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Cook
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OUTLINE FOR COOK COMPOSITES AND POLYMERS (CCP) SITE INVESTIGATION AND CONTINUING INTERIM MEASURES WORKPLAN

PREPARED BY
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MADISON, WISCONSIN

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Section 1

INTRODUCTION

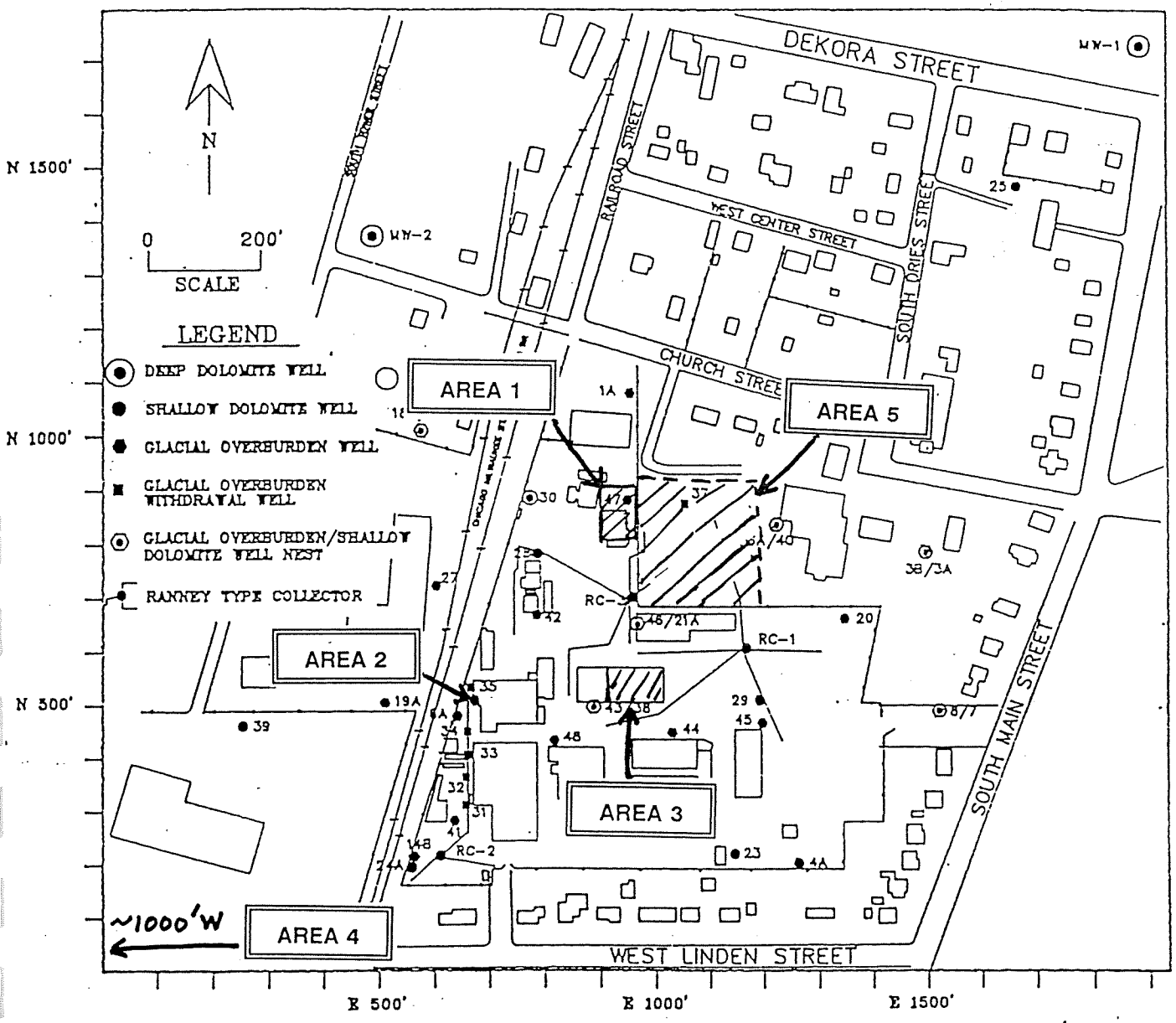
1.1 Site Background

Cook Composites and Polymers Co. (CCP) is located in the Village of Saukville, Wisconsin. Commercial and residential properties are located north of the site; industrial zoning occurs to the west and northwest; and some agricultural land is found east of the plant. CCP property is approximately 11.5 acres in size, and is bounded by residential properties on all sides except the western border, which is zoned industrial (Figure 1).

The CCP plant was originally operated as a cannery. Freeman Chemical, Co., installed the original plant equipment in 1949. Since that time, the plant site has grown geographically, by acquiring additional properties to the east, southeast, and west of the original site, and by the addition of equipment (kettles, tanks, and building for adjusting, blending, thinning, rinsing, and storing raw materials and finished products). Since 1949, the plant has manufactured alkyd, polyester, and urethane synthetic resins. Four hazardous wastes are potentially generated at CCP: waste rinse solvent, reaction water, waste resin, and spill residues from "U"-listed chemicals. Ash from the present nonhazardous solids incinerator is nonhazardous and approved for landfilling. The waste rinse solvent and reaction water comprise the largest waste volume.

1.2 Purpose and Scope

This workplan describes the objectives, scope, sampling and analysis procedures and data management plan for the Investigation and Continuing Interim Measures activities at the CCP site in Saukville, Wisconsin. The overall approach will incorporate existing site information on soils and groundwater into the investigation of five on- and off-site areas of concern. The investigation will be designed to determine whether or not these areas contain sources that continue to affect groundwater, and therefore whether or not additional site corrective measures are required. An aquifer pumping test is also planned to determine the capture efficiency of current and future pumping scenarios. The data generated from this investigation



AREA 1 - URETHANE LAB/HAZWASTE INCINERATOR

AREA 2 - FORMER DRY WELL

AREA 3 - FORMER TANK FARM AREA

AREA 4 - LOGEMAN PROPERTY

AREA 5 - CHURCH YARD

PROJECT #: 1832.37	FIGURE 1	
DATE:	SITE MAP	
SCALE: 1" : 300'	COOK COMPOSITES AND POLYMERS CO.	
DRAWN BY:		

may be used to perform one or more risk assessment(s) or to aid in the evaluation of additional remedial alternatives for the site. The Quality Assurance Project Plan, Field Sampling Plan, and Health and Safety Plan for RMT personnel are attached as appendices.

Section 2

EXISTING GROUNDWATER MONITORING RESULTS AND ONGOING REMEDIAL MEASURES

The following interim remedial activities have been completed at the CCP site:

1. Removal or corrective action at on-site sources of contamination
2. Repair of the casing of the nearby Laubenstein well
3. Reconditioning of one of the Village wells
4. Dewatering of the glacial overburden by use of Ranney Collectors (drains) to remove contaminated groundwater
5. Reversing the direction of groundwater flow in the dolomite aquifer so that it moves toward the site, by installing and pumping an on-site system of one deep and several shallow dolomite wells
6. Directing surface runoff drainage to a collecting basin
7. Monitoring remediation progress, perimeter wells, and receptor points (municipal wells and the Village Publicly Owned Treatment Works)

The collection and pumping systems have been operating at the site since July 1987.

Groundwater monitoring has been conducted at CCP since 1984. The most recent analytical data show that the shallow groundwater in the glacial overburden contains benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds at levels ranging from approximately 30 μg/L in perimeter well W-20 to 800,000 μg/L in on-site well W-47. Wells completed in the fractured shallow dolomite have lower BTEX levels, ranging from approximately 6 μg/L to 8,400 μg/L. Only one well open to the deeper dolomite (W-30) contained BTEX (220 μg/L). This well (W-30) serves as the main pumping well at the site, and typically removes 385 gpm.

According to trend analyses contained in the 1991 Annual Report for groundwater monitoring at the site, "the systems are operating to control the migration of site contaminants and to slowly remove them from the soil and groundwater." A substantial reduction in total VOCs occurred during the early stages of groundwater removal activities. However, the data indicate that continued pumping is necessary to control contaminant plume movement.

Due to the presence of numerous buildings and paved areas at the site, future remedial measures will likely focus on in-place treatment of soils in the areas of concern and continuing groundwater corrective measures. At off-site potential sources, future remedial measures will be evaluated based on acceptable risk levels for human health and the environment.

Section 3

OBJECTIVES

The objectives of the Site Investigation and Continuing Interim Corrective Measures are as follows:

- To collect data necessary to adequately characterize the site for purposes of determining whether or not additional corrective measures are necessary to remediate remaining on-site sources of groundwater contamination
- To quantify the risk to public health posed by off-site sources which originated from CCP operations.
- To determine whether the current and proposed pumping programs are effective in preventive off-site migration of impacted groundwater.
- To continue groundwater containment and remediation.

The project approach in meeting these objectives will be an iterative process. Information available from on-going groundwater corrective measures and closure of the former hazardous waste incinerator area (under NR 600 Wisconsin Administrative Code) will be used to augment the site investigation sampling program, and to evaluate alternatives.

The objectives of this workplan are consistent with the objectives of the initial corrective measures performed at the site. The objectives included the following:

- To reduce contaminant migration from on-site soils to groundwater, by controlling surface water infiltration.
- To dewater the glacial overburden to remove contaminated groundwater and to reduce contaminant migration from overburden soils to groundwater.
- To control the groundwater contaminant plume and thereby protect the village water supply wells.

Section 4
SCOPE OF WORK

4.1 Soils

The following five on- and off-site areas will be investigated:

- Area 1 - Former urethane laboratory/hazardous waste incinerator (on-site)
- Area 2 - Former dry well (on-site)
- Area 3 - Former tank farm storage area (on-site)
- Area 4 - Logeman property (off-site)
- Area 5 - Church Yard (off-site)

Basic assumptions in the development of the data collection program to characterize these areas include the following:

- On-site sources will be investigated to determine whether the soils have been affected and are contributing contaminants to groundwater. If affected soil areas are identified, practicable soil remediation activities will be evaluated.
- Soils will be analyzed for parameters from Appendix IX that reflect potential and known contaminants of concern in the groundwater, based on existing data and facility operations.
- Existing soils results for Target Compound List volatiles and semivolatiles at Area 1 will be used.

The rationale for sample collection, number and location of samples to be taken in each area, and parameters to be analyzed are discussed in Section 7.

4.2 Groundwater

Groundwater samples will continue to be collected from monitoring wells, municipal wells, and shallow drain collectors and analyzed for VOCs according to the program rationale outlined in Section 7. In addition to the on-going monitoring activities, Appendix IX analyses will be conducted to complete the groundwater characterization. The Appendix IX groundwater monitoring results will be evaluated as they are generated, to finalize the parameter list for soil analyses at the five areas of concern outlined above.

Section 5

DATA USES AND DATA QUALITY OBJECTIVES

5.1 Data Uses

The soil sampling network design is summarized in Table 1. Table 1 describes the rationale for the soil sampling locations at the areas of concern, sampling objectives for each location, and an explanation of how the data will be used. These data uses include the following:

- Evaluation of remedial alternatives
- Risk assessment
- Plume definition

The groundwater monitoring well network design is summarized in Table 2. Table 2 describes the rationale for the groundwater monitoring objectives, monitoring locations, sampling parameters and frequency, and an explanation of how the data will be used. These data uses include the following:

- Confirmation of safe drinking water quality at receptor wells
- Monitor VOC discharges from CCP to the POTW
- Monitor environmental releases of VOCs at the POTW
- Development of trend analyses over time for perimeter monitoring and remediation progress monitoring
- Identification of significant changes in contaminant concentrations at perimeter locations
- Evaluation of effectiveness of on-going groundwater corrective measures and future soil remediation activities
- Characterization of groundwater chemistry

5.2 Data Quality Objectives

Data Quality Objectives (DQOs) are qualitative and quantitative statements which specify the quality of the data required to support decisions made during removal activities and are based on the end uses of the data to be collected. As such, different data uses may require different

based on the end uses of the data to be collected. As such, different data uses may require different levels of data quality. There are five analytical levels which address various data uses and the QA/QC effort and methods required to achieve the desired level of quality. These levels are:

- Screening (DQO Level 1): This provides the lowest data quality but the most rapid results. It is often used for health and safety monitoring at the site, preliminary comparison to ARARs, initial site characterization to locate areas for subsequent and more accurate analyses, and for engineering screening of alternatives (bench-scale tests). These types of data include those generated on-site through the use of Hnu, pH, conductivity, and other real-time monitoring equipment at the site.

- Field Analyses (DQO Level 2): This provides rapid results and better quality than in Level 1. This level may include mobile lab generated data depending on the level of quality control exercised. The matrices and parameters are listed in Tables 1 and 2.

- Engineering (DQO Level 3): This provides an intermediate level of data quality and is used for site characterization. Engineering analyses may include mobile lab generated data and some analytical lab methods (e.g., laboratory data with quick turnaround used for screening but without full quality control documentation). The matrices and parameters are listed in Tables 1a and 2.

- Confirmational (DQO Level 4): This provides the highest level of data quality and is used for purposes of risk assessment, evaluation of remedial alternatives and PRP determination. These analyses require full Contract Laboratory Program (CLP)/SW846 analytical and data validation procedures in accordance with U.S. EPA recognized protocol or "CLP-like" reporting. The matrices and parameters are listed in Tables 1a and 2.

- Non-Standard (DQO Level 5): This refers to analyses by non-standard protocols, for example, when exacting detection limits or analyses of an unusual chemical compound is required. These analyses often require method development or adaptation. The level of quality control is usually similar to DQO Level 4. No DQO Level 5 data will be collected in this investigation.

The DQO Analytical Levels for this investigation are listed in Tables 1 and 2. The levels listed correspond with the data collection objectives, rationales and the data uses described.

TABLE 1

CCP WORKPLAN - SOIL SAMPLING NETWORK DESIGN AND RATIONALE

Area of Concern	Past Disposal Practices	Sampling Objectives	Data Collection		Data Use	Data Quality Objectives
			Number of Locations	Parameters		
Former Urethane Laboratory/ Hazardous Waste Incinerator	Solvents disposal on ground Acid water incineration	Existing data will be provided to the USEPA.	Previous samples collected at 24 locations near the incinerator and Laboratory. Locations were typically sampled to the water table or to an approximate 12-foot depth	Existing analytical results include BTEX and Method 8270 TCL semivolatiles	Evaluation of remedial alternatives: possible expansion of proposed incinerator-area SVE system.	Confirm presence of high levels of BTEX (DQO Level 4)
Former Dry Well	Acid water disposal	Determine whether area is contributing BTEX to groundwater and if semivolatiles are of concern	One boring to bedrock, sampled continuously at 2-foot intervals	Appendix IX VOCs; one at-depth sample for Appendix IX semivolatiles	Evaluation of remedial alternatives	Confirm presence of high levels of BTEX (DQO Level 4)
Former Tank Farm Storage Area	Spills of BTEX and styrene from tank filling operations	Determine whether area is contributing BTEX to the groundwater and if semivolatiles are of concern	Two borings to bedrock, sampled continuously at 2-foot intervals	Appendix IX VOCs; one at-depth sample for Appendix IX semivolatiles	Evaluation of remedial alternatives	Confirm presence of high levels of BTEX (DQO Level 4)
Logeman Property	Ash Pile	Verify waste characteristics and vertical extent of ash pile	Three surface samples; one boring through waste, sampled at three depths (top, middle, and bottom of ash pile)	Appendix IX metals	Risk assessment Evaluation of remedial alternatives	Confirm presence of metals (DQO Level 4)
	Buried containers of dried resin and solid debris; occasional acid water disposal at incinerator pit	Determine whether area is contributing BTEX to groundwater and if semivolatiles are of concern.	Two borings to the water table, sampled continuously at 2-foot intervals	Appendix IX VOCs; one at-depth sample for Appendix IX semivolatiles	Risk assessment Evaluation of remedial alternatives	Determine if BTEX is present (DQO Level 4)
Churchyard	Spilled solvent area	Delineate nature, depth and lateral extent of contamination beyond CCP eastern property line	Five borings to bedrock, sampled continuously at 2-foot intervals	Field-screen for VOCs using portable GC; Appendix IX VOCs and semivolatiles on selected samples	Plume definition; Evaluation of remedial alternatives	Field GC (DQO Level 2) Confirmational (DQO Level 4)
	Ballfield	Determine whether BTEX and semivolatiles are of concern throughout ball field.	10 locations at a depth of 2 feet (below the topsoil replacement zone)	Field-screen for VOCs using portable GC; Appendix IX VOCs and semivolatiles on selected samples	Risk assessment	Field GC (DQO Level 2) Confirmational (DQO Level 4)

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TABLE 2

GROUNDWATER MONITORING NETWORK DESIGN AND RATIONALE

Monitoring Objectives		Rationale	Sampling Frequency	Data Collection				Data Uses	Data Quality Objectives
				No. of Locations	Sampling Locations		Parameters		
Receptor Monitoring	Protect current potential receptors	The groundwater contaminant plume is controlled by a network of pumping wells and shallow drain systems. Frequent monitoring is required at receptor points (municipal wells and the POTW, which receives shallow groundwater collected from the site) because xylene was detected at municipal wells before groundwater remediation.	Quarterly	9-10	Municipal Wells: MW-01, MW-02[2], MW-03, MW-04	POTW: Influent, Effluent, Sludge	Discharge to POTW (Ranney Collectors)[1]: RC-1, RC-2, RC-3	Municipal Wells & POTW: VOCs by Method 8240 (Table 3); Discharge to POTW (Ranney Collectors): VOCs by Method 8020 (Table 3)	• Confirm safe drinking water quality. • Monitor environmental releases of VOCs at the POTW. • Monitor discharges of VOCs from the facility to the POTW to document facility contribution of VOCs.	Confirmational (DQO Level 4) with "CLP-like" reporting.
Perimeter Monitoring	Provide warning of unanticipated contaminant migration	Perimeter monitoring is necessary for the upper aquifer, because this is the most highly impacted groundwater. Perimeter well results since 1988 have been relatively consistent indicating that contaminant migration is not anticipated.	Semiannually	12	Glacial Overburden: W-01A, W-03B, W-04A[3], W-08A (proposed), PW-08, W-20, W-27	Shallow Dolomite: W-03A, W-07A (proposed), W-22, W-23, W-25		VOCs by Method 8240 (Table 3)	• Develop trend analyses of total VOCs over time. • Identify significant changes in contaminant concentrations at perimeter locations.	Confirmational (DQO Level 4) with "CLP-like" reporting.
Remediation Progress Monitoring	Assess groundwater cleanup progress	Remediation progress wells are located within the contaminant plume. Total VOC concentrations have reached 800 mg/L in the shallow groundwater. Assessing the relative levels and reduction in VOCs in response to remedial measures is a long-term monitoring objective.	Annually during current groundwater remediation activities. Semiannually after initiation of future soil remediation activities.	13	Glacial Overburden: W-06A, W-19A, W-37, W-41, W-42, W-43, W-47	Shallow Dolomite: W-21A, W-24A, W-28, W-29, W-38	Deep Dolomite: W-30	VOCs by Method 8020 (Table 4)	• Develop trend analyses of total VOCs over time. • Evaluate effectiveness of on-going groundwater corrective measures and future soil remediation activities.	Confirmational (DQO Level 4) if with "CLP-like" reporting, if possible. High levels of BTEX may interfere with achieving this DQO.
Contaminant Characterization	Characterize contaminants present in groundwater	VOCs are the primary constituents of concern in groundwater, based on the facility process of resin manufacturing. However, full Appendix IX analyses are necessary to complete contaminant characterization.	One-time event	8	Glacial Overburden: W-06A, W-44[4], W-47	Shallow Dolomite: W-21A, W-24A, W-28, W-29	Deep Dolomite: W-30	Appendix IX with the exclusion of pesticides and dioxins/furans	• Characterization of groundwater.	Confirmational (DQO Level 4) with "CLP-like" reporting, if possible. Data may not achieve this DQO analytical level because of the high levels of BTEX present (except W-24A, W-28, and W-30).

NOTES:

[1] Ranney Collectors are shallow drain systems located in the glacial overburden and keyed into bedrock. These drains collect shallow groundwater, which is discharged to the sanitary sewer.
[2] MW-02 will be sampled annually. This well is not used for water supply purposes and the Village does not routinely pump this well.
[3] Well W-04A is periodically dry.
[4] Well W-44 is typically dry.

TABLE 3

VOLATILE ORGANIC COMPOUNDS BY METHOD 8240

Parameter	Reporting Limit µg/L
Chloroethane	10
Chloromethane	10
Bromomethane	10
Vinyl Chloride	10
Methylene Chloride	5
Acetone	10
Carbon Disulfide	5
1,1-Dichloroethene	5
1,1-Dichloroethane	5
1,2-Dichloroethene (total)	5
Chloroform	5
1,2-Dichloroethane	5
2-Butanone	10
1,1,1-Trichloroethane	5
Carbon Tetrachloride	5
Vinyl Acetate	10
Bromodichloromethane	5
1,1,2,2-Tetrachloroethane	5
1,2-Dichloropropane	5
trans-1,2-Dichloropropene	5
Trichloroethene	5
Dibromochloromethane	5
1,1,2-Trichloroethane	5
Benzene	5
cis-1,3-Dichloropropene	5
Bromoform	5
2-Hexanone	10

TABLE 3

VOLATILE ORGANIC COMPOUNDS BY METHOD 8240

Parameter	Reporting Limit µg/L
4-Methyl-2-Pentanone	10
Tetrachloroethene	5
Toluene	5
Chlorobenzene	5
Ethylbenzene	5
Styrene	5
Xylenes (total)	5

TABLE 4

AROMATIC VOLATILE ORGANIC COMPOUNDS BY METHOD 8020

Parameter	Reporting Limit µg/L
Benzene	*
Toluene	*
Ethylbenzene	*
Chlorobenzene	*
Xylenes (total)	*
1,4-Dichlorobenzene	*
1,3-Dichlorobenzene	*
1,2-Dichlorobenzene	*

* The lowest reporting limits will be established by determining the sample dilution at which the highest concentration target analyte is within the calibration , and then running a sample aliquot at a dilution 10X stronger. Therefore, each sample will be analyzed twice to quantify the highly concentrated analytes as well as those at lower concentrations, without unduly impacting the GC.

Section 6

PROJECT ORGANIZATION AND RESPONSIBILITY

6.1 Project Organization

6.2 Project Communications

6.3 Project Quality Management Responsibilities

Section 7

SAMPLING AND ANALYSIS PLAN

7.1 Network Design and Rationale

The sampling objectives and data collection for soil sampling at each of the five areas are described in Table 1. The monitoring objectives, rationale, and data collection for groundwater sampling at four groups of wells and collectors at the site are described in Table 2.

7.2 Analytical Parameters and Frequency of Sampling

Table 1 lists the parameters proposed for analysis of soil samples collected from the five areas of concern. Primarily, Appendix IX volatile and semivolatile analyses will be performed, based on the nature of the solvents stored or discharged at the areas. The samples from the ash pile at the Logeman property will be analyzed for Appendix IX metals.

Table 2 lists the parameters proposed for analysis and the frequency of sampling for groundwater at the site. In general, groundwater monitoring for VOCs by Method 8240 will be performed at receptor wells (quarterly) and perimeter wells (semiannually). Groundwater monitoring for VOCs by Method 8020 will be performed at remediation progress monitoring wells on an annual basis. Contaminant characterization, involving the sampling of eight wells, will be conducted once, and samples will be analyzed for Appendix IX parameters (excluding pesticides and dioxins/furans).

7.3 Sampling Procedures

7.3.1 Soil Sampling

Soil sampling at the five areas of concern will be performed using hand augering equipment, shovels, and scoops for the shallow soil samples, and a drill rig for deeper sampling. Small-diameter (2.25-inch I.D.) hollow-stemmed auger drilling methods will be used so that split-spoon samples may be obtained ahead of the augers as drilling progresses. In areas where field-screening of soils is proposed, soils will be placed in vials and the headspace analyzed for VOCs using a portable gas chromatograph. Soils retained for laboratory chemical analysis will be taken

from the split-spoon samplers, stored in jars, and placed on ice for shipment to the analytical laboratory.

7.3.2 Groundwater Sampling

Groundwater sampling at the site under RCRA has been performed by Sigma Environmental Services of Oak Creek, Wisconsin, since 1988. It is anticipated that Sigma will continue to perform groundwater sampling according to established sampling procedures.

7.4 Aquifer Testing

In order to ensure that the ongoing groundwater remediation is successful, a more accurate characterization of the dolomite aquifer in the plant area and better definition of the hydraulic relationship between the Village wells and the CCP wells are needed. An aquifer test will therefore be conducted at the site, based on the design described in the "Revised Project Plans, Tasks 3A, 3B, and 3C," revised by RMT in November 1991.

7.5 Investigation-Derived Waste Disposal

Section 8

DATA MANAGEMENT PLAN

8.1 Field Activities

8.2 Sample Management and Tracking

8.3 Data Validation and Documentation

8.4 Document Control

Section 8

DATA MANAGEMENT PLAN

8.1 Field Activities

8.2 Sample Management and Tracking

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8.4 Document Control

Section 9

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FIELD SAMPLING PLAN

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APPENDIX C

RMT HEALTH AND SAFETY PLAN