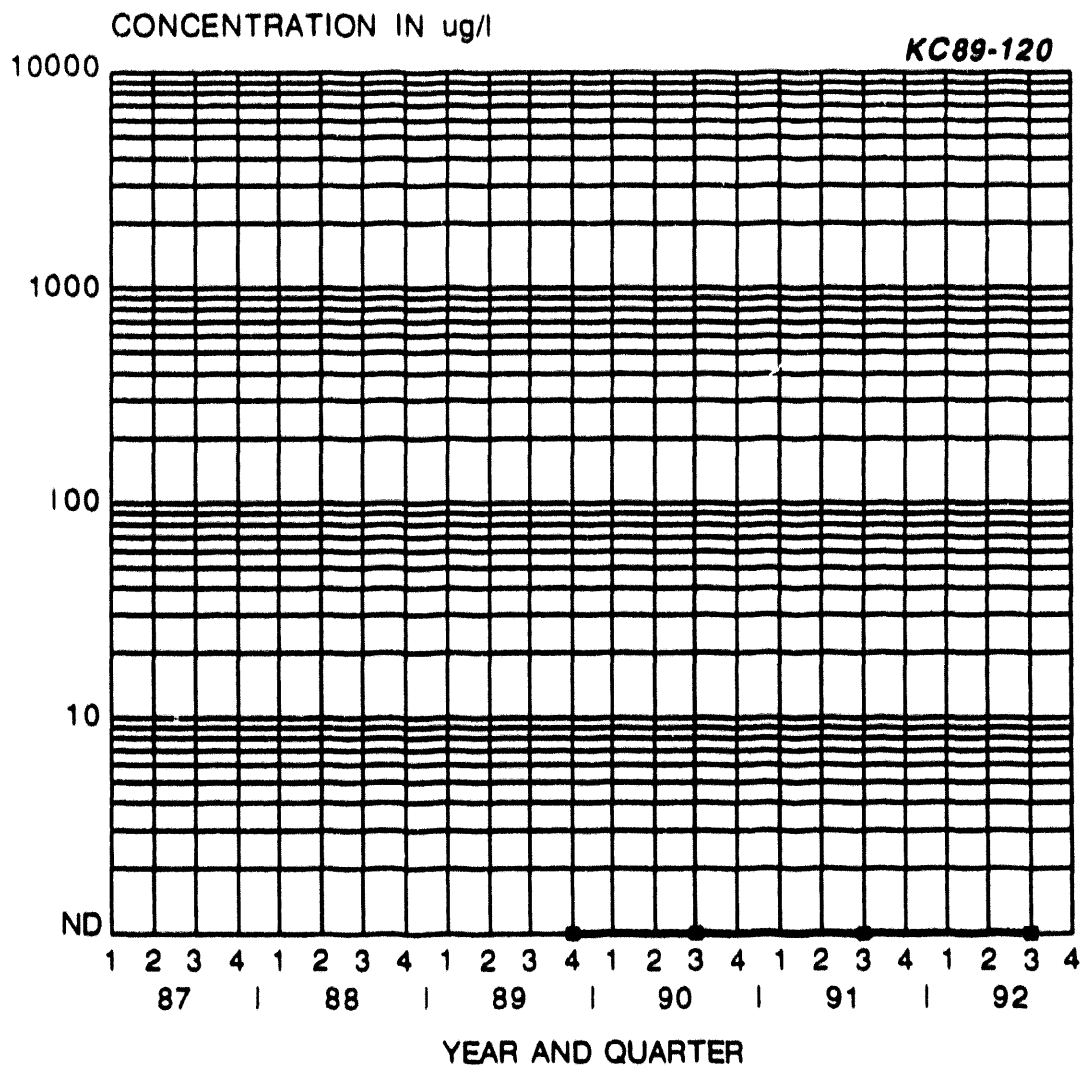
● 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◆ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-120

Figure 6.17



COMPOUNDS

● OTHER ORGANICS

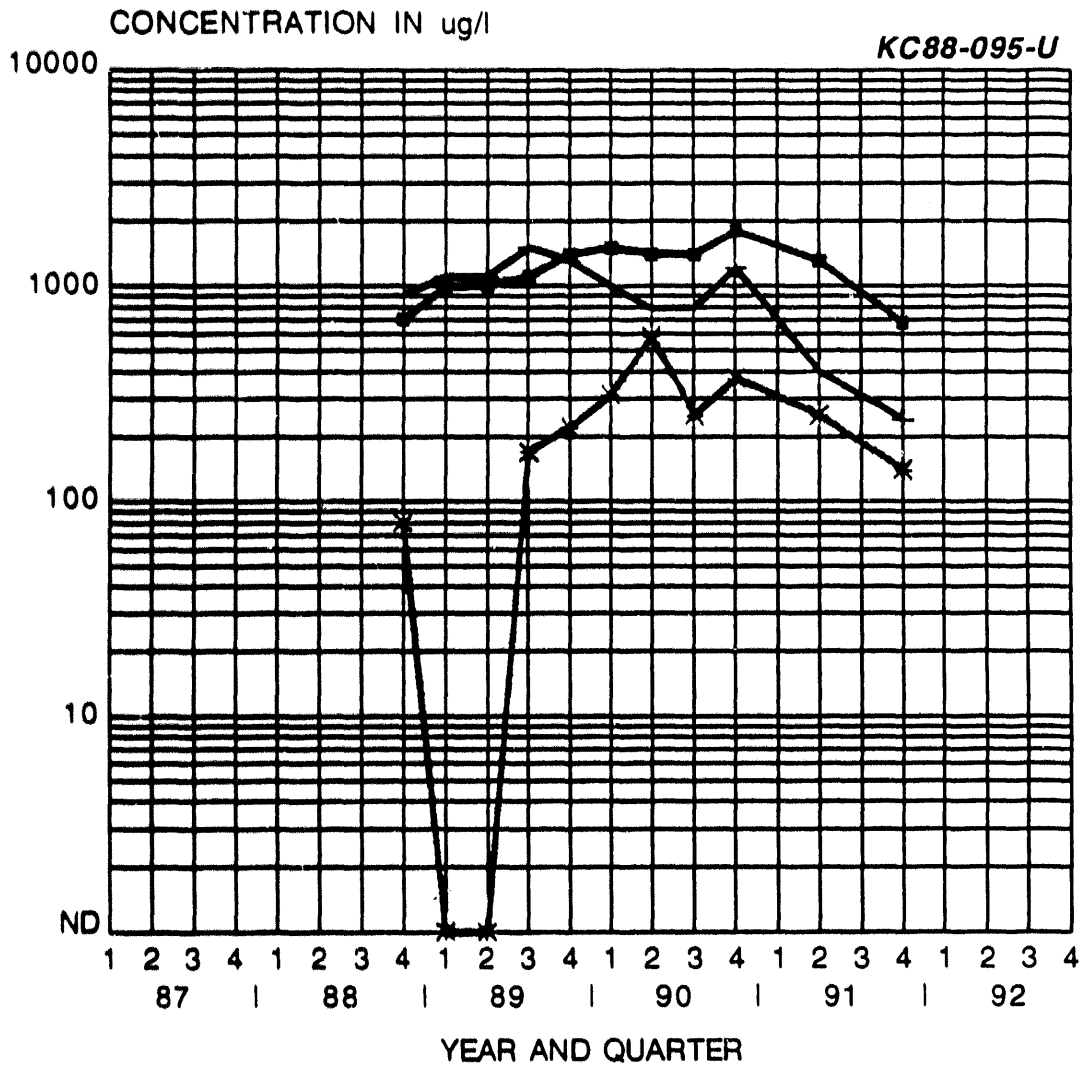
ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-120

Figure 6.18

Former Underground Tank Farm Area-

Nineteen (19) groundwater monitoring wells presently monitor groundwater from the Underground Tank Farm. Two wells (KC88-95 and KC89-96) were selected from within the plume for the presentation of contaminant trends. The rate and extent of contamination has been define in this area. Groundwater is currently being treated by the groundwater pump and treat system.

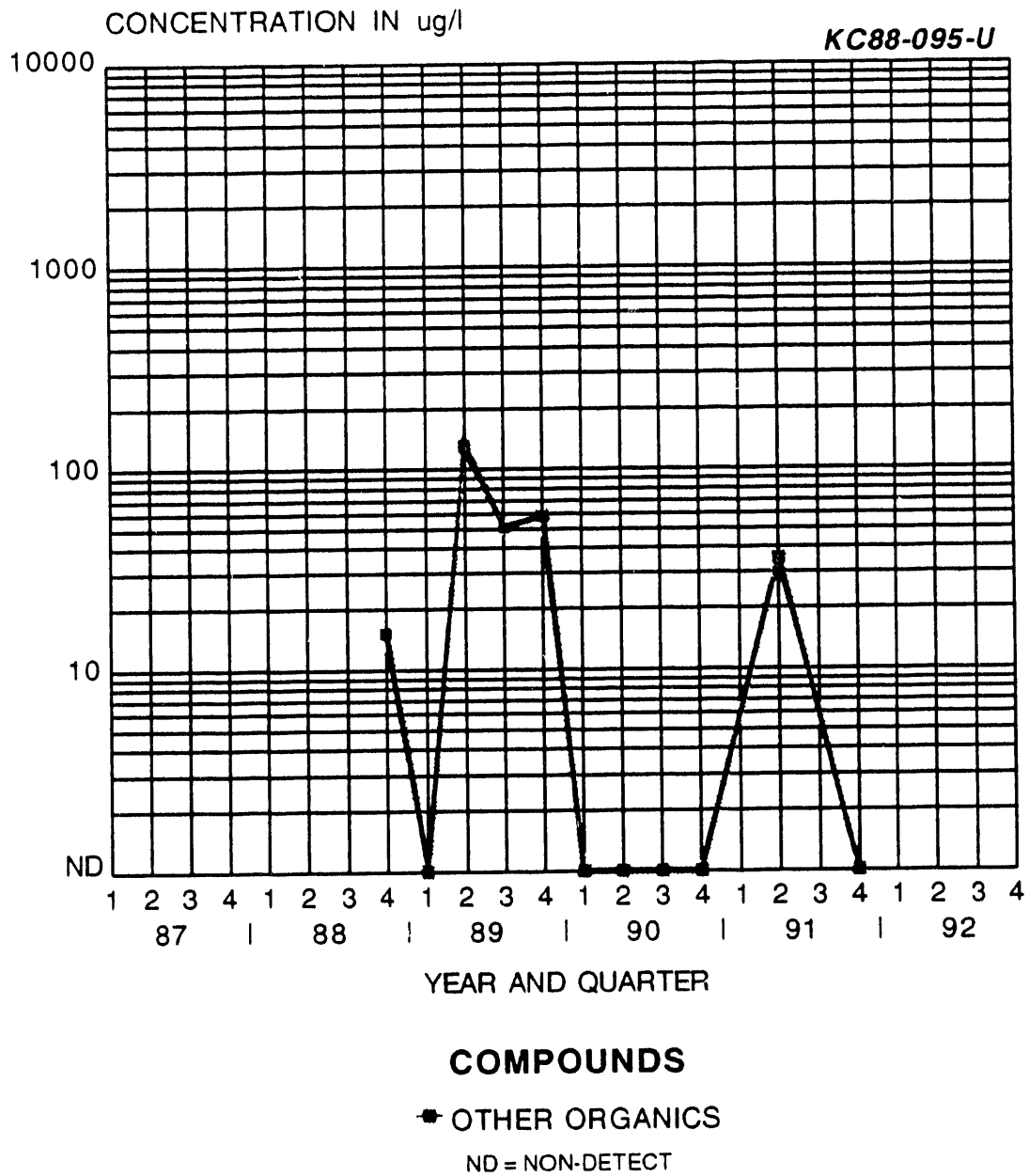


COMPOUNDS

● 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

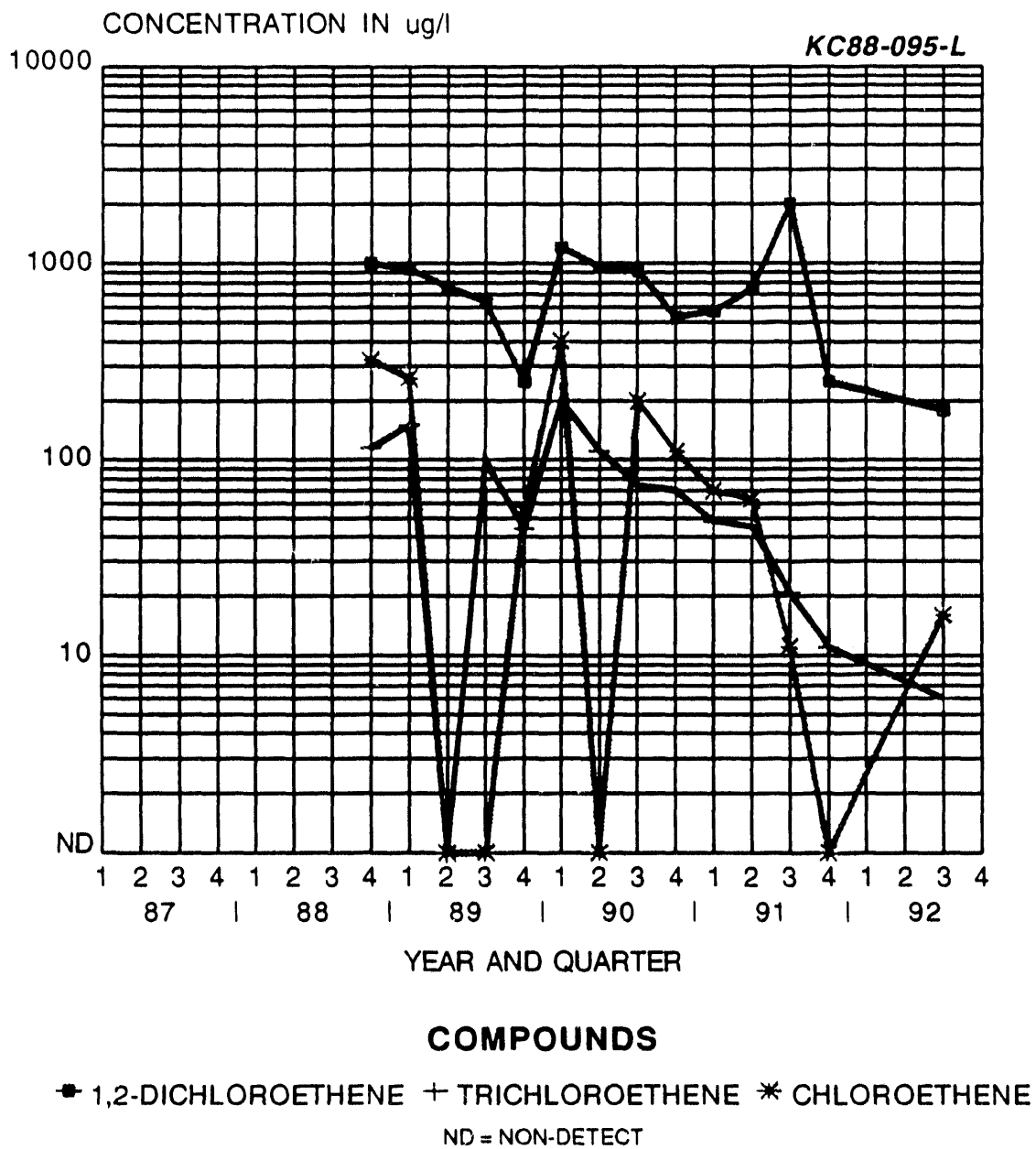
Trend Graph for Organic Compounds of Interest
 in Groundwater Well #KC88-095-U

Figure 6.19



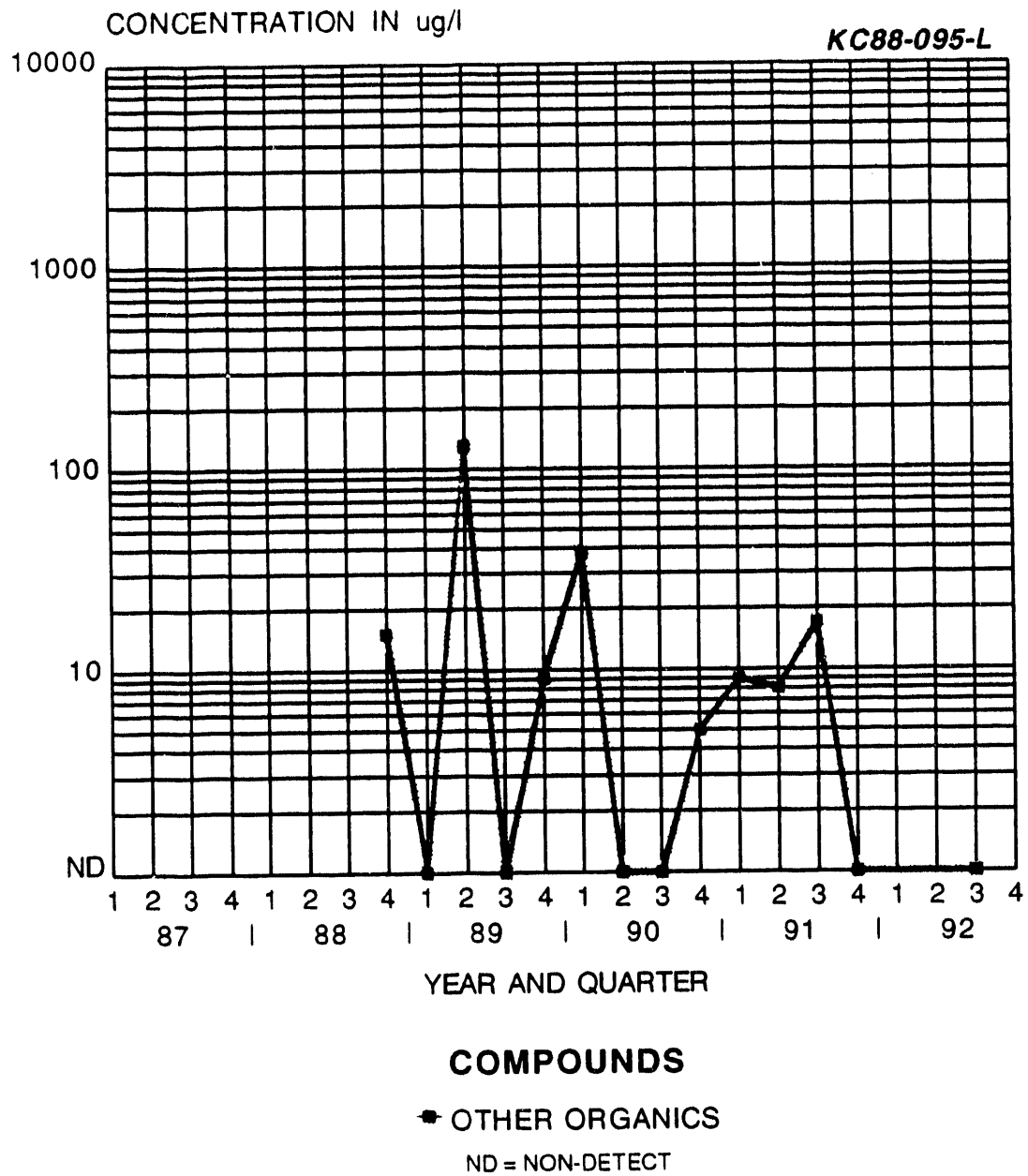
Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-095-U

Figure 6.20



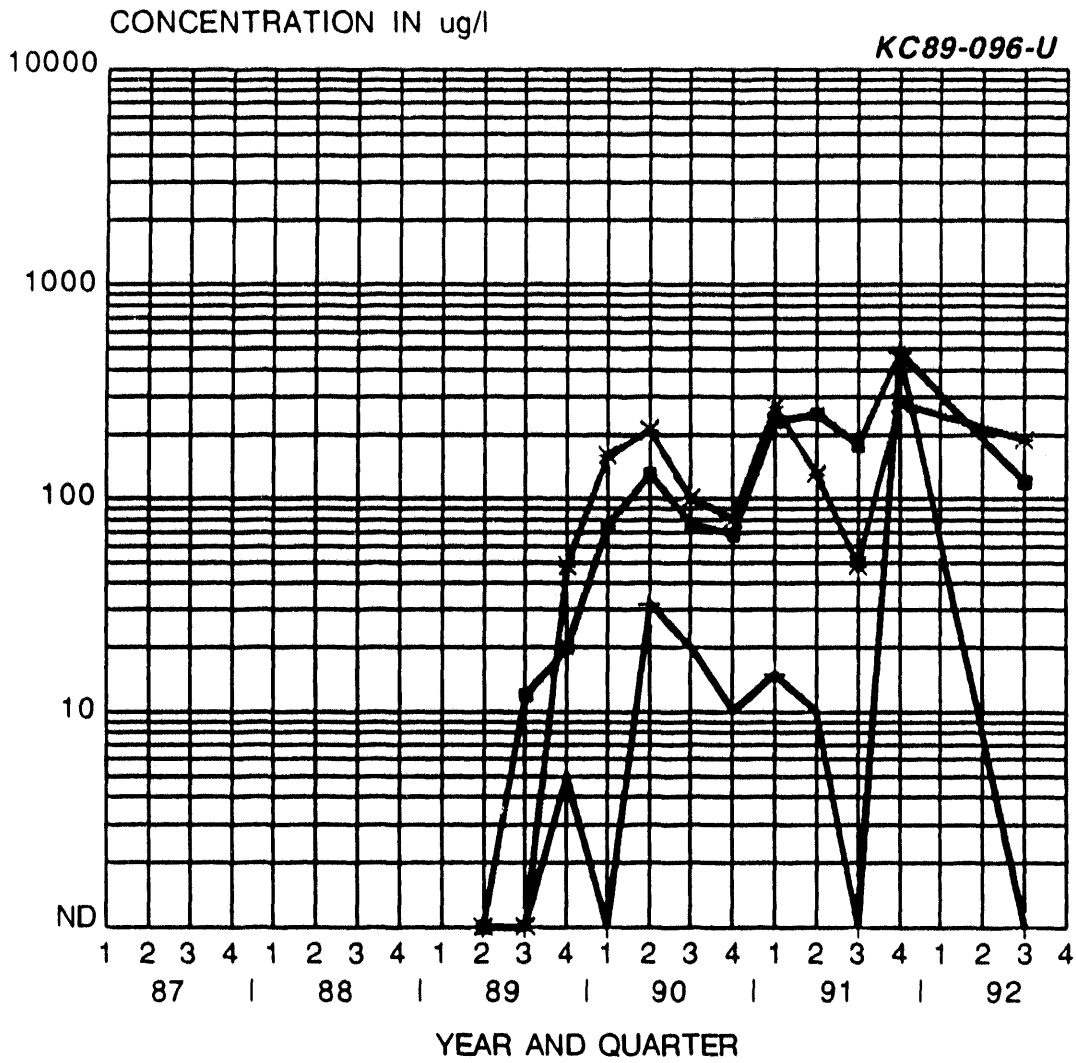
Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-095-L

Figure 6.21



Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC88-095-L

Figure 6.22



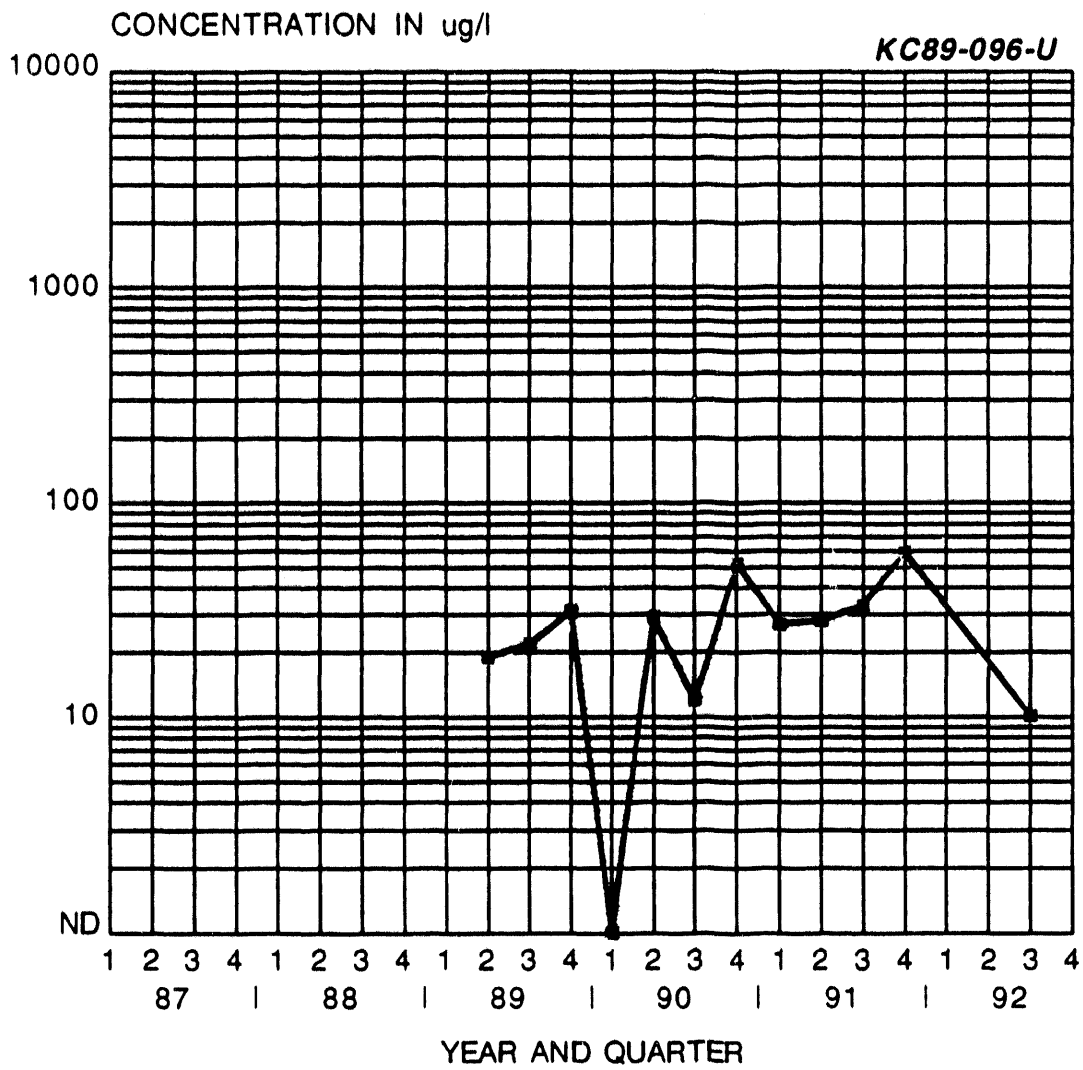
COMPOUNDS

■ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-096-U

Figure 6.23



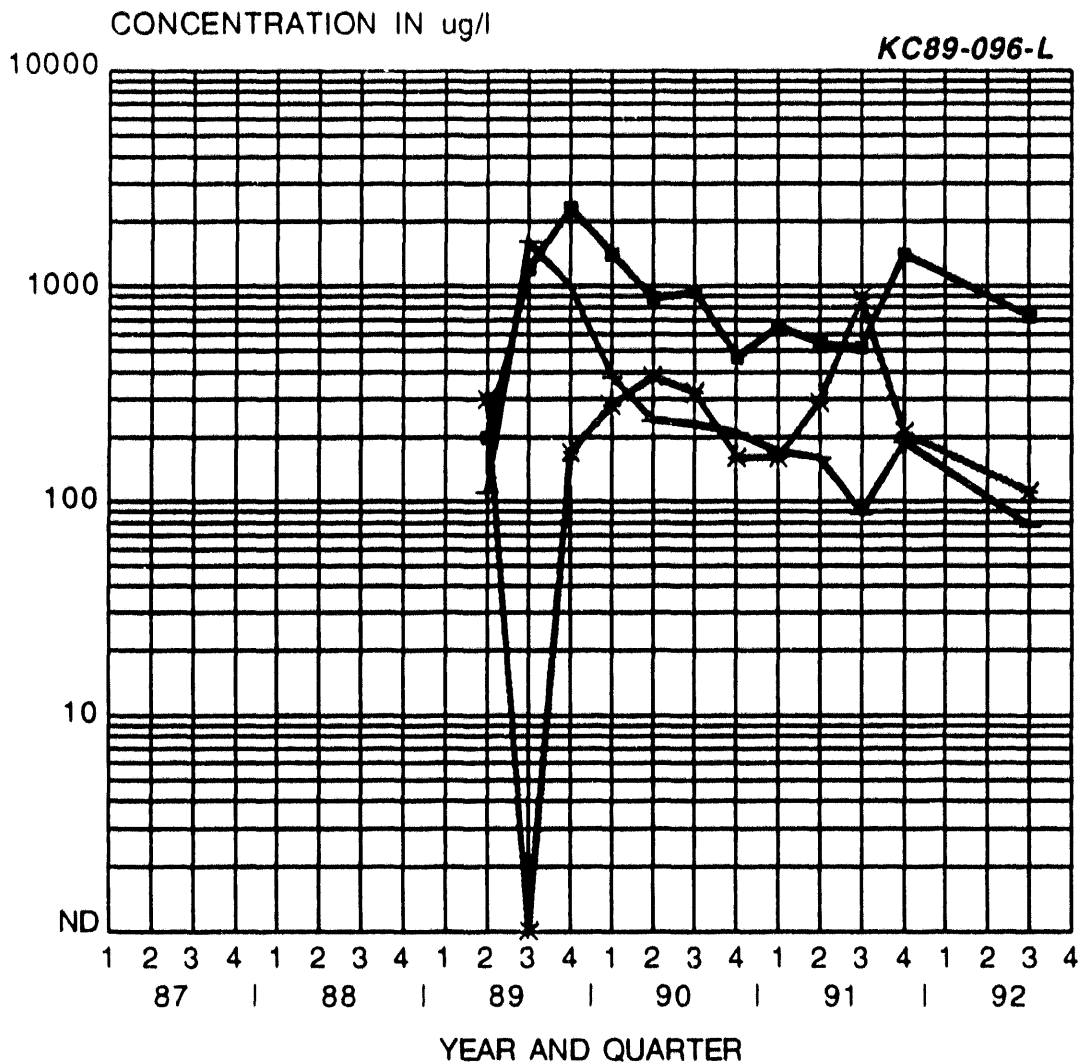
COMPOUNDS

◆ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-096-U

Figure 6.24

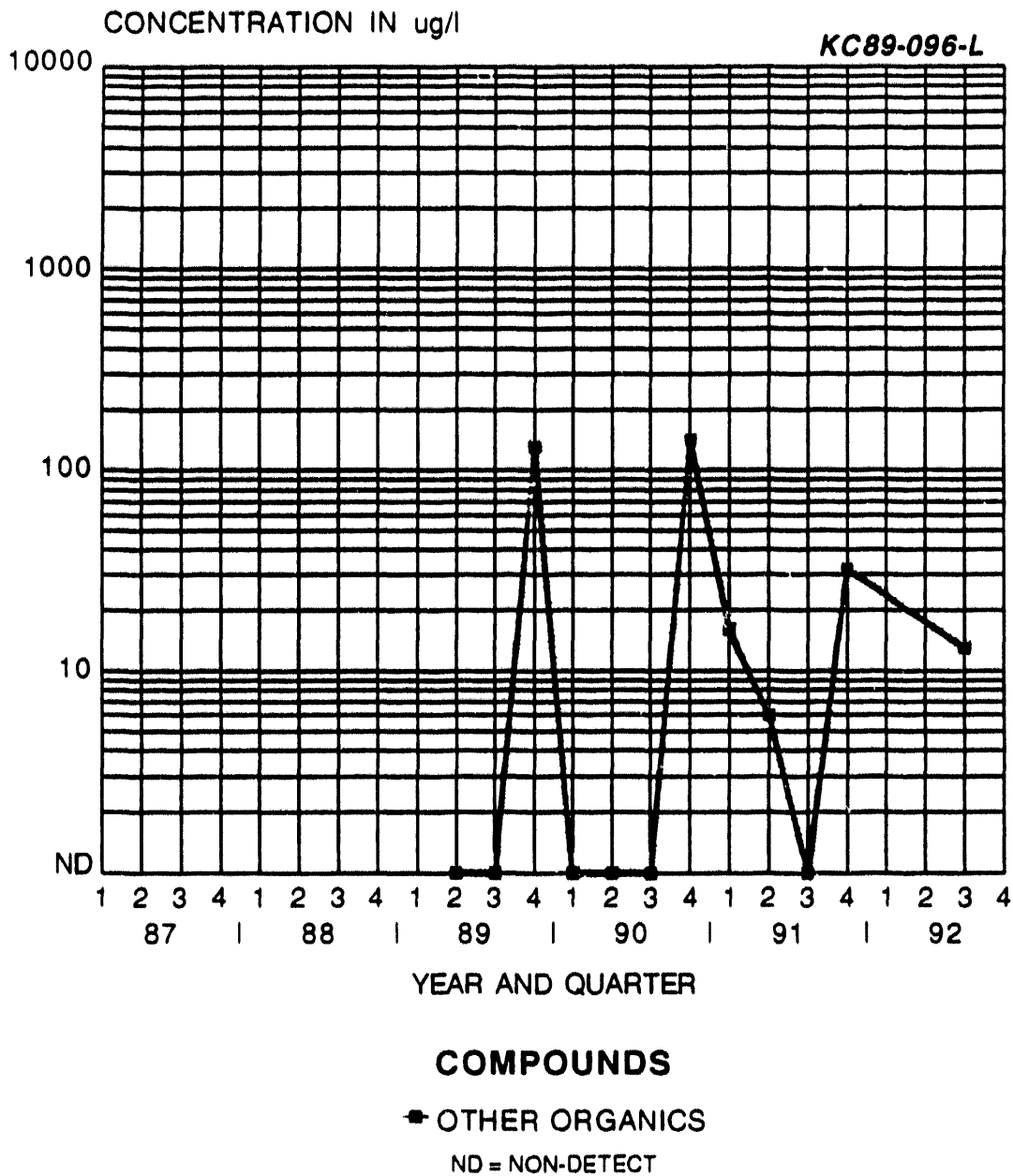


COMPOUNDS

■ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
 in Groundwater Well #KC89-096-L

Figure 6.25

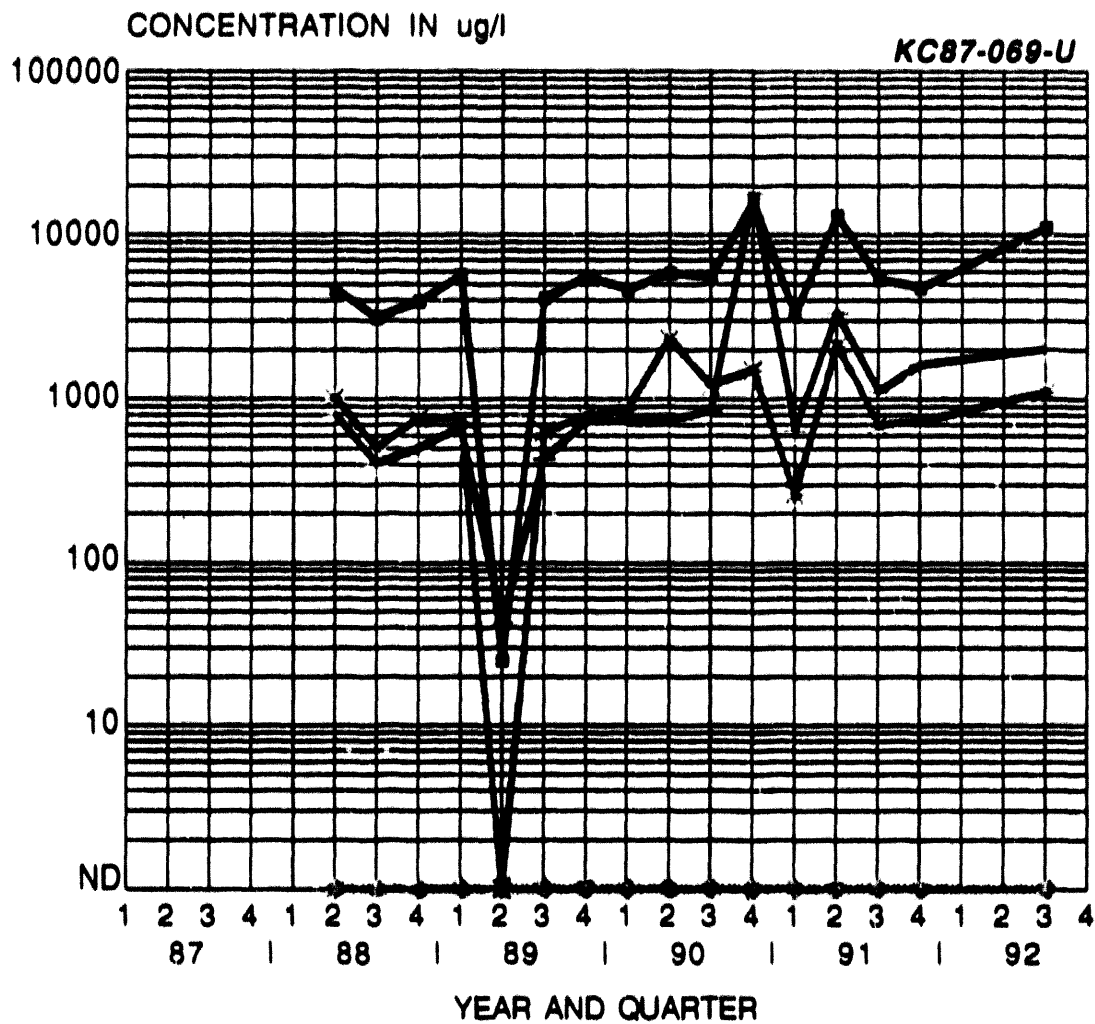


Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-096-L

Figure 6.26

TCE Still Area-

Over 42 wells have been installed to monitor releases from sites comprising the TCE Still Area. Wells KC87-069 and KC91-160 represent groundwater quality adjacent to two of the major release sites in this area, the former TCE Still and the Chip and Sales Building. Groundwater at this corrective action site is being treated on site.



COMPOUNDS

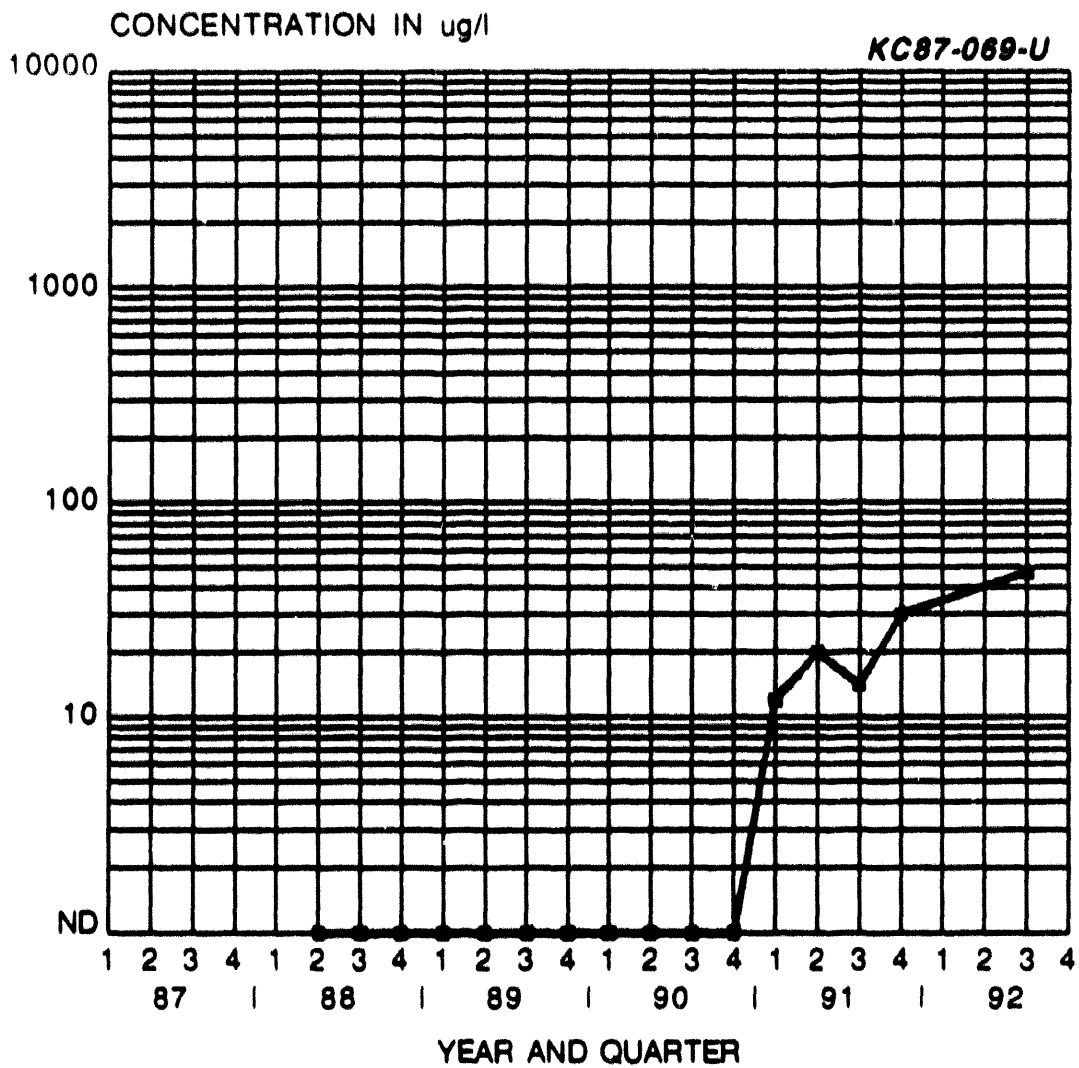
● 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◆ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC87-069-U

Figure 6.27



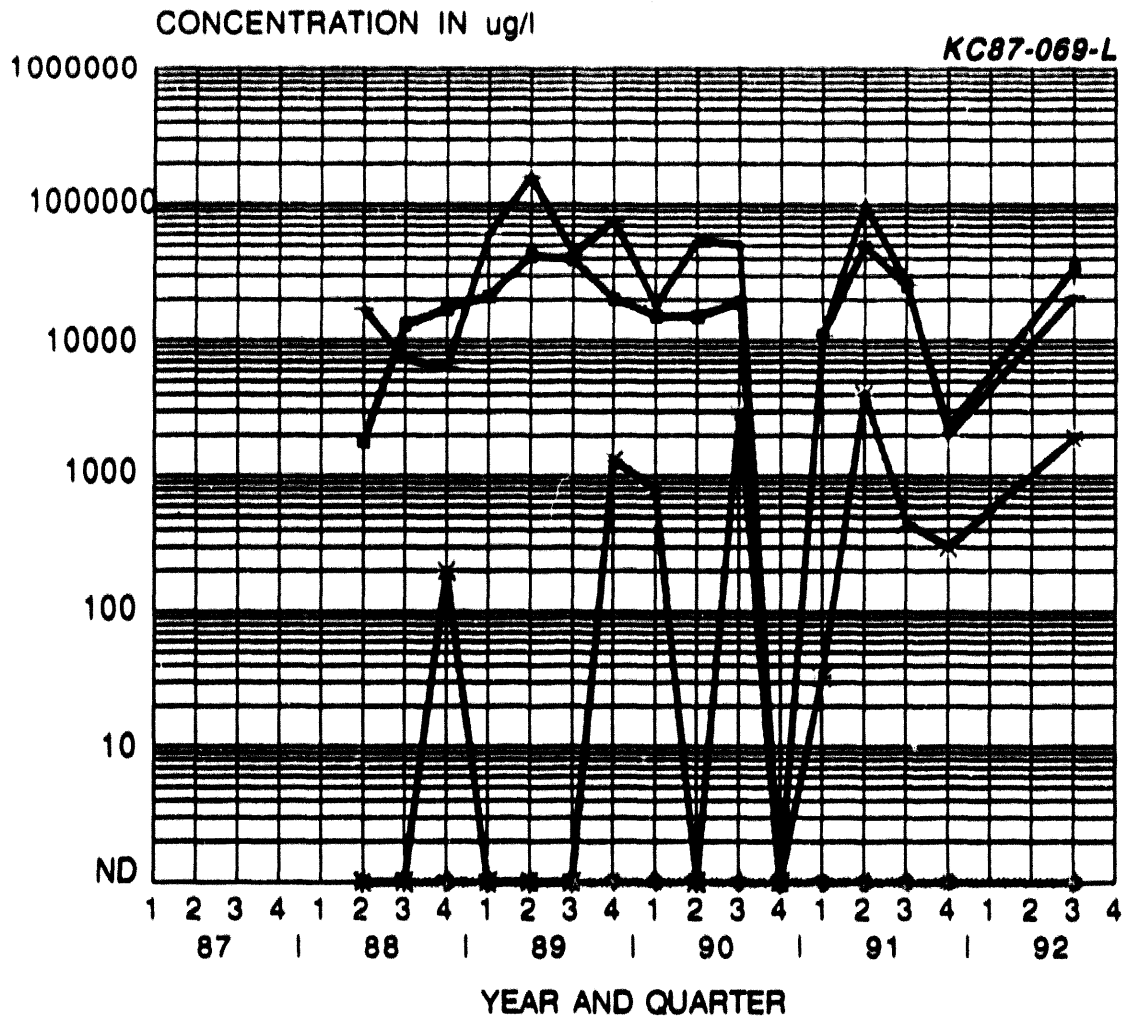
COMPOUNDS

◆ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC87-069-U

Figure 6.28



COMPOUNDS

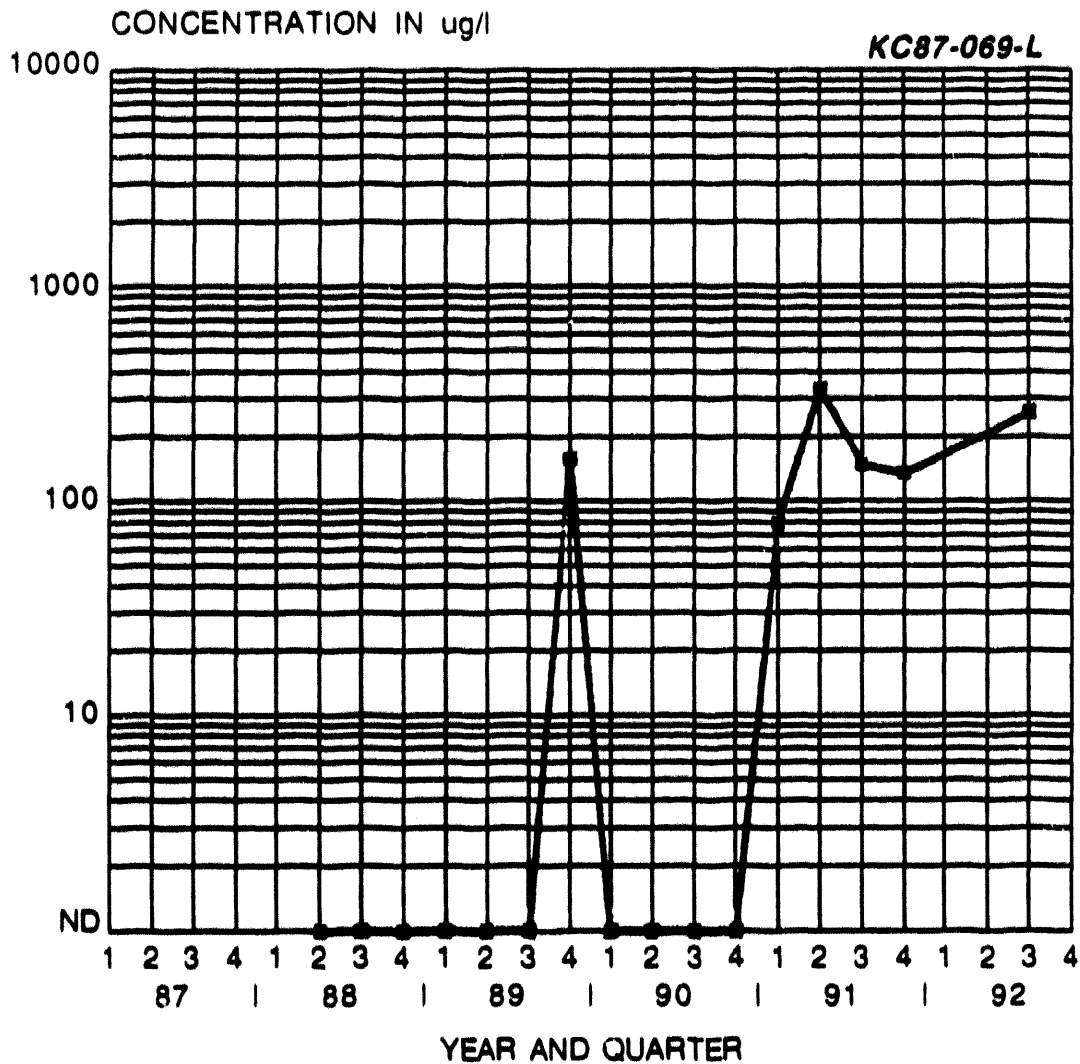
● 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◐ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC87-069-L

Figure 6.29



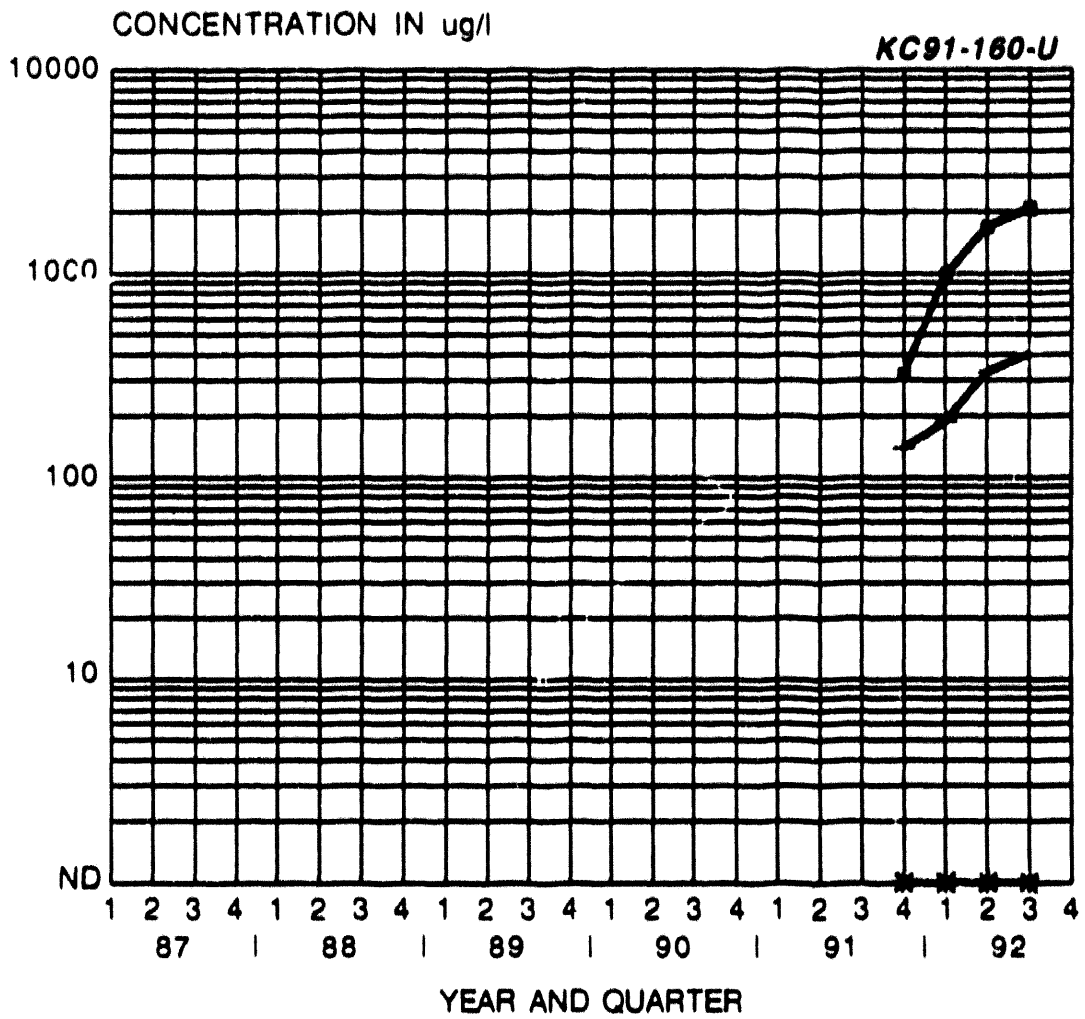
COMPOUNDS

● OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC87-069-L

Figure 6.30



COMPOUNDS

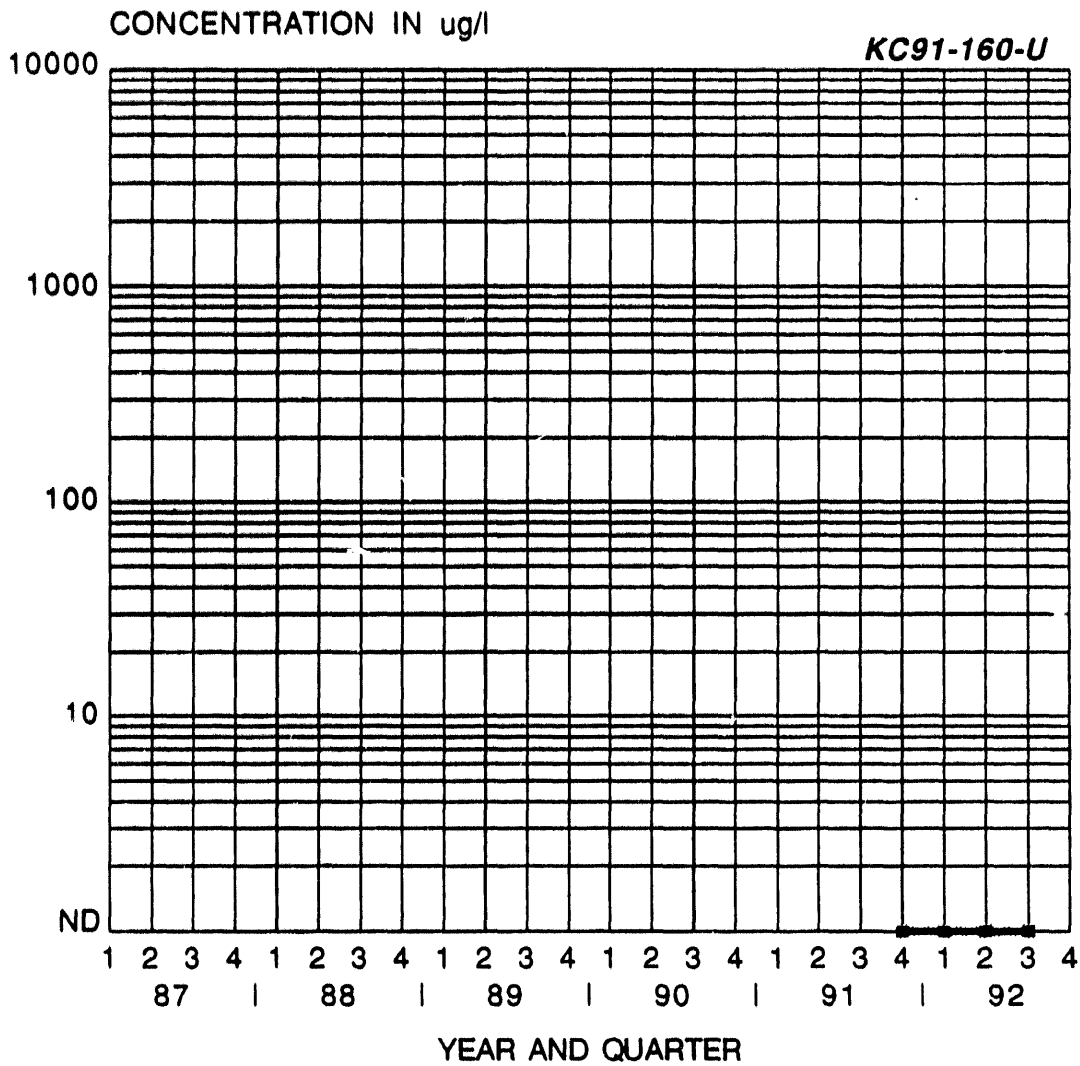
◆ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◆ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-160-U

Figure 6.31



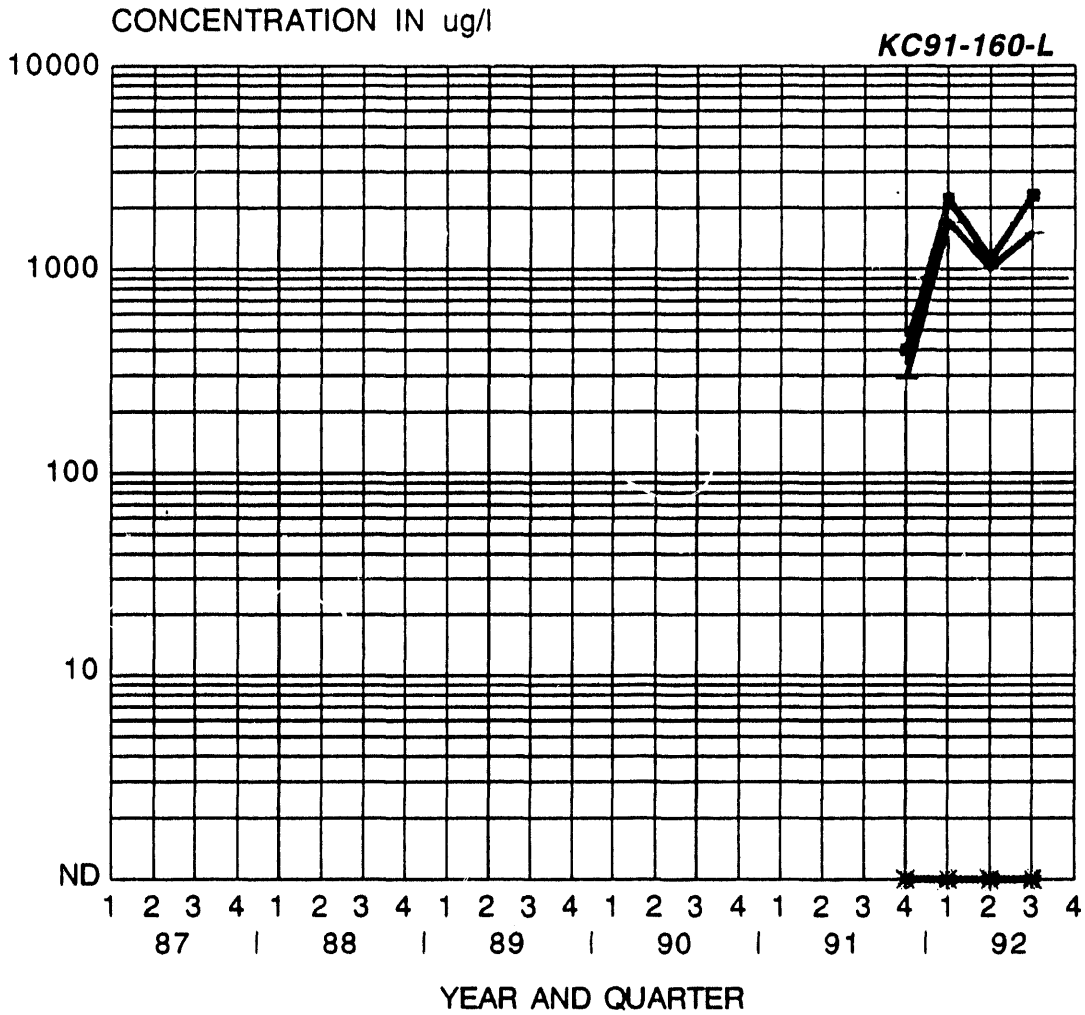
COMPOUNDS

■ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-160-U

Figure 6.32



COMPOUNDS

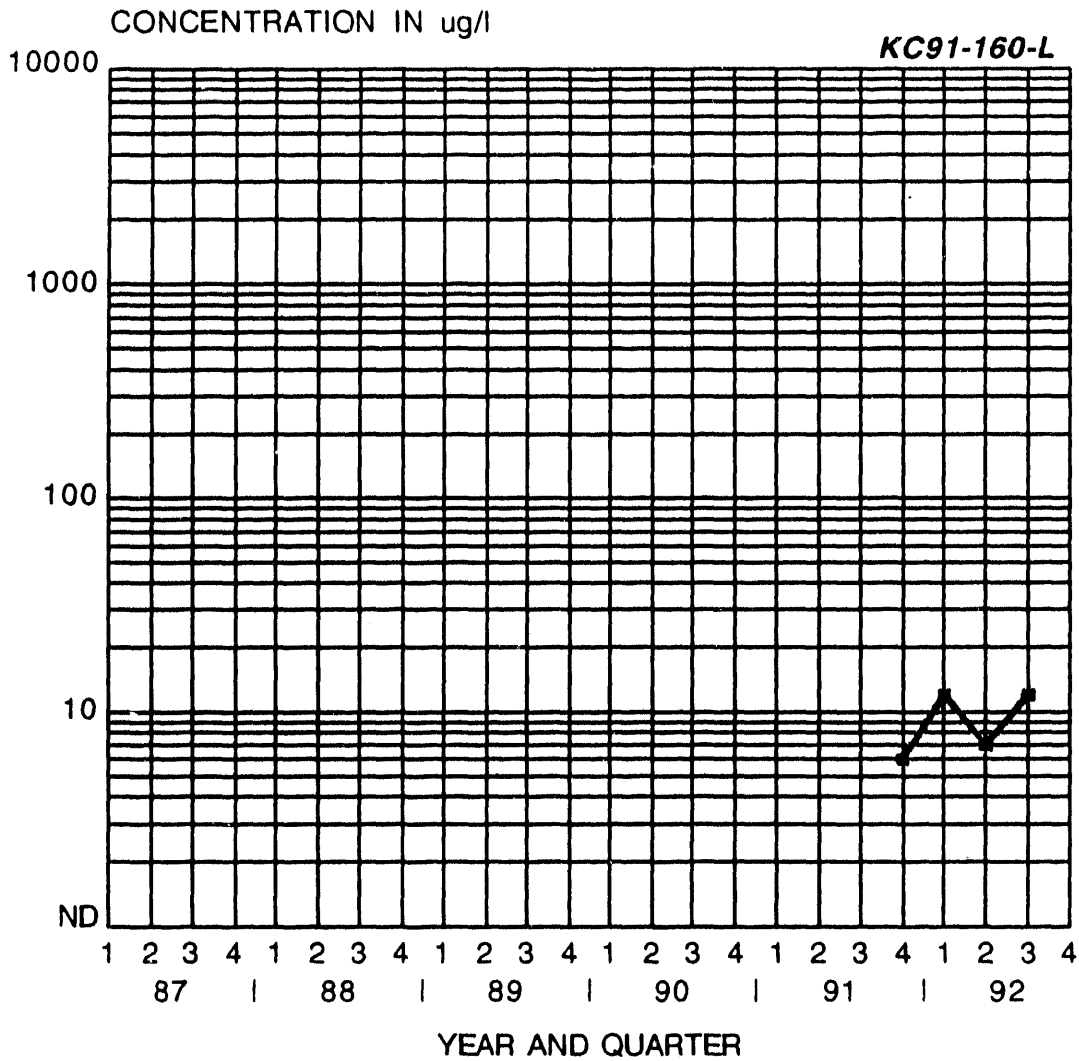
■ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ● BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-160-L

Figure 6.33



COMPOUNDS

◆ OTHER ORGANICS

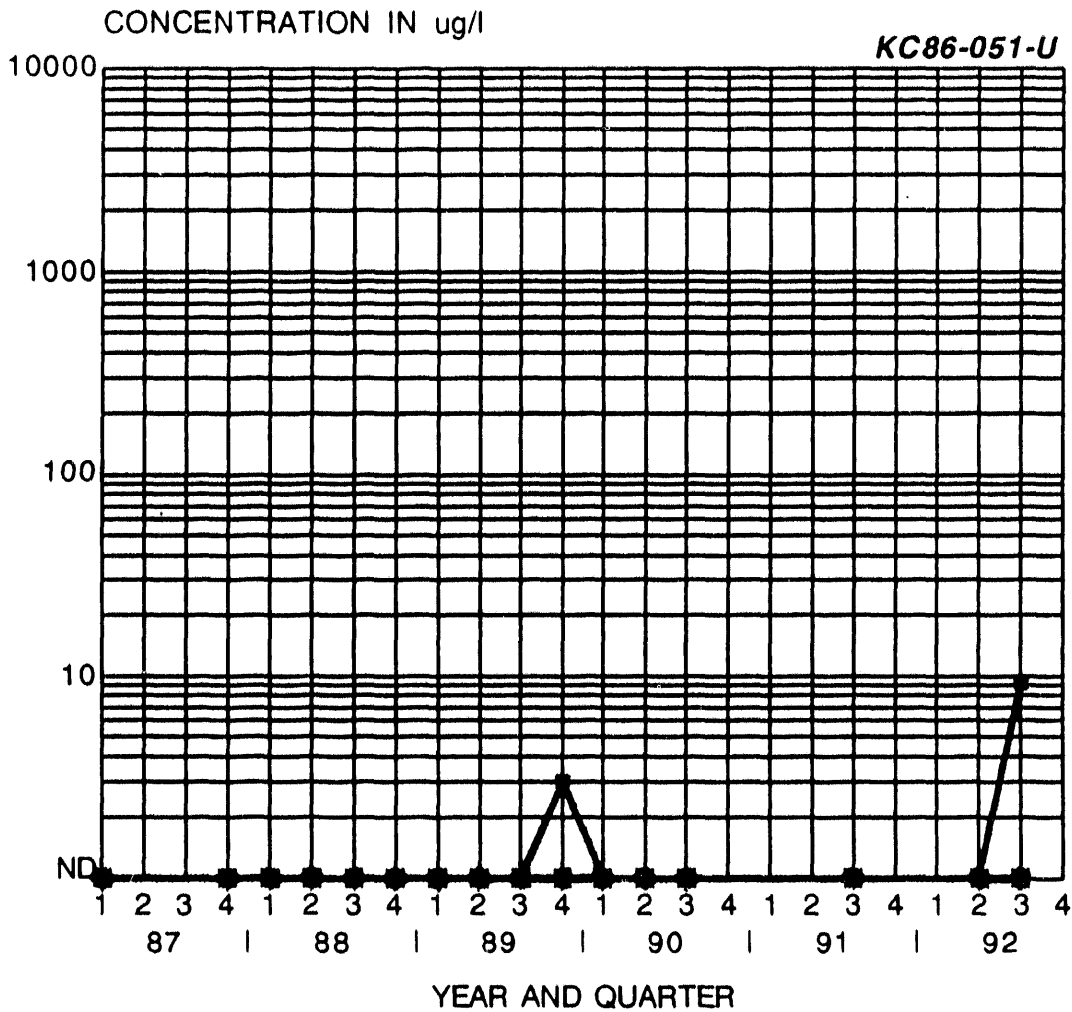
ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-160-L

Figure 6.34

South Lagoon-

As mentioned previously the South Lagoon has 5 compliance point wells which are sampled quarterly. Trend graphs from two of these wells (KC86-51 and KC89-98) are provided. No groundwater contaminant source exists in this area, however, sporadic detections of contamination have been identified as shown by the trend graphs for these wells.

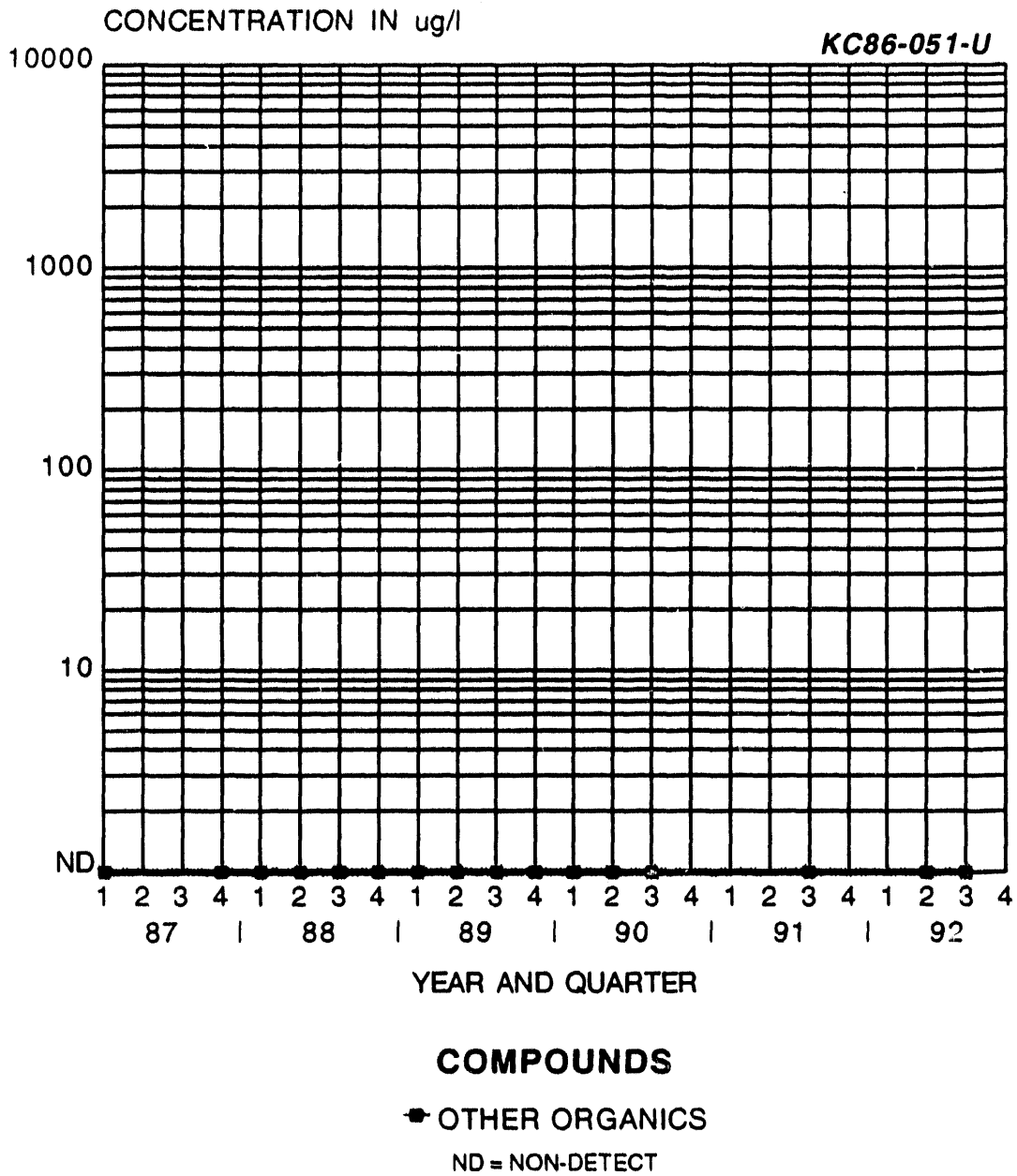


COMPOUNDS

- 1,2-DICHLOROETHENE + 1,1-DICHLOROETHANE
 - * TRICHLOROETHENE ◆ CHLOROETHENE
- ND = NON-DETECT

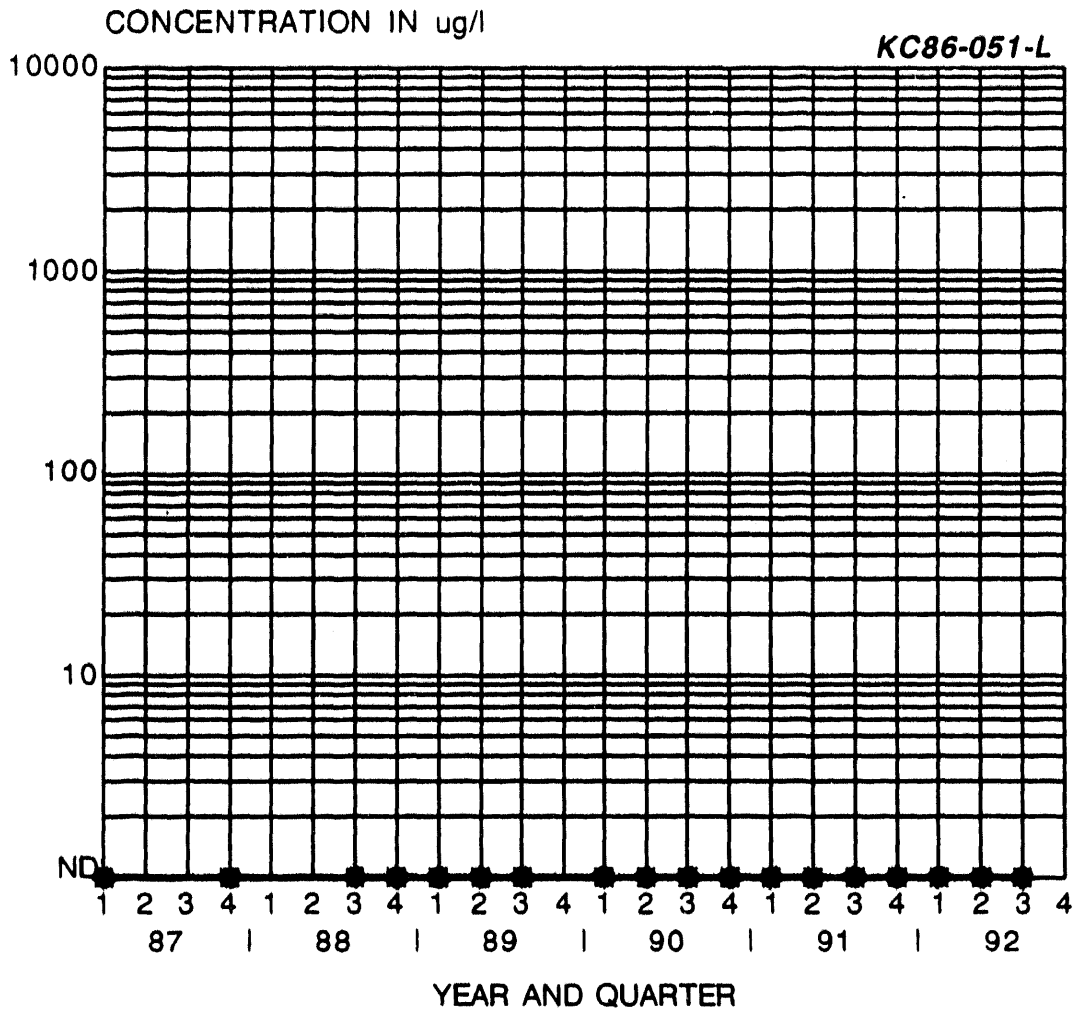
Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC86-051-U

Figure 6.35



Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC86-051-U

Figure 6.36



COMPOUNDS

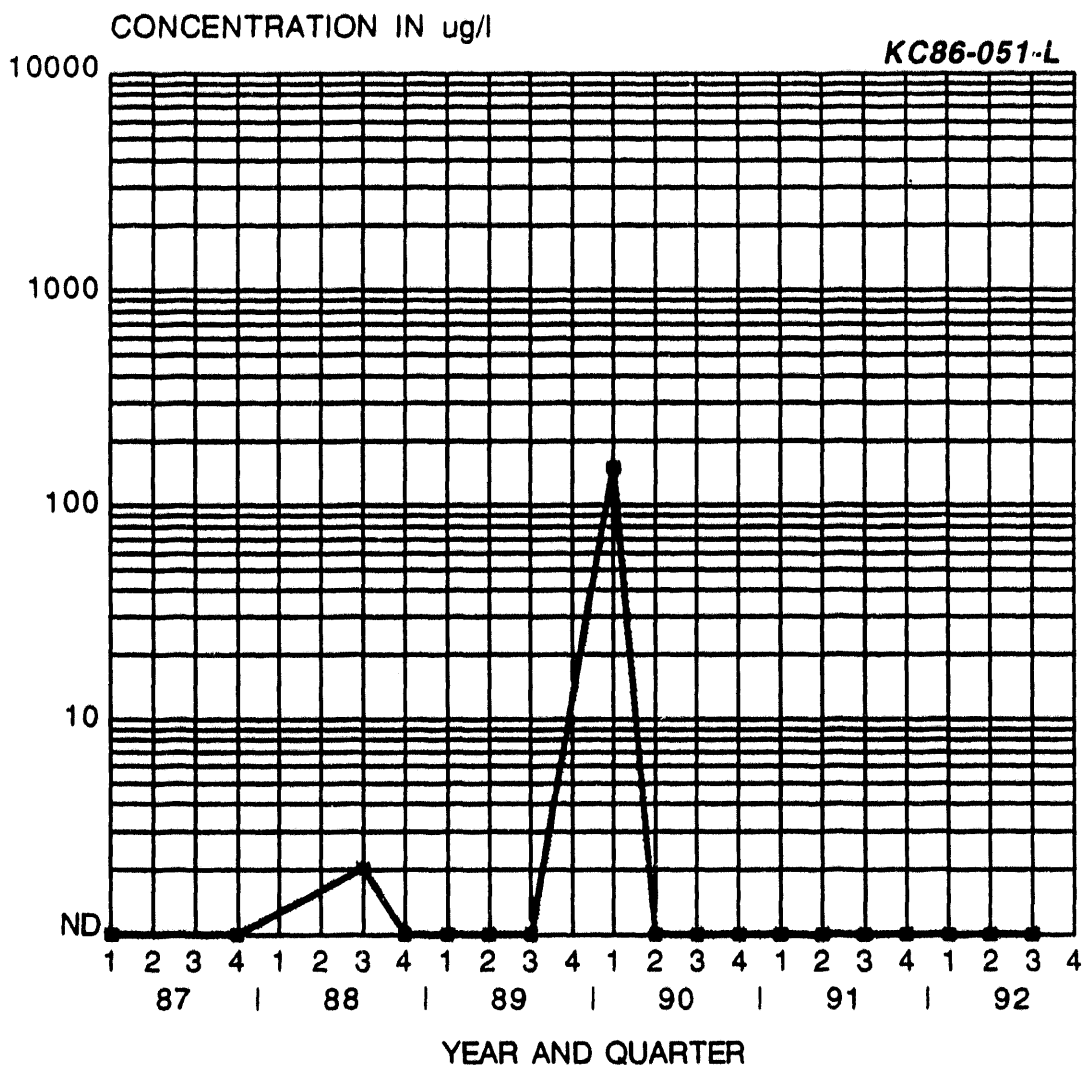
• 1,2-DICHLOROETHENE + 1,1-DICHLOROETHANE

* TRICHLOROETHENE ◆ CHLOROETHENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC86-051-L

Figure 6.37



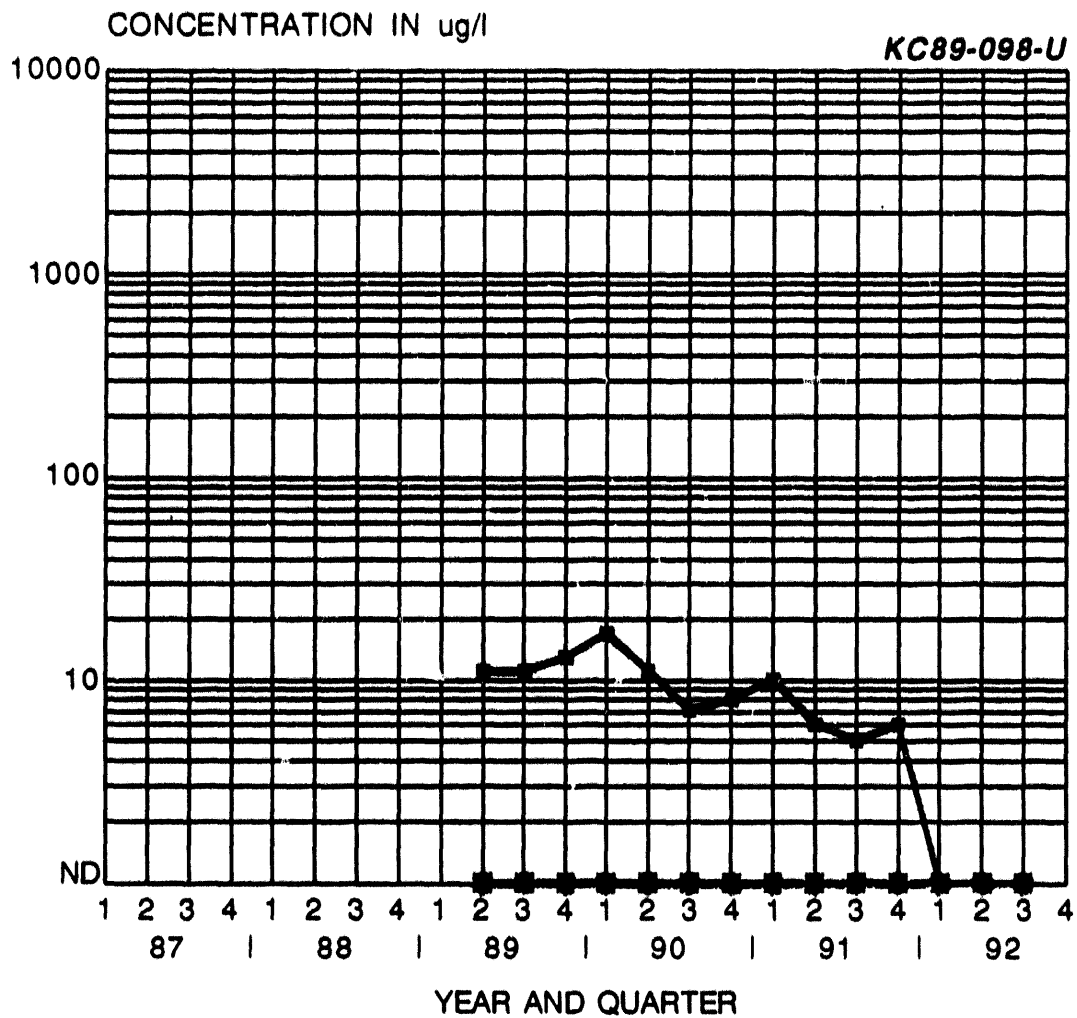
COMPOUNDS

● OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC86-051-L

Figure 6.38



COMPOUNDS

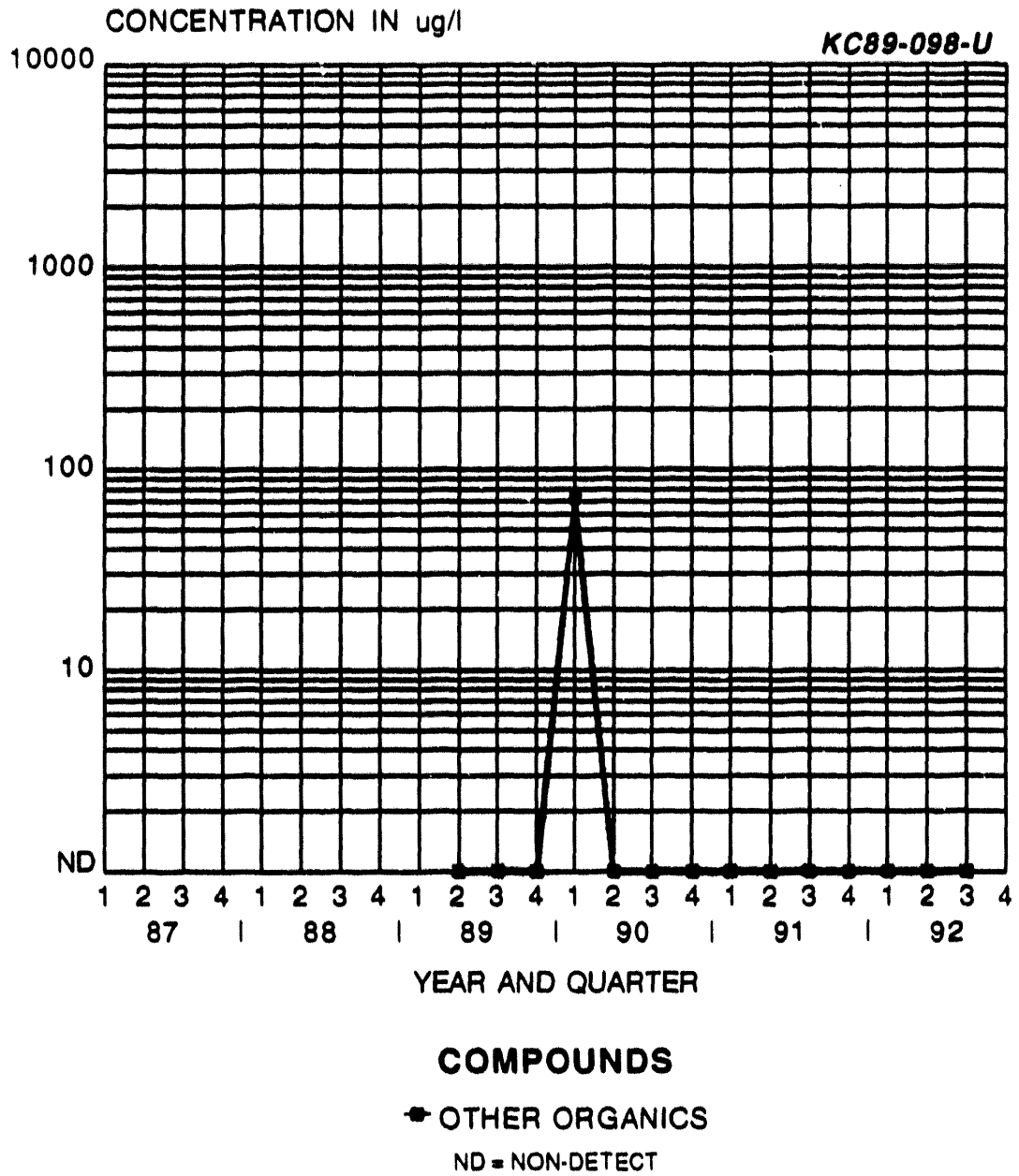
◆ 1,2-DICHLOROETHENE + 1,1-DICHLOROETHANE

* TRICHLOROETHENE ● CHLOROETHENE

ND = NON-DETECT

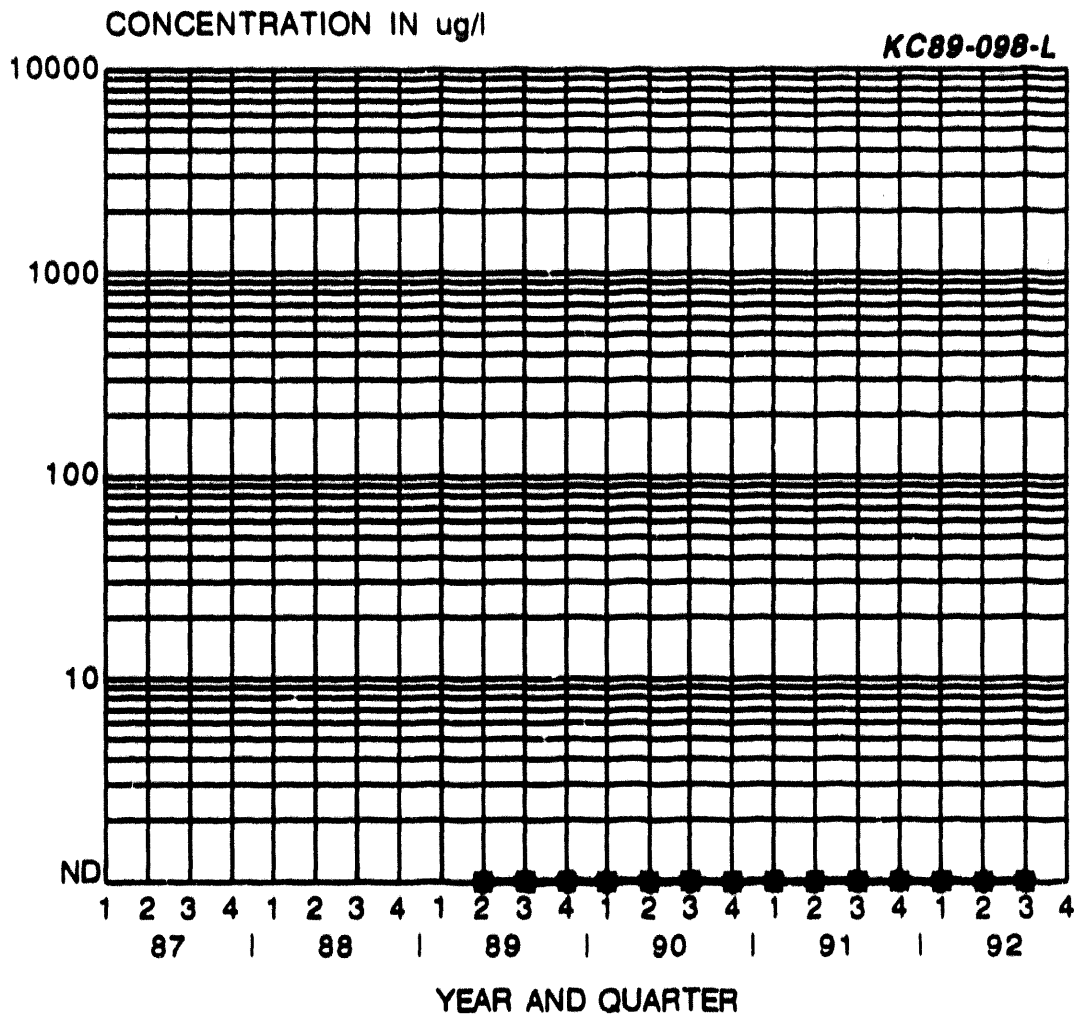
Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-098-U

Figure 6.39



Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-098-U

Figure 6.40



COMPOUNDS

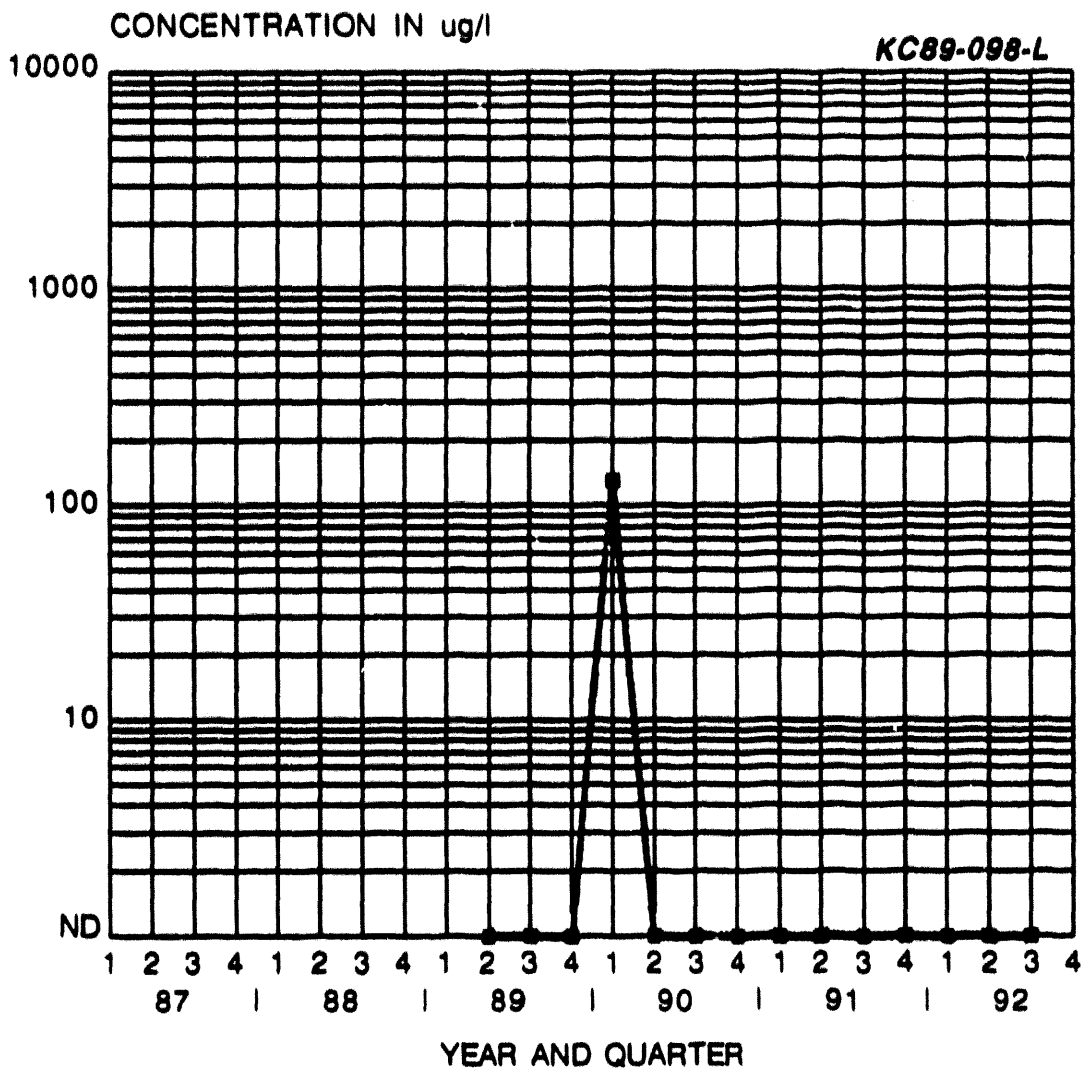
◆ 1,2-DICHLOROETHENE + 1,1-DICHLOROETHANE

* TRICHLOROETHENE ◆ CHLOROETHENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-098-L

Figure 6.41



COMPOUNDS

● OTHER ORGANICS

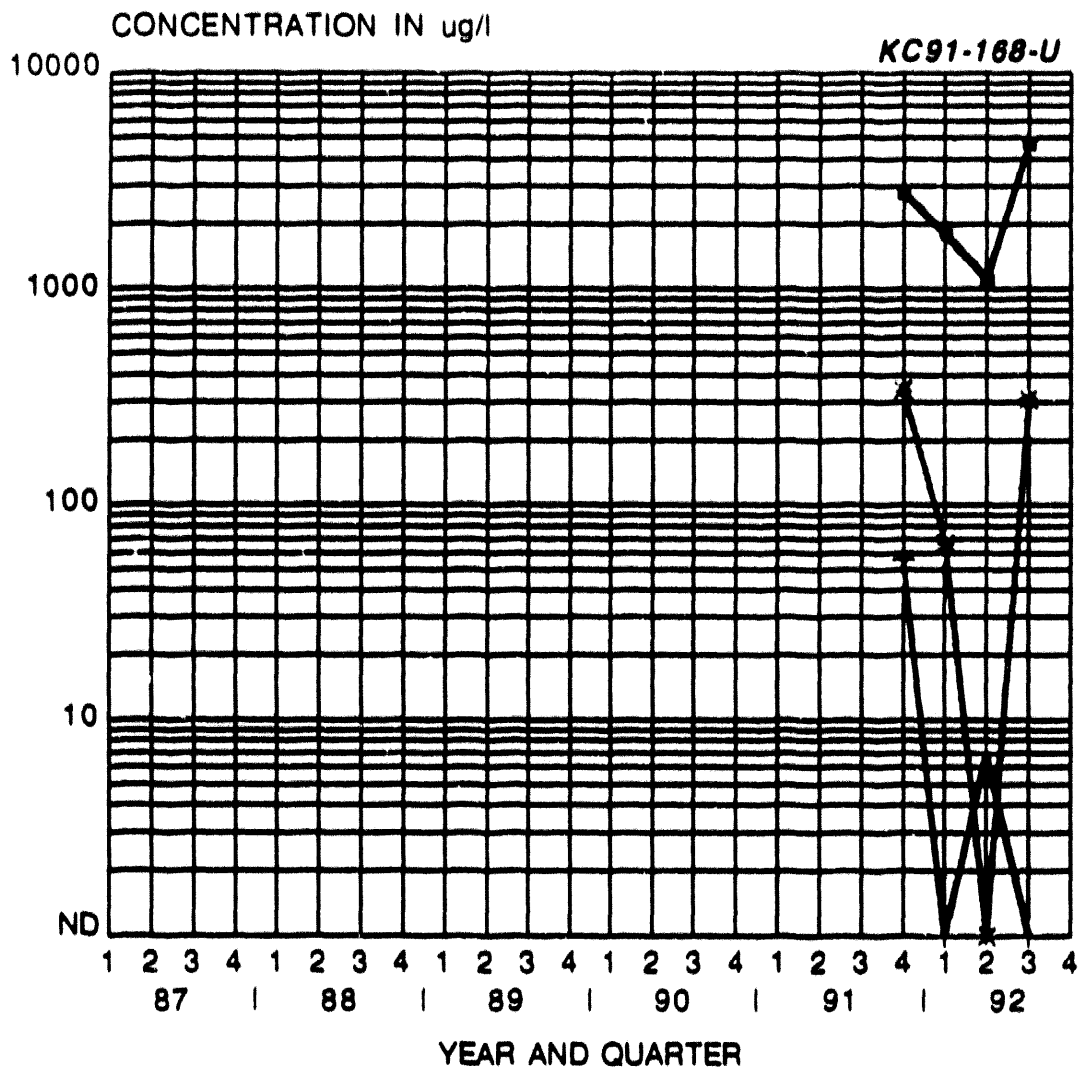
ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC89-098-L

Figure 6.42

Miscellaneous Contaminated Sites Area-

This investigation addressed releases from various sites around the KCP. Two wells installed in areas where groundwater contamination was found are wells KC91-168 and KC91-171.

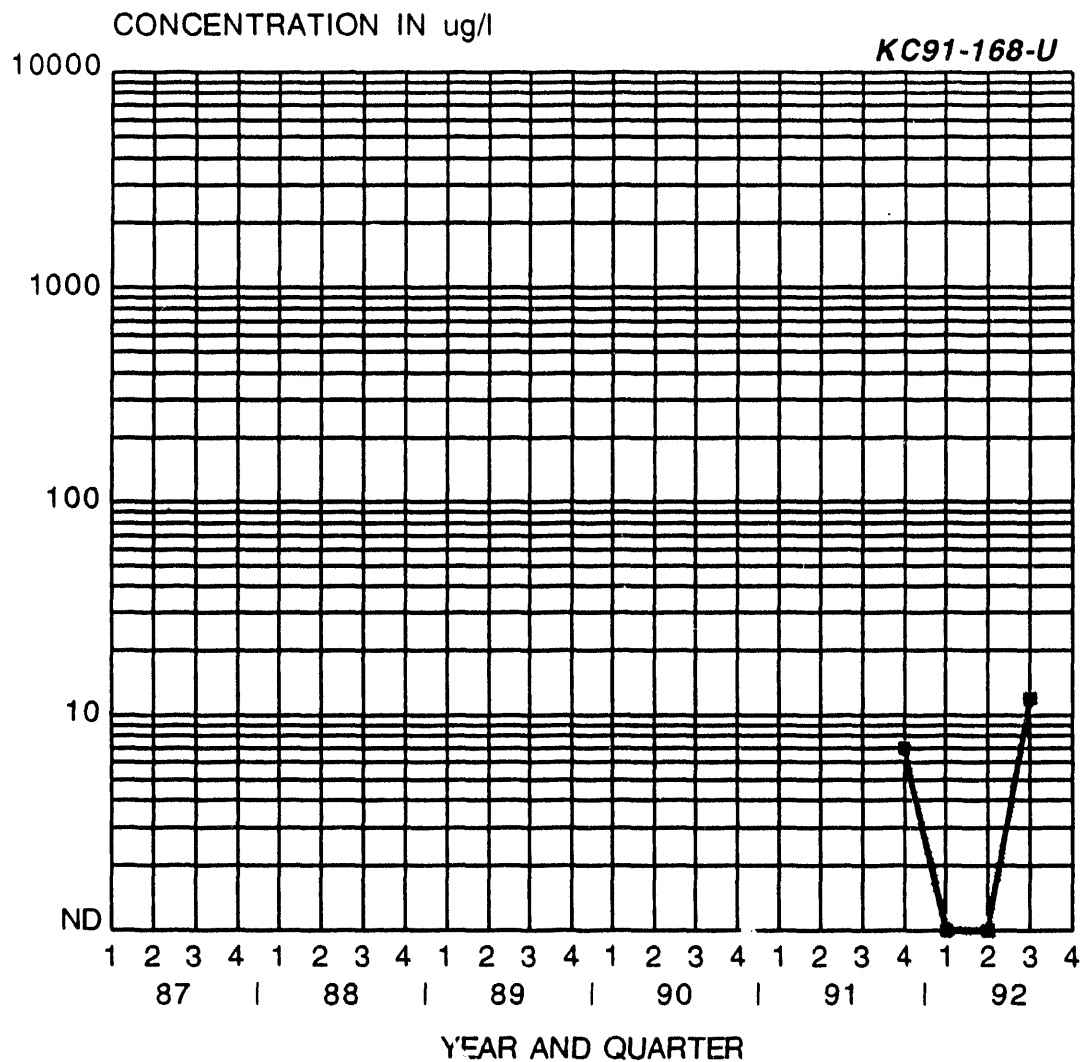


COMPOUNDS

● 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
 in Groundwater Well #KC91-168-U

Figure 6.43



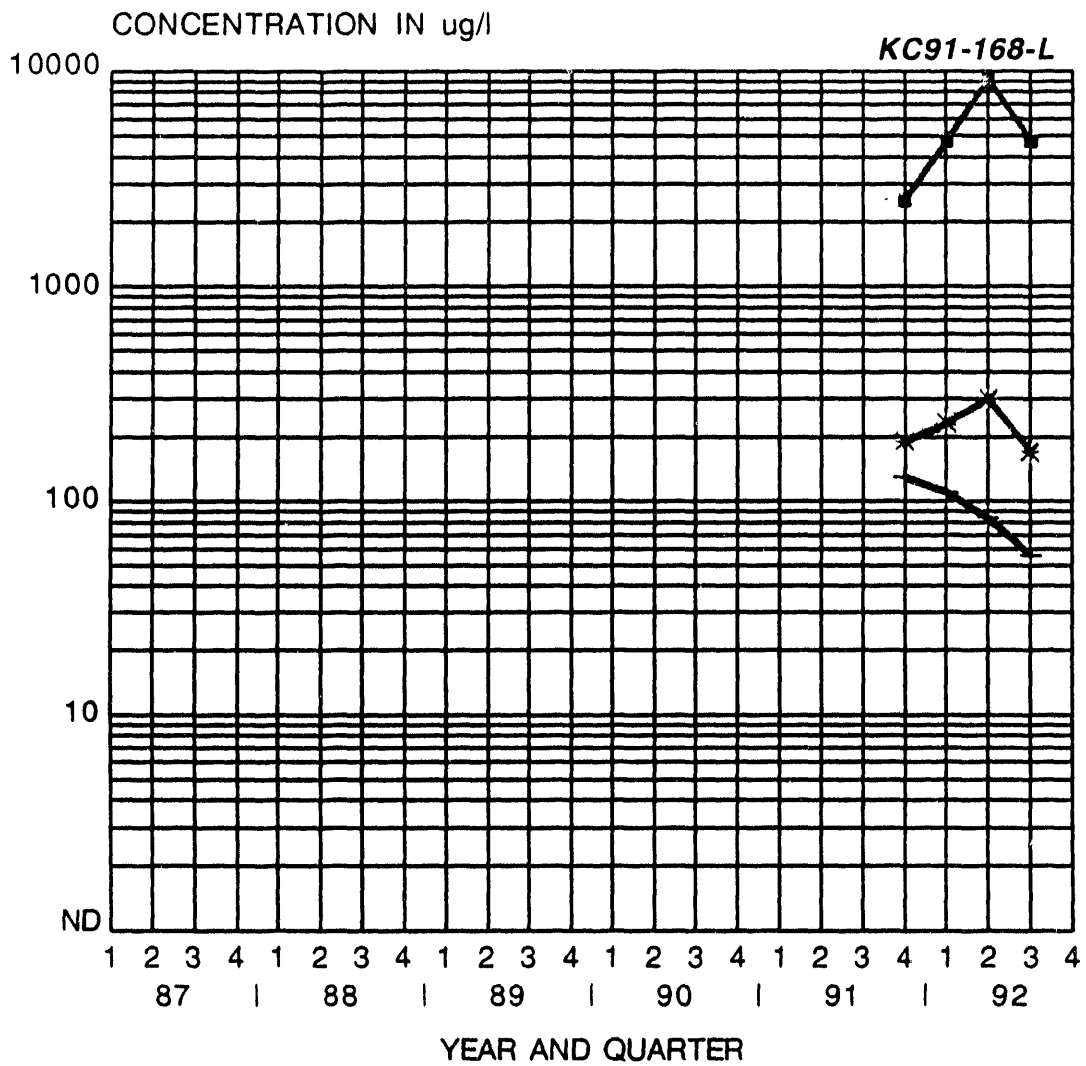
COMPOUNDS

■ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-168-U

Figure 6.44



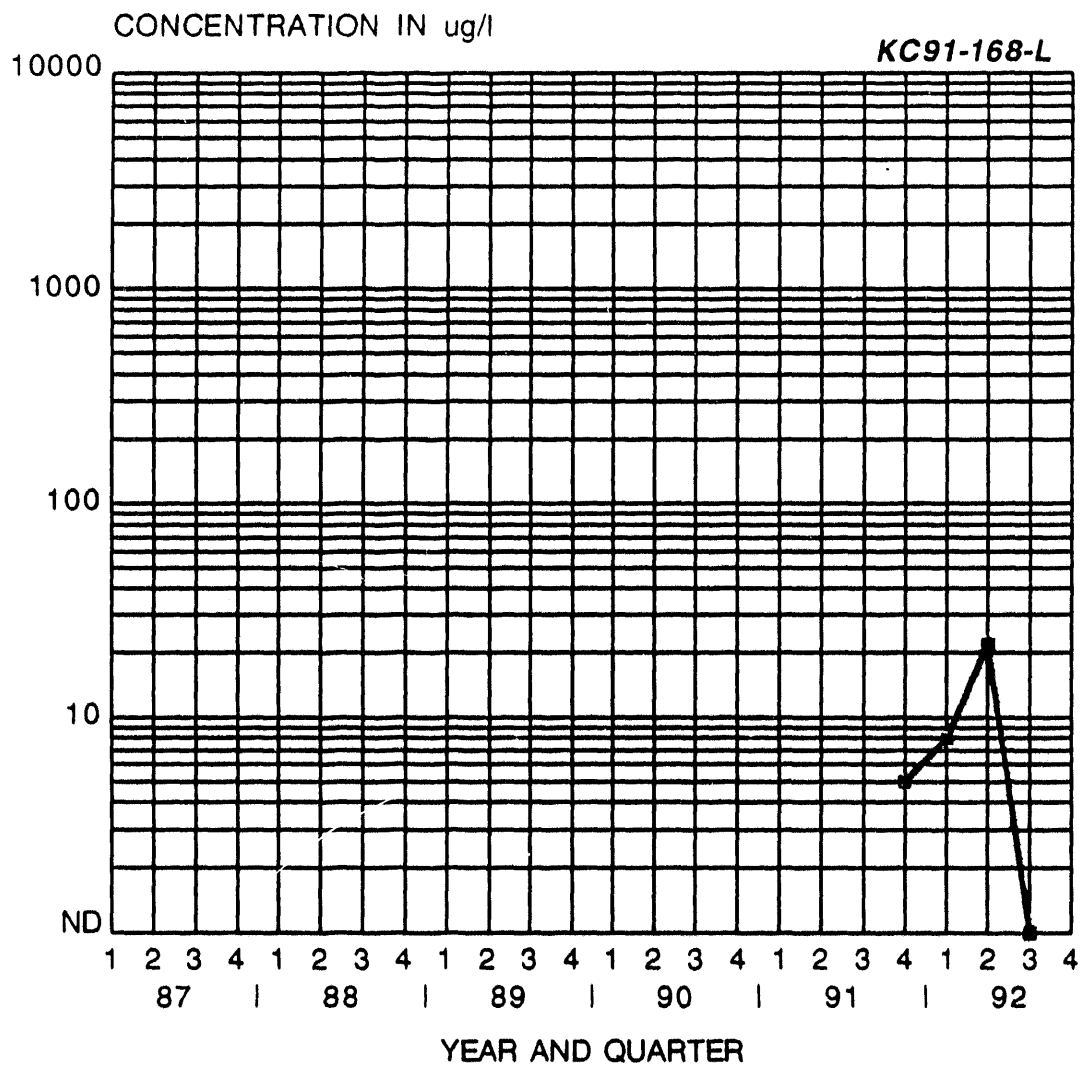
COMPOUNDS

■ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-168-L

Figure 6.45



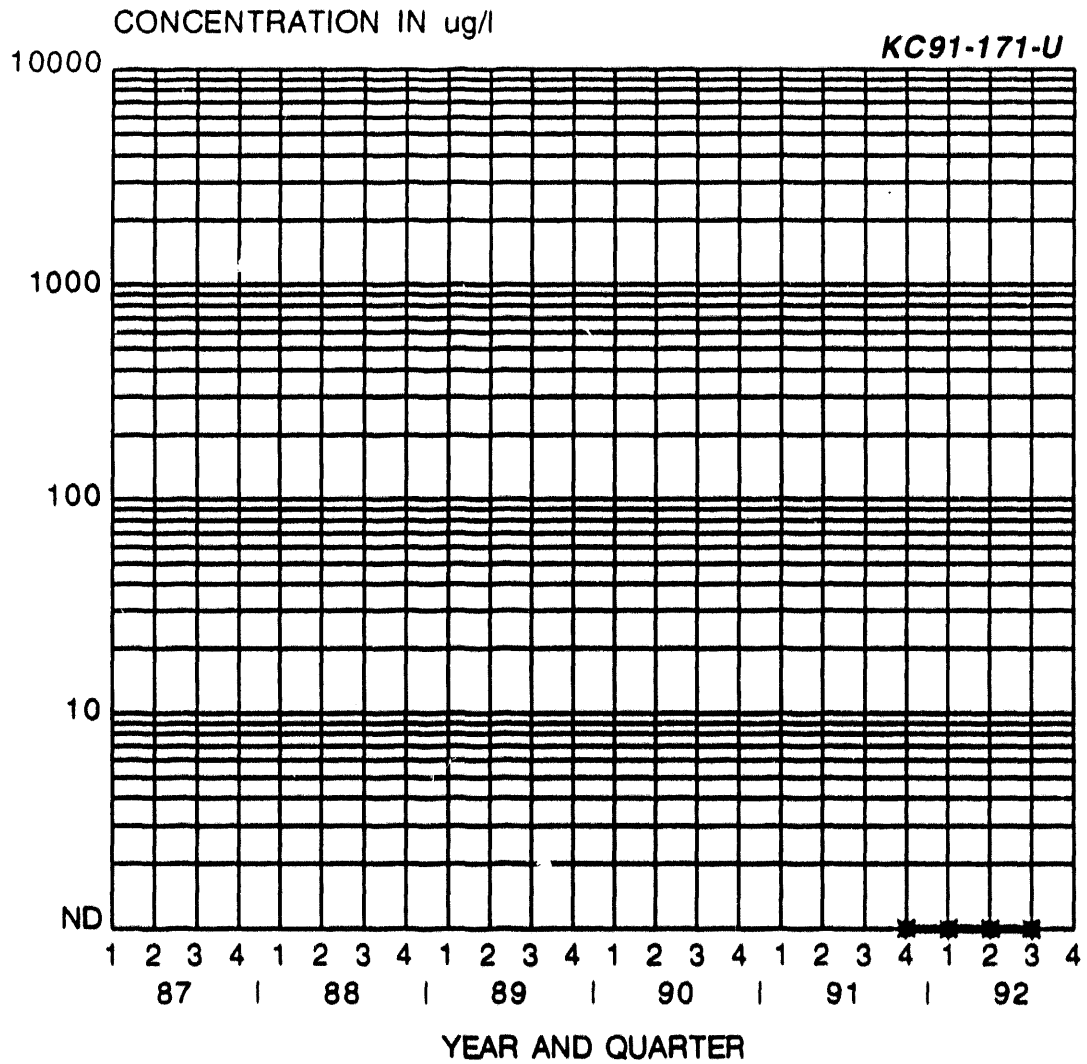
COMPOUNDS

◆ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-168-L

Figure 6.46

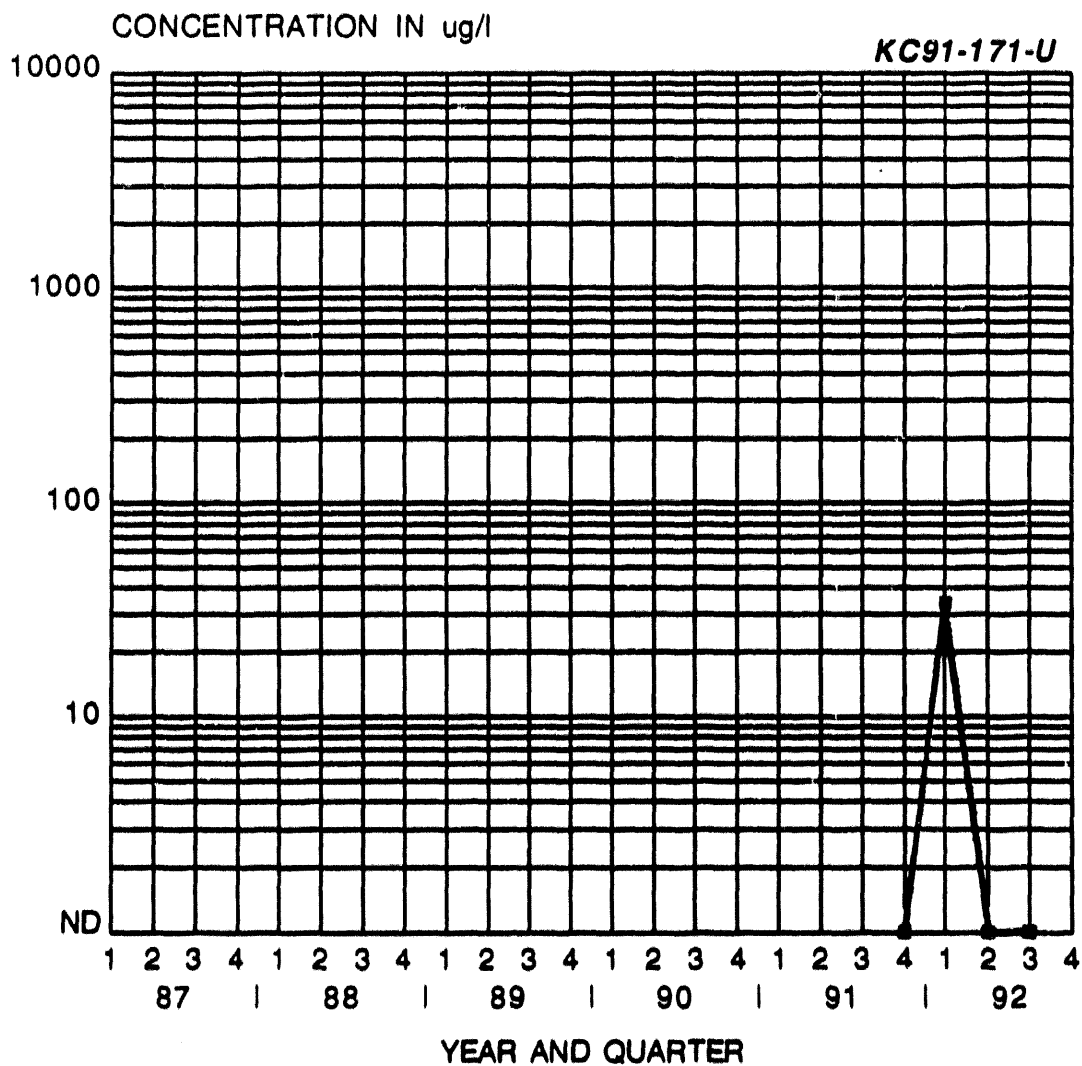


COMPOUNDS

• 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-171-U

Figure 6.47



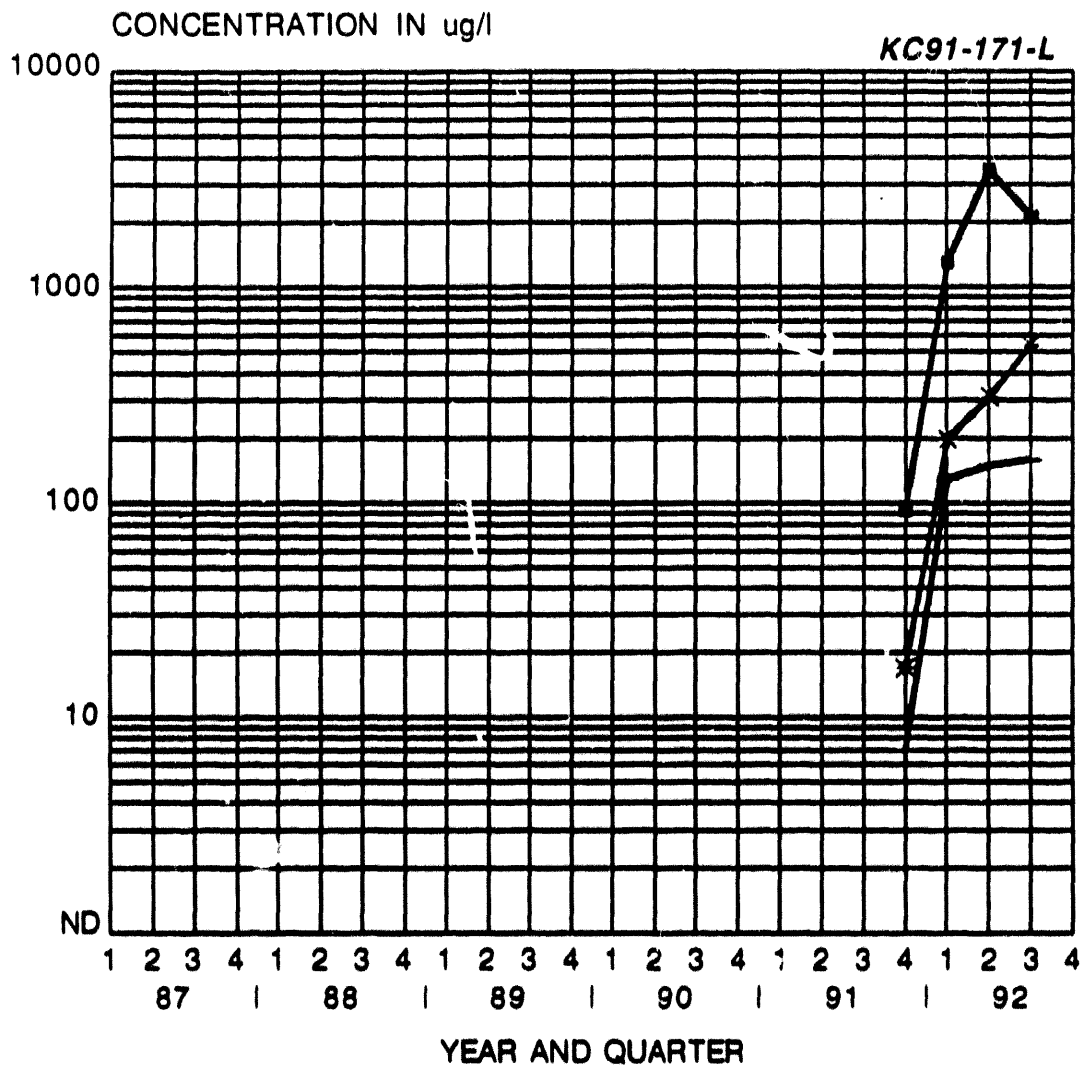
COMPOUNDS

• OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-171-U

Figure 6.48

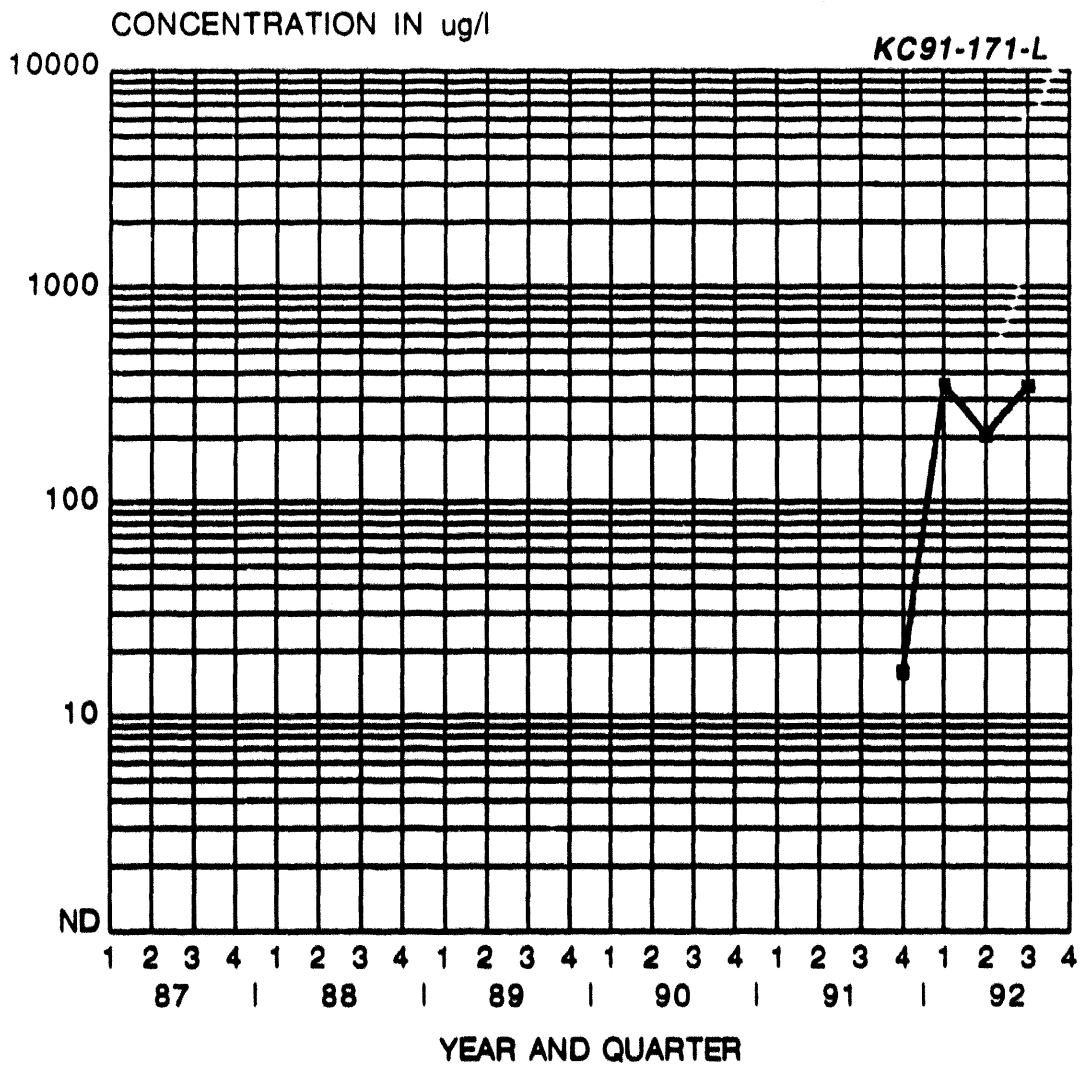


COMPOUNDS

◆ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
 in Groundwater Well #KC91-171-L

Figure 6.49



COMPOUNDS

◆ OTHER ORGANICS

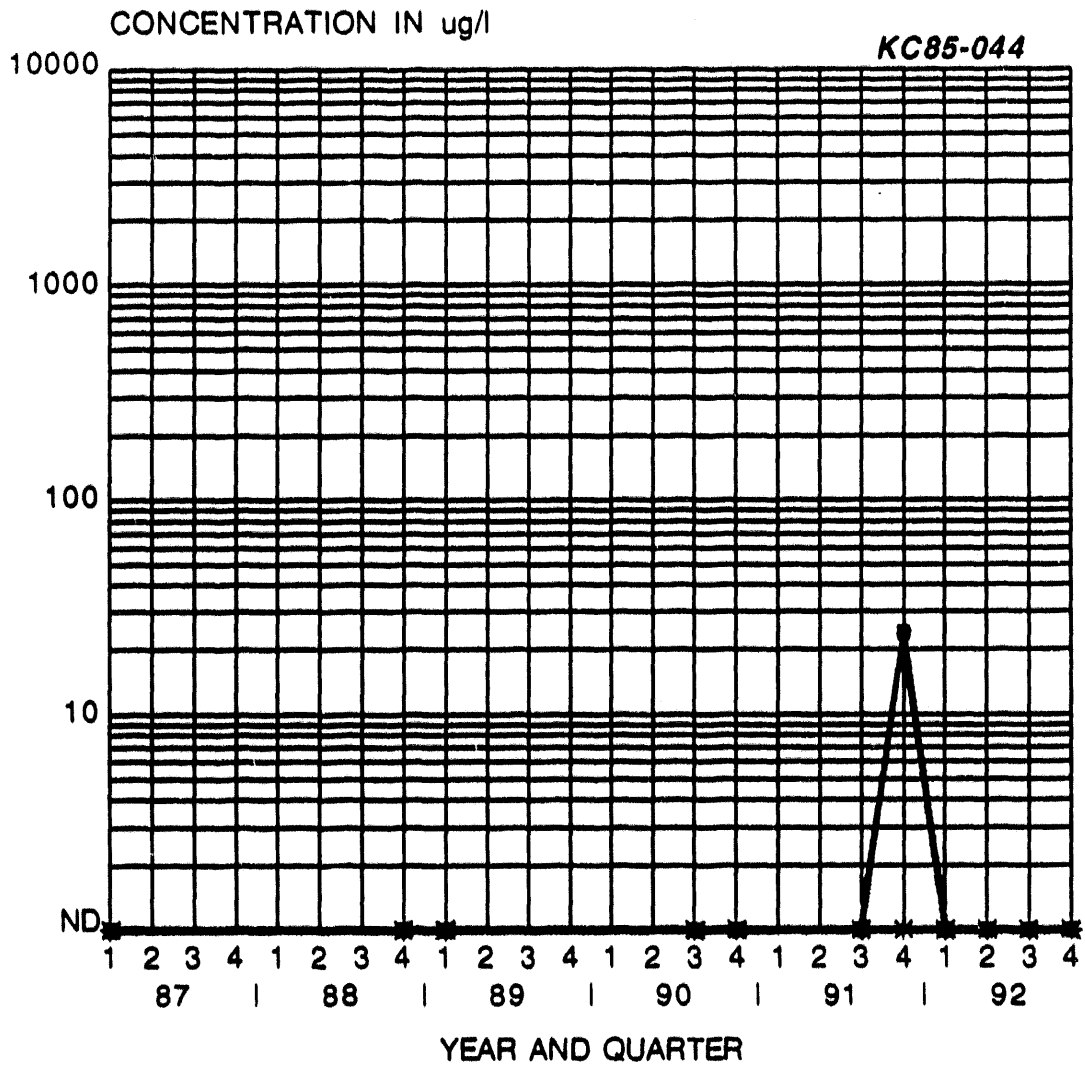
ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-171-L

Figure 6.50

Abandoned Indian Creek Outfall Area-

Wells KC85-44 and KC88-93 were selected as indicators of potential groundwater contamination from this corrective action site which remediates a PCB release site. No groundwater contamination exists here.

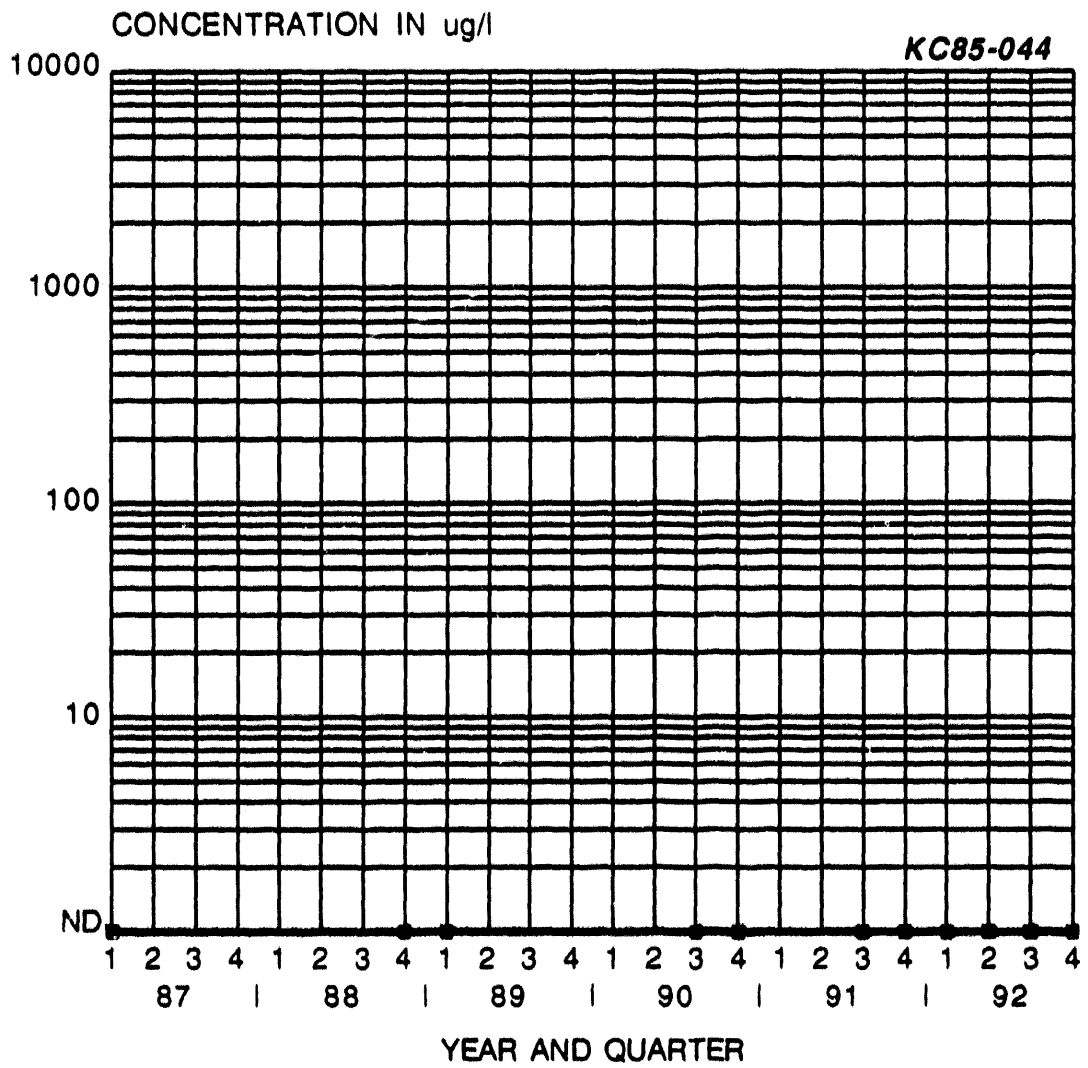


COMPOUNDS

◻ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-044

Figure 6.51



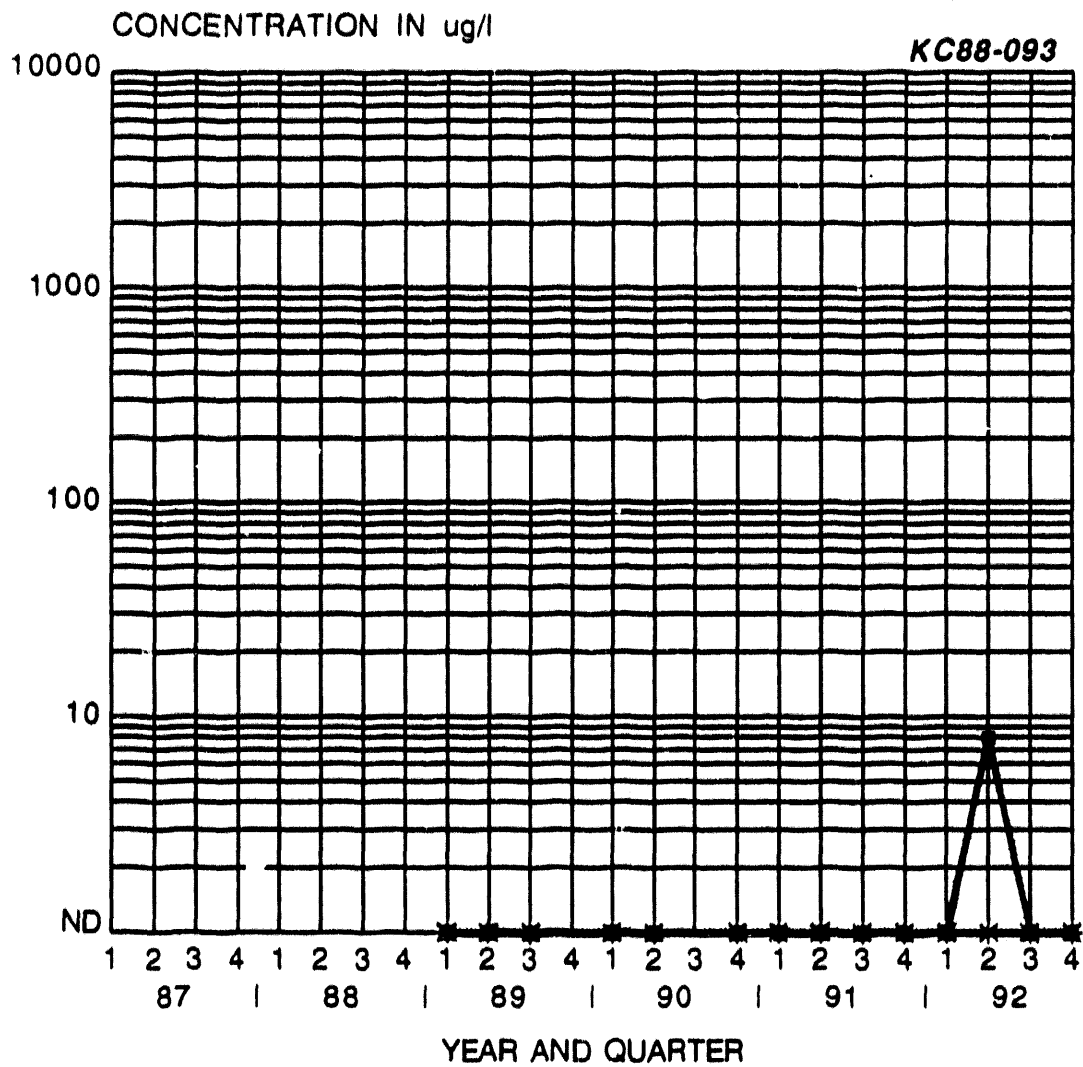
COMPOUNDS

* OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC85-044

Figure 6.52

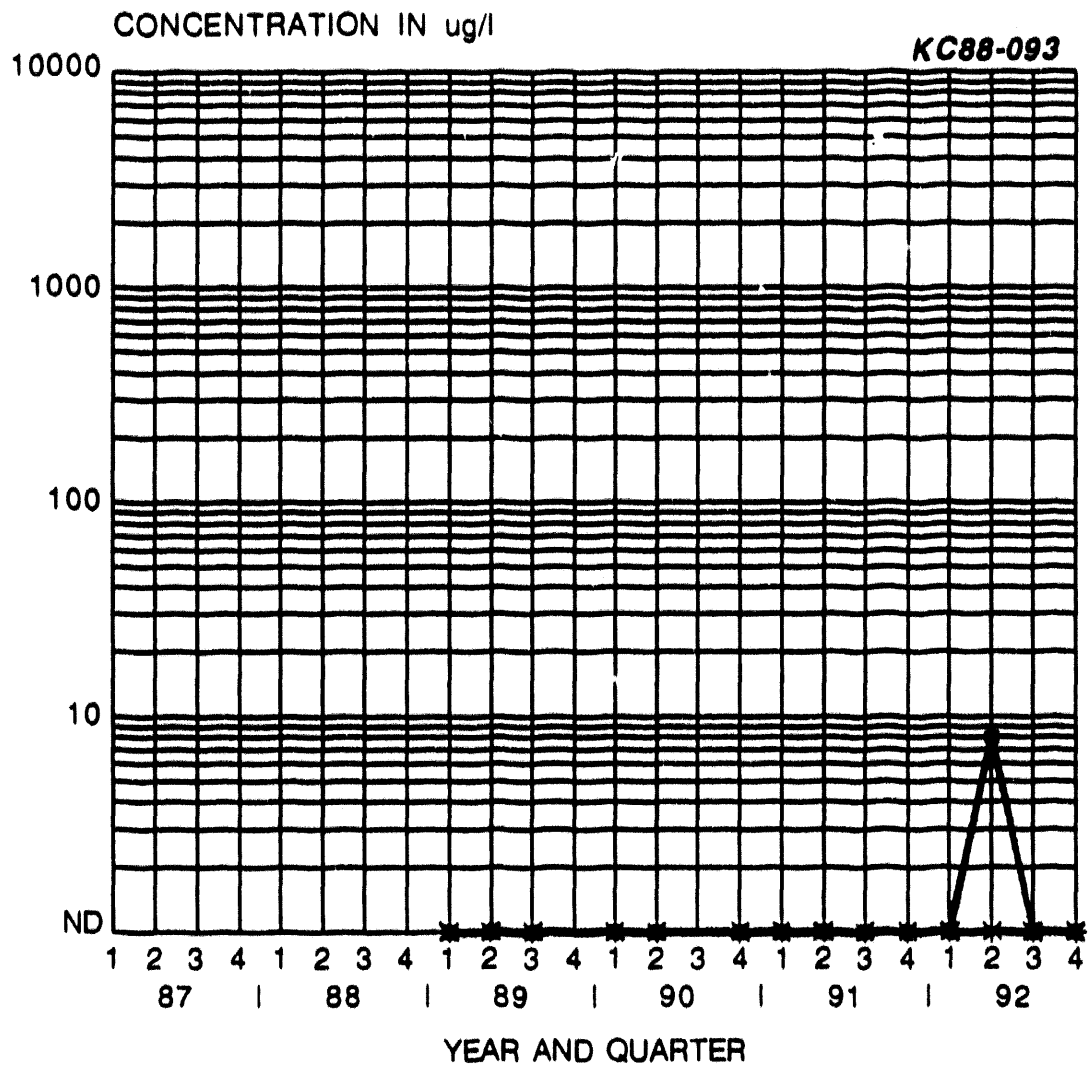


COMPOUNDS

◆ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
 in Groundwater Well #KC88-093

Figure 6.53



COMPOUNDS

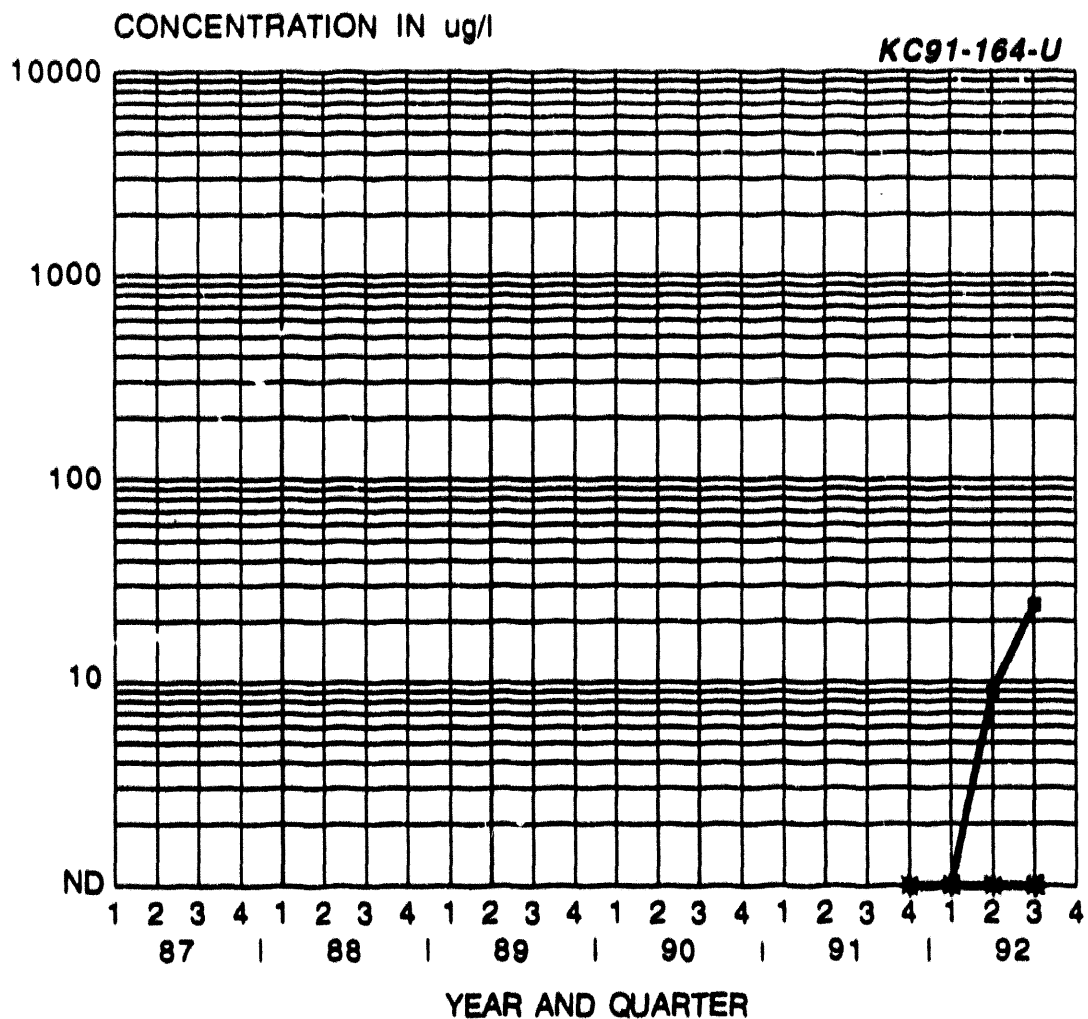
◆ 1,2-DICHLOROETHENE + TRICHLOROETHENE * CHLOROETHENE
 ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
 in Groundwater Well #KC88-093

Figure 6.54

Plating Building Area-

Two wells were installed for this corrective action KC91-164 and KC91-165.



COMPOUNDS

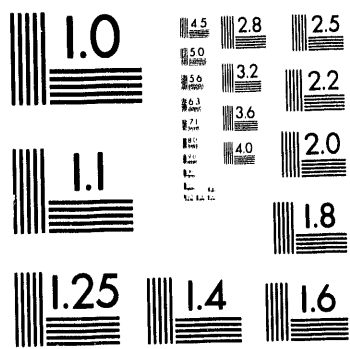
■ 1,2-DICHLOROETHENE + TRICHLOROETHENE

× CHLOROETHENE ● BENZENE

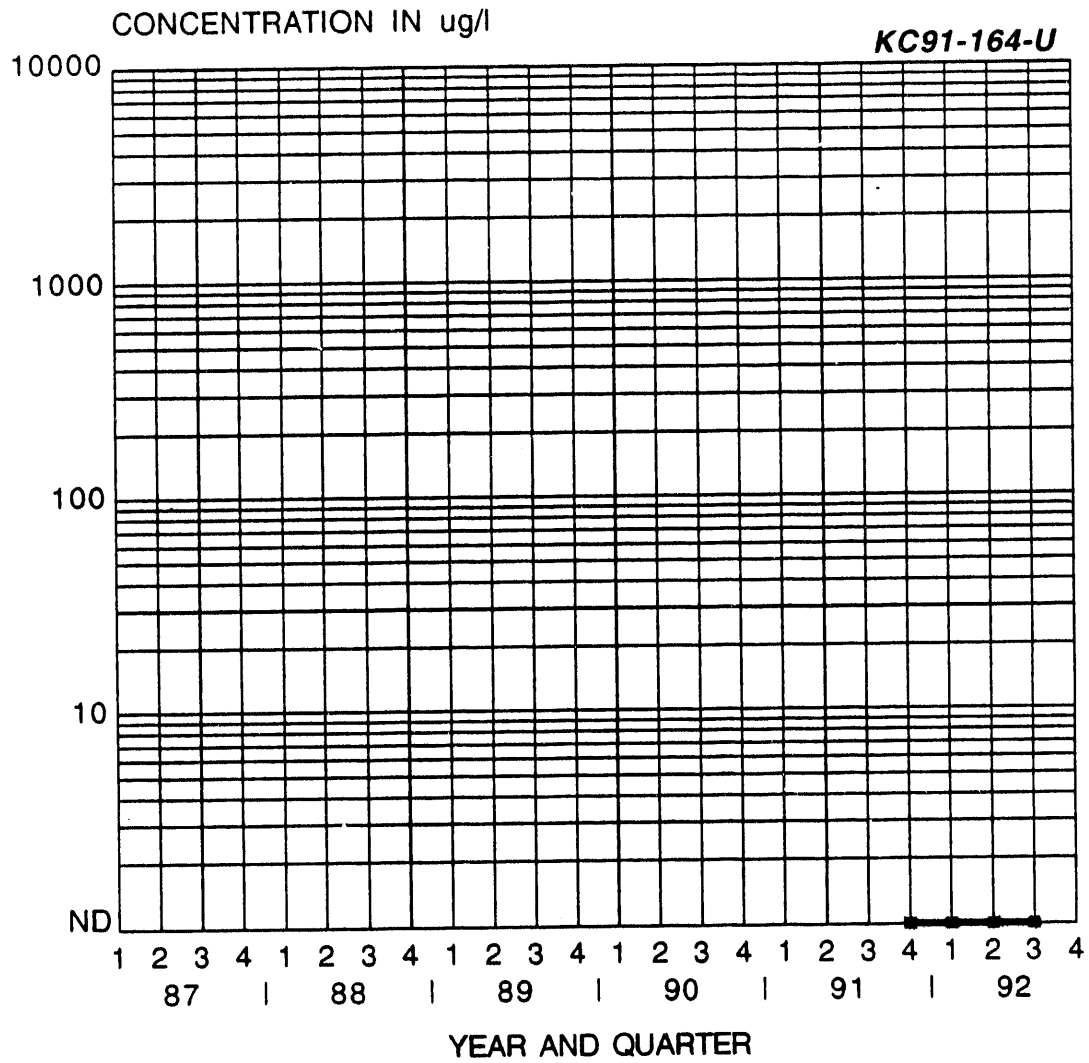
ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-164-U

Figure 6.55



3 of 3



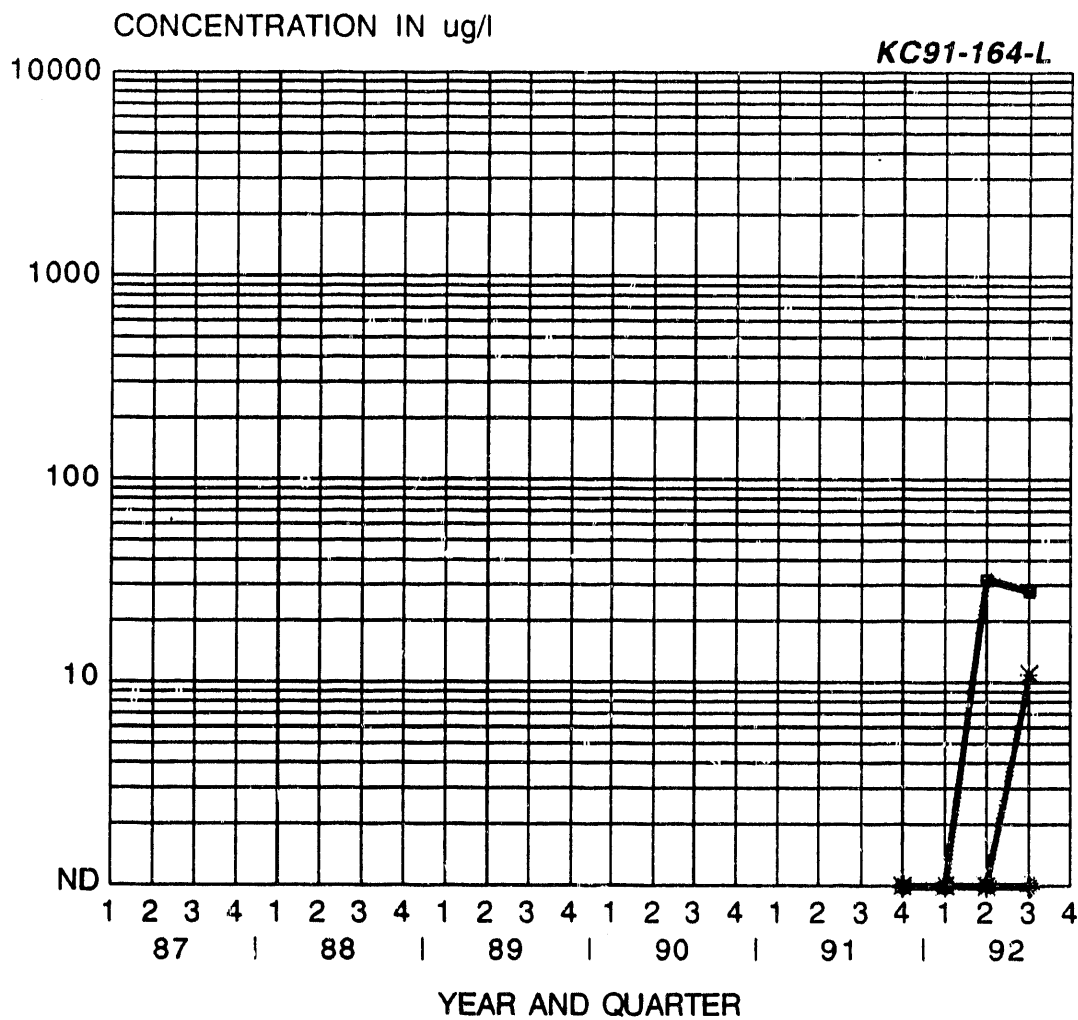
COMPOUNDS

■ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-164-U

Figure 6.56



COMPOUNDS

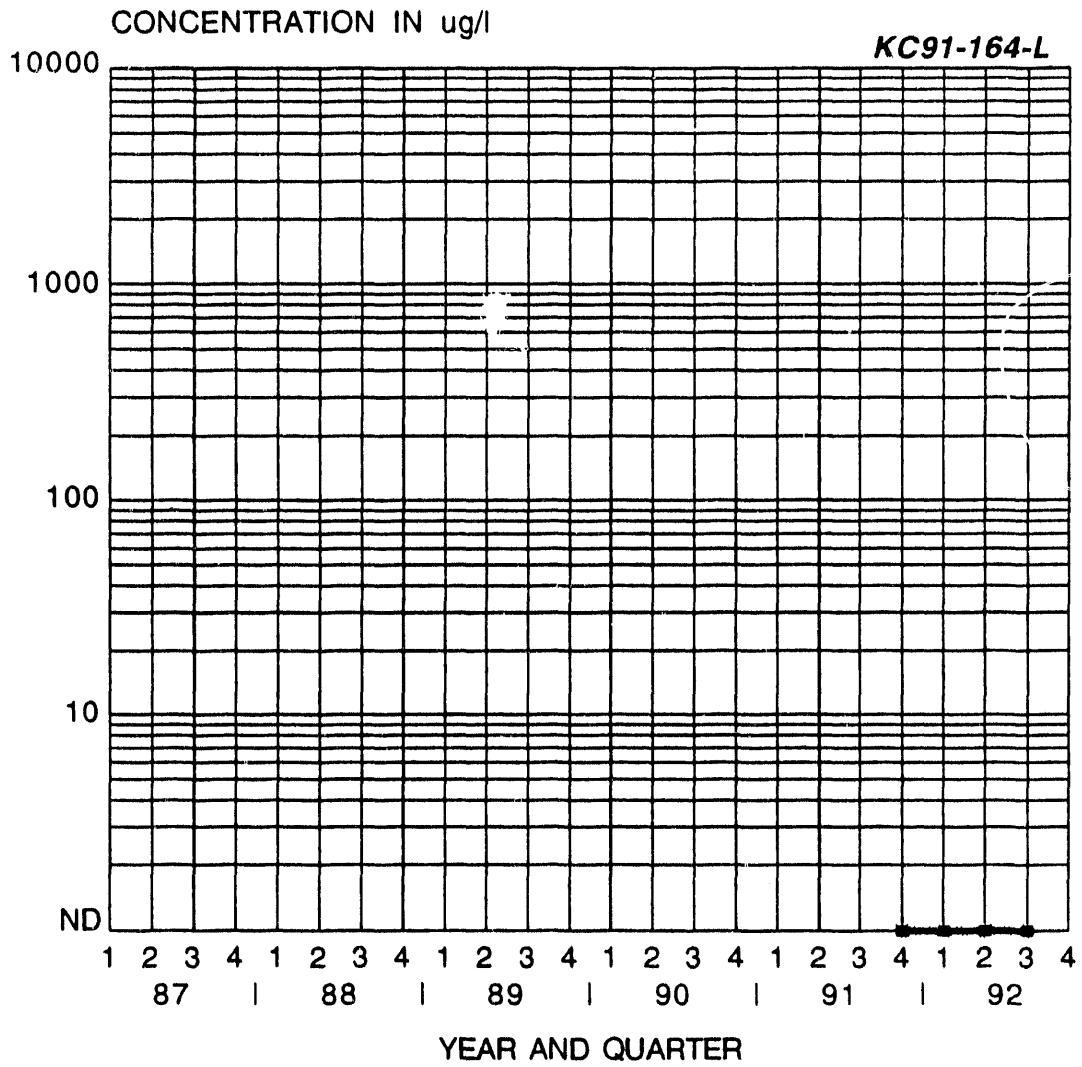
■ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◆ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-164-L

Figure 6.57



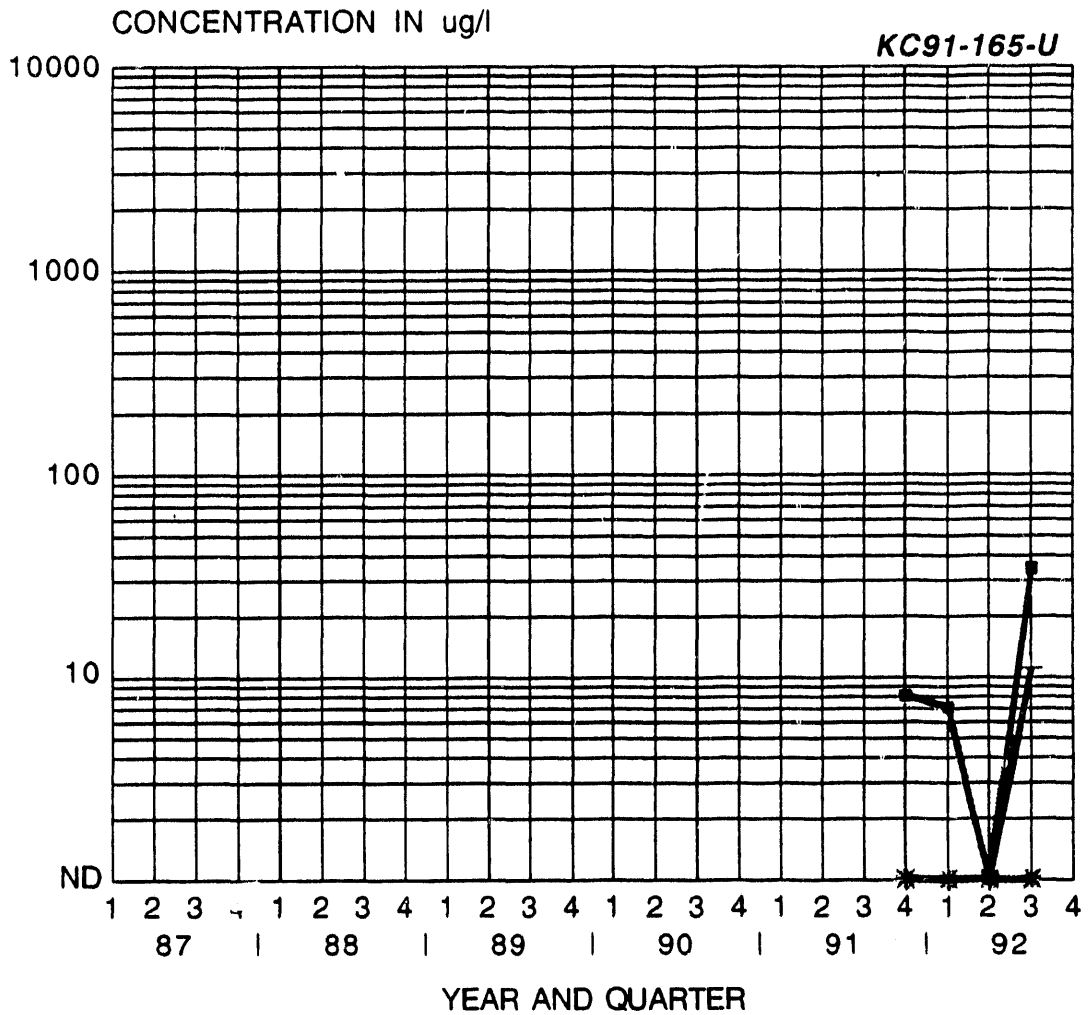
COMPOUNDS

■ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-164-L

Figure 6.58



COMPOUNDS

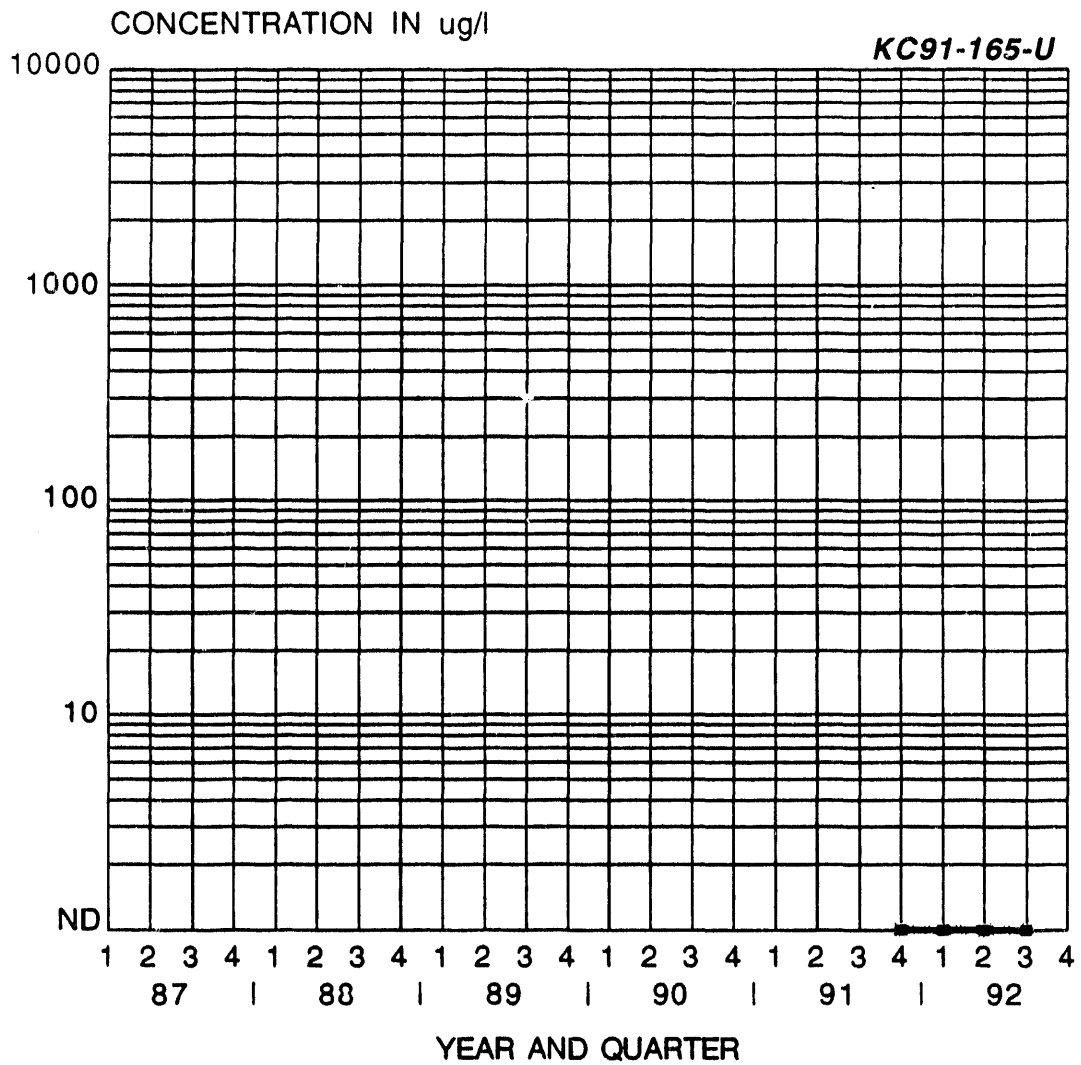
■ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ◆ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-165-U

Figure 6.59



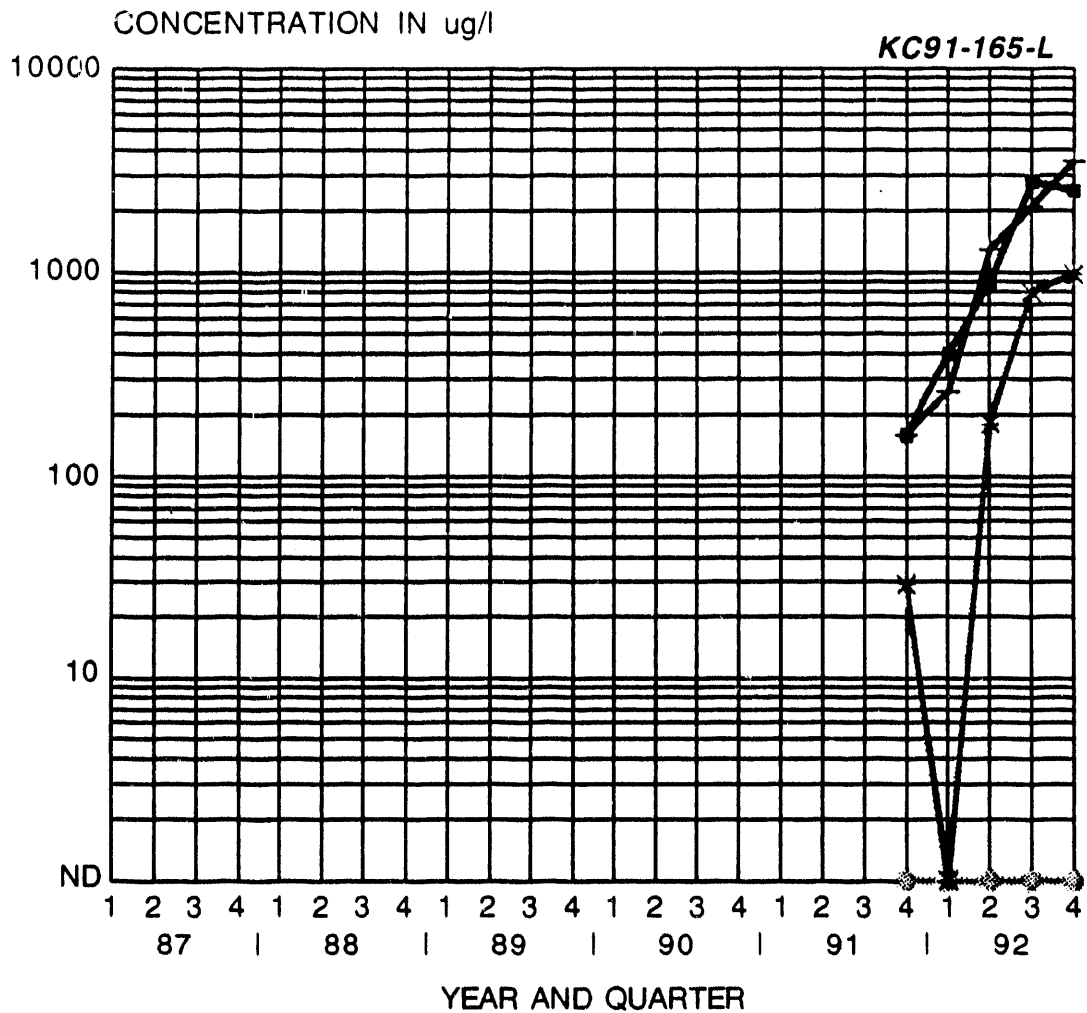
COMPOUNDS

■ OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-165-U

Figure 6.60



COMPOUNDS

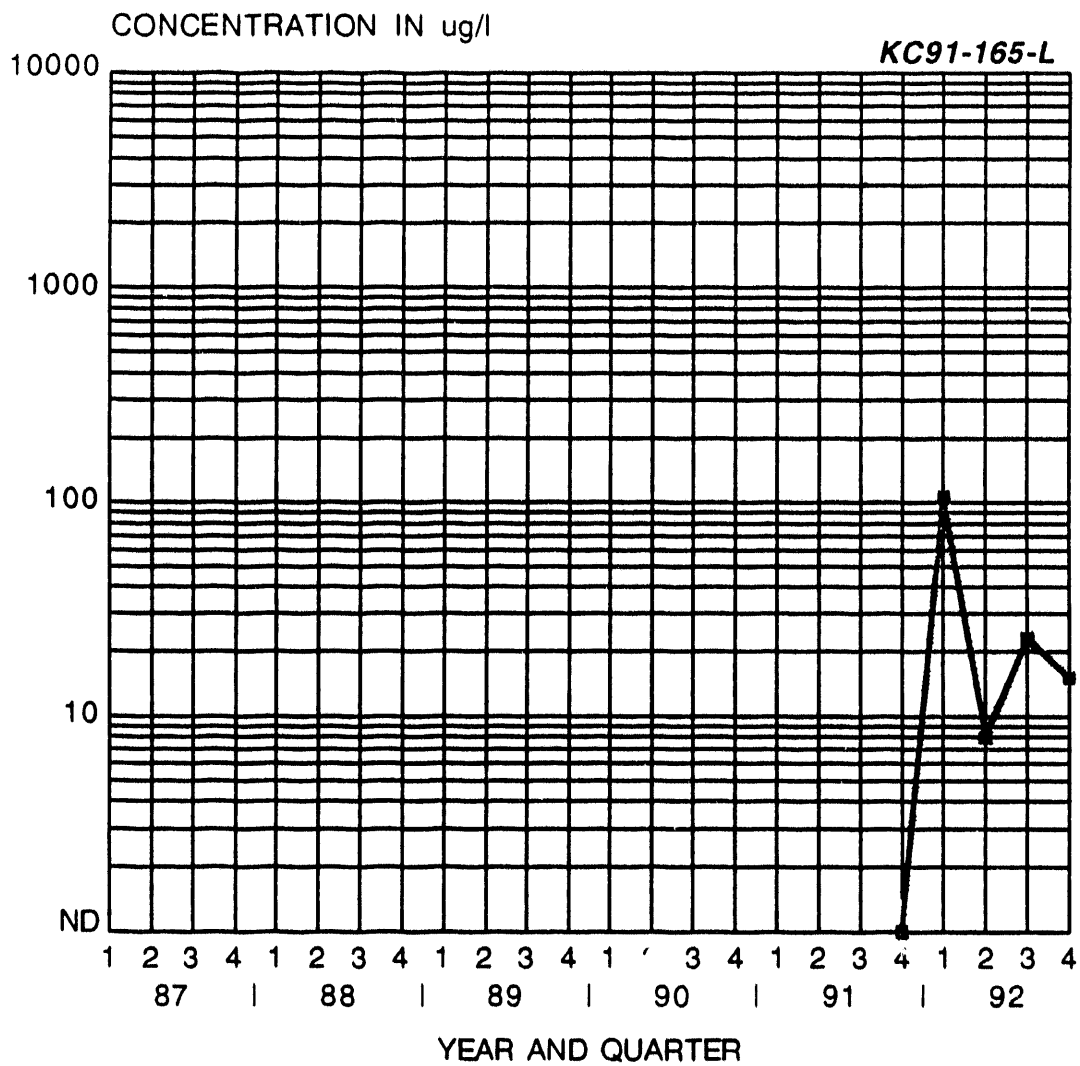
◆ 1,2-DICHLOROETHENE + TRICHLOROETHENE

* CHLOROETHENE ↗ BENZENE

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-165-L

Figure 6.61



COMPOUNDS

● OTHER ORGANICS

ND = NON-DETECT

Trend Graph for Organic Compounds of Interest
in Groundwater Well #KC91-165-L

Figure 6.62

Department 27 Outside Area-

No wells were installed as a part of this investigation.

Department 26 Area-

No wells were installed as a part of this investigation as PCB's were the contaminants of concern. Adjacent wells from other corrective actions are capable of monitoring releases of PCB contamination to the groundwater.

Department 27 Inside Area-

No wells have been installed as a part of this investigation because it has yet to begin.

SECTION 7

QUALITY ASSURANCE

GROUNDWATER AND SURFACE WATER MONITORING

All sampling and analysis for the KCP water monitoring program is performed by an independent laboratory, using procedures from the following documents:

1. U.S. EPA Resource Conservation and Recovery Act Groundwater Monitoring Technical Enforcement Guidance Document.
2. U.S. Department of Energy Procedures for Field Chemical Analysis of Water Samples.
3. U.S. Department of Energy Procedures for the Collection and Preservation of Groundwater and Surface Water Samples and for the Installation of Monitoring Wells.
4. U.S. EPA Test Methods for Evaluating Solid Waste SW846, Volume 2, 1986.
5. Groundwater Quality Assessment Plan Supplement.
U.S. DOE, KCP, July 1, 1990.
6. Quality Assurance Project Plan - Contract No. 072P298541 & 072P298545, December 1990, prepared by Pace Inc.

LABORATORY SELECTION

The laboratory conducting the KCP groundwater and surface water monitoring program is selected from competing laboratories using the following selection criteria:

1. Cost of sampling and analytical services 10%
2. A laboratory audit conducted for KCP by an independent evaluator, where performance of analytical services are reviewed and scored 20%
3. Laboratory accuracy in analyzing performance samples with known concentrations of contaminants. A statistical analysis is performed on results from each lab to evaluate accuracy and consistency 70%

Using this selection criteria, the same laboratory has been awarded the KCP water monitoring contract in 1985, 1986-87, and 1988-89. In July 1990, this laboratory was again awarded the contract after out-performing four other competing laboratories and remained under contract through CY1992. Using this selection criteria, the same laboratory has been awarded the KCP groundwater monitoring contract since July 1990.

SURFACE WATER MONITORING LABORATORY QUALITY ASSURANCE

The KCP requires the laboratory conducting the surface water monitoring program to maintain an internal quality assurance (QA) program which meets or exceeds Environmental Protection Agency guidelines set forth in "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" (QAMS-005/80). The program is required to include the following elements:

1. Collection and analysis of one blind field duplicate sample or field blank for every 10 samples collected.
2. Collection and analysis of one analytical duplicate sample for every 10 samples collected.
3. Analysis of one matrix spike for every 20 samples analyzed.
4. Analysis of one method blank for every 20 samples analyzed.

Data from this program are periodically submitted to the KCP for review. Data were submitted quarterly until October 1990. Beginning in October 1990, data has been submitted monthly.

Laboratory QA/QC data is provided to the KCP for review on a monthly basis. These submittals include at a minimum:

1. A schedule for blind duplicate sample analysis, including sample and duplicate I.D. numbers and locations.
2. Duplicate data sheets for all parameters analyzed for the purchase order.
3. Control charts for parameters specified by the KCP.
4. QC data sheets for parameters specified by the KCP.
5. A description of corrective action performed on "out of control" samples during the reporting period.
6. Other information relating to KCP QA programs as requested.

These monthly QA\QC submittals are reviewed for the KCP by an independent evaluator. Although this review has noted some difficulty assessing QA trends, data is generally within satisfactory control limits. This review has consistently shown that data provided by the laboratory are of adequate quality for the needs of the KCP.

GROUNDWATER MONITORING QUALITY ASSURANCE

The purpose of the data evaluation is twofold. First, the data are evaluated to determine whether quality assurance (QA) requirements are satisfied. Second, the data are interpreted to determine whether they conform to the historical understanding of the site. The evaluation process includes data reduction and reporting. A complete description of data quality objectives (DQOs) and laboratory QA requirements is presented in the Supplement to the Groundwater Quality Assessment Plans (DOE 1990e).

Laboratories supporting the KCP are subjected to an approval process prior to analyzing any samples. This approval status must be maintained throughout the term of their contract. Each laboratory performing analyses must comply with specific quality control (QC) requirements. The QC objectives and requirements conform, in general, with the U.S. Environmental Protection Agency Federal Register, November 29, 1987 (p. 53937 or 40 CFR 792), the Food and Drug Administration Federal Register, December 22, 1978 (p. 59986 or 21 CFR 58), Quality Assurance Program Requirements for Nuclear Facilities, ANSI/ASME NQA-1, 1986 ed. and Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (U.S. Environmental Protection Agency, EPA-LO (4-84-004, QAMS-005/80). Each laboratory is required to submit a laboratory QA plan.

Quarterly QA submittals for groundwater monitoring are reviewed by ORNL personnel. The following are the summary statements contained in the QA evaluation reports submitted quarterly by ORNL:

1st Quarter - "Results for duplicate analyses were acceptable. In the time that Pace has been the primary laboratory for the groundwater monitoring program, there have been some periods in which the QA results could be considered no better than fair. Agreement for this period, on the other hand, is excellent. The excellent agreement between the primary and referee laboratories and that lack of contamination in the blanks leads to the conclusion that the first quarter 1992 data are acceptable for technical review. The only reservation in this conclusion is the unusual and unconfirmed occurrences of chloromethane and carbon disulfide in one sample each. Other occurrences of these analytes, therefore, should be questioned."

2nd Quarter - "Results for duplicate analyses were acceptable. In the time that Pace has been the primary laboratory for the groundwater monitoring program, there have been some periods in which the QA results could be considered no better than fair. Agreement for this period, as with the previous quarter, is excellent. The excellent agreement between the primary and referee laboratories and the lack of contamination in the blanks leads to the conclusion that the second quarter 1992 data are acceptable for technical review."

3rd Quarter - "Agreement for results of duplicate analysis is excellent, as was the case for the previous two quarters. The excellent agreement between the primary and referee laboratories and the lack of contamination in the blanks leads to the conclusion that the third quarter 1992 data are acceptable for technical review."

4th Quarter - "Agreement for results of duplicate analyses are generally excellent. The one case with chloroethene, and the one with 1,2-DCE where agreement was poor indicate that some caution should be exercised when reviewing the data. Overall, however, the results lead to the conclusion that the Fourth Quarter 1992 data are acceptable for technical review."

Quality Control Samples -

The following QC samples are collected during each sampling event.

Equipment Rinsates -

Equipment rinsates are the final analyte-free water rinse from equipment cleaning. These are collected while sampling. The rinsates are analyzed for the same analytes as the samples which are collected that day.

Field Blanks -

Field blanks are the water used in decontamination and steam cleaning. At a minimum, one sample from each event and each source of water is collected and analyzed.

Field Duplicates/Splits -

The water sample duplicates are sent to the primary laboratory responsible for analysis. The laboratory must also prepare and analyze laboratory duplicates or matrix spikes.

Referee Duplicates -

Ten percent of all water samples collected are split and sent to a referee QA laboratory. These duplicates/splits are collected and analyzed in addition to the field duplicates mentioned in the previous paragraph.

Data Evaluation Guidelines -

Listed below are the validation criteria that may be used in evaluating the analytical data. Typically, if results from the QC samples listed above, and from the referee laboratory are acceptable, laboratory surrogate and calibration data are not reviewed.

Volatiles -

Holding Times. Samples must be analyzed within the required holding times or the data is marked as estimated.

GC/MS Tuning. The bromofluorobenzene tune must be completed each 12-h shift of operation. Results must meet the Contract Laboratory Program (CLP) criteria. Each sample must be associated with a tune.

Initial Calibration. The maximum relative standard deviation shall not be >30% for chloroethene (vinyl chloride), 1,1-dichloroethene (1,1-DCE),, chloroform, 1,2-dichloropropane, toluene, and ethylbenzene.

Continuing Calibration. The minimum response factor for chloromethane, 1,1-dichloroethane (1,1-DCA), bromoform, 1,1,2,2-tetrachloroethane and chlorobenzene shall not be >0.300 (0.250 for bromoform). The maximum response factor percent deviation for indicated CLP components from the mean initial calibration response factor shall not exceed 25%. If these criteria are exceeded, a new calibration for the compound shall be employed.

Blank/Spike Control Samples. Any control sample which exceeds the internal QC limits set by the laboratory for a given sample matrix shall require all data from the associated batch of samples to be closely inspected. If no analytical problems are found, the data analyzed with the out-of-control point shall be discussed in the final report. If problems are found in the analytical data, the samples associated with the batch shall be re-analyzed and the data from re-analysis reported. If holding times are exceeded in the re-analysis, both sets of data shall be presented.

If the blank/spike results are outside the internal laboratory limits and if the matrix spike results are outside the CLP limits, the laboratory will either re-analyze the samples within the holding times or the data will be flagged and the data is not usable.

Surrogates. If surrogates exceed the CLP limits, the data shall be flagged that the surrogates exceeded limits.

Method Blanks. A method blank should be run each day following the Continuing Calibration Standard. Common laboratory solvents should not be found in the blank at levels over 5 times the detection limits. Other compounds should not be found in the blank at levels exceeding the detection limits. If contaminant compounds are detected in samples at a concentration of <10 times the concentration found in the blank, report those compounds as not detected. Adjust the sample quantification limit to the value reported in the sample and flag the limit as estimated.

Matrix Spike/Spike Duplicate. Ensure that 1 out of 20 samples has been spiked in duplicate. The recoveries shall meet the CLP criteria. If the recoveries do not meet the criteria, examine the blank spike data. If the blank and matrix spikes data exceed the limits, the data shall be flagged as unusable. If the blank spike data from the batch is satisfactory, the data are usable, and the low recovery is discussed in the final report.

Field, Trip and Equipment Blanks. If contaminant analytes are detected in samples at a concentration of <5 times the concentration found in the highest associated blank, the results are considered suspect and are reported as estimated.

Metals -

Holding Times. Samples must be analyzed within six months, except mercury shall be analyzed in 28 days from sample collection.

AA Calibration. At least one preparation blank must be prepared with each batch of samples. The blanks shall contain less than the detection limit for all analytes. If the concentration of the associated blanks is above the detection limit and if the lowest analyte concentration is <10 times the blank, re-analysis of the sample shall be performed. If re-analysis is not done, the data shall be reported and flagged as estimated. The blank shall never be subtracted from the sample.

Method Blanks. At least one preparation blank must be prepared with each batch of samples. The blanks shall contain less than the detection limit for all analytes. If the concentration of the associated blanks is above the detection limit and if the loweres analyte concentration is

<10 times the blank, re-analysis of the sample shall be performed. If reanalyzes is not done, the data shall be reported and flagged as estimated. The blank shall never be subtracted from the sample.

Field and Equipment Blanks. If contaminant analytes are detected in samples at a concentration of <5 times the concentration found in the highest associated blank, the results are considered suspect and are reported as estimated.

Blank/Spike Laboratory Control Samples. Any laboratory control sample which exceeds the internal QC limits set by the laboratory for a given sample matrix shall require all data from the associated batch of samples to be closely inspected. If no analytical problems are found, the data and out-of-control point shall be discussed in the report. If problems are found in the analytical data, the samples associated with the batch shall be re-analyzed and the data from the re-analysis reported. If holding times are exceeded in the re-analysis, both sets of data shall be presented. A discussion of data reported when the blank/spike laboratory control samples is out-of-control must be presented in the final report.

If the blank/spike results are outside the internal laboratory limits and if the matrix spike results are outside the CLP limits, the laboratory will either re-analyze the samples or the data will be flagged and the data is not useable.

Referee Laboratory -

Since 1986, specific data evaluation procedures for the Kansas City site are also based on a comparison of results with a second laboratory. Ten percent of all monitoring well samples for organic analysis are sent to the referee laboratory. The results between the two laboratories are compared to determine whether the results are acceptable. The goal is for the referee and the primary laboratory results to agree within 15%. However, for highly contaminated samples, or samples with traces of contamination, agreement may be significantly worse. Professional judgement is then exercised to determine whether the apparent lack of agreement is cause to question the sample results. This decision process is presented in the quarterly data review. The quarterly reviews for 1992, did not identify significant deviations between the two laboratories.

The referee laboratory is used to verify contamination or abrupt changes in concentration. For example, if a contaminant appears in a formerly clean well, samples are sent to both laboratories the following quarter. If both laboratories agree, then the contamination is considered to be confirmed.

SURFACE WATER AND GROUNDWATER QUALITY CHECKS

Performance and Split Samples

In addition to the internal laboratory QA program, the KCP conducts additional QA checks of the laboratory approximately quarterly. These checks include submission of performance samples containing known concentrations of contaminants and submission of "split" samples to the primary laboratory and to a different independent laboratory. These checks are sometimes known to the laboratory and sometimes conducted without the primary laboratory's knowledge.

In all cases during 1992, the laboratory's analysis of these performance samples and split samples were acceptable to the KCP.

Laboratory Audits

The laboratory facilities, analytical methods, and sampling methods are audited by the KCP or its independent contractor on a periodic basis to ensure compliance with contract requirements and approved sampling methodology. Four field audits were conducted during 1992. The most significant deficiency noted during these audits was an occasional failure to record the calibration of pH and temperature probes. This and other minor deficiencies have been corrected.

The laboratory is audited twice each year by an independent evaluator. The audits conducted in 1992 noted some difficulty in assessing QA trends, and incomplete training records had not been updated. However, both audits indicated that the laboratory is capable of providing quality analytical data to the KCP.

AIR MONITORING

All three KCP ambient air monitoring stations are operated internally using KCP instrumentation. The stations are operated in accordance with 40 CFR 53, Ambient Air Monitoring Reference and Equivalent Methods.

The KCP requires an instrument technician to visit the stations and perform duties at least once per week. Additionally, the instrument technician is required to conduct a flow check on all particulate samplers once per month.

A multipoint calibration on all instruments is required each quarter. The procedures are documented in the air station QA SOP manual. In addition, contracted personnel audit operations per 40 CFR 53 quarterly.

SECTION 8

COMPLIANCE SUMMARY JANUARY 1 THROUGH APRIL 1, 1993

It is the policy of the Kansas City Plant to conduct its operations so as to comply with all applicable environmental laws and regulations. Table 8.1 is a summary of existing or pending state and/or federal permits. The following is a review of environmental compliance activities for the period January 1 through April 1, 1993.

Table 8.1
Permits

Relevant Program and/or Law	Permit #	Regulating Agency	Expiration Date
City Air Operating Permit	AQ-11	KCMO	7/31/93
CWA-NPDES Permit	MO-0004863	MDNR	4/14/92 Renewal - application filed - new permit pending
RCRA-Part B Storage	Interim Status	MDNR	Not issued yet
City Sewer Discharge Permit	Permit No. 74	KCMO	None
RCRA-Part B Land Disposal Post Closure Permit	Pending Issuance	MDNR	
Groundwater Treatment Discharge	None	KCMO	12/31/88 - Renewal - application filed - new permit pending
D/99 South Spray Paint Booth Air Construction and Operating	535	KCMO	None
D/187 Heat Cleaning Oven Construction and Operating	557	KCMO	None

MDNR = Missouri Department of Natural Resources
KCMO = Kansas City, Missouri

COMPLIANCE STATUS

CLEAN AIR ACT (CAA)

In CY1993 to date, the KCP received radionuclide monitoring results. The results of this monitoring indicated that no radionuclides are present in quantities exceeding background levels.

The state of Missouri and the city of Kansas City, Missouri, conducted an unscheduled air compliance inspection of the KCP on March 24, 1993. The inspection did not yield any citations, however several items concerned the inspectors. Visible emissions were noted from a machinery vent over the entire roof and the opacity monitor in the Boilerhouse was malfunctioning. All of the items were quickly corrected.

CLEAN WATER ACT (CWA)

In CY1993 to date, the KCP has maintained compliance with National Pollutant Discharge Elimination System (NPDES) permit limits for discharging to receiving streams, with the exception of two excursions. The first excursion occurred in February 1993, when concrete slurry contaminated with PCBs drained into a storm sewer. The second excursion occurred when the February 1993 monthly average PCB concentration in Outfall 002 exceeded the NPDES permit limitation.

In February 1993, an unpermitted discharge caused a sheen on Boones Creek, when a subcontractor accidentally spilled one-half gallon of gasoline. Such a sheen, no matter how small, represents a violation of 40 CFR 110.6. Although the spill was slight and the sheen was small, it was reported to the National Response Center as required by 40 CFR 110.10. Appropriate actions were taken to clean up the source and eliminate the sheen, and instructions were provided to the subcontractor to prevent this type of incident from recurring. The sheen did not enter the Blue River, and no environmental impact resulted from this incident.

In addition, the NPDES permit notification level for zinc, 0.100 µg/l, was exceeded in samples collected in January 1992. Initial results indicate that notification levels also were exceeded for hexavalent chromium in a sample collected in February 1992, and zinc in samples collected in March 1992. Notifications for the February and March 1992 samples are pending confirmation of the accuracy of the initial results. It is important to note that the exceedence of a notification level is not considered to be a permit violation by the regulatory authority.

During the same period, January 1 through April 1, 1993, the KCP has maintained compliance with city ordinances and Metal Finishing Pretreatment Limits, in discharges to the Kansas City, Missouri, Publicly Owned Treatment Works (POTW).

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

In CY1993 to date, the KCP maintained compliance with SARA via completing the required inventory reports (see Table 8.2).

TOXIC SUBSTANCES CONTROL ACT (TSCA)

In CY1993 to date, the KCP maintained compliance with TSCA disposal requirements.

SAFE DRINKING WATER ACT (SDWA)

The KCP does not operate a public water system and is therefore not covered by the Safe Drinking Water Act implementing regulations contained in 40 CFR Part 141. The drinking water system at the KCP meets all conditions for exclusion listed in 40 CFR 141.3.

ENDANGERED SPECIES ACT (ESA)

Not applicable to the KCP.

NATURAL HISTORIC PRESERVATION ACT (NHPA)

Not applicable to the KCP.

EXECUTIVE ORDER (E.O.) 11988 - FLOOD PLAIN MANAGEMENT

In CY1993 to date, the KCP maintained compliance with E.O. 11988.

EXECUTIVE ORDER (E.O.) 11990 - PROTECTION OF WETLANDS

In CY1993 to date, the KCP maintained compliance with E.O. 11990.

Table 8.2

Summary Table of Chemicals Reported Under SARA Section 312 for CY1992

<u>Chemical</u>	<u>Quantity Reported for CY1991</u>	<u>Quantity Reported for CY1992</u>	<u>Change over CY19901</u>
Ammonia*	2,200 lbs.	1,500 lbs.	32% Decrease
Argon	53,000 lbs.	37,000 lbs.	30% Decrease
Carbon Dioxide	48,000 lbs.	59,000 lbs.	23% Increase
Chlorine*	450 lbs.	250 lbs.	44% Decrease
Chloroform*	810 lbs.	580 lbs.	28% Decrease
Cyclohexylamine*	4,000 lbs.	4,500 lbs.	12% Increase
No. 2 Diesel	3.5 M lbs.	3.4 M lbs.	3% Decrease

Table 8.2 (continued)

<u>Chemical</u>	<u>Quantity Reported for CY1991</u>	<u>Quantity Reported for CY1992</u>	<u>Change over CY1991</u>
Formaldehyde	1,400 lbs.	860 lbs.	39% Decrease
Hydrochloric Acid	38,000 lbs.	14,000 lbs.	63% Decrease
Hydrofluoric Acid*	390 lbs.	650 lbs.	74% Increase
Hydrogen Peroxide	28,000 lbs.	49,000 lbs.	75% Increase
Isopropyl Alcohol	21,000 lbs.	12,000 lbs.	43% Decrease
Methylene Chloride	57,000 lbs.	38,000 lbs.	33% Decrease
Nitric Acid*	14,000 lbs.	19,000 lbs.	36% Increase
Nitrogen	390,000 lbs.	390,000 lbs.	0% Increase
Phenol**	460 lbs.	820 lbs.	78% Increase
Phosphoric Acid	16,000 lbs.	13,000 lbs.	19% Increase
Potassium Cyanide*	940 lbs.	1,100 lbs.	17% Increase
Sodium Cyanide*	800 lbs.	700 lbs.	12% Decrease
Sodium Hydroxide	14,000 lbs.	32,000 lbs.	129% Increase

Table 8.2 (continued)

<u>Chemical</u>	<u>Quantity Reported for CY1991</u>	<u>Quantity Reported for CY1992</u>	<u>Change over CY1991</u>
Sulfuric Acid*	51,000 lbs.	49,000 lbs.	4% Decrease
Toluene	23,000 lbs.	24,000 lbs.	4% Increase
Toluene Diisocyanate*	5,600 lbs.	3,600 lbs.	36% Decrease
Trichloroethane	53,000 lbs.	24,000 lbs.	55% Decrease
Trichloroethylene	86,000 lbs.	56,000 lbs.	35% Decrease
Freon 113 (Trichloro- trifluoroethane)	46,000 lbs.	35,000 lbs.	24% Decrease

* Extremely Hazardous Substance

** Not Reported in CY1991.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

In CY1993 to date, all deliverables have been submitted as required by the order.

POLLUTION PREVENTION ACT (PPA)

In CY1993 to date, no non-compliance issues have been identified.

GROUNDWATER TREATMENT

In CY1993 to date, no non-compliance issues have been identified.

ENVIRONMENTAL RESTORATION

In CY1993 to date, no non-compliance issues were identified.

CURRENT ISSUES AND ACTIONS

In March 1993, a "Final Action Plan to the Technical Safety Appraisal of the KCP, KCMO" was generated and distributed. This document represents improvement actions based on analysis and conditions existing at the facility as of March 1993.

Tiger Team Issues

The Tiger Team Environment, Safety and Health Assessment of the Kansas City Plant (KCP) was completed on December 7, 1989.

Environmental Protection is responsible for 50 of the 151 Tiger Team findings (TTFs) requiring corrective action. In CY1993 to date, of the 50 environmental findings. The KCP has received "closure certificates" for 33 TTF, 2 have been "submitted for closure", 8 of the findings DOE is responsible for closing, and the remaining 7 are outstanding.

CLEAN AIR ACT (CAA)

The annual emissions inventory questionnaire (EIQ) required by the city has been substantially revised to conform to State of Missouri Standards. The new EIQ is process based, rather than inventory based as in the past.

CLEAN WATER ACT (CWA)

KCP water effluents which flow directly to receiving streams are regulated by National Pollutant Discharge Elimination System (NPDES) permit #MO-0004863, issued by the Missouri Department of Natural Resources (MDNR). Effluents discharged from the plant into the Kansas City, Missouri, Publicly Owned Treatment Works (POTW) are regulated by Kansas City, Missouri, Discharge Permit #74, and city ordinances administered by the Kansas City, Missouri, Water and Pollution Control Department (KCMO), and by U.S. EPA Pretreatment Standards for the Metal-Finishing Category (40 CFR 433.17).

NPDES Issues

During the period January 1 to April 1, 1993, the KCP maintained compliance with NPDES permit limitations, with the exception of two permit excursions. The first excursion occurred in February 1993, when a subcontractor, cutting concrete to facilitate removal and disposal of contaminated debris, allowed cutting water from the saw to run into the storm sewer system. Sample results subsequently showed trace levels of PCBs in the concrete slurry. Discharge of this PCB-contaminated concrete slurry violated the NPDES permit authorization to discharge only stormwater and uncontaminated cooling water.

The second permit excursion occurred when the February 1993 monthly average PCB concentration in Outfall 002 exceeded the NPDES permit limitation $1\mu\text{g/L}$ of PCB. Historically, the discharge of PCB compounds through this storm sewer outfall has been a major compliance issue for the KCP. PCB concentrations in this outfall persisted near the NPDES permit limitation since December 1992. The February 1993 excursion appeared to be a continuation of the PCB excursion of December 1992.

An investigation was initiated in December 1992 to identify the source(s) of PCB contamination in Outfall 002 that caused the December 1992 and February 1993 excursions. This investigation indicated the PCB source originated in the area of a former stormwater outfall, the Abandoned Indian Creek Outfall (AICO), where surface and subsurface PCB contamination is known to be present. Initial corrective actions included repairing a leaking culvert joint and plugging the AICO drop inlet in the Outfall #002 stormwater system. After initial corrective actions were implemented the average monthly PCB concentration in Outfall #002 for March 1993 decreased to 0.7 ppb (see Figure 8.1). The permanent correction, remediation of the AICO site, will be conducted in accordance with the Kansas City Plant's RCRA 3008(h) Corrective Action Administrative Order on Consent. Remediation activities for this site are targeted for completion by January 1994.

In addition, the notification level for zinc, $0.100\mu\text{g/L}$, was exceeded in samples collected in January 1992. Initial results indicate that notification levels also were exceeded for hexavalent chromium in a sample collected in February 1992, and zinc in samples collected in March 1992. Notifications for the

February and March 1992 samples are pending confirmation of the accuracy of the initial results. An investigation initiated in 1990 to identify sources of zinc contamination in stormwater outfalls was completed in 1991. The investigation reported that zinc contamination in KCP stormwater outfalls comes primarily from galvanized equipment and fencing on the roof and grounds of the facility. It is important to note that the exceedence of a notification level is not considered to be a permit violation by the regulatory authority.

Samples of sediment collected in the Outfall #002 raceway on March 15, 1993, indicated that PCBs are present at concentrations ranging from below detection to 26.0 ppm. These PCBs exhibit a profile of both Arocolor 1242 and Arocolor 1260. Since PCBs found at the AICO site are not attributed to Arocolor 1260, contamination in the raceway does not appear to have been affected, as the March 1993 monthly average PCB concentration at Outfall #002 was 0.7 µg/L. Plans are being developed to clean out the Outfall #002 raceway.

As a result of self-assessment initiatives, in February 1993, it was emphasized that stormwater outfall flow measurement at the KCP required immediate improvement. In accordance with the NPDES permit, the KCP is required to measure flow at each of the plant's four stormwater outfalls on a continuous 24-hour basis. However, because of various flow metering problems, a complete set of accurate flow data has not been available since at least July 1989. Currently, a corrective action plan is being implemented with the intention of establishing accurate and reliable storm sewer flow metering in CY1993.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

No major compliance issues to date.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA requires that no TSCA-regulated PCB wastes be stored over 30 days in a 100-year flood plain area whether or not the area is protected from such a flood. Actions continued in CY1991 to ensure TSCA-required PCB wastes are sent to an offsite TSCA disposal facility prior to being stored at the KCP for 30 days. However, the KCP does store new PCB materials for transformers within the 100-year flood plain. Although within the flood plain, they are stored above the 100-year flood plain elevation. It is the KCP's position that offsite movement of this stored material would pose a greater threat to the environment than onsite storage.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

In April 1993, the Part A application was again revised and resubmitted at the request of MDNR in response to their receipt of mixed waste authorization on March 12, 1993.

FEDERAL FACILITIES COMPLIANCE ACT (FFCA)

The 180-Day Mixed Waste Inventory report was in-turn reviewed by the KCP and finalized in March 1993. In addition, the KCP met with the Missouri Department of Natural Resources on March 5, 1993, to initiate discussion and resolution of associated FFCA and mixed waste issues. This meeting also addressed implications of MDNR's receipt of mixed waste authorization under RCRA, which became effective on March 12, 1993.

POLLUTION PREVENTION ACT (PPA)

In CY1993 to date, the KCP continued to develop elements of the pollution prevention policy and plan. Several actions to continue implementation of these pollution prevention/waste minimization practices have resulted in notable achievements as discussed in the Environmental Non-Radiological Program information section.

KCD associates attended and presented papers at two major DOE conferences in April 1993. These were the DOE-DP Pollution Prevention and Integrated Technologies conference in Santa Fe and the DOE-EM Pollution Prevention/Waste Minimization Conference in San Francisco. Several papers on subjects from total quality to process waste assessments to environmentally conscious manufacturing to recycling were presented.

Non-Radiological Information

GROUNDWATER TREATMENT

No compliance issues are foreseen.

ENVIRONMENTAL RESTORATION (RCRA)

No compliance issues to date.

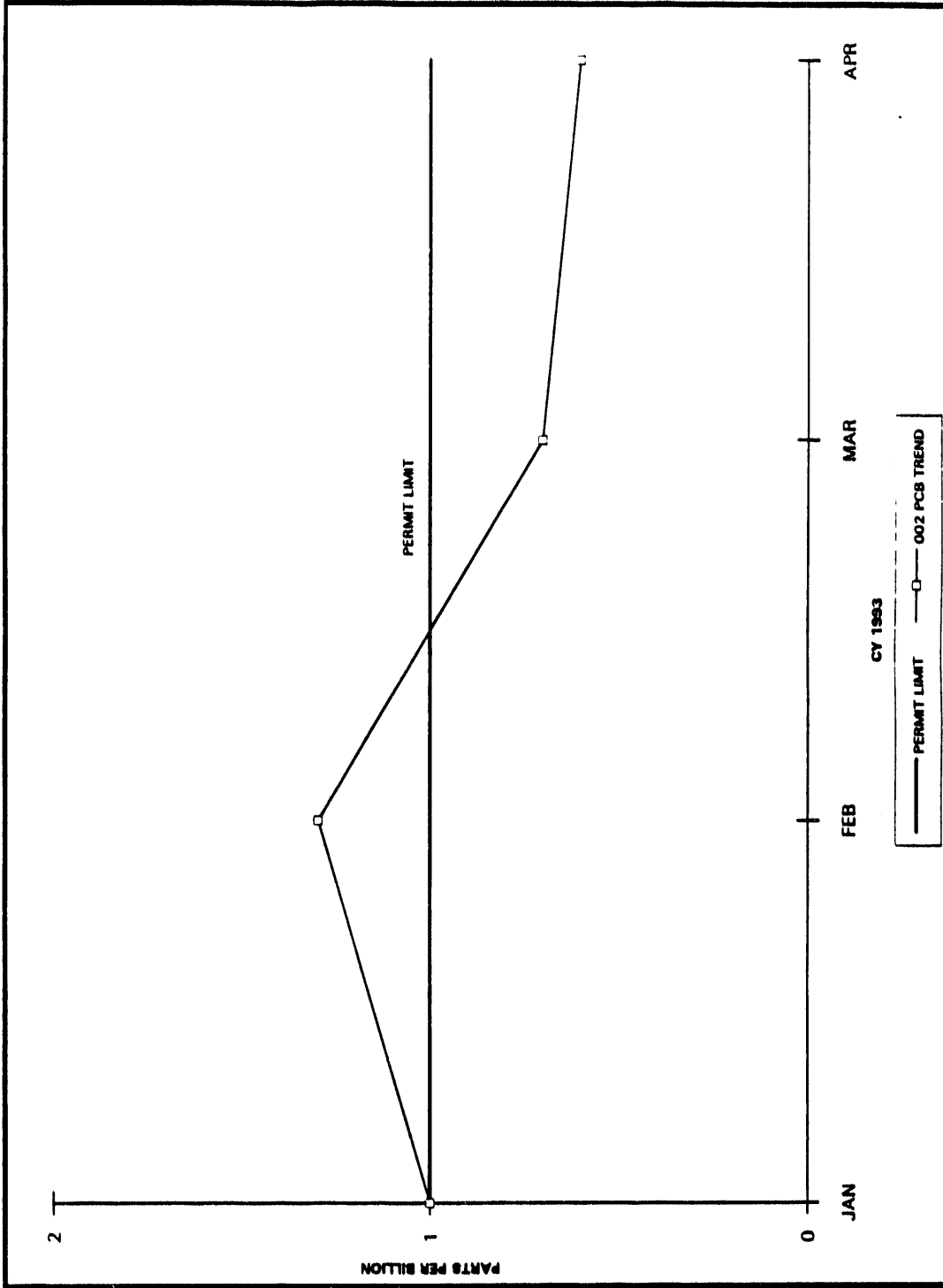
NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

In CY1993 to date, information has been provided to DOE on eight specific projects for the purpose of obtaining NEPA documentation. The initial draft of an environmental assessment for the KCP Environmental Restoration Program was completed in 1992. The EA addresses current and planned environmental restoration activities. Initial DOE review comments are currently under evaluation for incorporation into the draft document.

A certificate of completion for A Tiger Team Finding was issued by the DOE. This finding dealt with procedural compliance with the floodplain/wetlands assessment requirements. Supplemental information, including a KCP NEPA Compliance Program document, was submitted for a second finding which dealt with noncompliance resulting from de facto NEPA determinations. Continued modifications made to the program in 1992 made it possible for the closure of one finding and the probable closure of a second in 1993.

PERMIT STATUS

See Table 8.1 for a summary of existing or pending state and/or federal permits.



Stormwater Outfall 002
PCB Monthly Average

Figure 8.1

**DATE
FILMED**

11 / 29 / 93

END

