DEPARTMENT OF
NATURAL RESOURCES
SED

1996 FEB 29 PM 3:04

February 28, 1996

Mr. Scott Ferguson
WDNR - Hazardous Waste Program
4041 N. Richards Street
Milwaukee, WI 53212

→ 268005430, GENCE

RE: Additional Soil and Groundwater Quality Investigation at the Navistar Facility in Waukesha, Wisconsin

Dear Scott:

Enclosed for your review is the "Workplan for Additional Soil and Groundwater Quality Characterization" at the Navistar International Transportation Corporation facility in Waukesha, WI. In summary, the work scope includes the following:

- Installing and sampling approximately eight soil borings to better confirm the source(s) and distribution of CVOCs in the unsaturated zone.
- Installing three additional water table monitoring wells to better define the lateral extent of groundwater impacts.
- Installing two piezometers (approximately 40 feet deep) to determine whether CVOC impacts have migrated downward.
- Collect groundwater samples from the three new monitoring wells, the two piezometers and the remaining (approximately 12) monitoring wells from previous investigative activities.
- The soil and groundwater samples from this work will be analyzed for VOCs (method 8260).

Data from this investigation will be used in conjunction with existing data collected by Navistar to develop remedial objectives for the site. The results from the site investigation, data analysis and remedial objectives evaluation will be summarized in a technical memorandum for WDNR review and comment.

Navistar is prepared to begin this work upon receiving your concurrence on the work scope. Please call either of the undersigned at (414) 879-1212 with any questions or comments regarding this project.

Sincerely,

Daniel M. Peplinski, P.E.
Project Manager

Kathryn R. Huibregtse, P.E.
Program Manager

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RMT, INC. — MILWAUKEE
150 N. PATRICK BLVD.
BROOKFIELD, WI 53045
414/879-1212 414/879-1220 FAX

WORKPLAN FOR ADDITIONAL SOIL AND GROUNDWATER QUALITY CHARACTERIZATION AT THE NAVISTAR FACILITY IN WAUKESHA, WISCONSIN

PREPARED FOR
NAVISTAR INTERNATIONAL
TRANSPORTATION CORPORATION
WAUKESHA, WISCONSIN

PREPARED BY
RMT, INC.
BROOKFIELD, WISCONSIN

FEBRUARY 1996

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Section 1

OVERVIEW

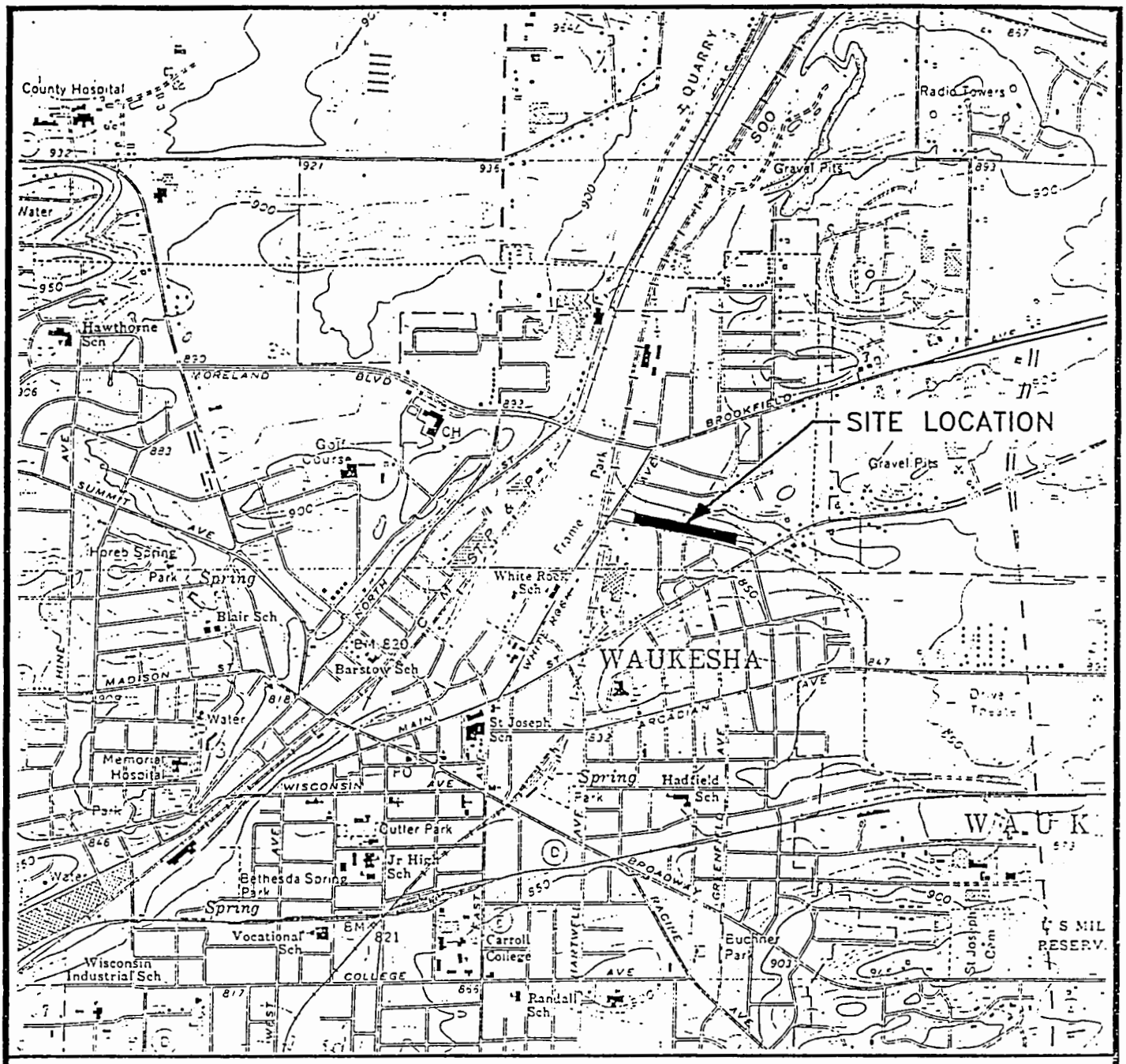
1.1 Introduction

As part of an environmental investigation of an underground petroleum storage tank on their property, Wisconsin Coach Lines (WCL) identified trichloroethene (TCE), trichloroethane (TCA), other chlorinated volatile organic solvents (CVOCs), and petroleum contamination in the soil and groundwater. Although the extent of petroleum contamination was apparently confined to the WCL property, the solvents were identified in groundwater on both the WCL and Navistar International Transportation Corporation (NITC) properties (Figure 1).

Upon notifying the WDNR of the CVOCs detected in groundwater in 1992, NITC retained RMT to investigate the nature and apparent source of these constituents. The scope of work, which was approved by the WDNR, included the following:

- Installation of six soil and bedrock borings, of which four were located on the NITC property and two were installed on the WCL property.
- Conversion of the six borings to groundwater monitoring wells.
- Collection and analysis of soil samples from nine additional soil sampling locations on the NITC and WCL properties.
- Sampling groundwater from the six NITC wells and 14 monitoring wells installed by WCL on their property.
- Hydraulic testing of the six monitoring wells installed by NITC.

WCL has investigated and is now cleaning up the petroleum contamination on their site. However, because the greatest concentrations of chlorinated solvents on the WCL property were identified adjacent to NITC, and because the interpreted groundwater flow direction is from NITC toward WCL, the WDNR has issued a statement to WCL that, based on current information, NITC is responsible for the solvent impacts. Although it appears that NITC may be partially responsible for the solvent impacts, there is strong evidence to suggest that WCL may have a separate on-site source of these materials. NITC's recent request that the WDNR reconsider the no further action ruling was denied since no new technical information that post-dated their responsible party letter was available. However, the WDNR will reevaluate the site issues when more data are available.



STATE LOCATION

0 2000 4000

SCALE: 1"=2000'

N

SITE LOCATOR MAP

NAVISTAR INTERNATIONAL WAUKESHA, WISCONSIN

SOURCE: BASE MAP FROM WAUKESHA, WISCONSIN 7.5 MINUTE USGS QUADRANGLE.

RMT INC.

DWN. BY:	MHS
APPROVED BY:	
DATE:	OCTOBER 1995
PROJ. #	2583.03
FILE #	25830316

FIGURE 1

Section 2

PROJECT APPROACH

2.1 Goals of Investigation

This scope of work has been developed to better define the nature and general extent of impacts and evaluate the necessity of soil and/or groundwater remediation and, if necessary, to identify a cost-effective remedial approach for the site. Following are the specific goals of this portion of the site investigation:

- Confirm whether soils in the gravel driveway on the northwestern side of the NITC Property and the former CVOC storage area at the west end of the NITC plant property are likely source areas for CVOCs in groundwater.
- If CVOC-affected soils are encountered, determine the general extent of impacts.
- Assess current groundwater quality conditions and/or trends in groundwater quality since the last sampling round in 1993.
- Determine whether shallow groundwater impacts extend to the NITC property boundary to the west or to the fence line directly north of the former CVOC storage area.
- To determine whether the groundwater impacts extend to 35 to 40 feet deep within bedrock.
- Evaluate the necessity of soil and/or groundwater remediation and identify appropriate remedial approaches.

2.2 Investigative Activities

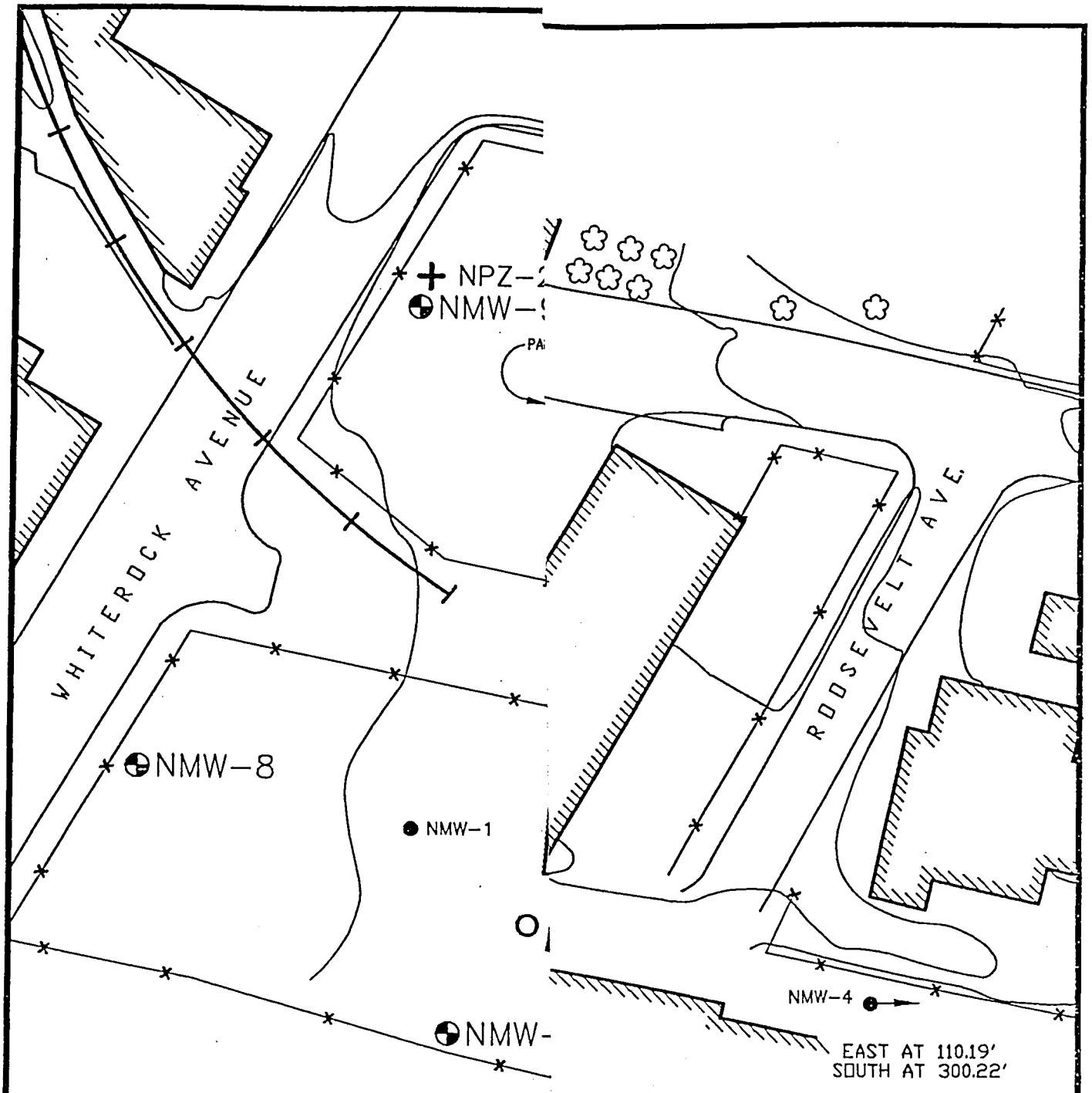
This scope of work includes sampling and characterizing shallow soil materials at the western and northwestern sides of the NITC plant property to determine whether a CVOC source area is apparent. NITC's records indicate that the western side of the plant was historically used to store and handle CVOCs. In addition, additional soil quality data is needed to determine whether soil impacts are present hydraulically upgradient of monitoring well MW-6, where greatest concentrations of CVOCs in groundwater were detected. The soil borings will be completed to the top of bedrock at approximately 15 feet deep. The soil materials will be continuously sampled and will be geologically logged and field-screened with a photoionization detector (PID) to determine whether impacts are apparent. One to two soil samples will be collected from the unsaturated zone at each soil boring site and be laboratory-analyzed for VOCs. The first sample will be from the soil interval that appears to be most

impacted, based on field-screening results and field observations. If impacts appear to be limited to a discrete shallow soil interval, a second sample from beneath the apparent impacted zone will be analyzed to confirm the vertical extent of contamination. The scope of work includes installation of approximately eight soil borings in these areas. However, the actual number and locations of soil borings installed will depend on local accessibility and the subsurface conditions encountered.

The groundwater sampling results from the WCL investigation (October, 1992) identified trichloroethene above current groundwater quality standards in the wells which appear to be the most down gradient (i.e. west and northwest). To better define the lateral extent of groundwater quality exceedances and characterize local hydrogeology, two shallow (20 feet deep) groundwater monitoring wells will be installed along the fence line to the west and one along the fence line to the southwest of the plant building (Figure 2). In addition, two additional piezometers will be installed to determine whether CVOCs have impacted groundwater quality at depth. These piezometers would be installed to approximately 40 feet deep. To better characterize groundwater transport mechanisms in the bedrock (such as variations in bedrock productivity, trends in fracture size and frequency, and other factors), RMT will perform continuous bedrock core sampling and hydraulically test the borehole productivity when installing the two piezometers.

After installation, RMT will survey the relative elevation and perform single well response tests (slug tests) on the five new wells to better characterize the productivity of the shallow bedrock system. In addition, all monitoring wells will be sampled for VOCs to identify current groundwater quality conditions.

Based on the results of this investigation, RMT will prepare a technical memorandum that presents the results of this investigation. In addition, the memorandum will include a long-term groundwater monitoring plan and discuss the necessity of remedial action(s). If appropriate, a separate scope of work will be developed for performing feasibility resting (such as a groundwater pumping test, groundwater modeling, and other options), and preparing the conceptual design of soil and/or groundwater remedial actions, if necessary. The technical memorandum and workplans for additional activities will be submitted to the WDNR for review and comment.



LEGEND

NMW–1	APPROXIMATE LOCATION OF PROPOSE MONITORING WELL
NPZ–1	APPROXIMATE LOCATION OF PROPOSE PIEZOMETER
NMW–3	EXISTING MONITORING WELL INSTALL NAVISTAR, OCTOBER 5 - 9, 1992
MW–4	EXISTING MONITORING WELL BY WISI LINES
	EXISTING BUILDINGS
	FENCE

OPOSED MONITORING WELLS AND PIEZOMETER LOCATIONS
TAR INTERNATIONAL TRANSPORTATION
WAUKESHA, WISCONSIN

RMT INC.

DWN. BY:	MHS
APPROVED BY:	
DATE:	OCTOBER 1995
PROJ. #	2585.03
FILE #	25850315

FIGURE 2

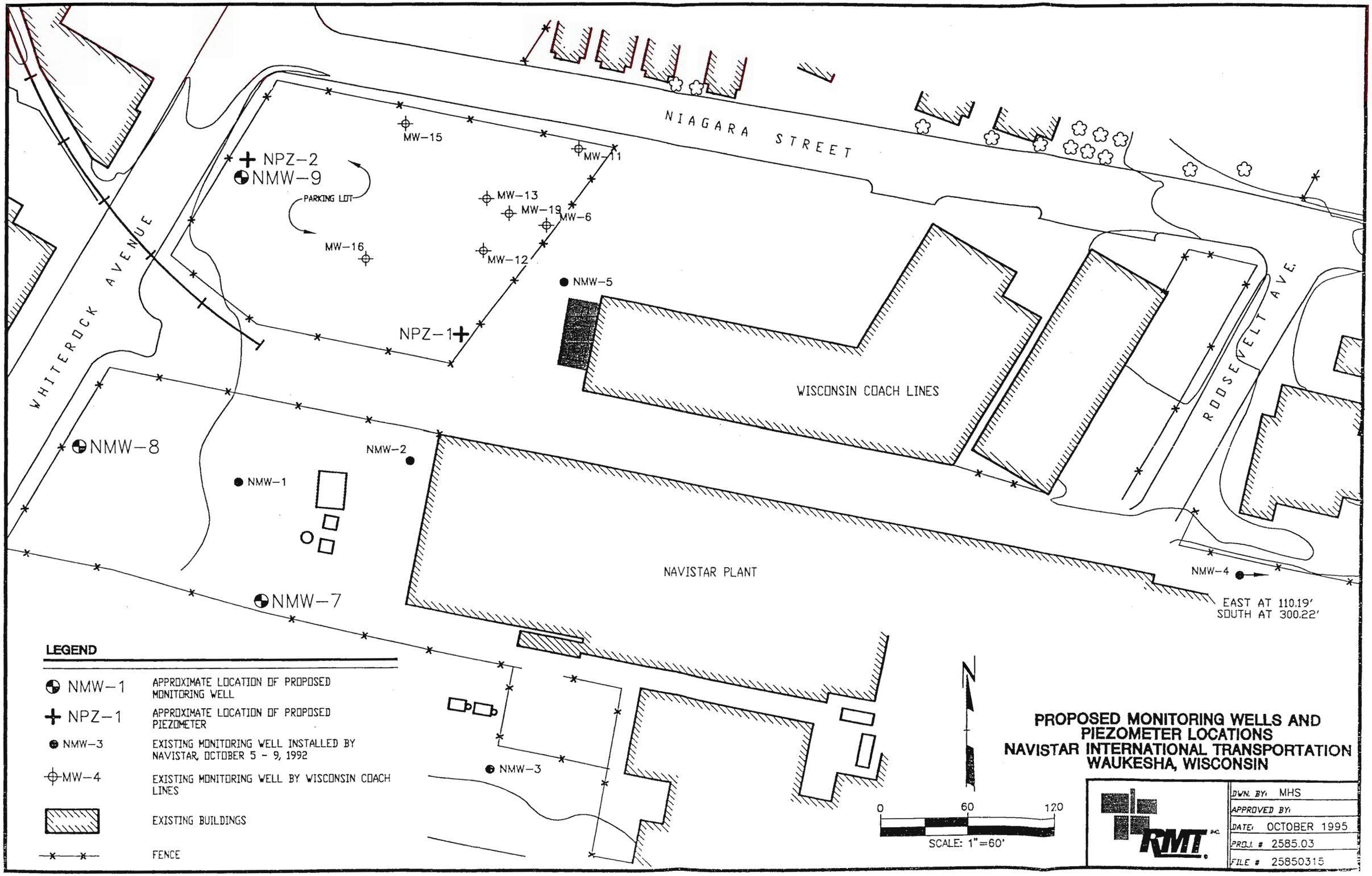

NIAGARA STREET
WHITEROCK AVENUE
ROOSEVELT AVE.
MW-15
MW-11
NPZ-2
NMW-9
PARKING LOT
MW-13
MW-19
MW-6
MW-16
MW-12
NMW-5
NPZ-1
WISCONSIN COACH LINES
NMW-8
NMW-2
NMW-1
NMW-4
NAVISTAR PLANT
NMW-7
NMW-3
EAST AT 110.19'
SOUTH AT 300.22'
LEGEND
NMW-1 APPROXIMATE LOCATION OF PROPOSED MONITORING WELL
NPZ-1 APPROXIMATE LOCATION OF PROPOSED PIEZOMETER
NMW-3 EXISTING MONITORING WELL INSTALLED BY NAVISTAR, OCTOBER 5 - 9, 1992
MW-4 EXISTING MONITORING WELL BY WISCONSIN COACH LINES
EXISTING BUILDINGS
FENCE
N
0
60
120
SCALE: 1"=60'
PROPOSED MONITORING WELLS AND PIEZOMETER LOCATIONS
NAVISTAR INTERNATIONAL TRANSPORTATION
WAUKESHA, WISCONSIN
RMT INC.
DWN. BY: MHS
APPROVED BY:
DATE: OCTOBER 1995
PROJ. # 2585.03
FILE # 25850315

FIGURE 2

Section 3

SCOPE OF WORK

PROJECT ELEMENT 1: SOIL BORING INVESTIGATION, MONITORING WELL INSTALLATION AND TESTING, AND GROUNDWATER SAMPLING

Objectives:

- To sample and characterize soil materials at the former CVOC storage and handling areas on the west side of the NITC plant to determine whether these areas appear to represent a source area for the identified groundwater contamination.
- To confirm previous groundwater quality results and identify trends in constituent concentrations.
- To determine whether shallow groundwater impacts extend to the site boundary to the west and north.
- To determine whether the groundwater impacts extend to 35 to 40 feet deep within bedrock.

Scope of Work:

- Observe and document the completion of approximately eight soil borings to approximately 10 feet deep in the suspected potential CVOC source area at the west and northwest side of the NITC plant. Depending upon drilling conditions, the actual number of soil borings may vary. When installing the borings, continuous samples of soil materials will be obtained, field-screened, and logged.
- Based on field-screening results and observations, one sample of the from above the water table soil materials that appear to be most impacted by VOCs will be submitted for VOC analysis. In addition, if it appears that impacts do not extend to the bottom of the soil probe boring, a second soil sample will be collected from below the lowermost extent of apparent impacts to confirm the vertical limits of contamination. The selected soil samples will be analyzed for VOCs using EPA Method 8260.
- Observe and document the installation of three water table monitoring wells to a depth of 20 feet below grade, and two deep piezometers to a depth of 40 feet below grade. The monitoring wells and piezometers will be installed with 15 and five feet of PVC screen, respectively. The depth of the piezometer well screens may be adjusted upwards several feet to intercept fractures identified during the drilling process.

  Drilling within the unconsolidated material will likely be accomplished utilizing a dual tube drilling techniques. However, because of the drilling methods used, no split-spoon soil samples will be collected during the monitor well drilling. Drilling within

bedrock will be accomplished utilizing coring and standard air rotary reaming methods. To minimize the potential for groundwater impacts from the shallow groundwater flow system to deeper within bedrock, a steel casing will be grouted from the ground surface to approximately five feet into the bedrock surface at the two piezometer locations prior to drilling deeper.

- Obtain continuous bedrock cores to evaluate fracture frequency and rock quality.
- To assist in characterizing groundwater flow characteristics within the bedrock, a bail-down test will be performed in each of the open piezometer borings on the upper five feet of bedrock (prior to grouting in the surface casing), and the open drill hole from the bottom of the surface casing to approximately 40 feet deep.
- Collect one round of groundwater samples from the existing wells, the 3 new wells, and the 2 deep piezometers, and analyze the samples for VOCs (EPA Method 8260).
- Stockpile all soil/rock cuttings on site in an area designated by NITC.
- Store all decontamination and purge water in WDOT-approved drums on site for subsequent disposal. Stockpile the cuttings and store the drums at an on-site location approved by NITC.
- Perform and analyze slug tests on the five new monitoring wells and piezometers.
- Survey the relative location and elevation of site monitoring wells and piezometers.

PROJECT ELEMENT 2: DATA INTERPRETATION AND PREPARATION OF A TECHNICAL MEMORANDUM

Objectives:

- To summarize the results of the site investigation and determine the necessity of remedial actions.
- To maintain active communication between NITC, the WDNR, and RMT.

Scope of Work:

Develop a technical memorandum that includes the following:

- Site background information.
- A summary of additional investigative activities performed under this workplan.
- Soil boring logs, well construction diagrams and sampling logs.
- Data tables, a water table map, and TCE and TCA iso-concentration maps from the groundwater sampling round.
- Identify and discuss the remediation goals and objectives.
- A summary of trends and conditions encountered by RMT during this investigation and in previous activities for the WCL and NITC sites.
- Present a long-term plan for groundwater quality monitoring.
- Remediation goals and objectives for the site.
- Any recommendations for additional activities.