WORK PLAN FOR CONFIRMATORY SAMPLING AT SWMUs 9, 19, 21 and AOC B

Federal Paper Board Company, Inc.
Wilmington, North Carolina

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1.0 INTRODUCTION

Federal Paper Board Company, Inc. (FPB), a wholly owned subsidiary of International Paper, was issued a Hazardous Waste Management Permit (EPA ID No. NCD 072 022 726) for its facility in Wilmington, North Carolina. Appendix D of the permit lists 23 Solid Waste Management Units (SWMUs) and two Areas of Concern (AOCs) identified at the facility. The appendix also specifies that confirmatory sampling is required at three of the SWMUs and one of the AOCs. These SWMUs and AOC are identified as follows:

- SWMU 9 - Outside Holding Tank;
- SWMU 19 - Former Hazardous Waste Storage Area;
- SWMU 21 - North Drainage Ditch; and
- AOC B - Outside Solvent Pump Header.

The SWMUs and AOCs were originally identified in a RCRA Facility Assessment (RFA) Report prepared by A. T. Kennedy, Inc., and the North Carolina Hazardous Waste Section (1996).

This document is a work plan that describes procedures for conducting confirmatory sampling to determine if hazardous constituents have been released from the SWMUs and AOC. The work plan proposes that soil sampling and chemical analysis be performed at the SWMUs and at AOC B to comply with the permit's confirmatory sampling requirement.

The work plan is organized into seven sections including this introduction. Section 2.0 provides a description of the facility and other background information. Section 3.0 includes a description of each SWMU and of AOC B. Section 4.0 describes the methods to be used in conducting confirmatory sampling. Section 5.0 discusses reporting requirements and data evaluation procedures. Section 6.0 is a tentative schedule for conducting confirmatory sampling and Section 7.0 is a list of selected references. Appendix A includes a description of proposed field procedures.

2.0 FACILITY DESCRIPTION AND BACKGROUND

FPB owns and operates a carton plant at 2221 J. R. Kennedy Drive in Wilmington, New Hanover County, North Carolina. The facility is located on the north side of the city and occupies approximately 35 acres. However, actual manufacturing operations are limited to the easternmost 16 acres. Topographic relief at the facility is low with surface runoff draining away from the plant building in all directions. The natural topographic gradient is to the west, and drainage in the general vicinity of the facility is west to Burnt Mill Creek. The facility property is rectangular in shape, and drainage ditches located along the north and south property boundaries carry surface drainage to Burnt Mill Creek. A location map of the facility is shown in Figure 2-1.

The area within a half mile of the site is largely industrial. A beverage distributor is located south of the facility and a film studio is located north of FPB. The 24 acres west of the eleven acres currently used by FPB are also owned by FPB but are underdeveloped and are currently overgrown with wild grasses and pine trees. The eastern edge of the property is parallel to 23rd Street which is a major through street between the New Hanover County Airport, located one mile northeast of the facility and one of Wilmington's residential and business districts located approximately one-half mile south of FPB.

FPB performs carton manufacturing and printing at the Wilmington facility. Roll paperboard is printed and lacquered or foiled and printed to meet customer specifications. Bulk solvents and paper coating blends including top lacquers are stored on site for use in the process. Tank trucks deliver bulk solvents to an aboveground tank farm located west of the plant via an access road located north of the plant. The plant property is surrounded by a 6-foot high wire fence. There are access gates at the front and rear of the plant and along the railroad spur to the rear of the plant.

A former tank farm situated near the southwest corner of the plant building, comprises the facility's Waste Management Unit. The former tank farm consisted of seven

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Source: USGS Quadrangles - Wilmington and Castle Hayne (1970)
Note: No known drinking water wells within ¼ mile of facility. Facility latitude 341503 longitude 775576

Figure 2–1. Site Location Map, Federal Paper Board Company, Inc.
Wilmington, North Carolina

aboveground, 10,000-gallon capacity tanks that stored blended solvents and top lacquers used in printing, coating, and ink formulation operations at the facility. The tanks were located inside a two-foot high, concrete block enclosure with a crushed rock base. During the filling of a tank in 1985, 3,400 gallons of methyl ethyl ketone (MEK) were discharged accidentally onto the ground. Since the MEK spill occurred within the tank farm containment area, the area was classified under RCRA as a land disposal unit. The waste management unit was never an operating disposal facility, but it consists only of soil containing MEK spill residues.

The waste management unit was closed in 1991 in accordance with a closure plan approved by the Solid Waste Management Division. Closure was accomplished by relocating the tank farm and constructing a multi-media cap over the spill site. Post-closure care and monitoring has been performed since closure of the unit.

A Hazardous Waste Management Permit was issued to FPB for the waste management unit effective August 29, 1997. Included in this permit is a requirement for conducting confirmatory sampling at the three SWMUs and AOC B. The permit also requires that prior to initiation of sampling, this work plan be approved by the North Carolina Hazardous Waste Section.

3.0 SWMU/AOC DESCRIPTION

This section describes each of the SWMUs and AOC at which confirmatory sampling is specified by the facility's Hazardous Waste Management Permit.

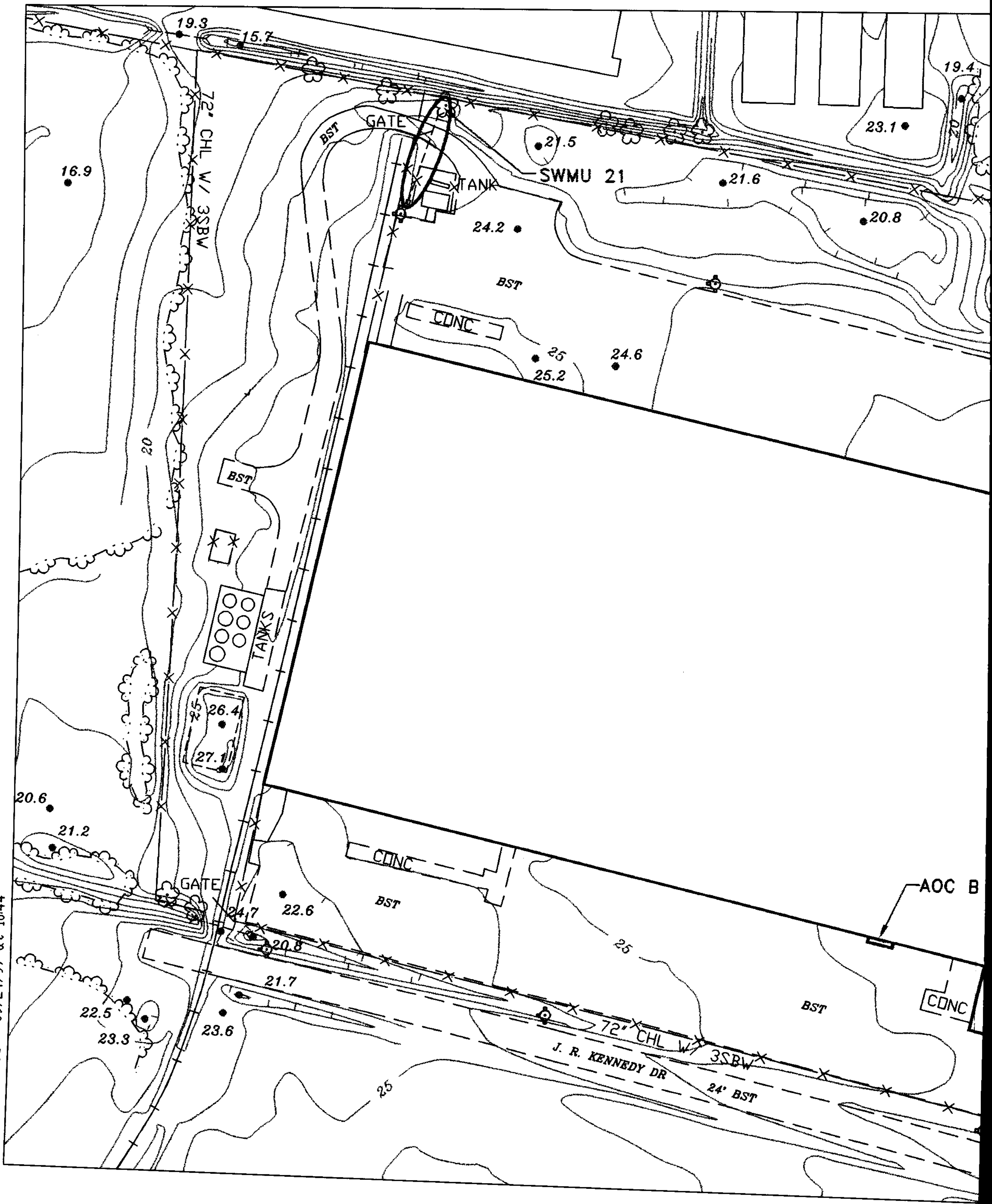
3.1 Outside Holding Tank - SWMU 9

The Outside Holding Tank (SWMU 9) was reported in the RFA Report as an above-ground tank that operated from 1974 until its removal in 1988. The closed-top tank was reportedly located outside the manufacturing building on the same wall as the washroom as shown in Figure 3-1.

Wastes managed in this unit consisted of used cleaning water which contained varying amounts of ink and solvents. These wastes were ultimately drummed and disposed of as hazardous waste.

During the RFA conducted in January 1990 by EPA contractor, A. T. Kearney, Inc., there were no signs of any releases from the former unit. Also, there are no records of releases from the SWMU. Furthermore, the asphalt pavement located beneath the alleged location of the tank would have provided a barrier to soils from any releases that could potentially occur.

In preparing this work plan, plant workers were interviewed regarding the reported location of this former tank. Historical photographs showing the area outside the wash room were also reviewed. Workers indicated that no tank ever existed at the location of SWMU 9 reported in the RFA report. In addition, a photograph taken in 1985 during the tank's reported period of existence showed no tank present at the reported location.



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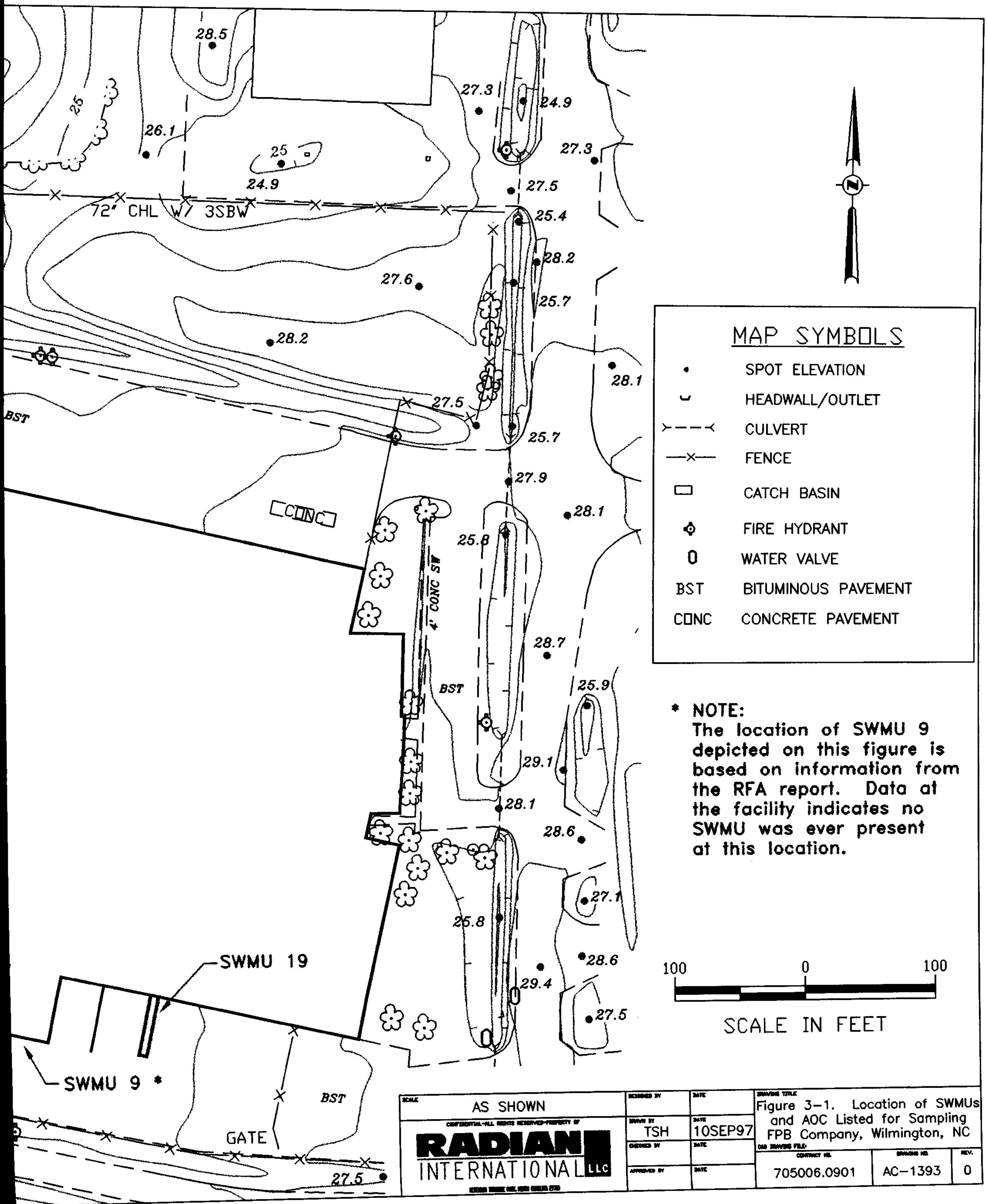

Figure 3–1. Location of SWMUs and AOC Listed for Sampling FPB Company, Wilmington, NC

3.2 Former Hazardous Waste Drum Storage Area - SWMU 19

The former Drum Storage Area (SWMU 19) was a waste accumulation area that operated from 1974 to 1991. This accumulation area was not a RCRA permitted unit since wastes were not stored for more than 90 days. As shown in Figure 3-1, this unit was located adjacent to the south side of the plant building. During its operation, two trailers similar to the trailer shown on Figure 3-2 were parked on the unit's east and west sides. Drums stored in the unit rested on asphalt without secondary containment or restricted access. Reportedly, forty to fifty drums of hazardous waste accumulated each month and were transported by licensed contractors to an approved off-site hazardous waste disposal facility.

This unit handled surplus inks and spent solvents resulting from the facility's printing processes. Although the exact chemical composition of the inks varied, the wastes were not dramatically different in composition from the original raw materials.

The unit as it currently exists is illustrated in Figures 3-2 and 3-3. The area formerly occupied by the Hazardous Waste Storage Area now serves as an intermediate transfer point for inks being used in the printing of various products. Drums containing ink are temporarily staged here while being transferred between printers inside the plant and the product storage area.

3.3 North Drainage Ditch - SWMU 21

The North Drainage Ditch (SWMU 21) is a land-based unit that is located near the northwest corner of the plant building as shown in Figure 3-1. This unit consists of a storm drain, a concrete culvert and outlet, and a short segment of unlined ditch that joins a larger unlined ditch that is located off-site and runs parallel to the facility's northern property boundary.

The waste previously handled at the SWMU was washwater that was formerly discharged from a floor cleaning machine used in the plant building. The washwater was produced by a mobile floor cleaner that was used to maintain sanitary conditions in the facility's

Figure 3-2
SWMU 19 (Former Hazardous Waste Drum Storage Area) Looking North. Drums Currently Staged in the Area Contain Ink.

Figure 3-3
SWMU 19 (Former Hazardous Waste Drum Storage Area) Looking East.
Drums Currently Staged in the Area Contain Ink.

production areas. The mobile floor cleaning unit used a non-hazardous, liquid Johnson Wax product which was contained in a 50-gallon tank on the cleaning unit. The floors were cleaned twice a week at the time of the RFA. Until 1990, the washwater from the floor cleaner was discharged to the storm drain in the north parking lot and flowed through the concrete culvert and outlet to the unlined drainage ditch.

The unit is illustrated in Figures 3-4 through 3-6. Figure 3-4 shows the outlet from the concrete culvert and the upper portion of the unlined drainage ditch. The ditch, which is only about two feet wide, extends southward approximately 15 feet to the facility's fence line. It empties into a larger unlined ditch that flows from east to west along the southern edge of the film studio property. No water was present in the culvert or in the ditch extending from it at the time the unit was photographed. Site conditions indicate that the unit contains water only during periods of rainfall of sufficient intensity and duration to generate run-off. Figures 3-5 and 3-6 depict the storm drain that is connected to the concrete culvert and outlet. The drain is located approximately 70 feet south of the outlet. Until 1990, washwater from the facility's mobile floor cleaner was discharged into this storm drain.

3.4 Outside Solvent Pump Header-AOC B

The Outside Solvent Pump Header (AOC B) is a raw material transfer unit which began operating in 1980 and is still in use. It is located adjacent to the south wall of the plant building as shown in Figure 3-1.

The AOC contains a series of small pumps and one-inch diameter galvanized steel piping. Solvents are pumped through piping from the Solvent Tank Farm to this unit and subsequently to the Press Room inside the plant building. The area measures approximately 20 feet long and 4 feet wide and is surrounded by an 8-inch high concrete wall with two drain holes on the south wall. The base of the AOC is also constructed from concrete, not asphalt as described in the RFA report.

Figure 3-4
Outlet from the North Parking Lot Storm Drain
Entering the Unlined Drainage Ditch (SWMU 21)

Figure 3-5
North Parking Lot Storm Drain Looking North Toward the Concrete Culvert Outlet and Unlined Drainage Ditch (SWMU 21)

Figure 3-6
North Parking Lot Storm Drain Looking South Toward the Northwest Corner of the Plant Building. The Floor Cleaning Machine Formerly Exited the Plant Through the Open Doorway and Discharged Washwater into the Storm Drain (SWMU 21)

Wastes potentially managed at this unit consist of nonrecoverable spilled or leaked solvents. At the time of RFA, discoloration of the outside manufacturing building wall adjacent to the piping was observed. However, no reports of spills or releases from this area were discovered in the review of available file material.

Figures 3-7 and 3-8 illustrate AOC B showing the pump headers, piping, concrete wall and concrete floor. Figure 3-8 also shows the two drain holes through the concrete wall located on the south side.

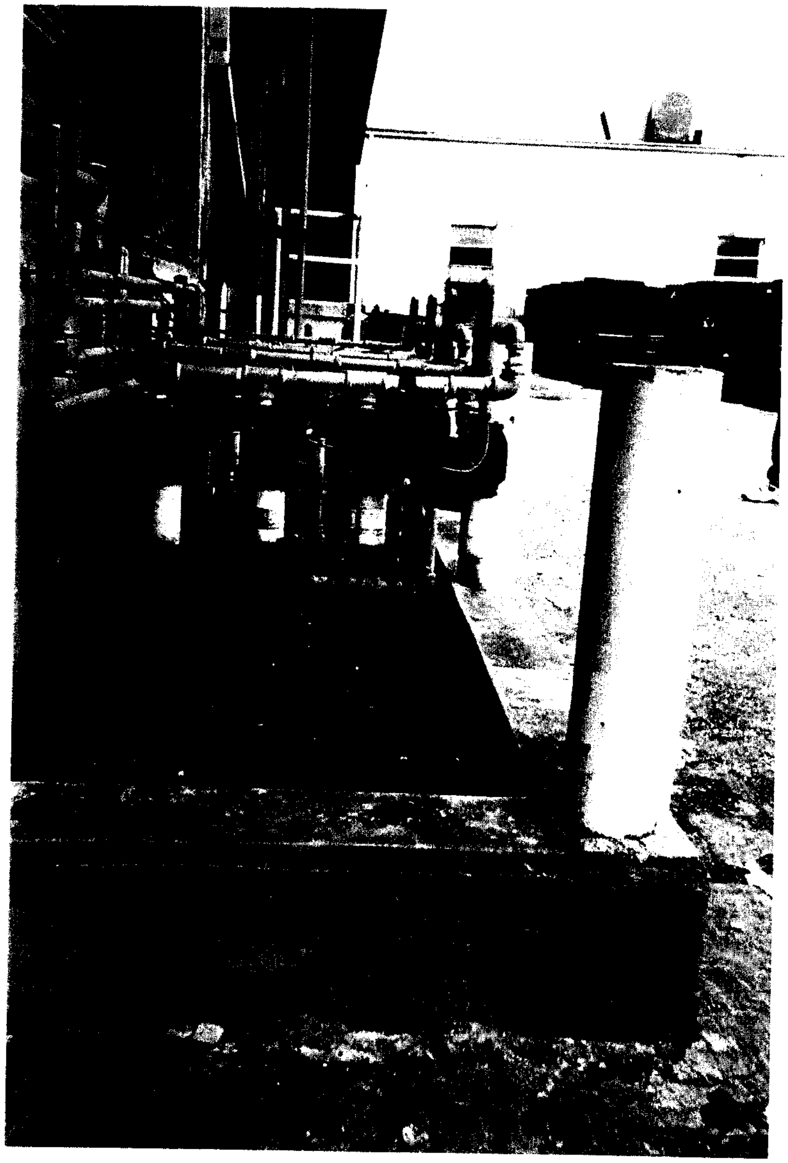

Figure 3-7
AOC B (Outside Solvent Pump Header) Looking East
Concrete Base and Walls Underlie the Pump Header

Figure 3-8
AOC B (Outside Solvent Pump Header) Looking North
Two Drain Pipes are Visible in the Concrete Wall

4.0 METHODS

This section describes confirmatory sampling activities proposed for the SWMUs and AOC B. A summary of analytical methods, preservation techniques, and holding times for the proposed samples is shown in Table 4-1. Field procedures for collecting confirmatory samples are described in Appendix A.

4.1 Outside Holding Tank - SWMU 9

Results of employee interviews and historical photo inspection have determined that no outside holding tank, or any other waste management unit, existed at the location reported for SWMU 9 in the RFA report. Based on this information, no sampling is proposed at this location.

4.2 Former Hazardous Waste Drum Storage Area - SWMU 19

As described in Section 3.0, SWMU 19 managed wastes that included cleaning water containing ink, solvents, and top lacquer. These wastes are characterized by volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals typically used in printing operations, including arsenic, chromium, copper, lead, and selenium. Evidence of any potential releases of hazardous constituents to the environment from this former unit would be limited to the underlying soil.

The proposed sampling strategy at SWMU 19 includes collecting three samples at the locations illustrated in Figure 4-1. Each sampling location will be prepared by using a concrete saw to cut and remove a 1 foot by 1 foot area of asphalt. Asphalt residue will be removed along with the gravel base underlying the asphalt. At each of the three locations, a soil sample will be collected from an interval of 0 to 1 foot using a hand auger. These samples will be screened for total volatile organics (TVO) using a

Table 4-1

Summary of Analytical Methods, Preservation Techniques, and Holding Times for Soil Samples

Analyte	Method	Technique	Container	Preservation Required	Maximum Holding Times
VOCs	EPA 8260	GC/MS	(1) 125 mL glass jar	Cool to 4°C	14 days
SVOCs	EPA 8270	GC/MS	(1) 250 mL glass jar	Cool to 4°C	14 days
Metals	EPA 6010	ICPES	(1) 250 mL glass jar	Cool to 4°C	6 months

1. VOC and SVOC analytes are listed in Appendix B.
2. Metal analytes are metals common to printing operations, including arsenic, chromium, copper, lead, and selenium.

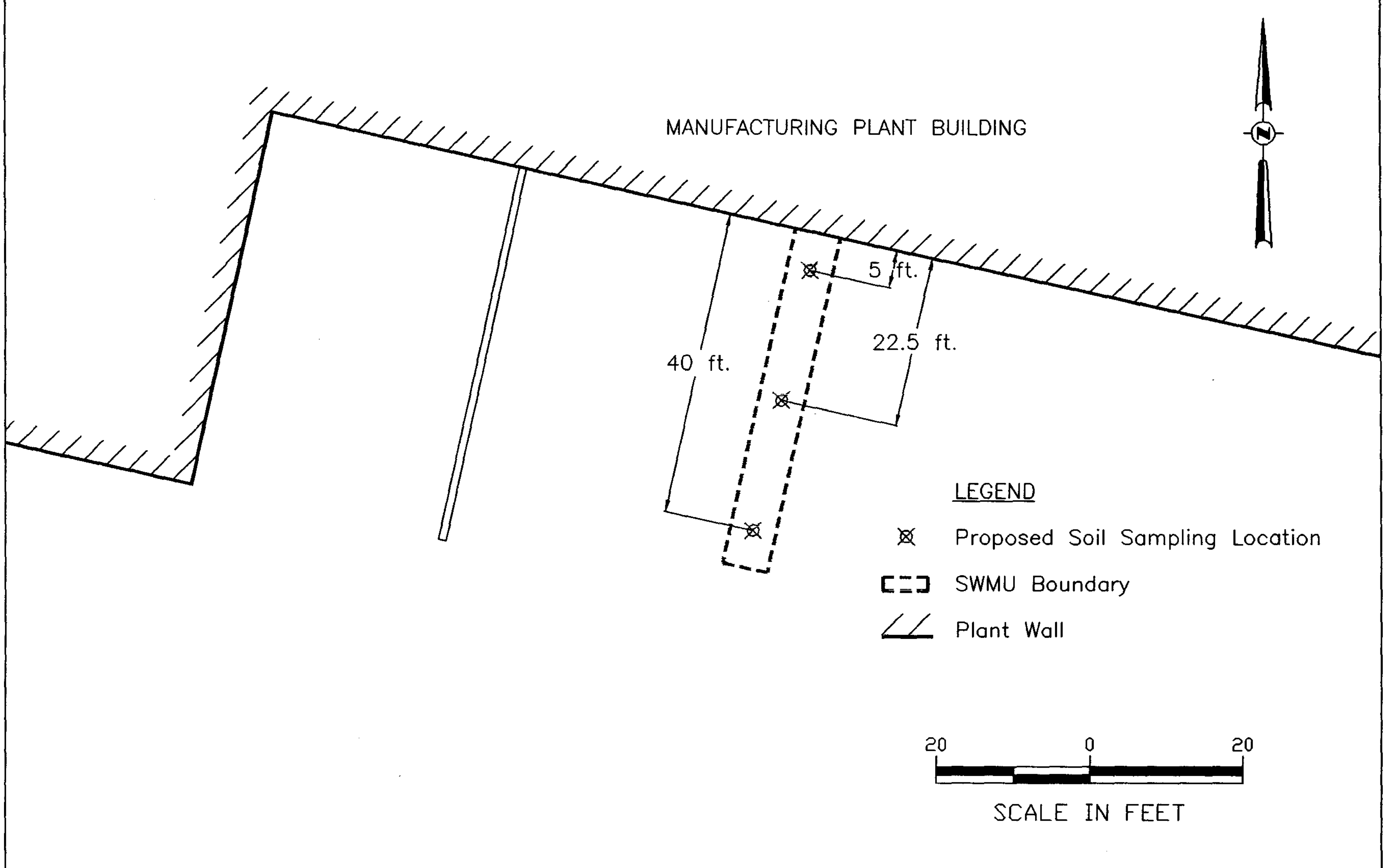

Figure 4–1. Schematic Showing Proposed Soil Sampling Locations for the Former Hazardous Waste Drum Storage Area (SWMU 19)

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photoionization detector (PID) or similar organic vapor monitor (OVM). The sample exhibiting the highest TVO concentration will be submitted for VOC analysis by Method 8260. If no sample exhibits a maximum concentration, the sample to be analyzed for VOCs will be selected at random. Soil remaining from the three sampling locations will be mixed together and submitted as a composite sample for analysis of SVOCs by Method 8270 and for metals by Method 6010.

4.3 North Drainage Ditch - SWMU 21

The North Drainage Ditch, SWMU 21, described in section 3.0, managed wastewater from floor washing activities. Wastes managed included cleaning water potentially containing ink, solvents, and top lacquer. These wastes are characterized by VOCs, SVOCs, and metals typically used in printing operations, including arsenic, chromium, copper, lead, and selenium. Evidence of any past releases of hazardous constituents to the environment from this unit would be limited to soil in the drainage ditch.

The proposed sampling strategy includes collecting three samples at the locations illustrated in Figure 4-2. Each sampling location will be prepared by clearing away the vegetation and exposing the soil surface. At each of the three locations, a sample will be collected from an interval of 0 to 1 foot using a hand auger. These samples will be screened for TVOs using a PID or OVM. The sample exhibiting the highest TVO concentration will be used for analysis of VOCs by Method 8260. If no sample exhibits a maximum concentration, the sample from the location nearest the outfall will be submitted for analysis of VOCs. Soil remaining from the three sampling locations will be mixed together and submitted as a composite sample for analysis of SVOCs by Method 8270 and for metals by Method 6010.

4.4 Outside Solvent Pump Header - AOC B

As described in Section 3.0, the Outside Solvent Pump Header, AOC B, potentially manages wastes that include nonrecoverable spilled or leaked solvents. These

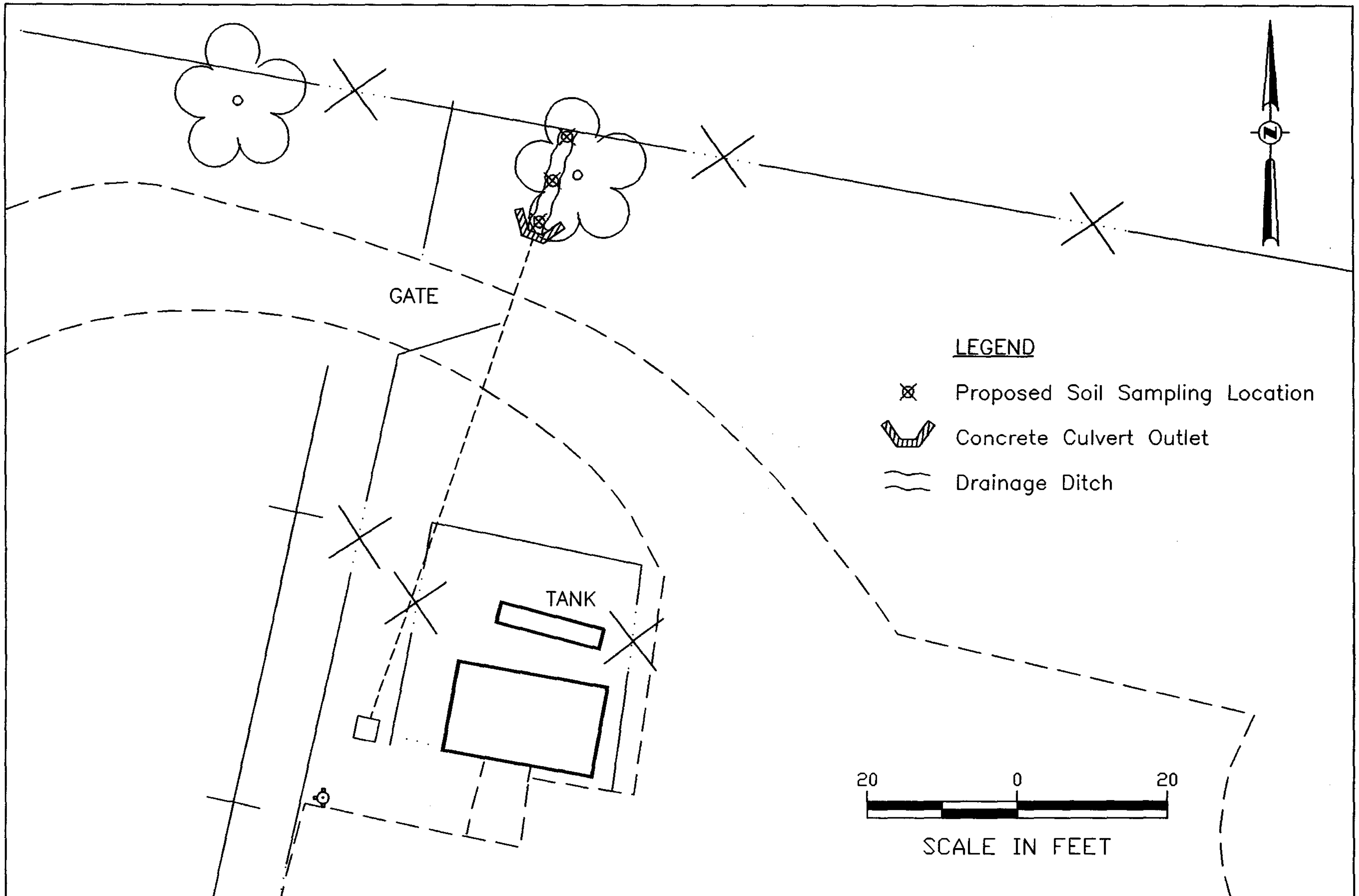

Figure 4-2. Schematic Showing Proposed Soil Sampling Locations for the North Drainage Ditch (SWMU 21)

potential wastes are characterized by VOCs. Evidence of any potential releases of hazardous constituents to the environment from this AOC would be limited to the underlying soil.

The proposed sampling strategy at this AOC includes collecting two samples at the base of the drain locations illustrated in Figure 4-3. Each sampling location will be prepared by using a concrete saw to cut and remove a 1 foot by 1 foot area of asphalt. Any asphalt residue will be removed along with the gravel base underlying the asphalt. At each of the two sampling locations, a soil sample will be collected from an interval of 0 to 1 foot using a hand auger. These samples will be screened for TVOs using a PID or similar OVM. The sample exhibiting the highest TVO concentration will be submitted for VOC analysis by Method 8260. If no sample exhibits a maximum concentration, the sample to be analyzed for VOCs will be selected at random. Soil remaining from the three sampling locations will be mixed together and submitted as a composite sample for analysis of SVOCs by Method 8270 and for metals by Method 6010.

4.5 Background Samples

Five grab samples will be collected and analyzed for background metals concentrations. Sampling locations will be selected by the sampling team from general areas in the northeast and southeast corners of the property where the potential effects of plant operations are anticipated to be minimal.

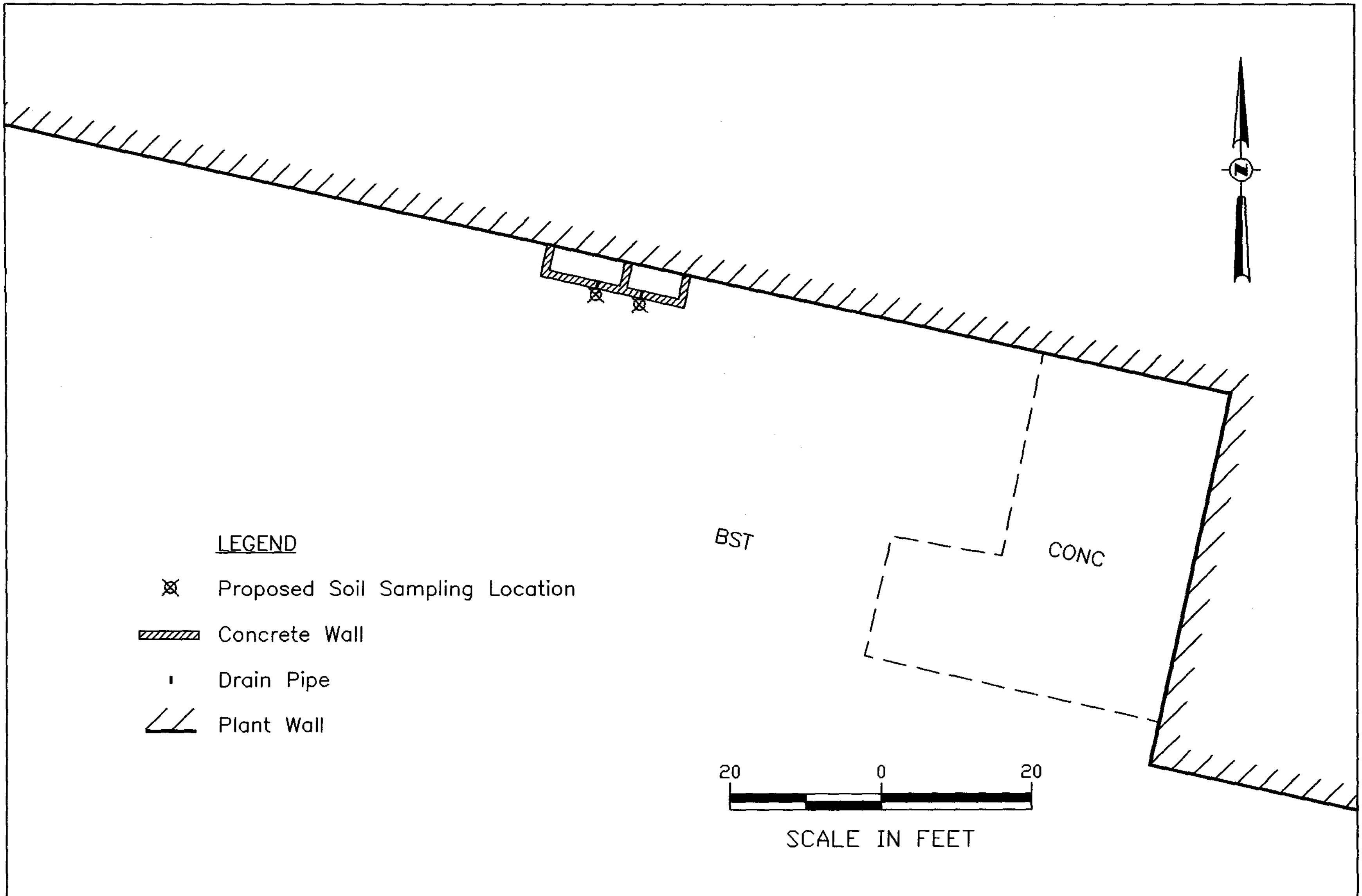

Figure 4–3. Schematic Showing Proposed Soil Sampling Locations for the Outside Solvent Pump Header (AOC B)

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5.0 DATA EVALUATION AND REPORTING

The data reduction, evaluation, assessment, and reporting procedures described in this section will ensure that complete documentation is maintained, transcription and data reduction errors are minimized, the data reviewed and documented, and the reported results are properly qualified.

5.1 Laboratory Data Reduction, Review, and Reporting

The laboratory analyst has primary responsibility for performing analyses that meet method and project specifications, data reduction, and documenting all information pertinent to sample analysis and data quality. After sample analysis, all raw data will be reviewed by a supervisor or peer reviewer to verify that the analytical batch meets specifications.

Quality control criteria that are exceeded will be documented in a Quality Control Exception Report (QCER) that will be produced in the laboratory at or before this review. The QCER will include the sample identification number, the date, batch number, laboratory identification number, method, analytes affected, problem (in detail), and the corrective action(s) taken. The lab supervisor or designee will be responsible for ensuring that appropriate corrective actions are taken in a timely manner.

After data reduction and review, preliminary results will be reported on a work order basis. A designated QC reviewer will perform an additional review of the results and any QCERs. Then, final reports will be produced and submitted for approval and signature by the laboratory supervisor or designee.

The laboratory will use a Laboratory Information Management System (LIMS) to store, transfer, and report analytical data. The laboratory will be responsible for generating hard copies and electronic files of the analytical results in standard formats needed by the project staff.

The hardcopy and electronic laboratory reports for all sample analyses will contain the information necessary to perform data evaluation.

5.2 Data Reduction, Review, and Reporting for Field Analyses

All field screening results for TVO concentrations will be recorded with indelible ink in a permanently bound, numbered notebook with sequentially numbered pages. The records kept for the screening activities will include, at a minimum, the following information:

- Field identification number or location;
- Instrument operator;
- Date and time measured;
- Weather conditions;
- Result for each sample; and
- Units.

5.3 Data Evaluation

Data received from the laboratory will be evaluated in general accordance with USEPA Functional Guidelines for evaluating organic and inorganic analysis. Factors to be considered will include sample holding times, instrument time and performance, instrument calibration, blanks, surrogate recoveries, matrix spikes/duplicates, plus other quality control parameters.

The validity of individual data points will be determined during the data assessment process. Data qualified as J or UJ are estimated based on the results of associated QC samples, such as blanks, spikes, and duplicate sample results. Qualified data, although only estimates, are documented and, therefore, defensible. Qualified data will be used for interpretation as long as the cited quality flags and any associated limitations are considered and do not affect data usability.

5.4 Data Assessment

Data assessment will be completed upon receipt of qualified data from the field investigation. Data will be summarized into a usable format using tables to exhibit results.

Positive analytical results for metals samples will be compared to native soil concentrations cited in the literature and to results reported for background samples collected on-site. Positive analytical results for organic compounds, if any, will be compared to practical quantitation limits to minimize false positive detections and to "health-based" screening criteria such as EPA Region III Risk-Based Criteria (RBC) to assess the significance of any detections.

5.5 Confirmatory Sampling Report

A confirmatory sampling report will be prepared based on the results of the data assessment. The report will describe the sampling activities and will provide all data collected, including raw data, plus a summary and analysis of the data. The report will also identify any SWMU or AOC determined to have released hazardous constituents into the environment.

6.0 SCHEDULE

Confirmatory sampling will be implemented within 21 days following approval of the work plan. Three copies of the Confirmatory Sampling Report will be submitted within 60 days following approval of the work plan.

7.0 REFERENCES

A. T. Kearney, Inc. and North Carolina Hazardous Waste Section. RCRA Facility Assessment of Federal Paper Board Company, Wilmington, North Carolina. 1996.

North Carolina Department of Environment, Health, and Natural Resources. Hazardous Waste Management Permit No. NCD 072022726. July 25, 1997.

Radian Corporation. RCRA Post-Closure Permit Application, Federal Paper Board Company, Inc., Wilmington, North Carolina, NCD 072022726. June 1994 (Revised April 1995).

APPENDIX A

PROPOSED FIELD PROCEDURES

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PROPOSED FIELD PROCEDURES

This appendix briefly describes the field procedures to be used in conducting the confirmatory sampling. The procedures pertain to sample collection and handling, field measurements and equipment decontamination. Health and safety procedures will be specified in a separate site-specific health and safety plan.

A.1 Soil Sampling

Surface sampling points will be collected for laboratory analysis using a clean hand auger according to the following procedures. A clean, steel hand auger assembly consisting of a detachable handle, extension rod, and auger bucket will be used to collect surface soil samples for laboratory analysis at selected sampling locations. For surface soil samples, the hand auger will be advanced until the auger bucket is full and will then be retrieved. The procedure will be repeated until soil to a depth of one foot has been collected. Each soil sample will be removed from the auger bucket using a clean spoon and prepared immediately by an engineer or scientist wearing new, disposable nitrile or latex gloves. Initially, the lithology of the soil sample will be noted and recorded in the field notebook. Any soil sample scheduled for laboratory analysis will then be prepared as follows.

The sample for VOC analysis will be transferred directly from the bottom of the first auger bucket retrieved into a clean, labeled sample jar that will be filled completely, sealed with a Teflon-lined cap, and placed into an insulated cooler containing wet ice for storage. The remainder of the sample from the auger bucket will be placed in a sealed plastic bag and any VOCs in the soil allowed to equilibrate with the head space. Once equilibrated, the seal will be opened enough to insert the photo ionization detector (PID) probe into the head space. The head space will be screened for total volatile organic (TVO) concentration and the maximum reading will be recorded. After all samples have been screened from all sampling locations at a particular

SWMU or AOC, the sample with the highest TVO reading will be submitted for laboratory analysis by Method 8260. If no sample exhibits a maximum reading, the sample for analysis will be randomly selected.

A composite sample will be analyzed for SVOCs and metals at SWMUs 19 and 21. Soil remaining from all sample locations at each of the two SWMUs will be placed in a clean, metal pan or bowl and thoroughly mixed before being transferred into clean, labeled jars and sealed with Teflon-lined caps. Upon sealing, each composite sample will be immediately placed into an insulated cooler containing wet ice for storage and managed as described in Section A.4.

Background samples for metal analysis will be collected and handled as described above with one exception. The samples will be submitted as grab samples and not composited.

A.2 Sample Locations

All sampling points will be located relative to permanent site features using a fiberglass engineers tape accurate to 0.01 feet. Locations will be recorded at the time of soil sampling.

A.3 Quality Assurance/Quality Control (QA/QC)

Quality control measures associated with the collection and analysis of soil samples will include both field and laboratory procedures to ensure sample integrity and analytical reliability. Field procedures for sampling will include the use of sample labels, chain-of-custody forms, custody seals, field data sheets and log books, equipment decontamination, and the collection and analysis of QC samples. Laboratory QC will include the use of internal blanks, and duplicates to ensure that analytical systems operate within specified allowable limits.

A.3.1 Field QA/QC

All samples will be assigned unique ID numbers which will be recorded on the field data sheets and/or in the field logbook, on the sample labels, and on the chain-of-custody forms. Sample labels document sample type, location, samplers, required analysis and date of collection.

Two types of Quality Control (QC) samples will be prepared and submitted to the analytical laboratory with the field samples. The QC samples, which will be used to verify that all sampling and analytical techniques are performed properly, will include trip blanks (TB) and equipment blanks (EB).

Trip Blank

A trip blank is a VOC sample vial filled in the laboratory with organic free water, transported to the site, handled like a sample, and returned to the laboratory for analysis. Trip blanks are not opened in the field.

One trip blank will accompany every cooler of soil samples sent to the laboratory for the analysis of VOCs. This blank will be analyzed for VOCs only.

Equipment Blank

An equipment blank is organic free water that is poured over or through a sampling device, transferred to a sample bottle, and transported to a laboratory for analysis.

Equipment blanks will be prepared for the various pieces of equipment used to collect soil samples. The blanks will be analyzed for all laboratory analyses requested. Equipment blanks will be collected at a minimum rate of 5% of all field samples.

A.3.2 Laboratory QA/QC

The focus of the laboratory QA/QC program is to assess data quality using system and analytical method validation procedures. Quality control data will be used to identify and define the qualitative and quantitative limitations associated with the measurement data. These procedures ensure that analytical systems are operating within required limits of accuracy and precision and that analytical results are reliable. The QA/QC procedures used to evaluate data quality include holding times, initial and continuing calibration, spikes (surrogates and matrix), lab control samples (LCS), field and lab duplicates, and blanks.

A.4 Sample Documentation, Packaging, and Shipping

The following procedures will be used to manage the field samples and QC samples following collection. All samples will be classified as environmental samples for shipping purposes.

A.4.1 Sample Custody and Documentation

Once collected, all samples will remain in the possession of the sampling team or locked in a vehicle at all times prior to transfer of custody for shipment to the laboratory. Prior to packaging, each sample's unique identification number will be entered on the chain of custody record along with the names of the samplers, type of sample, time of collection, number of containers, requested analyses, and any sample preservation used. A separate chain of custody will accompany each sample shipping container.

A.4.2 Sample Packaging

The following procedure will be followed in preparing each sample shipping container. A medium-sized, insulated cooler will be selected and its drain plug sealed with duct tape on both the interior and exterior sides of the cooler. The cooler will be lined with a large plastic bag and a layer of vermiculite added to the bottom of the cooler. Each sample container will be placed in an appropriately sized polyethylene freezer bag and sealed. Several layers of sample bottles will then be placed in the cooler with fresh ice, double bagged in gallon-size polyethylene freezer bags, added on top of and below each layer. The plastic bag lining the cooler will then be secured with duct tape and the signed chain of custody inserted into a plastic freezer bag and affixed to the interior side of the cooler lid. The cooler lid will be taped shut and secured with two signed custody tapes. Appropriate shipping labels will be affixed to the top and sides of the cooler.

A.4.3 Sample Shipment

The packaged samples will be delivered to a commercial overnight carrier for shipment to the laboratory on a priority basis. A copy of each air bill is retained to document the shipment.

A.5 Equipment Decontamination

All non-dedicated, non-disposable sampling equipment will be decontaminated between each use according to the following sequence: tap water rinse; phosphate-free soap and tap water wash; tap water rinse; isopropyl alcohol rinse; and, deionized water rinse. Clean equipment will be allowed to air dry. All wash and rinse water will be containerized and transported to a temporary storage area pending disposal.

A.6 Sample Boring Abandonment

Clean fill will be added to the shallow boreholes and tamped into place. At locations where asphalt was removed, "cold patch" will be placed over the fill material.

APPENDIX [illegible]

[illegible] LISTS FOR METHODS [illegible] AND 8270

TARGET ANALYTE LIST FOR METHOD 8260

Acetonitrile

Acrolein

Acrylonitrile

Benzene

Bromoform

Bromomethane

2-Butanone (MEK)

Carbon disulfide

Carbon tetrachloride

Chlorobenzene

2-Chloro-1,3-butadiene

2-Chloroethyl vinyl ether

Chloroform

Chloromethane

1,2-Dibromo-3-Chloropropane

Dibromomethane

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

Dichlorodifluoromethane (Freon 12)

1,1-Dichloroethane

1,1-Dichloroethene

cis-1,2-Dichloroethene

trans-1,2-Dichloroethene

1,2-Dichloropropane

cis-1,3-Dichloropropene

trans-1,3-Dichloropropene

Ethyl methacrylate

ANALYTE LIST FOR METHOD 8260 (Continued)

Iodomethane

Methyl methacrylate

Methylene chloride

Propanenitrile

1,1,1,2-Tetrachloroethane

1,1,2,2-Tetrachloroethane

Tetrachloroethene

Toluene

1,1,1-Trichloroethane

1,1,2-Trichloroethane

Trichloroethene

Trichlorofluoromethane (Freon 11)

1,2,3-Trichloropropane

Vinyl chloride

TARGET ANALYTE LIST FOR METHOD 8270

Acetophenone

2-Acetylaminofluorene

4-Aminobiphenyl

Aniline

Benz(a)anthracene

Benz(a)pyrene

Benzidine

Benzo(b)fluoranthene

Benzo(k)fluoranthene

4-Bromophenylphenyl ether

Butylbenzylphthalate

p-Chloroaniline

Chlorobenzilate

4-Chloro-3-methylphenol

2-Chloronaphthalene

2-Chlorophenol

Chrysene

Diallate

Dibenz(a,h)anthracene

1,2-Dichlorobenzene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

3,3'-Dichlorobenzidine

2,4-Dichlorophenol

2,6-Dichlorophenol

Diethylphthalate

p-Dimethylaminoazobenzene

TARGET ANALYTE LIST FOR METHOD 8270 (Continued)

7,12-Dimethylbenz(a)anthracene

3,3'-Dimethylbenzidine

Dimethylphenethylamine

2,4-Dimethylphenol

Dimethylphthalate

4,6-Dinitro-2-methylphenol

2,4-Dinitrophenol

2,4-Dinitrotoluene

2,6-Dinitrotoluene

Di-n-octylphthalate

Diphenylamine/N-Nitrosodiphenylamine

Ethyl methanesulfonate

Fluoranthene

Fluorene

Hexachlorobenzene

Hexachlorobutadiene

Hexachlorocyclopentadiene

Hexachloroethane

Hexachloropropene

Indeno(1,2,3-cd)pyrene

Isosafrole

Kepone

Methapyrilene

3-Methylcholanthrene

Methyl methanesulfonate

2-Methylphenol

4-Methylphenol/3-Methylphenol

TARGET ANALYTE LIST FOR METHOD 8270 (Continued)

Naphthalene

1,4-Naphthoquinone

1-Naphthylamine

2-Naphthylamine

4-Nitroaniline

Nitrobenzene

5-Nitro-o-toluidine

4-Nitrophenol

N-Nitrosodiethylamine

N-Nitrosodimethylamine

N-Nitroso-di-n-butylamine

N-Nitrosomethylethylamine

N-Nitrosomorpholine

N-Nitrosopiperidine

N-Nitrosopyrrolidine

Pentachlorobenzene

Pentachloroethane

Pentachloronitrobenzene

Pentachlorophenol

Phenacetin

Phenol

2-Picoline

Pronamide

Pyridine

Safrole

1,2,4,5-Tetrachlorobenzene

2,3,4,6-Tetrachlorophenol

TARGET ANALYTE LIST FOR METHOD 8270 (Continued)

o-Toluidine

1,2,4-Trichlorobenzene

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol