FID 230139360 ERR/ERP

BUILDINGS 38 AND 39
PRELIMINARY REMEDIAL INVESTIGATION
WORK PLAN
CHRYSLER CORPORATION
KENOSHA ENGINE PLANT
KENOSHA, WISCONSIN

PREPARED FOR:

CHRYSLER CORPORATION
800 CHRYSLER DRIVE
AUBURN HILLS, MICHIGAN 48326-2757

PREPARED BY:

TRIAD ENGINEERING INCORPORATED
PROJECT NO. W963873.EP1

JUNE 1996

TRIAD ENGINEERING INCORPORATED

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Edward T. Manning, Jr., P.E.
Vice President

Ross M. Creighton, P.G.
Project Manager/Hydrogeologist

Sarah E. Levin, P.E.
Project Engineer

Richard J. Binder, P.G., CGWP
Senior Hydrogeologist

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WORK PLAN CERTIFICATIONS

"I, Ross M. Creighton, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wisconsin Administrative Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in Chapters NR 716, Wisconsin Administrative Code."

Ross M. Creighton, P.G. No. 858
Project Manager/Hydrogeologist

Date 6/4/96

ROSS M CREIGHTON G-858 MILWAUKEE, WI PROFESSIONAL GEOLOGIST

"I, Sarah E. Levin, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of Chapter A-E4, Wisconsin Administrative Code; that this document has been prepared in accordance with the Rules of Professional Conduct in Chapter A-E8, Wisconsin Administrative Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in Chapters NR 716, Wisconsin Administrative Code."

Sarah E. Levin, P.E. No. E-29769
Project Engineer

Date 6/4/96

WISCONSIN SARAH E. LEVIN E-29769 MILWAUKEE, WISCONSIN PROFESSIONAL ENGINEER

LIST OF ACRONYMS

bgs	below ground surface
cm/s	centimeters per second
cy	cubic yards
DOT	Department of Transportation
DRO	diesel range organics
FID	flame ionization detector
GRO	gasoline range organics
HSI	Hydro-Search, Inc.
KEP	Kenosha Engine Plant
msl	mean sea level
OSHA	Occupational Health and Safety Administration
PID	photoionization detector
Plan	Investigation Work Plan
QA	quality assurance
QC	quality control
RAE	Remedial Action Option Evaluation
RI	Remedial Investigation
SVE	soil vapor extraction
SVOCs	semi-volatile organic compounds
Triad	Triad Engineering Incorporated
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	underground storage tank
VOCs	volatile organic compounds
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources

1.0 INTRODUCTION/BACKGROUND

1.1 Purpose and Scope.

Triad Engineering Incorporated (Triad) was retained by Chrysler Corporation (Chrysler) to prepare a preliminary Remedial Investigation (RI) Work Plan (Plan) for the Buildings 38 and 39 area at the Chrysler Kenosha Engine Plant (KEP) located in Kenosha, Wisconsin (Figure 1). The preliminary RI will be conducted within Buildings 38 and 39 to evaluate subsurface soil conditions prior to planned floor excavation and hydromation system construction activities.

Soil sampling and management will also be performed during excavation activities related to Buildings 38 and 39 floor removal and new hydromation system construction as well as shallow spread footings for the Building 65 extension and trenches for new sewer and fire main construction near Buildings 36 and 65. Appropriate documentation will be submitted to the Wisconsin Department of Natural Resources (WDNR). Documentation may include a stockpile exemption request, an interim remedial action option evaluation (RAE) addendum for soil and dewatering fluids, if applicable, and a report documenting soil disposal/treatment.

In order to complete the above-described objectives, the following three tasks will be conducted:

- Preliminary Soil Probe Investigation.
- Soil Management.
- Preliminary RI Report Preparation.

1.2 Plan Organization.

This Plan is divided into seven sections. General information is presented in Section 2.0. Scoping information, which includes site history, previous investigations, and potential receptors are described in Section 3.0. Basic hydrologic and geologic information are summarized in Section 4.0. The investigation techniques, methodologies, sampling parameters, analytical methods, detection limits, and quality assurance/quality control (QA/QC) procedures are addressed in Section 5.0. The schedule is presented in Section 6.0 and the references cited are listed in Section 7.0.

2.0 GENERAL INFORMATION

Buildings 36, 38, 39, and 65 are located within the KEP Property in Kenosha, Wisconsin (Figures 1 and 2). The property is bounded by 60th Street to the south, 30th Avenue to the west, and the Kenosha Main Plant property to the north and east. Surrounding land use is industrial, commercial, and residential. Buildings 38 and 39 are located in the Southeast Quarter, Section 36, Township 2 North, Range 22 East, Kenosha County, Wisconsin. Additional site information is provided below.

FACILITY:	Chrysler Corporation, Kenosha Engine Plant
ADDRESS:	5555 30th Avenue Kenosha, Wisconsin 53144-2800
OWNER:	Chrysler Corporation 800 Chrysler Drive Auburn Hills, Michigan 48326-2757
CONTACTS:	Mr. John P. Bugno, Site Administrator, Kenosha, Wisconsin Mr. Gregory M. Rose, Supervisor, Environmental Remediation, Auburn Hills, Michigan
TELEPHONE:	(414) 658-6000 (Kenosha, Wisconsin) (810) 576-7362 (Auburn Hills, Michigan)
FACSIMILE:	(414) 658-6904 (Kenosha, Wisconsin) (810) 576-7369 (Auburn Hills, Michigan)
CONSULTANT:	Triad Engineering Incorporated
ADDRESS:	325 East Chicago Street Milwaukee, Wisconsin 53202
CONTACTS:	Mr. Ross M. Creighton, P.G., Project Manager/Hydrogeologist Ms. Sarah E. Levin, P.E., Project Engineer Mr. Richard J. Binder, P.G., CGWP, Senior Hydrogeologist
TELEPHONE:	(414) 291-8840
FACSIMILE:	(414) 291-8841
WDNR FID NUMBER:	230139360 ERR/ERP

3.0 SCOPING INFORMATION

3.1 Site History.

The KEP property has been used for automobile production and assembly operations since the early 1900s. During World War II (WWII), the plant was used to manufacture military equipment, including aircraft engines. Automobile production resumed following the war.

Buildings 38 and 39 have been used for various manufacturing purposes, including machining of parts, parts assembly, and hot testing (engine testing). From 1994 to 1995, most of the manufacturing equipment was removed from Buildings 38 and 39. The buildings are currently used only for storage. As part of the Kenosha Engine Plant expansion and upgrading, portions of Buildings 38 and 39 will be reconfigured to facilitate installation of new machining equipment for the 2.7L Engine. Activities will include excavation of the floor in Buildings 38 and 39, construction of a new hydromation system in Building 39, construction of an extension onto Building 65 (the new 2.7L Block Line Building), and installation of a new fire main adjacent to Building 36.

A previous subsurface investigation associated with a 2,500-gallon recirculated motor oil underground storage tank (UST) #9, located in adjacent Building 53, included the installation of three GeoProbe™ borings (GP39-1 through GP39-3) and one monitoring well (MW-46) in Building 39. The analytical reports for these samples are included in Attachment A. Based on the laboratory analytical results of unsaturated soil samples collected from these borings, the soil contains no detectable concentrations of diesel range organics (DRO) or polyaromatic hydrocarbons. No groundwater samples have been collected due to the presence of free product which is presumably related to release from the UST system.

3.2 Adjacent Properties.

The Kenosha Main Plant property is located immediately east and north of the KEP property (Figure 1). As part of deactivation and demolition of the Main Plant, environmental investigations and remedial actions were conducted at the property. The Main Plant property was divided into 16 areas (Sites MP-1 through MP-16; Figure 2) to allow investigations to focus on areas of concern. Volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and cyanide have been detected in subsurface soil and groundwater samples at various locations.

As part of remedial activities, fourteen groundwater recovery and six treatment systems were installed. The systems were installed to provide hydraulic control, expedite the recovery of product and groundwater containing VOCs, and treat the recovered groundwater prior to discharge to the City of Kenosha Water Utility. In addition, three soil vapor extraction (SVE) systems were installed and one ex-situ/in-situ bioremediation system is scheduled for start-up during Spring 1996. Other historical remedial activities have included soil excavation and off-site disposal/treatment. Previous investigative and remedial activities are documented in previous reports submitted to the WDNR.

There are no access restrictions to the site or neighboring properties, since Chrysler owns the properties adjacent to Buildings 38 and 39.

3.3 Potential Receptors.

The City of Kenosha currently obtains its drinking water from Lake Michigan. There are no known public or private water wells within a 1200 foot radius of the site. According to city engineers, however, domestic wells may be in operation within the city limits. No records documenting domestic wells currently exist (HSI, 1989). Domestic wells are also found in outlying areas, several miles from the site.

There are on-site underground utilities that are located near the Buildings 38 and 39. These will be identified prior to conducting subsurface work.

There are no known state or federally listed threatened or endangered species, sensitive species habitats, or ecosystems that will be impacted at the site. In addition, there are no known wetlands, outstanding water resources or areas of historical or archeological significance on-site.

4.0 HYDROLOGIC AND GEOLOGIC INFORMATION

The following sections present regional and site-specific topographic, geologic, and hydrogeologic information. The majority of the information has been adapted from previous reports (HSI, 1989 and 1991).

4.1 Topography and Surface Water.

Topography surrounding the KEP property is generally flat (Figure 1). Topographic relief within 0.5 miles of the site is less than 50 feet, with elevations ranging from approximately 650 feet above mean sea level (msl) to the west to approximately 600 feet above msl in the Pike Creek Valley north of the KEP. Surface drainage from the site is to city storm sewers, which drain to Pike Creek and Lake Michigan. All storm water/non-contact cooling water is currently routed through an on-site treatment system prior to discharge to Pike Creek. A secondary storm water overflow relief outfall tie-in is located on 60th Street, in the event flooding/surcharging occurs. Surface water bodies in the vicinity of the facility include Pike Creek, approximately 0.5 miles north, a pond located in Lincoln Park, approximately 0.6 miles southeast , and Lake Michigan, approximately 1.25 miles to the east (HSI, 1989).

4.2 Regional Geology and Hydrogeology

Unconsolidated sediments in the Kenosha area consist predominantly of Quaternary-age glacial and preglacial sediments deposited during the later stages of glaciation that occurred within the Lake Michigan Basin (about 15,000 years ago). The deposits are composed of glacial lake organic materials, stratified clay, silt, and sand with an approximate thickness of 20 to 100 feet (Mickelson et al., 1984).

Bedrock underlying the unconsolidated glacial deposits in the Kenosha area consists of Silurian-age sedimentary rocks. Available published information suggests that the Silurian system is predominantly composed of the Niagara Dolomite (Skinner and Borman, 1973). The Silurian system dips gently to the east towards the Lake Michigan Basin.

The Silurian system conformably overlies a sequence of Ordovician-and Cambrian-age rocks that also dip gently to the east toward the Lake Michigan Basin. The Ordovician-age rocks include the Maquoketa Formation (shales, dolomitic shales, and minor dolomite), Sinnipee Group (dolomites with minor limestones and shale), St. Peter Sandstone (well- sorted sand with a basal conglomerate and minor shale), and Prairie du Chien Group (dolomite with minor sandstone and shale). The Cambrian-age rocks are composed mainly of sandstones of the Tunnel City and Elk Mound Groups. Cambrian sandstones unconformably overlie Precambrian-age crystalline basement rock (Skinner and Borman, 1973).

Two major groundwater producing aquifers are present in the Kenosha area (Skinner and Borman, 1973). The upper unconfined aquifer system consists of Quaternary-age unconsolidated glacial and preglacial deposits and the underlying Silurian-age dolomite bedrock. The deeper confined aquifer system, which consists of Ordovician- and Cambrian-age dolomites and sandstones, is located at a depth of approximately 250 feet beneath the

upper aquifer. This lower aquifer is confined between the overlying Ordovician-age Maquoketa shale and the underlying Precambrian-age crystalline rock. Regional groundwater flow for both aquifers is eastward towards Lake Michigan (Skinner and Borman, 1973).

The City of Kenosha currently obtains its drinking water from Lake Michigan. Domestic wells in the outlying areas generally obtain potable water from the Niagara Dolomite (HSI, 1989).

4.2 Site Geology and Hydrogeology.

Based on information collected during previous investigative activities at the Main Plant, surficial materials at the site generally consist of approximately 0 to 10 feet of fill material which overlie varying thicknesses of silty sand, sandy silt, silt, clayey silt, and silty clay. the deepest boreholes installed at the Main Plant were two 51-foot boreholes, MP-2Q and MP-2R, located at site MP-2. At these locations, the subsoil generally consisted of sandy silt and silty sand to a depth of 15 to 24 feet. Underlying these sandy units was a silty clay glacial till unit identified to be the Oak Creek Formation. The Oak Creek Till is a regionally extensive unit, on the order of 130 feet thick, which underlies the entire plant site (Mickelson, et al., 1984). This unit is very dense and exhibits low hydraulic conductivity on the order of 10^{-7} cm/sec. The Oak Creek Till acts as an aquitard between a shallow water table observed at the site and deeper bedrock aquifers (HSI, 1989).

Groundwater level measurements from the Main Plant monitoring wells indicate that groundwater generally occurs at approximately 2 to 15 feet below ground surface (bgs). Based on groundwater levels obtained from the northern and eastern portions of the site, the horizontal hydraulic gradient for the water table surface varies from approximately 0.01 to 0.003 foot per foot. The local groundwater flow direction at the property is influenced by the on-site groundwater recovery systems.

Hydraulic conductivity testing was performed at 36 monitoring well locations. Calculated site hydraulic conductivities ranged from approximately 3×10^{-7} centimeters per second (cm/s) to approximately 5×10^{-4} cm/s (HSI, 1989).

The linear groundwater flow velocity for the site can be estimated using the horizontal hydraulic gradient, hydraulic conductivity and an assumed effective porosity for site aquifer materials. Porosity values for silty clay are on the order of 35 to 70 percent (Freeze and Cherry, 1979). Due to poor sorting and relatively high silt and clay content in the soils, a porosity of 35 percent was used. Based on the calculated hydraulic conductivities, horizontal groundwater flow velocities at the site are anticipated to range from less than 1 to 13 feet per year. Hydraulic testing and water elevation data and estimated groundwater flow velocity calculations are contained in a previous report (HSI, 1989). Recent construction and investigations at the KEP property indicate that geologic and hydrogeologic conditions are similar to those at the Main Plant.

5.0 SCOPE OF WORK

This Plan describes the proposed preliminary investigation of subsurface soil at Buildings 38 and 39 and management of soil from Buildings 36, 38, and 39 and Building 65. Elements of the planned field activities are discussed in this section. Field activities will be conducted under the observation of qualified on-site personnel. Activities will be under the supervision of a hydrogeologist meeting the definition contained in s. NR 712.03(1), Wisconsin Administrative Code (WAC).

Utility clearance will be confirmed by Digger's Hotline and with Chrysler representatives prior to initiating site activities. A site-specific health and safety plan will also be prepared, in accordance with Occupational Health and Safety Administration (OSHA) requirements.

5.1 Preliminary Soil Probe Investigation.

Twenty-seven GeoProbe™ soil borings (16 borings in Building 38 and 11 in Building 39) will be installed at the general locations presented on Figure 3. The following sections describe the GeoProbe™ soil-boring installation procedures, soil-sampling methods, documentation, QA/QC procedures, decontamination, and waste generation.

5.1.1 Field Procedures.

The soil borings will be advanced using a portable, van-mounted GeoProbe™. Twenty-four borings will be advanced to a depth of 5 to 7 feet bgs. Three soil borings will be advanced to approximately 11 feet bgs and will be installed in the area of the future hydromation system in Building 39. Exact locations and boring depths will be determined in the field. Soil samples will be obtained by advancing a 2-foot long, 1-inch diameter, GeoProbe™ sampling device containing a clean, disposable, plastic liner for each depth interval. Soil samples will be collected continuously in 2-foot intervals at each boring location. Upon completion, each GeoProbe™ soil boring will be abandoned with hydrated bentonite granules in accordance with Chapter NR 141, WAC, requirements.

Each soil sample will be divided into subsamples for geologic classification, field screening, and possible laboratory analysis. Soil samples collected for possible laboratory analysis will be placed in laboratory-supplied containers upon collection, preserved as appropriate, and immediately placed on ice. Soil samples selected for laboratory analysis will be shipped to a Wisconsin Department of Natural Resources (WDNR)-certified laboratory following standard chain-of-custody procedures.

The soil types observed at each boring location will be logged on WDNR Soil Boring Log Information Forms by the on-site geologist. Soil types will be described according to the Unified Soil Classification System (USCS) Standards.

A representative portion of each sample obtained from the split spoon will be field-screened for the presence of VOCs by using a photoionization detector (PID) equipped

with a 10.6 eV lamp and/or a flame-ionization detector (FID) and the headspace-screening methods described in WDNR guidance. The field-screening samples will be allowed to equilibrate near room temperature for at least one-half hour prior to screening. Following equilibration, the PID and FID probes will be inserted into the headspace of the sample container and the highest reading will be recorded. Visual and olfactory observations will also be made.

Soil samples will be collected from each GeoProbe™ soil boring. One representative soil sample from above the apparent water table from approximately 12 boring locations will be submitted to a WDNR-certified laboratory for analysis of diesel range organics (DRO; WDNR modified DRO Method, 5-minute extended window), gasoline range organics (GRO; WDNR Modified Method), and VOCs (Method 8260). In addition, select soil samples will be collected for Waste Management Protocol B analysis. Table 1 presents a summary of the anticipated laboratory analytical methods.

The three GeoProbe™ soil borings installed in the area of the future hydromation system in Building 39 will be advanced to a depth of approximately 11 feet bgs. Upon reaching this depth, plastic tubing will be placed into the open boring and, pending groundwater recovery, a peristaltic pump will be used to obtain groundwater samples from the borings. Groundwater samples will be submitted to a WDNR-certified laboratory for analysis of DRO (WDNR Modified Method), GRO (WDNR Modified Method), and VOCs (Method 8021). Table 1 presents a summary of the laboratory analytical methods.

5.1.2 Documentation.

Soil-boring information, soil boring and well abandonment, well construction and well development will be documented by completing the appropriate WDNR forms. Completed forms will be provided in either the quarterly reports or the preliminary report.

5.1.3 Quality Assurance/Quality Control Procedures.

One equipment blank will be collected for each day of sampling from down-hole sampling equipment following decontamination of the equipment (unless disposable or dedicated sampling devices are used).

All QA/QC samples will be processed through the sampling equipment in a manner identical to actual samples. Results of the analyses of QA/QC samples will be included in the preliminary RI report, and will be taken into account in the data assessment portion of the report. Chain-of-custody documents will be completed for all samples collected and submitted for laboratory analysis.

5.1.4 Decontamination Procedures and Cross-Contamination Prevention Procedures.

Drilling equipment will be steam-cleaned prior to arrival on site and between soil-boring locations at an area identified by Chrysler representatives. Sampling equipment will

be washed with trisodium phosphate substitute (Alconox) solution, followed by triple-distilled water rinses prior to arrival on site and between successive sample intervals in an area identified by Chrysler representatives.

Decontamination wash water will be contained in labeled, Department of Transportation (DOT) approved, 55-gallon drums and treated in one of the on-site air strippers.

5.1.5 Waste Generation.

Cuttings generated during soil boring activities will be placed in DOT–approved, 55-gallon drums. The method for disposing of the cuttings will be determined upon receipt of analytical results from the soil-sampling program.

5.2 Soil Management.

It is estimated that approximately 21,000 cubic yards (cy) of soil will be excavated from Buildings 38/39; 7,000 cy will be excavated for the Building 65 extension; and 100 cy will be excavated for the Building 36 water main. The WDNR will not allow soil to leave the site as clean fill unless soil samples are collected for every 100 cy of soil and the analytical results for VOCs, GRO, and DRO are below detection limits. Less than one percent of the soil excavated from the Engine Plant during Summer 1995 (over 130,000 cy) met these requirements. Therefore, based on previous on-site experience, it is assumed that the soil will need to be landfilled or treated off-site.

Oversight will include field-screening excavated soil (every 300 cy, as required by the WDNR) and attempting to segregate apparently clean soil from affected soil based on PID screening, visual observations, and soil-sampling results from the preliminary RI. Soil samples will be collected and submitted for VOC, GRO, and DRO+5 laboratory analyses. Soil samples will also be collected and submitted for WMWI Protocol B analysis to evaluate disposal as an interim RA.

In addition to excavation oversight, Triad may submit a soil stockpile exemption request to the WDNR and complete an interim RAE addendum for soil and treatment of dewatering fluids, if appropriate (as required under NR 708) for submittal to the WDNR. Following completion of soil disposal and/or treatment, Triad will prepare a brief report documenting completed activities.

5.3 Preliminary RI Report.

Following review and reduction of the preliminary RI analytical data, an RI report will be prepared. The report will include general background information, methods of investigation, investigation rationale and results, soil-boring documentation, conclusions and recommendations, and associated tables and figures, as required under NR 716.15, WAC.

6.0 SCHEDULE

A description of the major mileposts and their anticipated completion dates are provided below.

TASK DESCRIPTION	ANTICIPATED DATE
Preliminary Investigation	December 1995
Soil Management	March – May 1996
Preliminary RI Report	July 1996

Note: This schedule is tentative. The actual schedule for this project will be dependent upon subcontractor availability and Chrysler construction priorities.

7.0 REFERENCES CITED

American Society for Testing and Materials, 1984, Standard Method for Penetration Test and Split-Barrel Sampling of Soils D1586-84, p. 298-303.

Freeze, R. A., and Cherry, J. A., 1979 Groundwater, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 07632, 604 p.

Mickelson, D. M., Clayton, L., Baker, R. W., Mode, W. N., and Schneider, A. F., 1984; Pleistocene Stratigraphic Units of Wisconsin: Wisconsin Geographic and Natural History Survey, Miscellaneous Paper 84-1, 15 p.

Skinner, E. L. and Borman, 1973: Water Resources of Wisconsin (Lake Michigan Basin); Hydrologic Investigation Atlas HA-432, United States Geological Survey.

Wisconsin Department of Natural Resources, 1991, Groundwater Monitoring Well Requirements: Wisconsin Administrative Code, Chapter NR 141, p. 690-7-690-30.

Wisconsin Department of Natural Resources, 1994, Investigation and Remediation of Environmental Contamination: Wisconsin Administrative Code, Chapters NR 700 - 736.

Wisconsin Department of Natural Resources, September 1987, Groundwater Sampling Procedures Field Manual, PUBL-WR-168.

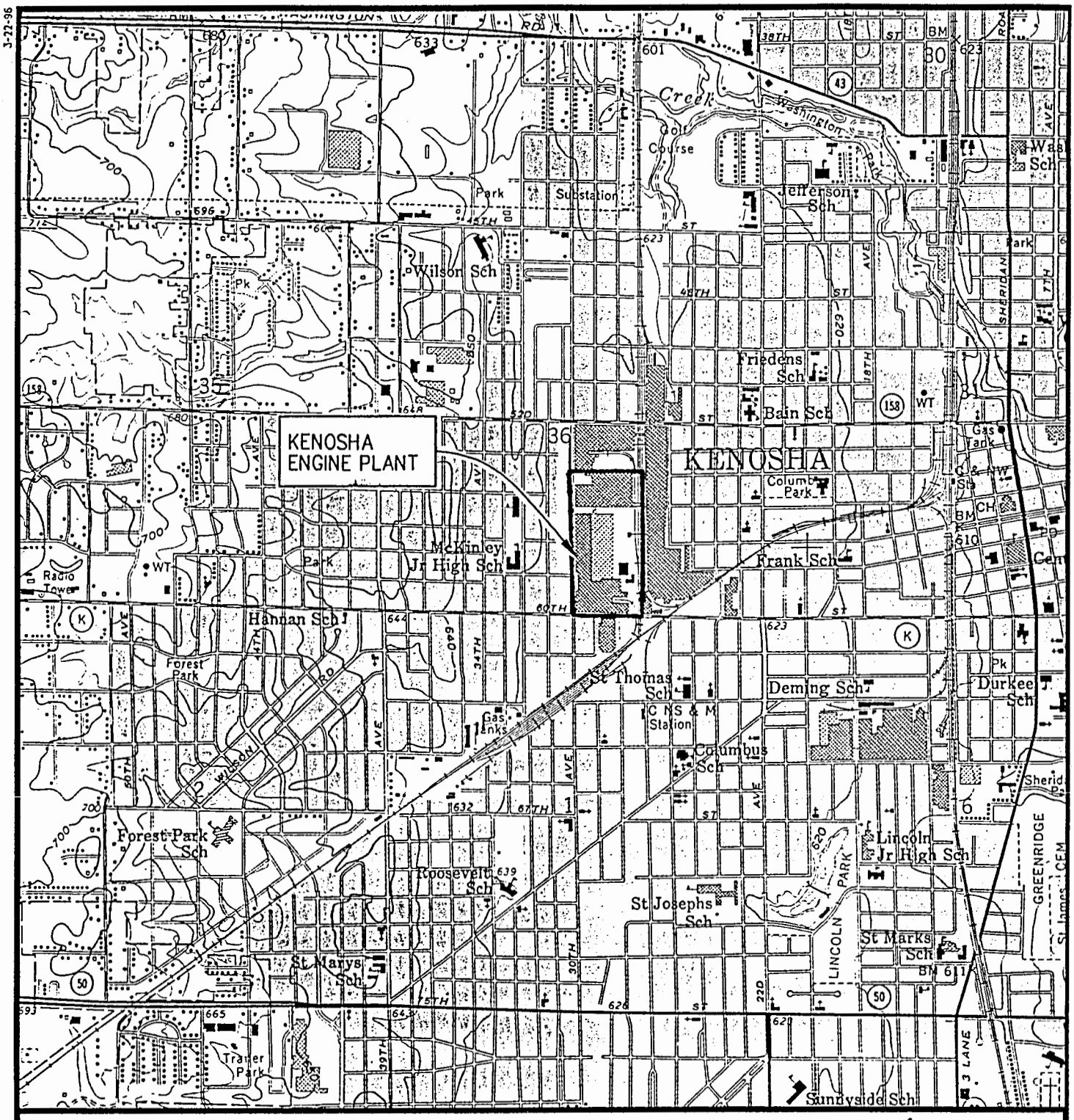
HSI, 1989 and 1991, Subsurface Site Environmental Assessment Report, Chrysler Corporation, Main Plant and Support Sites, Kenosha, Wisconsin (Phases 1, II, and III).

TABLE 1
SAMPLING RATIONALE/ANALYTICAL PROTOCOL
BUILDINGS 38 AND 39 PRELIMINARY RI
CHRYSLER CORPORATION

MEDIUM	NUMBER OF BORINGS	NUMBER OF SAMPLES	ANALYTICAL PARAMETERS (METHOD)	METHOD DETECTION LIMIT (ug/kg or ug/l)
Soil	15	12	VOCs (8260)	5
		12	DRO (WI mod. ext. window)	10000
		12	GRO (WI modified)	10000
		3	Protocol B (various)	various
Groundwater	1	1	VOCs (8260)	1
		1	DRO (WI mod. ext. window)	100
		1	GRO (WI modified)	100

VOC - volatile organic compound
DRO - diesel range organics
GRO - gasoline range organics

3-22-96



TRIAD ENGINEERING INCORPORATED

FIGURE 1
CHRYSLER CORPORATION
KENOSHA PLANT
SITE LOCATION AND LOCAL TOPOGRAPHY

324-26-1
4-10-96

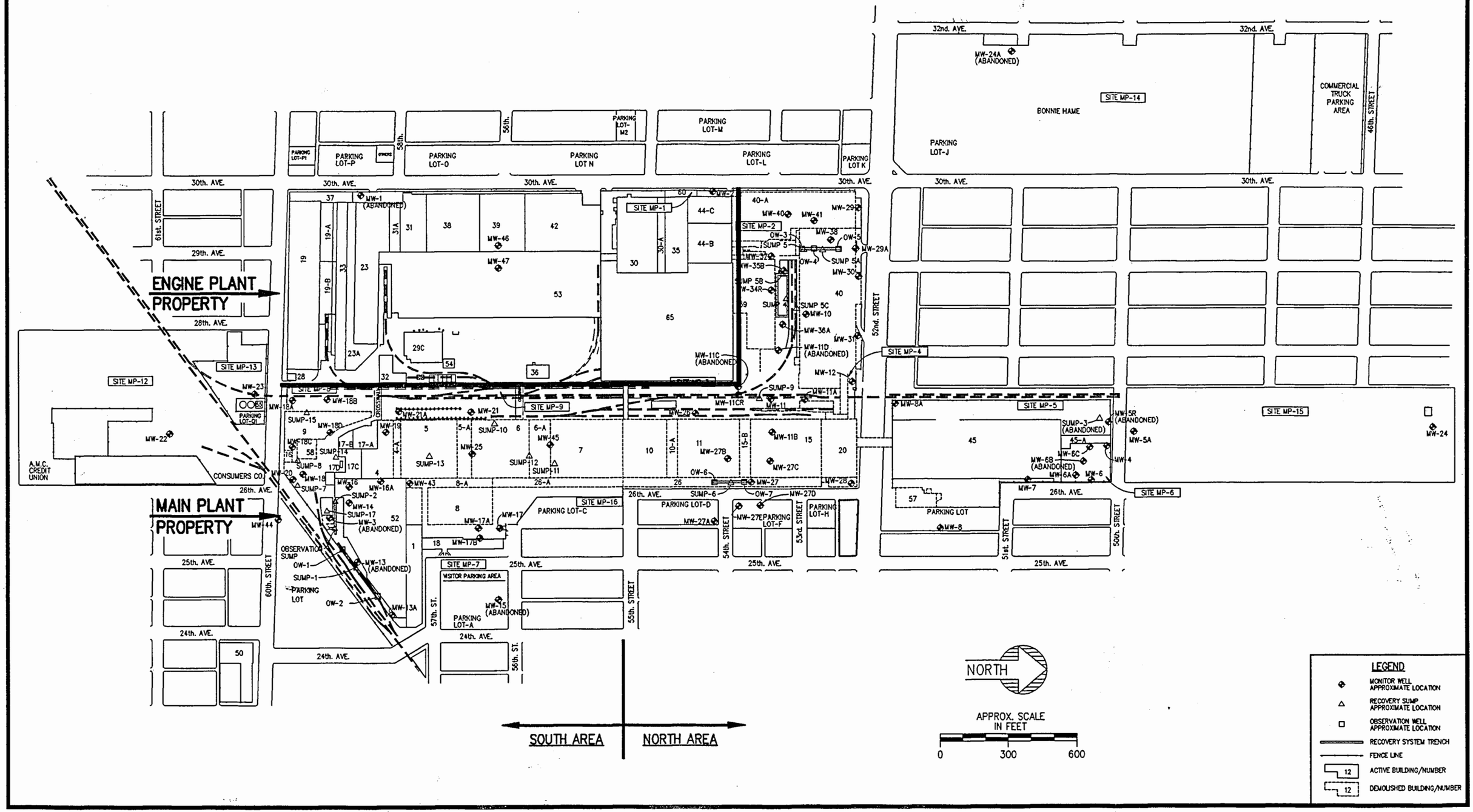


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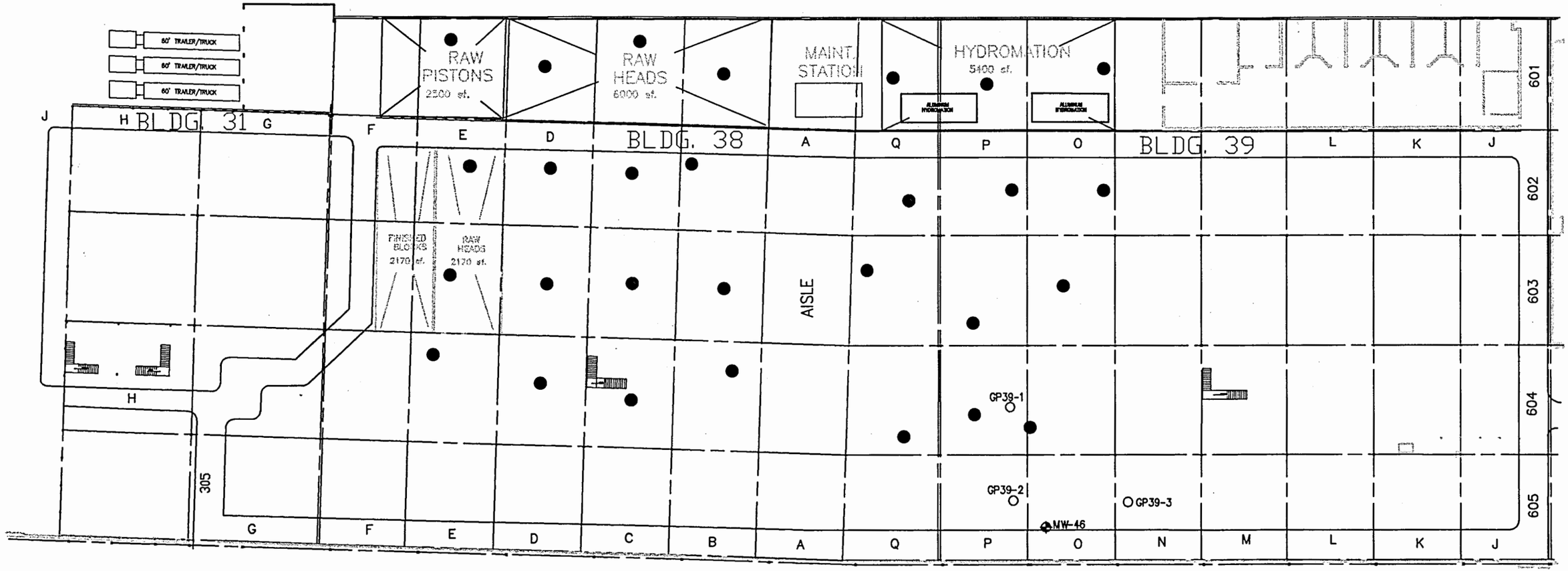
FIGURE 2
CHRYSLER KENOSHA ENGINE AND MAIN PLANT FACILITIES LAYOUT

873EP1-1
3-27-96

N

30TH AVENUE



BUILDING 53

LEGEND

- ● PROPOSED BORING LOCATION
- ○ PREVIOUS BORING LOCATION
- ◆ EXISTING MONITORING WELL

SCALE

0 25 50 100

TRIAD ENGINEERING INCORPORATED

FIGURE 3
PROPOSED SAMPLE LOCATIONS
BUILDING 38/39 PRELIMINARY RI
CHRYSLER KENOSHA ENGINE PLANT

APPENDIX A

ANALYTICAL REPORTS
AND
CHAINS-OF-CUSTODY
(PREVIOUS INVESTIGATIONS)

MIDWEST ANALYTICAL SERVICES, INC.
METROPOLITAN CENTER FOR HIGH TECHNOLOGY
2727 SECOND AVENUE DETROIT, MI 48201

CHAIN OF CUSTODY RECORD & SAMPLE ANALYSIS REQUEST

PHONE#: (800) 1-4MAS
(313) 964-3600
FAX#: (313) 964-2339

CLIENT: Triad Engineering
SAMPLE COLLECTOR: Ross C.
P.O.#:
RELEASE OR REFERENCE
JOB #: W943324-13 F/N TEL #:
PROJECT: Chrysler En
RESULTS TO THE ATTENTION OF:
NEED FAXED: YES: ☐ NO: ☐

PAGE 1 OF 1
NORMAL ✓
RUSH
G-GLASS
P-PLASTIC
BROWN (S)

DETECTION LIMITS (DL)

ITEM #	SAMPLE IDENTIFICATION	LOCATION	DATE/TIME SAMPLED	SAMPLE *ORIGIN	SAMPLE MATRIX	ANALYSIS METHOD DRO w/NR-mod. DL 2) 2oz glass	ANALYSIS METHOD PAH's 8310 DL 1) 8oz glass	ANALYSIS METHOD Pb & Cd 6010 DL 4oz glass	ANALYSIS METHOD Dry Weight DL 4oz glass	ANALYSIS METHOD VOCs 8021 DL 40z Plastic	#	CONTAINERS SIZE	CONTAINERS TYPE	PRESERVATIVE	LAB USE ONLY MAS # & PHYS. DESC.
1	MW-46/4-6'	Chrysler Engine Plant	11/5/94, 10:45	WDNR	Soil	2	1	2	1	1				4°C	40108001

RELINQUISHED BY: (SIGNATURE) Ross M. Creighton DATE/TIME

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME
Ross M. Creighton	11/6	Nate Sp	11/7/94 330p
Nate Sp	11/7/94 330p		
		RECEIVED FOR LAB BY: D. BARBEE	11/8/94 9:09 AM

* SAMPLE ORIGIN:
1. DRINKING WATER
2. N.P.D.E.S.
3. WASTE WATER - CITY
4. STORM WATER
5. TCLP WASTE
6. MDNR
7. WDNR
8. INTERNAL USE
9. RESEARCH
10. AIR
11. OTHER:

LAB USE ONLY:
STATUS OF THE SAMPLE RECEIVED:
TRANSPORT TEMPERATURE 4°C
SEALED [✓] NOT SEALED [ ]
RECEIVED BY:
MAIL [✓] DROP OFF [ ]

FIELD CHARGES:
FIELD HOURS
SET UP
ISCO CHARGE
PICK UP ___ OF ___
C NC

COMMENTS Do not analyze VOCs unless requested on 11/8/94
Not all samples were sealed *DON'T DO VOC PER NATE S. 11/8/94 DB

WHITE - MIDWEST COPY
YELLOW - DUPLICATE COPY
PINK - CLIENT COPY

MIDWEST ANALYTICAL SERVICES, INC. 2727 SECOND AVE. DETROIT,MI 48201

TEST REPORT MAS#: 41108001				
DATE COMPLETED: 15- NOV-94				
JOB #: W943324-13				
TO: ROSS CREIGHTON				
TRIAD ENGINEERING, INC.				
325 EAST CHICAGO STREET				
MILWAUKEE, WI 53202				
PROJECT:	CHRYSLER ENGINE PLANT			
SAMPLE ID:	MW-46/4-5' 11/05/94 10:45			
PHYSICAL DESCRIPTION:	SOLID			
DATE ANAL.: 7131 : 11/09/94 LAB TECH: 7131: SR				
DATE ANAL.: 7420 : 11/09/94 LAB TECH: 7420: SR				
DATE ANAL.: 8270 : 11/09/94 LAB TECH: 8270: TT				
PARAMETER	SAMPLE RESULT	UNITS (DRY WT.)	DETECTION LIMIT	METHOD #
TOTAL CADMIUM	N/D	mg/kg	0.40	7131
TOTAL LEAD	14	mg/kg	0.50	7420
NAPHTHALENE	N/D	µg/kg	330	EPA 8270
1-METHYL NAPHTHALENE	N/D	µg/kg	330	
2-METHYL NAPHTHALENE	N/D	µg/kg	330	
ACENAPHTHYLENE	N/D	µg/kg	330	
ACENAPHTHENE	N/D	µg/kg	330	
FLUORENE	N/D	µg/kg	330	
PHENANTHRENE	N/D	µg/kg	330	
ANTHRACENE	N/D	µg/kg	330	
FLUORANTHENE	N/D	µg/kg	330	
PYRENE	N/D	µg/kg	330	
BENZO (a) ANTHRACENE	N/D	µg/kg	330	
CHRYSENE	N/D	µg/kg	330	
BENZO (b) FLUORANTHENE	N/D	µg/kg	330	
BENZO (k) FLUORANTHENE	N/D	µg/kg	330	
BENZO (a) PYRENE	N/D	µg/kg	330	
INDENO(1 2 3-cd)PYRENE	N/D	µg/kg	330	
DIBENZO (ah) ANTHRACENE	N/D	µg/kg	330	
BENZO (ghi) PERYLENE	N/D	µg/kg	330	
DATE ANAL.: 11/09/94 LAB TECH.: DM				
METHOD : DRO BY WISCONSIN LUST MODIFIED				
PARAMETER	SAMPLE RESULT	UNITS (DRY WT.)	DETECTION LIMIT	
DIESEL RANGE ORGANICS	N/D	mg/kg	10	
PEAKS OUTSIDE OF THE REQUIRED TIME WINDOW:	YES			
SAMPLE OBSERVATION (VISUAL AND OLFACTORY):	DARK BROWN CLAY			
	NO ODOR			
WAS SAMPLE PROPERLY PRESERVED?	YES			
WAS SAMPLE EXTRACTED AND ANALYZED				
WITHIN THE HOLDING TIME?	YES			
DOES THE DRO PATTERN LOOK LIKE DIESEL?	NO			

LAB QUALITY MANAGER Krystyna Czyżo

MIDWEST ANALYTICAL SERVICES, INC.
METROPOLITAN CENTER FOR HIGH TECHNOLOGY
2727 SECOND AVENUE DETROIT, MI 48201

CHAIN OF CUSTODY RECORD & SAMPLE ANALYSIS REQUEST

PHONE#: (800) 801-4MAS
(313) 964-3680
FAX#: (313) 964-2339

CLIENT: Triad Engineering Inc.
SAMPLE COLLECTOR: D. Ramponi
P.O.#:
RELEASE OR REFERENCE
JOB #: 1N443324.13 F/N TEL #:
PROJECT: Chrysler Corporation, Engine Plant
RESULTS TO THE ATTENTION OF: Ross Creighton
NEED FAXED: YES: ☒ NO: ☐

DETECTION LIMITS (DL)

PAGE 1 OF 1
NORMAL X
RUSH

G-GLASS
P-PLASTIC

ITEM #	SAMPLE IDENTIFICATION	LOCATION	DATE/TIME SAMPLED	SAMPLE *ORIGIN	SAMPLE MATRIX	ANALYSIS METHOD (Oily Weight) DL	ANALYSIS METHOD TPH (418.1) DL	ANALYSIS METHOD PROJECT (EXTENDED WINDOW) DL	ANALYSIS METHOD DL	ANALYSIS METHOD DL	#	CONTAINERS SIZE	CONTAINERS TYPE	PRESERVATIVE	LAB USE ONLY MAS # & PHYS. DESC.
3	GP39-2 (10-12')	GP39-2	12/10/94/1445	7	SOIL	X	X				2	402 202	GLASS	NONE	
4	GP39-3 (5-7')	GP39-3	12/10/94/1724	7	SOIL	X	X	X			2	402 202	GLASS	NONE	
7	GP39-2 (5-7')	GP39-2	12/10/94/1345	7	SOIL	X		X			2	402 202	GLASS	NONE	
10	GP39-1 (5-7')	GP39-1	12/10/94/1124	7	SOIL	X		X			3	402 202	GLASS	NONE	

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME
[signature]	12/12/94/1120	[signature]	12/12/94 1130
		RECEIVED FOR LAB BY:	

* SAMPLE ORIGIN:
1. DRINKING WATER
2. N.P.D.E.S.
3. WASTE WATER - CITY:
4. STORM WATER
5. TCLP WASTE
6. MDNR
7. WDNR
8. INTERNAL USE
9. RESEARCH
10. AIR
11. OTHER:

LAB USE ONLY:
STATUS OF THE SAMPLE RECEIVED:
TRANSPORT TEMPERATURE ____
SEALED ☐ NOT SEALED ☐
RECEIVED BY:
MAIL ☐ DROP OFF ☐

FIELD CHARGES:
FIELD HOURS ☐
SET UP ☐
ISCO CHARGE ☐
PICK UP ____ OF ____
C ☐ NC ☐

COMMENTS: Item #1 INFIELD - PORTABLE LAB TEST INDICATED HIGH CONCENTRATION OF FUEL OIL IN SOIL SAMPLE ITEM #1; SOIL SAMPLE (ITEM #2) => LAB INFIELD INDICATED "MEDIUM CONCENTRATION" OF FUEL OIL IN SOIL SAMPLE (ITEM #3) INDICATED LOW CONCENTRATION FUEL OIL

WHITE - MIDWEST COPY YELLOW - DUPLICATE COPY PINK - CLIENT COPY

MIDWEST ANALYTICAL SERVICES, INC. 2727 SECOND AVE. DETROIT,MI 48201

TEST REPORT MAS#: 41213003			
DATE COMPLETED: 21-DEC-94			
JOB #: W943324-13			
TO: ROSS CREIGHTON			
TRIAD ENGINEERING, INC.			
325 EAST CHICAGO STREET			
MILWAUKEE, WI 53202			
PROJECT:	CHRYSLER CORPORATION, ENGINE PLANT		
SAMPLE ID:	GP39-2 (10-12')12/10/94 1445		
PHYSICAL DESCRIPTION:	SOLID		
DATE ANAL.: 12/16/94 LAB TECH.: CH			
PARAMETER	SAMPLE RESULT	UNITS (DRY WT.)	METHOD #
TOTAL PETROLEUM HYDROCARBONS	< 50	mg/kg	418.1

LAB QUALITY MANAGER Krystyna Czyzo

MIDWEST ANALYTICAL SERVICES, INC. 2727 SECOND AVE. DETROIT,MI 48201

TEST REPORT MAS#: 41213004			
DATE COMPLETED: 21-DEC-94			
JOB #: W943324-13			
TO: ROSS CREIGHTON			
TRIAD ENGINEERING, INC.			
325 EAST CHICAGO STREET			
MILWAUKEE, WI 53202			
PROJECT:	CHRYSLER CORPORATION, ENGINE PLANT		
SAMPLE ID:	GP 39-3 (5-7) 12/10/94 1724		
PHYSICAL DESCRIPTION:	SOLID		
DATE ANAL.: 12/15/94 LAB TECH.: DM			
METHOD : DRO BY WISCONSIN LUST MODIFIED			
PARAMETER	SAMPLE RESULT	UNITS	DETECTION
		DRY WT.	LIMIT
DIESEL RANGE ORGANICS	* N/D	mg/kg	10
	PEAKS OUTSIDE OF THE REQUIRED TIME		
	WINDOW: YES		
	SAMPLE OBSERVATION (VISUALAND		
	OLFACTORY): GREY/BROWN CLAY-NO ODOR		
	WAS SAMPLE EXTRACTED AND ANALYZED		
	WITHIN HOLDING TIME? YES		
	DOES THE DRO PATTERN LOOK LIKE DIESEL? YES		
* EXTENDED TIME WINDOW (+ 5 MIN.)			

LAB QUALITY MANAGER Krystyna Czajka

MIDWEST ANALYTICAL SERVICES, INC. 2727 SECOND AVE. DETROIT,MI 48201

TEST REPORT MAS#: 41213007			
DATE COMPLETED: 21-DEC-94			
JOB #: W943324-13			
TO: ROSS CREIGHTON			
TRIAD ENGINEERING, INC.			
325 EAST CHICAGO STREET			
MILWAUKEE, WI 53202			
PROJECT:	CHRYSLER CORPORATION, ENGINE PLANT		
SAMPLE ID:	GP 39-2 (5-7) 12/10/94 1345		
PHYSICAL DESCRIPTION:	SOLID		
DATE ANAL.: 12/15/94 LAB TECH.: DM			
METHOD : DRO BY WISCONSIN LUST MODIFIED			
PARAMETER	SAMPLE RESULT	UNITS DRY WT.	DETECTION LIMIT
DIESEL RANGE ORGANICS	* N/D	mg/kg	10
	PEAKS OUTSIDE OF THE REQUIRED TIME		
	WINDOW: NO		
	SAMPLE OBSERVATION (VISUALAND		
	OLFACTORY): BROWN CLAY, NO ODOR		
	WAS SAMPLE EXTRACTED AND ANALYZED		
	WITHIN HOLDING TIME? YES		
	DOES THE DRO PATTERN LOOK LIKE DIESEL? YES		
* EXTENDED TIME WINDOW (+ 5 MIN.)			

LAB QUALITY MANAGER Krystyna Czyzio

MIDWEST ANALYTICAL SERVICES, INC. 2727 SECOND AVE. DETROIT,MI 48201

TEST REPORT MAS#: 41213010			
DATE COMPLETED: 21-DEC-94			
JOB #: W943324-13			
TO: ROSS CREIGHTON			
TRIAD ENGINEERING, INC.			
325 EAST CHICAGO STREET			
MILWAUKEE, WI 53202			
PROJECT:	CHRYSLER CORPORATION, ENGINE PLANT		
SAMPLE ID:	GP 39-1 (5-7') 12/10/94 1124		
PHYSICAL DESCRIPTION:	SOLID		
DATE ANAL.: 12/15/94 LAB TECH.: DM			
METHOD : DRO BY WISCONSIN LUST MODIFIED			
PARAMETER	SAMPLE RESULT	UNITS	DETECTION
		DRY WT.	LIMIT
DIESEL RANGE ORGANICS	* N/D	mg/kg	10
	PEAKS OUTSIDE OF THE REQUIRED TIME		
	WINDOW: NO		
	SAMPLE OBSERVATION (VISUALAND		
	OLFACTORY): BROWN CLAY, NO ODOR		
	WAS SAMPLE EXTRACTED AND ANALYZED		
	WITHIN HOLDING TIME? YES		
	DOES THE DRO PATTERN LOOK LIKE DIESEL? YES		
* EXTENDED TIME WINDOW (+ 5 MIN.)			

LAB QUALITY MANAGER Krystyna Czyrs