LOCATION OF ORIGINAL: MAD

This Report is prepared for the sole use and benefit of Waste Management and its component. No representation concerning significance of the reported data is made to any other person or entity.

135856 (See Computer Lab
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-8360
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAMPLE TAKEN: 10/3/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. components, sam. preservation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance program.

DATE OF REPORT: OCT 24 1989
SIGNATURE: Richard J. Lisac
LAB MANAGER NAME: Roger Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/13/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	85% yellow/brown 15% brown	☐ YES ☒ NO IF KNOWN DESCRIBE	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☒ BI-LAYERED ☐ SINGLE PHASED	☒ YES ☐ NO VOLUME 1 T.C

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.4		10/19/89
	pH, s.u. WATER MIX/pH PAPER	5.5		10/13/89
	Acidity, %, as			
	Alkalinity, %, as			
	C.O.D., mg/l			
	B.O.D., mg/l			
✓	Total Solids @ 105°C, %	99.0		10/19/89
	Total Dissolved Solids, mg/l			
	R.O.E. @ 180°C, mg/l			
	Flash Point, °F (closed cup)			
	Ash Content, on ignition, %	< 0.5		10/19/89
	Heating Value, BTU/lb	15700		10/17/89
✓	REACTIVITY, CYANIDE, mg/kg	< 7.5		10/23/89
	Arsenic, as As, mg/l ✓			
✓	Barium, as Ba, mg/l	1.02		
	Cadmium, as Cd, mg/l			
✓	Chromium, Total, as Cr, mg/l	< 0.23		
	Chromium, Hexavalent, as Cr +6, mg/l			
	Cobalt, as Co, mg/l			
✓	Copper, as Cu, mg/l	1.82		
	Iron, Total, as Fe, mg/l			
	Iron, Dissolved, as Fe, mg/l			
✓	Lead, as Pb, mg/l	1.39		
✓	Manganese, as Mn, mg/l	0.34		
	Magnesium, as Mg, mg/l			
✓	Mercury, as Hg, mg/l	< 0.0KA		
✓	Nickel, as Ni, mg/l	< 0.23		
	Selenium, as Se, mg/l			
	Silver, as Ag, mg/l			
	Thallium, as Tl, mg/l			
✓	Zinc, as Zn, mg/l	31.6		
✓	REACTIVE AS MAG	< 47.		✓
	Bicarbonates, as HCO_3, mg/l			
✓	Bromides, as Br, mg/l TOTAL	< 0.2		10/23/89
	Carbonates, as CO_3, mg/l			
	Chlorides, as Cl, mg/l TOTAL	< 0.5		10/23/89
	Fluorides, as F, mg/l TOTAL	< 200.		10/18/89
	Nitrates, as NO_3, mg/l			
	Nitrites, as NO_2, mg/l			
	Phosphates, as P, mg/l			
	Sulfates, as SO_4, mg/l			

✓	Test	As Received	Extraction Procedure	Date Analyz
✓	Sulfur, as S, % TOTAL	< 0.5		10/23
	Phenols, mg/l KNOWN	< 5.		10/15
	Cyanides, as CN, Total mg/l			
	Cyanides, as CN, Free mg/l			
	Ammonia Nitrogen, as N, mg/l			

89018008 PROF: MADJ10114 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

	Magnesium Hardness, as $CaCO_3$, mg/l		
✓	VISCOSITY, CPS	269.	10/19
	Oil and Grease, mg/l		
✓	Paint Filter Test, free liquids, %	FAIL	10/17
✓	Water Content, as H2O, %	20.11	10/23
	SRR COMP: TRIP: 100% xylene,		10/17
	Acetone: Benzene, 1,2-dichloroethane,		
	Chlordane, mg/l		
	DDT, mg/l		
	Dieldrin, mg/l		
	Heptachlor, mg/l		
	Parathion, mg/l		
	Endrin, mg/l		
	Lindane, mg/l		
	Methoxychlor, mg/l		
	Toxaphene, mg/l		
	2,4-D, mg/l		
	2,4,5-TP (Silvex), mg/l		
✓	PCBs, ppm	< 2.	10/18
	PCBs, mg/l		
✓	REACTIVE REPORT ATTACHED		10/19
	pH Screen, s.u.		
	Cyanide Screen, (+,-) mg/l	< 10.	10/18
	Flammability Screen, (+,-)	NEG.	
	Oxidizer Screen, (+,-)	NEG.	
	Radiation Screen, (+,-)	EQUIPMENT	
	Sulfide Screen, (+,-) mg/l	< 2. U	
	Water Mix Screen, (+,-)	REACTIVE	✓
		RAD: NEG	
		% H2O	

AR400877

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

Apply the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT WRITE ON THE BAR CODE (if present).

1. WASTE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.
2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1. WITNESS' SIGNATURE - Sign in the space provided.
2. WITNESS' NAME - Print the name of the person who witnessed the sampling.
3. WITNESS' TITLE - Enter the witness' title.
4. WITNESS' EMPLOYER - Enter the witness' employer's name.
5. DATE - Enter the date the sampling event was witnessed.

UTS J 10113

Waste Profile Sheet Code

WM Location of Original: (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #:

This completed form must be returned, with the representative sample, to:

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)
If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☑ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)
Drum

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:		1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:	ANTEX FIBERS INC	2. Generator's Name:
3. [redacted] Name of Waste:	WASTE OIL & WATER	3. Name of Waste:
4. [redacted] Sample Hour/Date:	420 PM 10/3/89 TUES	4. Sample Hour/Date:
5. [redacted] Sampler's Signature:	John R. Beard	5. Sampler's Signature:

6. Print Sampler's Name: JOHN BEARD
7. Sampler's Title: FIELD ANALYST
8. Sampler's Employer (if CWM, see D. below): CWM TECH SERVICES

D. WITNESS VERIFICATION (If required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.
I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the information noted above.

1. Witness' Signature: [signature]
2. Witness' Name: R.F. MALINA JR. 3. Witness' Title: PROJECT MANAGER
4. Witness' Employer: ANTEX FIBERS 5. Date 10-3-89

...ERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

DTS J 10113
Waste Profile Sheet Code

G. OTHER HAZARDOUS CHARACTERISTICS To BE DETERMINED. (TBD)

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☐ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☐ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION TBD

	LESS THAN	or ACTUAL	
Beryllium	☐ < 5000 ppm	_____	ppm
Potassium	☐ < 5000 ppm	_____	ppm
Sodium	☐ < 5000 ppm	_____	ppm
Total Bromine	☐ < 2 %	_____	%
Total Chlorine	☐ < 35 %	_____	%
Total Fluorine	☐ < 1 %	_____	%
Total Sulfur		_____	%

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available. TBD

1. Heat Value (BTU/lb): _____ - _____ Range
2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ %
5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☑ Yes ☐ No
2. Anticipated Annual Volume/Units: _____ /
3. Proper Shipping Name: WASTE OIL, N.O.S.
4. Hazard Class: _____
5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): _____ / _____ Other: _____
8. CERCLA Reportable Quantity (RQ): _____
9. RQ Units (lb/kg): _____
10. USEPA Hazardous Waste? ☐ Yes ☐ No
11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☐ No
13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Send Disposal to Salston, VA

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J Malina Jr. (Signature)
2. PROJECT MANAGER (Title)
3. PAUL J. MALINA JR. (Name (Type or Print))
4. 5 Oct 89 (Date)

AR400880

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

II-1

Drums 101-126

VTS J 10113

Waste Profile Sheet Code

Location of Original: (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #:

A. GENERAL INFORMATION

1. Generator Name: AVTEX FIBERS INC
2. Generator USEPA ID: VAD072358484
3. Facility Address: 1164 KENDRICK LANE, Front Royal, VA
4. Generator State ID:
5. Zip Code: 22630
6. Technical Contact: Paul Malina
7. Title: UTILITIES ENGR
8. Phone: (703) 635-3141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☐ Generating Facility (A, above), or

2. Company Name: CWM TECHNICAL SERVICES
3. Phone: (703) 775-9000
4. Address: P.O. Box 96, SEALSTON VA
5. Zip Code: 22547

C. 1. NAME OF WASTE: WASTE OIL & WATER

2. PROCESS GENERATING WASTE: OIL FROM CLUTCHES (MACHINE) ON FIRE

3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☑ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
TAN	☐ No ☐ Yes If known, describe: MILK	☐ Solid ☐ Semi-Solid ☑ Liquid ☐ Powder Other:	☑ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.0 - 1.2	☑ Yes ☐ No Volume: 100

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☑ 7 ☐ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range ___ - ___ ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
OIL	60 - 95	%
WATER	35 - 40	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: ___ %

2. Indicate if this waste contains any of the following: TO BE DETERMINED

	NONE	or LESS THAN	or ACTUAL	
PCB's	☐	☐ < 50 ppm	___	ppm
Cyanides	☐	☐ < 50 ppm	___	ppm
Phenolics	☐	☐ < 50 ppm	___	ppm
Sulfides	☐	☐ < 50 ppm	___	ppm

F. METALS Indicate if this waste contains any of the following: TO BE DETERMINED

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	
Barium	☐ < 100		
Cadmium	☐ < 1	☐ < 100	
Chromium	☐ < 5		
Lead	☐ < 5	☐ < 500	
Mercury	☐ < 0.2	☐ < 20	
Selenium	☐ < 1	☐ < 100	
Silver	☐ < 5		
Chromium-Hex	☐ < 5	☐ < 500	
Copper	☐ < 5		
Nickel	☐ < 5	☐ < 134	
Thallium	☐ < 5	☐ < 130	
Zinc	☐ < 5		
___	☐ <		
___	☐ <		
___	☐ <		

TURN PAGE AND COMPLETE SIDE 2

AR400881

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018015 PROF: MADJ10113 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 1:10 + 1.0 gC's
DILUTION FACTOR: (5X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC/6-7	0-0.1
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: n/a	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☑ If checked, multiply detection limits by dilution factor above.

☑ Top Layer ☐ Middle Layer ☐ Bottom Layer ☐ Not Applicable

Date Completed: 10-16-89 Analyst:

Comments:

Reviewed by:

AR400882

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018015 PROF: MADJ10113 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: liquid
DILUTION FACTOR:

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC	
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: N/A	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☐ If checked, multiply detection limits by dilution factor above.

☐ Top Layer ☐ Middle Layer ☑ Bottom Layer ☐ Not Applicable

Date Completed: 10-25-89 Analyst: EMV

Comments:

AR400883

LOCATION OF ORIGINAL MAD

This Report is intended for the sole use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

(See Computer Label)
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-8360
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAMPLE TAKEN: 10/4/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐ NO

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. standards, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting the analysis. The laboratory follows a quality assurance control program.

DATE OF REPORT: OCT 23 1989 SIGNATURE: [signature]
LAB MANAGER NAME: Roger Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/13/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	90% brown opaque liq. 10% lt. brown cloudy	☐ YES ☒ NO IF KNOWN, DESCRIBE [illegible]	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☒ BI-LAYERED ☐ SINGLE PHASED	☒ YES ☐ NO VOLUME 100%

✓	Test	As Received	Extraction Procedure	Date of Analysis	✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.9		10/19/89	✓	Sulfur, as S, % TOTAL	<0.5		10/23/89
	pH, s.u. WATER MIX/BY PAPER	5.5		10/13/89					
	Acidity, % as					Phenols, mg/l SCREEN	<5.		10/12/89
	Alkalinity, % as					Cyanides, as CN, Total mg/l			
	C.O.D., mg/l					Cyanides, as CN, Free mg/l			
	B.O.D., mg/l					Ammonia Nitrogen, as N, mg/l			
✓	Total Solids @ 105°C, %	98.2		10/19/89		89018016 PROF: MADJ10118 10/13/89			
	Total Dissolved Solids, mg/l					AVTEX FIBERS, INC			
	R.O.E. @ 180°C, mg/l					FRONT ROYAL, VA DUE 10/20/89			
						SRCE: MAD SITE: SRR INC			
	Flash Point, °F (closed cup)					OIL/WATER			
	Ash Content, on ignition, %	<0.5		10/19/89		Calcium Hardness, as $CaCO_3$, mg/l			
✓	Heating Value, BTU/lb	20300.		10/17/89		Magnesium Hardness, as $CaCO_3$, mg/l			
✓	POTASSIUM as K, mg/l	11.9		10/19/89		SRR COMP: TOP: 100% [illegible]			10/13/89
	Arsenic, as As, mg/l					~~Oil and Grease, mg/l~~ BOTTOM [illegible]			
✓	Barium, as Ba, mg/l	0.42				Paint Filter Test, free liquids, %	FAIL.		10/13/89
	Cadmium, as Cd, mg/l				✓	Water Content, as H_2O, %	3.0		10/20/89
✓	Chromium, Total, as Cr, mg/l	<0.23			✓	VISCOSITY, CPS	245.		10/10/89
	Chromium, Hexavalent, as Cr^{+6}, mg/l					Aldrin, mg/l			
	Cobalt, as Co, mg/l					Chlordane, mg/l			
✓	Copper, as Cu, mg/l	1.49				DDT, mg/l			
	Iron, Total, as Fe, mg/l					Dieldrin, mg/l			
	Iron, Dissolved, as Fe, mg/l					Heptachlor, mg/l			
✓	Lead, as Pb, mg/l	1.16				Parathion, mg/l			
✓	Manganese, as Mn, mg/l	0.21				Endrin, mg/l			
	Magnesium, as Mg, mg/l					Lindane, mg/l			
✓	Mercury, as Hg, mg/l	<0.014				Methoxychlor, mg/l			
✓	Nickel, as Ni, mg/l	<0.23				Toxaphene, mg/l			
	Selenium, as Se, mg/l					2,4-D, mg/l			
	Silver, as Ag, mg/l					2,4,5-TP (Silvex), mg/l			
	Thallium, as Tl, mg/l				✓	PCBs, ppm	<5.		10/19/89
✓	Zinc, as Zn, mg/l	<1.5				PCBs, mg/l			
✓	SODIUM as Na, mg/l	<47.			✓	[illegible]	ATTACHED		
	Bicarbonates, as HCO_3, mg/l					pH Screen, s.u.			
✓	Bromides, as Br, mg/l % TOTAL	<0.5		10/23/89		Cyanide Screen, (+,-) mg/l	<10.		10/1[illegible]
	Carbonates, as CO_3, mg/l					Flammability Screen, (+,-)	112.		
	Chlorides, as Cl, mg/l % TOTAL	<0.5		10/23/89		Oxidizer Screen, (+,-)	[illegible]		
	Fluorides, as F, mg/l TOTAL	<200.		10/18/89		Radiation Screen, (+,-)	= BACKGROUND		
	Nitrates, as NO_3, mg/l					Sulfide Screen, (+,-) mg/l	<2.		
	Nitrites, as NO_2, mg/l					Water Mix Screen, (+,-)	[illegible]		
	Phosphates, as P, mg/l					[illegible]			[illegible]
	Sulfates, as SO_4, mg/l					[illegible]			

AR400884

II-2

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

Drums
121-140

UTS J 10114
Waste Profile Sheet Code

M Location of Original: (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #:

A. GENERAL INFORMATION

1. Generator Name: AUTEC FIBERS, Inc. 2. Generator USEPA ID: VAD 070 358 624
3. Facility Address: 1184 KENDRICK [illegible] LANE 4. Generator State ID:
Front Royal, VA
5. Zip Code: 22630
6. Technical Contact: Paul MALINA 7. Title: UTILITIES ENGR 8. Phone: (703) 635-2141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO

1. ☐ Generating Facility (A, above), or
2. Company Name: Chemical WASTE MGMT TECH SERVICES 3. Phone: (703) 775-9200
4. Address: PO Box 96
STAUNTON, VA
5. Zip Code: 22547

C.

1. NAME OF WASTE WASTE OIL & WATER
2. PROCESS GENERATING WASTE OIL MACHINE CHANGE / FILE
3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☑ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
TAN	☐ No ☐ Yes If known, describe: [illegible]	☐ Solid ☐ Semi-Solid ☑ Liquid ☐ Powder Other:	☐ Multilayered ☑ Bi-layered ☐ Single Phased	Range: 1.0 - 1.2	☑ Yes ☐ No Volume: 100 %

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☑ 7 ☐ 7-10 ☐ 10- <12.5 ☐ ≥ 12.5 ☐ Range ___ - ___ ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

TO BE DETERMINED

1.	RANGE MIN. - MAX.	
OIL	80 - 85	%
WATER	15 - 20	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TO BE DETERMINED TOTAL: ___ %

2. Indicate if this waste contains any of the following:

	NONE	or LESS THAN	or ACTUAL
PCB's	☐	☐ < 50 ppm	___ ppm
Cyanides	☐	☐ < 50 ppm	___ ppm
Phenolics	☐	☐ < 50 ppm	___ ppm
Sulfides	☐	☐ < 50 ppm	___ ppm

F. METALS

Indicate if this waste contains any of the following:
1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	
Barium	☐ < 100		
Cadmium	☐ < 1	☐ < 100	
Chromium	☐ < 5		
Lead	☐ < 5	☐ < 500	
Mercury	☐ < 0.2	☐ < 20	
Selenium	☐ < 1	☐ < 100	
Silver	☐ < 5		
Chromium-Hex	☐ < 5	☐ < 500	
Copper	☐ < 5		
Nickel	☐ < 5	☐ < 134	
Thallium	☐ < 5	☐ < 130	
Zinc	☐ < 5		
___	☐ <		
___	☐ <		
___	☐ <		

TURN PAGE AND COMPLETE SIDE

AR400885

GENERATOR WASTE MATERIAL PROFILE SHEET (Continued)

VTS J 10114.
Waste Profile Sheet Code

I. OTHER HAZARDOUS CHARACTERISTICS To be determined.

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☐ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☐ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION

To be determined

	LESS THAN	or ACTUAL
Beryllium	☐ < 5000 ppm	_____ ppm
Potassium	☐ < 5000 ppm	_____ ppm
Sodium	☐ < 5000 ppm	_____ ppm
Total Bromine	☐ < 2 %	_____ %
Total Chlorine	☐ < 35 %	_____ %
Total Fluorine	☐ < 1 %	_____ %
Total Sulfur		_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available.

Range TBD

1. Heat Value (BTU/lb): _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION TBD

1. Is this a DOT Hazardous Material? ☑ Yes ☐ No 2. Anticipated Annual Volume/Units: 1
3. Proper Shipping Name: WASTE, oil, N.O.S.
4. Hazard Class: _____ 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): 1 Other: _____
8. CERCLA Reportable Quantity (RQ): _____ 9. RQ Units (lb/kg): _____
10. USEPA Hazardous Waste? ☐ Yes ☐ No 11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☐ No 13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Send Disposal Decision to King George, VA (Ealston)

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J. Malina Jr. (Signature) 2. Project Manager (Title)
3. PAUL J. MALINA JR. (Name (Type or Print)) 4. 5 Oct 89 (Date)

Side 2 of 2

AR400886

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

Apply the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT WRITE ON THE BAR CODE (if present).

1. WASTE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.
2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1. WITNESS' SIGNATURE - Sign in the space provided.
2. WITNESS' NAME - Print the name of the person who witnessed the sampling.
3. WITNESS' TITLE - Enter the witness' title.
4. WITNESS' EMPLOYER - Enter the witness' employer's name.
5. DATE - Enter the date the sampling event was witnessed.

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018008 PROF: MADJ10114 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
ERCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 0.9g + 0.92g (2X)
DILUTION FACTOR: (2X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC 16-17	2-3.5
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS:	n/a
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☒ If checked, multiply detection limits by dilution factor above. (2)

☒ Top Layer ☐ Middle Layer ☐ Bottom Layer ☒ Not Applicable

Date Completed: 10-26-89 Analyst: EMN

Comments:

Reviewed by: [signature]

AR400889

SPECIAL WASTE ANALYSIS REPORT

LOCATION OF ORIGINAL: MAD

This Report is intended for the sole use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

(See Computer Label)
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-8360
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAMP TAKEN: 10/3/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐ NO

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, various preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance control program.

DATE OF REPORT: OCT 24 1989
SIGNATURE: Richard J. Lisac
LAB MANAGER NAME: Roger Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/13/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	70% yellow brown 30% brown	☐ YES ☒ NO IF KNOWN, DESCRIBE	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☒ BI-LAYERED ☐ SINGLE PHASED	☒ YES ☐ NO VOLUME 1 DT

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.91		10/19/89
	pH, s.u. (water mix/paper)	6.01		10/13/89
	Acidity, %, as			
	Alkalinity, %, as			
	C.O.D., mg/l			
	B.O.D., mg/l			
✓	Total Solids @ 105°C, %	97.4		10/19/89
	Total Dissolved Solids, mg/l			
	R.O.E. @ 180°C, mg/l			
	Flash Point, °F (closed cup)			
	Ash Content, on ignition, %	<0.5		10/19/89
✓	Heating Value, BTU/lb	14,400		10/17/89
✓	Potassium as K, mg/l	21.7		10/25/89
	Arsenic, as As, mg/l			
✓	Barium, as Ba, mg/l	1.00		
	Cadmium, as Cd, mg/l			
✓	Chromium, Total, as Cr, mg/l	<0.23		
	Chromium, Hexavalent, as Cr +6, mg/l			
	Cobalt, as Co, mg/l			
✓	Copper, as Cu, mg/l	2.02		
	Iron, Total, as Fe, mg/l			
	Iron, Dissolved, as Fe, mg/l			
✓	Lead, as Pb, mg/l	2.15		
✓	Manganese, as Mn, mg/l	0.54		
	Magnesium, as Mg, mg/l			
✓	Mercury, as Hg, mg/l	<0.014		
✓	Nickel, as Ni, mg/l	0.23		
	Selenium, as Se, mg/l			
	Silver, as Ag, mg/l			
	Thallium, as Tl, mg/l			
✓	Zinc, as Zn, mg/l	43.4		
✓	Ammonia, as NH3, mg/l	0.12	N/C	
	Bicarbonates, as HCO_3, mg/l			
✓	Bromides, as Br, mg/l 6/6 Total	<0.5		10/25/89
	Carbonates, as CO_3, mg/l			
	Chlorides, as Cl, mg/l 6/6 Total	<0.5		10/23/89
	Fluorides, as F, mg/l Total	<200.		10/18/89
	Nitrites, as NO_2, mg/l			
	Nitrates, as NO_3, mg/l			
	Phosphates, as P, mg/l			
	Sulfates, as SO_4, mg/l			

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Sulfur, as S, % Total	<0.5		10/23/89
	Phenols, mg/l 10% Conc.	<5.		10/15/89
	Cyanides, as CN, Total mg/l			
	Cyanides, as CN, Free mg/l			
	Ammonia Nitrogen, as N, mg/l			
	Magnesium Hardness, as $CaCO_3$, mg/l			
✓	Viscosity, cps	359.		10/14/89
	Oil and Grease, mg/l			
	Paint Filter Test, free liquids, %	FAIL		10/13/89
✓	Water Content, as H2O, %	26.5		10/19/89
	Aluminum, mg/l			
	Chlordane, mg/l			
	DDT, mg/l			
	Dieldrin, mg/l			
	Heptachlor, mg/l			
	Parathion, mg/l			
	Endrin, mg/l			
	Lindane, mg/l			
	Methoxychlor, mg/l			
	Toxaphene, mg/l			
	2,4-D, mg/l			
	2,4,5-TP (Silvex), mg/l			
✓	PCBs, ppm	<5.		10/18/89
	PCBs, mg/l			
✓	Solvents, ppm Total Halogens			10/23/89
	pH Screen, s.u.			
	Cyanide Screen, (+,-) mg/l	<10.		10/11/89
	Flammability Screen, (+,-)	Neg.		
	Oxidizer Screen, (+,-)	Neg.		
	Radiation Screen, (+,-)	= background		
	Sulfide Screen, (+,-) mg/l	<2.		
	Water Mix Screen, (+,-)	Non-homogeneous		
	TAP Rinse			

89018020 PROF: MADJ10116 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SRR COMP: 10% Insoluble, 10/13/89
BOTTOM: Insoluble, 10/23/89

AR400891

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

SCR Composite - VI-3 Dry w/Attached VI-160

WI J 10115
Waste Profile Sheet Code

Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

A. GENERAL INFORMATION

1. Generator Name: AMTEX Fibers, Inc. 2. Generator USEPA ID: VA D 0 7 0 3 5 8 9 2 4
3. Facility Address: 1149 Kendrick Lane, Front Royal, VA 4. Generator State ID: _____
5. Zip Code: 22630
6. Technical Contact: Paul Malina 7. Title: Utilities Engr 8. Phone: (703) 635-7141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☐ Generating Facility (A, above), or
2. Company Name: Glam Technical Services 3. Phone: (703) 775-9000
4. Address: Po Box 94, Scalston, VA
5. Zip Code: 22547

C. 1. NAME OF WASTE Waste Oil & Water
2. PROCESS GENERATING WASTE Oil Contaminated Soil from site clean up
3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☑ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
Tan/Brown	☐ No ☑ Yes If known, describe: Mink Oil	☐ Solid ☐ Semi-Solid ☑ Liquid ☐ Powder Other: _____	☐ Multilayered ☑ Bi-layered ☐ Single Phased	Range: 0.9-1.2	☑ Yes ☐ No Volume: 100 %

pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☑ 7 ☐ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range 6-9 ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☑ 140-199°F ☑ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
Oil	0 - 100	%
Water	0 - 95	%
Soil	0 - 90	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: _____ %

2. Indicate if this waste contains any of the following:

	NONE	or LESS THAN	or ACTUAL
PCB's	☑	☐ < 50 ppm	_____ ppm
Cyanides	☑	☐ < 50 ppm	_____ ppm
Sulfides	☑	☐ < 50 ppm	_____ ppm
Halides	☑	☐ < 50 ppm	_____ ppm

F. METALS Indicate if this waste contains any of the following:
1. ☑ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☑ < 5	☐ < 500	_____
Barium	☑ < 100		_____
Cadmium	☑ < 1	☐ < 100	_____
Chromium	☑ < 5		_____
Lead	☑ < 5	☐ < 500	_____
Mercury	☑ < 0.2	☐ < 20	_____
Selenium	☑ < 1	☐ < 100	_____
Silver	☑ < 5		_____
Chromium-Hex	☑ < 5	☐ < 500	_____
Copper	☑ < 5		_____
Nickel	☑ < 5	☐ < 134	_____
Thallium	☑ < 5	☐ < 130	_____
Zinc	☑ < 5		_____
_____	☐ <		_____
_____	☐ <		_____
_____	☐ <		_____

TURN PAGE AND COMPLETE BIDS

AR400892

IERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

UTS J 12115
Waste Profile Sheet Code

G. OTHER HAZARDOUS CHARACTERISTICS

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☑ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☑ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION

	LESS THAN	or ACTUAL
Beryllium	☐ < 5000 ppm	_____ ppm
Potassium	☐ < 5000 ppm	_____ ppm
Sodium	☐ < 5000 ppm	_____ ppm
Total Bromine	☐ < 2 %	_____ %
Total Chlorine	☐ < 35 %	_____ %
Total Fluorine	☐ < 1 %	_____ %
Total Sulfur		_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available. TBD

Range

1. Heat Value (BTU/lb): _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No.
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☑ Yes ☐ No 2. Anticipated Annual Volume/Units: 25,000 ~~20,000~~ gl year
3. Proper Shipping Name: Oil, N.O.S.
4. Hazard Class: Combustible Liquid 5. I.D. #: NA1270
6. Additional Description: (_____)
7. Method of Shipment: ☑ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): _____ Other: _____
8. CERCLA Reportable Quantity (RQ): _____ 9. RQ Units (lb/kg): —
10. USEPA Hazardous Waste? ☐ Yes ☑ No 11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☑ No 13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Send Disposal Decision to Sealston.

SEND DISPOSAL DECISION TO ANNE SPAULDING - CWM, VA. (703)-775-3000

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J. Malina Jr. 2. Project Manager
   Signature Title
3. PAUL J. MALINA JR. 5 Oct 95
   Name (Type or Print)

Side 2 of 2

AR400893

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

Apply the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT WRITE ON THE BAR CODE (if present).

1. WASTE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.
2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1. WITNESS' SIGNATURE - Sign in the space provided.
2. WITNESS' NAME - Print the name of the person who witnessed the sampling.
3. WITNESS' TITLE - Enter the witness' title.
4. WITNESS' EMPLOYER - Enter the witness' employer's name.
5. - Enter the date the sampling event was witnessed.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

=J10115=

WTS J 10115

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not comple this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☑ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

Drum

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:
3. [redacted] Name of Waste:
4. [redacted] Sample Hour/Date:
5. [redacted] Sampler's Signature:

6. Print Sampler's Name: JOHN BEARD
7. Sampler's Title: FIELD ANALYST
8. Sampler's Employer (if CWM, see D. below): [illegible] FIELD SERVICES

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the informat noted above.

1. Witness' Signature: P. J. Malina
2. Witness' Name: P. J. MALINA JR.
3. Witness' Title: PROJECT MANAGER
4. Witness' Employer: AVTEX FIBERS

AR400895

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89013005 PROF: MADJ10115 10/13/89
VTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 2.03g + 3.10mL 2
DILUTION FACTOR: (2X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC	2-2.7
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: n/a	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected. Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☐ If checked, multiply detection limits by dilution factor above.

☒ Top Layer ☐ Middle Layer ☐ Bottom Layer ~~☒~~ Not Applicable

Date Completed: [illegible] Analyst: [illegible]

Comments: _____

AR400896

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

2018005 PROF: MADJ10115 10/10/89
TEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: liquid
DILUTION FACTOR:

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC	
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: N/A	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected. Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☐ If checked, multiply detection limits by dilution factor above.

☐ Top Layer ☐ Middle Layer ☒ Bottom Layer ☐ Not Applicable

Date Completed: _____ Analyst: _____

Comments: _____

AR400897

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

II-4
Drums
161-180

UTS J 10116
Waste Profile Sheet Code

Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

A. GENERAL INFORMATION

1. Generator Name: INTER FIBERS INC
2. Generator USEPA ID: VAD072358684
3. Facility Address: 1169 Kendrick Lane, Front Royal, VA
4. Generator State ID: _____
5. Zip Code: 22630
6. Technical Contact: Paul MAUNA
7. Title: UTILITIES ENGR
8. Phone: (703) 635-2141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☐ Generating Facility (A, above), or

2. Company Name: Cyber TECHNICAL SERVICES
3. Phone: (703) 775-9000
4. Address: PO Box 96, Scalston, VA
5. Zip Code: 22547

C. 1. NAME OF WASTE WASTE OIL & WATER

2. PROCESS GENERATING WASTE Fire cleanup

3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☑ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
Tan	☐ No ☐ Yes If known, describe: Leak	☐ Solid ☐ Semi-Solid ☑ Liquid ☐ Powder Other: _____	☐ Multilayered ☑ Bi-layered ☐ Single Phased	Range: 1.0 - 1.2	☑ Yes ☐ No Volume: 100 %

7. ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☑ 7 - ☐ 7-10 ☐ 10 - < 12.5 ☐ ≥ 12.5 ☐ Range _____ - _____ ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
OIL	75 - 80	%
WATER	20 - 25	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: _____ %

2. Indicate if this waste contains any of the following: To be determined.

	NONE	or LESS THAN	or ACTUAL
PCB's	☐	☐ < 50 ppm	_____ ppm
Cyanides	☐	☐ < 50 ppm	_____ ppm
Phenolics	☐	☐ < 50 ppm	_____ ppm
Sulfides	☐	☐ < 50 ppm	_____ ppm

F. METALS Indicate if this waste contains any of the following: To be determined

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	_____
Barium	☐ < 100		_____
Cadmium	☐ < 1	☐ < 100	_____
Chromium	☐ < 5		_____
Lead	☐ < 5	☐ < 500	_____
Mercury	☐ < 0.2	☐ < 20	_____
Selenium	☐ < 1	☐ < 100	_____
Silver	☐ < 5		_____
Chromium-Hex	☐ < 5	☐ < 500	_____
Copper	☐ < 5		_____
Nickel	☐ < 5	☐ < 134	_____
Thallium	☐ < 5	☐ < 130	_____
Zinc	☐ < 5		_____
_____	☐ <		_____
_____	☐ <		_____
_____	☐ <		_____

TURN PAGE AND COMPLETE SIDE 2

AR400899

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

UT3 J 10116
Waste Profile Sheet Code

3. OTHER HAZARDOUS CHARACTERISTICS TO BE DETERMINED (TBD)

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☐ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☐ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION TBD

	LESS THAN	or	ACTUAL
Beryllium	☐ < 5000 ppm		_____ ppm
Potassium	☐ < 5000 ppm		_____ ppm
Sodium	☐ < 5000 ppm		_____ ppm
Total Bromine	☐ < 2 %		_____ %
Total Chlorine	☐ < 35 %		_____ %
Total Fluorine	☐ < 1 %		_____ %
Total Sulfur			_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available. TBD

Range

1. Heat Value (BTU/lb): _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☑ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☑ Yes ☐ No 2. Anticipated Annual Volume/Units: 1
3. Proper Shipping Name: WASTE - Cr., N.O.S.
4. Hazard Class: _____ 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): 1 Other: _____
8. CERCLA Reportable Quantity (RQ): _____ 9. RQ Units (lb/kg): _____
10. USEPA Hazardous Waste? ☐ Yes ☐ No 11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☐ No 13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Send Disposal Decision to Sealston, VA

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J. Malna Jr. (Signature) 2. PROJECT MANAGER (Title)

PAUL J. MALNA JR. (Name (Type or Print)) 4. 5 OCT 89 (Date)

Side 2 of 2

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

Apply the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT WRITE ON THE BAR CODE (if present).

1. STE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.
2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1. WITNESS' SIGNATURE - Sign in the space provided.
2. WITNESS' NAME - Print the name of the person who witnessed the sampling.
3. NESS' TITLE - Enter the witness' title.
4. ESS' EMPLOYER - Enter the witness' employer's name.
5. DATE - Enter the date the sampling event was witnessed.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

#J10116

VTS J 10116

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☑ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

DRUM

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:		1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:	AVTEX FIBERS INC	2. Generator's Name:
3. [redacted] Name of Waste:	WASTE OIL & WATER	3. Name of Waste:
4. [redacted] Sample Hour/Date:	430 PM 12/3/90	4. Sample Hour/Date:
5. [redacted] Sampler's Signature:		5. Sampler's Signature:

6. Print Sampler's Name: JOHN BEARD
7. Sampler's Title: FIELD ANALYST
8. Sampler's Employer (if CWM, see D. below): CWM TECHNICAL SERVICES

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to b sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the informat noted above.

1. Witness' Signature: P.J. Mauser
2. Witness' Name: P.J. MAUSER JR.
3. Witness' Employer: AVTEX FIBERS
4. MANAGER

AR400902

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018020 PROF: MADJ10116 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 05 10-20-89
DILUTION FACTOR: 1.50g x 1.07g (2X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC 16-?	0-0.5
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS:	N/A
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

[X] If checked, multiply detection limits by dilution factor above.

[X] Top Layer [ ] Middle Layer [ ] Bottom Layer [ ] Not Applicable

Date Completed: 10-20-89 Analyst: [illegible]

Comments: _____

Reviewed by: [illegible] Date: 10/20/89

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018020 PROF: MADJ10116 10/13/89
AVTEX FIBERS, INC
ONT ROYAL, VA DUE 10/20/89
NCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: liquid
DILUTION FACTOR: 1

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol	0-0.2	Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC	
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: N/A	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☐ If checked, multiply detection limits by dilution factor above.

☐ Top Layer ☐ Middle Layer ☑ Bottom Layer ☐ Not Applicable

Date Completed: 10-21-89 Analyst: Finn

Comments:

AR400904

SPECIAL WASTE ANALYSIS REPORT

LOCATION OF ORIGINAL: MAD

This Report is intended for the sole use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

(See Computer Label)
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-8360
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAME TAKEN: 10/13/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐ NO

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. commercial sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting the analysis. This laboratory follows a quality assurance control program.

DATE OF REPORT: OCT 23 1989
LAB MANAGER NAME: Roger Kell
SIGNATURE: Roger Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/13/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	70% yellow-brown 30% brown	☐ YES ☒ NO IF KNOWN, DESCRIBE	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☒ BI-LAYERED ☐ SINGLE PHASED	☒ YES ☐ NO VOLUME 1 CC

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.91		10/19/89
	pH, s.u. (water mix) by paper	10.0		10/13/89
	Acidity, %, as			
	Alkalinity, %, as			
	C.O.D., mg/l			
	B.O.D., mg/l			
✓	Total Solids @ 105°C, %	75.17		10/19/89
	Total Dissolved Solids, mg/l			
	R.O.E. @ 180°C, mg/l			
	Flash Point, °F (closed cup)			
	Ash Content, on ignition, %	<0.5		10/19/89
✓	Heating Value, BTU/lb	14800		10/17/89
✓	POTASSIUM AS K mg/kg	20.41		10/17/89
	Arsenic, as As, mg/l ✓			
✓	Barium, as Ba, mg/l	1.60		
	Cadmium, as Cd, mg/l			
✓	Chromium, Total, as Cr, mg/l	<0.23		
	Chromium, Hexavalent, as Cr+6, mg/l			
	Cobalt, as Co, mg/l			
✓	Copper, as Cu, mg/l	1.507		
	Iron, Total, as Fe, mg/l			
	Iron, Dissolved, as Fe, mg/l			
✓	Lead, as Pb, mg/l	1.32		
✓	Manganese, as Mn, mg/l	0.47		
	Magnesium, as Mg, mg/l			
✓	Mercury, as Hg, mg/l	<0.015		
✓	Nickel, as Ni, mg/l	<0.23		
	Selenium, as Se, mg/l			
	Silver, as Ag, mg/l			
	Thallium, as Tl, mg/l			
✓	Zinc, as Zn, mg/l	30.5		✓
✓	SODIUM AS Na mg/kg	<47.		✓
	Bicarbonates, as HCO_3, mg/l ✓			
✓	Bromides, as Br, mg/l TOTAL	<0.5		10/23/89
	Carbonates, as CO_3, mg/l			
	Chlorides, as Cl, mg/l TOTAL	<0.5		10/23/89
✓	Fluorides, as F, mg/l TOTAL	<0.0.		10/18/89
	Nitrates, as NO_3, mg/l			
	Nitrites, as NO_2, mg/l			
	Phosphates, as P, mg/l			

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Sulfur, as S, % TOTAL	<0.5		10/23/89
	Phenols, mg/l SCREEN	POS.		10/13/89
	Cyanides, as CN, Total mg/l			
	Cyanides, as CN, Free mg/l			
	Ammonia Nitrogen, as N, mg/l			
	89018005 PROF: MADJ10115 10/13/89			
	AVTEX FIBERS, INC			
	FRONT ROYAL, VA DUE 10/20/89			
	SRCE: MAD SITE: SRR INC			
	OIL/WATER			
	Magnesium Hardness, as $CaCO_3$, mg/l			
✓	SRR (COMP): TOP-100% SAND, BOTTOM-TRACE SOIL 10/12/89			
	Oil and Grease, mg/l			
	Paint Filter Test, free liquids, %	FAIL		10/13/89
✓	Water Content, as H_2O, %	17.4		10/20/89
✓	VISCOSITY, CPS	367.		10/19/89
	Aldrin, mg/l			
	Chlordane, mg/l			
	DDT, mg/l			
	Dieldrin, mg/l			
	Heptachlor, mg/l			
	Parathion, mg/l			
	Endrin, mg/l			
	Lindane, mg/l			
	Methoxychlor, mg/l			
	Toxaphene, mg/l			
	2,4-D, mg/l			
	2,4,5-TP (Silvex), mg/l			
✓	PCBs, ppm	<5.		10/19/89
	PCBs, mg/l			
✓	HALOGENATED ORGANICS	NEGATIVE		✓
	pH Screen, s.u.			
	Cyanide Screen, (+,-) mg/l	<10.		10/13/89
	Flammability Screen, (+,-)	NEG.		
	Oxidizer Screen, (+,-)	LIGHT		
	Radiation Screen, (+,-)	= BACKGROUND		
		<2		
		α - NEGATIVE		✓
		WATER REACTIVE		

AR400905

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

III - 1
Drums
201 - 220

UTS J 10118
Waste Profile Sheet Code

CWM Location of Original: (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #:

A. GENERAL INFORMATION

1. Generator Name: AUTEV FOODS
2. Generator USEPA ID: VAD072356884
3. Facility Address: 1169 KENDALL LANE, FRONT ROYAL, VA
4. Generator State ID:
5. Zip Code: 22630
6. Technical Contact: PAUL MALINA
7. Title: UTILITIES ENGR
8. Phone: (703) 635-2141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO

1. ☐ Generating Facility (A, above), or
2. Company Name: CWM TECHNICAL SERVICES
3. Phone: (703) 225-3000
4. Address: PO BOX 96, SEALSTON, VA
5. Zip Code: 22547

C.

1. NAME OF WASTE: WASTE OIL + WATER
2. PROCESS GENERATING WASTE: OIL CHANGE / FLOOR CLEANUP
3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
   ☐ Yes ☒ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
TAN	☐ No ☐ Yes If known, describe: USED	☐ Solid ☐ Semi-Solid ☒ Liquid ☐ Powder Other:	☒ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.0 - 1.2	☒ Yes ☐ No Volume: 100 %

pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☒ 7 ☐ 7-10 ☐ 10- < 12.5 ☐ ≥ 12.5 ☐ Range ____ - ____ ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
OIL	85 - 90	%
WATER	10 - 15	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: ____ %

2. Indicate if this waste contains any of the following: TO BE DETERMINED

	NONE	or LESS THAN	or ACTUAL
PCB's	☐	☐ < 50 ppm	____ ppm
Cyanides	☐	☐ < 50 ppm	____ ppm
Phenolics	☐	☐ < 50 ppm	____ ppm
Sulfides	☐	☐ < 50 ppm	____ ppm

F. METALS Indicate if this waste contains any of the following:

TO BE DETERMINED

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	
Barium	☐ < 100		
Cadmium	☐ < 1	☐ < 100	
Chromium	☐ < 5		
Lead	☐ < 5	☐ < 500	
Mercury	☐ < 0.2	☐ < 20	
Selenium	☐ < 1	☐ < 100	
Silver	☐ < 5		
Chromium-Hex	☐ < 5	☐ < 500	
Copper	☐ < 5		
Nickel	☐ < 5	☐ < 134	
Thallium	☐ < 5	☐ < 130	
Zinc	☐ < 5		
	☐ <		
	☐ <		
	☐ <		

AR400906

VTS J 10113
Waste Profile Sheet Code

OTHER HAZARDOUS CHARACTERISTICS To Be Determined

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☐ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☐ No
3. Indicate if this waste is any of the following:
   - ☐ RCRA Reactive
   - ☐ Water Reactive
   - ☐ Explosive
   - ☐ Shock Sensitive
   - ☐ Pyrophoric
   - ☐ Radioactive
   - ☐ Etiological
   - ☐ Pesticide Manufacturing Waste
   - ☐ Other _____
   - ☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION TBD

	LESS THAN	or	ACTUAL
Beryllium	☐ < 5000 ppm		_____ ppm
Potassium	☐ < 5000 ppm		_____ ppm
Sodium	☐ < 5000 ppm		_____ ppm
Total Bromine	☐ < 2 %		_____ %
Total Chlorine	☐ < 35 %		_____ %
Total Fluorine	☐ < 1 %		_____ %
Total Sulfur			_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available. TBD

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

TRANSPORTATION INFORMATION

Is this a DOT Hazardous Material? ☑ Yes ☐ No 2. Anticipated Annual Volume/Units: _____ / _____

3. Proper Shipping Name: WASTE OIL, N.O.S.
4. Hazard Class: _____ 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): _____ / _____ Other: _____
8. CERCLA Reportable Quantity (RQ): _____ 9. RQ Units (lb/kg): _____
10. USEPA Hazardous Waste? ☐ Yes ☐ No 11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☐ No 13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Send disposal Decision to Sealston, VA

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J. Malina Jr. (Signature) 2. Project Manager (Title)

PAUL J. MALINA JR (Name (Type or Print)) 4. 5 OCT 89 (Date)

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

Apply the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT WRITE ON THE BAR CODE (if present).

WASTE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and its peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.

2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1. WITNESS' SIGNATURE - Sign in the space provided.
2. WITNESS' NAME - Print the name of the person who witnessed the sampling.

WITNESS' TITLE - Enter the witness' title.

WITNESS' EMPLOYER - Enter the witness' employer's name.

5. DATE - Enter the date the sampling event was witnessed.

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

VTS J 10118

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)

If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☑ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)

DRUM

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:		1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:	AVTEX FIBERS INC.	2. Generator's Name:
3. [redacted] Name of Waste:	WASTE OIL + WATER	3. Name of Waste:
4. [redacted] Sample Hour/Date:	1:00 PM 10/4/89	4. Sample Hour/Date:
5. [redacted] Sampler's Signature:	John R. Beard	5. Sampler's Signature:

6. Print Sampler's Name: JOHN BEARD
7. Sampler's Title: FIELD ANALYST
8. Sampler's Employer (If CWM, see D. below): CWM TECH SERVICES.

D. WITNESS VERIFICATION (If required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.

I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the informa' noted above.

1. Witness' Signature: P.J. Malwa Jr.
2. Witness' Name: P.J. MALWA JR. 3. Witness' Title: PROJECT MANAGER
4. Witness' Employer: AVTEX FIBERS

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018016 PROF: MADJ10118 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 0.93g H2O
DILUTION FACTOR: (2X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC/C-17	C-0.8
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS:	N/A
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☐ If checked, multiply detection limits by dilution factor above.

☒ Top Layer ☐ Middle Layer ☐ Bottom Layer ☐ Not Applicable

Date Completed: 10-16-89 Analyst: [illegible]

Comments: _____

Reviewed by: _____

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018016 PROF: MADJ10118 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: liquid
DILUTION FACTOR:

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC	
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: N/A	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected. Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

☐ If checked, multiply detection limits by dilution factor above.

☐ Top Layer ☐ Middle Layer ☑ Bottom Layer ☐ Not Applicable

Date Completed: 10-18-89 Analyst: [illegible]

Comments: _____

Reviewed by: _____

SPECIAL WASTE ANALYSIS REPORT

LOCATION OF ORIGINAL: MAD

The Report is intended for the sole use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

(See Computer Labe
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-8360
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAME TAKEN: 10/5/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐ N

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. This laboratory follows a quality assurance control program.

DATE OF REPORT: OCT 23 1989
LAB MANAGER NAME: Roger Kell SIGNATURE: Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/12/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	90% yellow/brown opaque liq. 10% black cloudy liq.	☐ YES ☒ NO IF KNOWN, DESCRIBE:	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☒ BI-LAYERED ☐ SINGLE PHASED	☒ YES ☐ NO VOLUME 100

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.9		10/18/89
	pH, s.u.	5.5		10/13/89
	Acidity, %, as			
	Alkalinity, %, as			
	C.O.D., mg/l			
	B.O.D., mg/l			
✓	Total Solids @ 105°C, %	<3.5		10/19/89
	Total Dissolved Solids, mg/l			
	R.O.E. @ 180°C, mg/l			
	Flash Point, °F (closed cup)			
	Ash Content, on ignition, %	<0.5		10/19/89
	Heating Value, BTU/lb			
✓	Fluoride			
	Arsenic, as As			
✓	Barium, as Ba			
	Cadmium, as Cd			
✓	Chromium, Total			
	Chromium, Hex			
	Cobalt, as Co,			
✓	Copper, as Cu,			
	Iron, Total, as Fe			
	Iron, Dissolved,			
✓	Lead, as Pb, mg			
✓	Manganese, as Mn			
	Magnesium, as Mg			
✓	Mercury, as Hg,			
✓	Nickel, as Ni, mg			
	Selenium, as Se,			
	Silver, as Ag, mg/l			
	Thallium, as Tl, mg/l			
✓	Zinc, as Zn, mg/l	70.4		
✓	Solubility Test	8.43	✓	
	Bicarbonates, as HCO_3, mg/l U			
✓	Bromides, as Br, mg/l TOTAL	<0.5		10/23/89
	Carbonates, as CO_3, mg/l			
	Chlorides, as Cl, mg/l TOTAL	<0.5		10/23/89
	Fluorides, as F, mg/l TOTAL	<200.		10/18/89
	Nitrates, as NO_3, mg/l			
	Nitrites, as NO_2, mg/l			
	Phosphates, as P, mg/l			
	Sulfates, as SO_4, mg/l			

✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Sulfur, as S, % TOTAL	<0.5		10/23/89
	Phenols, mg/l SCREEN	<5.		10/13/89
	Cyanides, as CN, Total mg/l			
	Cyanides, as CN, Free mg/l			
	Ammonia Nitrogen, as N, mg/l			

89018018 PROF: MADJ10110 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

10% Soluble, 10/13/89
Insoluble, 10/13/89
FAIL 10/13/89
10.4 10/20/89
2nd. 10/19/89

TO be paginated

✓	PCBs, ppm	<5.	10/23/89
	PCBs, mg/l		
✓	Toxicity screen	Acceptable	11/6
	pH Screen, s.u.		
	Cyanide Screen, (+,-) mg/l	<5.0	10/11/89
	Flammability Screen, (+,-)	+12.4	
	Oxidizer Screen, (+,-)	+12.4	
	Radiation Screen, (+,-)	Background	
	Sulfide Screen, (+,-) mg/l	<2.	
	Water Mix Screen, (+,-)	Insoluble	
	TOC	12.4	11/2/89

AR400912

III-2

Drums
221-240

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

180.1

VTS J 10119

Waste Profile Sheet Code

Location of Original: (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #:

A. GENERAL INFORMATION

1. Generator Name: AUTEX FIBERS INC
2. Generator USEPA ID: VAD072358684
3. Facility Address: 1169 KEMPSVILLE LANE
FORT LEWIS VA
4. Generator State ID:
5. Zip Code: 22630
6. Technical Contact: PAUL MALINDA
7. Title: UTILITIES ENGR
8. Phone: (703) 635-2141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☐ Generating Facility (A, above), or

2. Company Name: CWM TECHNICAL SERVICES
3. Phone: (703) 775-9000
4. Address: PO BOX 96
SCOTTSVILLE, VA
5. Zip Code: 22947

C. 1. NAME OF WASTE WASTE OIL & WATER

2. PROCESS GENERATING WASTE OIL CHANGE MACHINE / FIRE CLEANUP.

3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☑ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
TAN	☐ No ☐ Yes If known, describe: MILK	☐ Solid ☐ Semi-Solid ☑ Liquid ☐ Powder Other:	☑ Multilayered ☐ Bi-layered ☐ Single Phased	Range: 1.0 - 1.2	☑ Yes ☐ No Volume: 100 %

☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☑ 7 ☐ 7-10 ☐ 10- <12.5 ☐ ≥ 12.5 ☐ Range ___ - ___ ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

TO BE DETERMINED.

1.	RANGE MIN. - MAX.	
OIL	75 - 80	%
WATER	20 - 25	%
		%
		%
		%
		%
		%
		%
		%
		%
		%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: ___ %

2. Indicate if this waste contains any of the following: TO BE DETERMINED.

	NONE	or LESS THAN	or ACTUAL
PCB's	☐	☐ < 50 ppm	___ ppm
Cyanides	☐	☐ < 50 ppm	___ ppm
Phenolics	☐	☐ < 50 ppm	___ ppm
Sulfides	☐	☐ < 50 ppm	___ ppm

F. METALS Indicate if this waste contains any of the following:

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	
Barium	☐ < 100		
Cadmium	☐ < 1	☐ < 100	
Chromium	☐ < 5		
Lead	☐ < 5	☐ < 500	
Mercury	☐ < 0.2	☐ < 20	
Selenium	☐ < 1	☐ < 100	
Silver	☐ < 5		
Chromium-Hex	☐ < 5	☐ < 500	
Copper	☐ < 5		
Nickel	☐ < 5	☐ < 134	
Thallium	☐ < 5	☐ < 130	
Zinc	☐ < 5		
	☐ <		
	☐ <		
	☐ <		

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AR400913

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

VTS J 10119
Waste Profile Sheet Code

J. OTHER HAZARDOUS CHARACTERISTICS TO BE DETERMINED

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☐ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☐ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION TBD

	LESS THAN	or	ACTUAL
Beryllium	☐ < 5000 ppm		_____ ppm
Potassium	☐ < 5000 ppm		_____ ppm
Sodium	☐ < 5000 ppm		_____ ppm
Total Bromine	☐ < 2 %		_____ %
Total Chlorine	☐ < 35 %		_____ %
Total Fluorine	☐ < 1 %		_____ %
Total Sulfur			_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available. TBD

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☐ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

1. Is this a DOT Hazardous Material? ☑ Yes ☐ No 2. Anticipated Annual Volume/Units: 1
3. Proper Shipping Name: WASTE OIL, N.O.S.
4. Hazard Class: _____ 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): 1 Other: _____
8. CERCLA Reportable Quantity (RQ): _____ 9. RQ Units (lb/kg): _____
10. USEPA Hazardous Waste? ☐ Yes ☐ No 11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☐ No 13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Send disposal decision to Salston, VA

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J. Malwa Jr. (Signature) 2. PROJECT MANAGER (Title)
3. PAUL J. MALWA JR. (Name (Type or Print)) 4. 5 OCT 89 (Date)

Side 2 of 2
Form CWM-6000 © 1987 Chemical Waste Management, Inc.

ADI000916

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT E ON THE BAR CODE (if present).

1. WASTE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and its peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.
2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1 WITNESS' SIGNATURE - Sign in the space provided.

TNESS' NAME - Print the name of the person who witnessed the sampling.

3. WITNESS' TITLE - Enter the witness' title.
4. WITNESS' EMPLOYER - Enter the witness' employer's name.
5. DATE - Enter the date the sampling event was witnessed.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

VTS J 10119

Waste Profile Sheet Code

CWM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)
If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☑ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile S referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)
Drum

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:		1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:	ANTEK FIBERS INC	2. Generator's Name:
3. [redacted] Name of Waste:	WASTE OIL + WATER	3. Name of Waste:
4. [redacted] Sample Hour/Date:	100 PM 10/21/99	4. Sample Hour/Date:
5. [redacted] Sampler's Signature:	J. Board	5. Sampler's Signature:

6. Print Sampler's Name: JOHN BOARD
7. Sampler's Title: FIELD ANALYST
8. Sampler's Employer (if CWM, see D. below): ENVIRO TECH SERVICES

D. WITNESS VERIFICATION (If required) In most circumstances you will be obtaining the sample. However, in those cases in wh Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source tc sampled, to witness the sampling, and to complete this Part D.
I was personally present during the sampling described. I directed the waste source to be sampled, and I verify the information noted above.

1. Witness' Signature: _____
2. Witness' Name: P.J. MACHA JR. 3. V
4. Witness' Employer: ANTEK FIBERS

AR400916

MANAGER

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018014 PROF: MADJ10119 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 0.93g + 0.9g
DILUTION FACTOR: (2X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
		Methyl Isobutyl Ketone	
Ethanol		Tetrachloroethylene	
Acetone		Butyl Acetate	
Isopropanol		Chlorobenzene	
Methylene Chloride		Ethylbenzene	
t-1,2-Dichloroethylene		Xylenes	
Acetonitrile		Styrene	
Ethyl Acetate		2-Ethoxyethanol Acetate	
1,1,1-Trichloroethane		Cyclohexanone	
Methyl Ethyl Ketone		2-Butoxyethanol	
Carbon Tetrachloride		Dichlorobenzene	
Chloroform		*Hydrocarbons HC	0-2
N-Propanol		*High Boiling Organics (BP >290°C)	
Benzene		*OTHER SOLVENTS:	
1,2-Dichloroethane			
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

[✓] If checked, multiply detection limits by dilution factor above.

[ ] Top Layer [ ] Middle Layer [ ] Bottom Layer [ ] Not Applicable

Date Completed: 10-17-89 Analyst: [illegible]

Comments: [illegible]

Reviewed by: [illegible]

SPECIAL WASTE ANALYSIS REPORT

LOCATION OF ORIGINAL: MAD

This Report is intended for the sole use and benefit of Waste Management and its companies. No representation concerning significance of the reported data is made to any other person or entity.

(See Computer Label)
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-8367
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAMP TAKEN: 10/3/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐ NO

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting the analysis. The laboratory followed quality assurance control program.

DATE OF REPORT: OCT 23 1989
SIGNATURE: M Kell
LAB MANAGER NAME: Roger Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/13/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	60% yellow brown 40% light brown	☐ YES ☒ NO IF KNOWN, DESCRIBE	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☒ BI-LAYERED ☐ SINGLE PHASED	☒ YES ☐ NO VOLUME 100

✓	Test	As Received	Extraction Procedure	Date of Analysis	✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.91		10/19/89	✓	Sulfur, as S, % TOTAL	< 0.5		10/23/89
✓	pH, s.u. (Titration) (Approx. paper)	6.01		10/13/89					
	Acidity, %, as					Phenols, mg/l ADDED	< 5.		10/13/89
	Alkalinity, %, as					Cyanides, as CN, Total mg/l			
	C.O.D., mg/l					Cyanides, as CN, Free mg/l			
	B.O.D., mg/l					Ammonia Nitrogen, as N, mg/l			
✓	Total Solids @ 105°C, %	44.6		10/19/89	89018015 PROF: MADJ10113 10/13/89				
	Total Dissolved Solids, mg/l				AVTEX FIBERS, INC				
	R.O.E. @ 150°C, mg/l				FRONT ROYAL, VA DUE 10/20/89				
					SRCE: MAD SITE: SRR INC				
	Flash Point, °F (closed cup)				OIL/WATER				
✓	Ash Content, on ignition, %	< 0.5		10/19/89					
	Heating Value, BTU/lb	3700		10/17/89		Magnesium Hardness, as $CaCO_3$, mg/l			
✓	POTASSIUM OR K (ASH)	18.0		10/19/89		SRR CONV.: 40: 100% SAMPLE			10/25/89
	Arsenic, as As, mg/l					Oil-and-Grease, mg/l BETTER			
✓	Barium, as Ba, mg/l	0.69				Paint Filter Test, free liquids, %	FAIL		
	Cadmium, as Cd, mg/l				✓	Water Content, as H_2O, %	36.0		10/18/89
✓	Chromium, Total, as Cr, mg/l	< 0.23			✓	VISCOSITY, cps	218		10/19/89
	Chromium, Hexavalent, as Cr^{+6}, mg/l					Aldrin, mg/l			
	Cobalt, as Co, mg/l					Chlordane, mg/l			
✓	Copper, as Cu, mg/l	1.45				DDT, mg/l			
	Iron, Total, as Fe, mg/l					Dieldrin, mg/l			
	Iron, Dissolved, as Fe, mg/l					Heptachlor, mg/l			
✓	Lead, as Pb, mg/l	0.90				Parathion, mg/l			
✓	Manganese, as Mn, mg/l	0.34				Endrin, mg/l			
	Magnesium, as Mg, mg/l					Lindane, mg/l			
✓	Mercury, as Hg, mg/l	< 0.004				Methoxychlor, mg/l			
✓	Nickel, as Ni, mg/l	< 0.23				Toxaphene, mg/l			
	Selenium, as Se, mg/l					2,4-D, mg/l			
	Silver, as Ag, mg/l					2,4,5-TP (Silvex), mg/l			
	Thallium, as Tl, mg/l				✓	PCBs, ppm	< 5.		10/19/89
✓	Zinc, as Zn, mg/l	24.4				PCBs, mg/l			
✓	SODIUM OR NA (ASH)	< 47.		✓	✓	Solvents, Organics, Other			
	Bicarbonates, as HCO_3, mg/l ✓					pH Screen, s.u.			
✓	Bromides, as Br, mg/l % TOTAL	< 0.5		10/23/89		Cyanide Screen, (+,-) mg/l	< 10		10/19/89
	Carbonates, as CO_3, mg/l					Flammability Screen, (+,-)	NEG		
	Chlorides, as Cl, mg/l % TOTAL	< 0.5		10/25/89		Oxidizer Screen, (+,-)	NEG		
	Fluorides, as F, mg/l TOTAL	< 200.		10/19/89		Radiation Screen, (+,-)	= BACKGROUND		
	Nitrates, as NO_3, mg/l					Sulfide Screen, (+,-) mg/l	< 2.		
	Nitrites, as NO_2, mg/l					Water Mix Screen, (+,-)	NEG - REACTIVE;		
	Phosphates, as P, mg/l					1,4-DIOXANE, mg/l: Liquid nitrogen used to freeze. Mortar.			
	Sulfates, as SO_4, mg/l								

AR400918

GENERATOR'S WASTE MATERIAL PROFILE SHEET

PLEASE PRINT IN INK OR TYPE (Elite, 12-pitch).

18001

III - 3
Drums
241-260

VTS J 10120
Waste Profile Sheet Code

Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

A. GENERAL INFORMATION

1. Generator Name: Autex Fibers, Inc
2. Generator USEPA ID: VAD070356634
3. Facility Address: 1169 Kendrick Lane, Front Royal, VA
4. Generator State ID: _____
5. Zip Code: 22630
6. Technical Contact: Paul Malina
7. Title: Utilities Engr
8. Phone: (703) 635-2141

B. MAIL CHEMICAL WASTE MANAGEMENT, INC. INVOICES TO 1. ☐ Generating Facility (A, above), or

2. Company Name: Chem Technical Services
3. Phone: (703) 775-9000
4. Address: Po Box 96, Scottsville, VA
5. Zip Code: 22947

C. 1. NAME OF WASTE Waste Oil & Water.

2. PROCESS GENERATING WASTE Oil changes / Eqt Cleaning

3. Is this waste a Dioxin listed waste as defined in 40 CFR 261.31 (e.g., F020, F021, F022, F023, F026, F027, or F028)?
☐ Yes ☐ No If yes, DO NOT COMPLETE this form. Contact your Chemical Waste Management, Inc. sales representative for assistance.

D. PHYSICAL CHARACTERISTICS OF WASTE

1. Color:	2. Does the waste have a strong incidental odor?	3. Physical State @ 70°F:	4. Layers:	5. Specific Gravity:	6. Free Liquids:
Tan	☐ No ☐ Yes If known, describe: Unk	☐ Solid ☐ Semi-Solid ☑ Liquid ☐ Powder Other:	☐ Multilayered ☑ Bi-layered ☐ Single Phased	Range: 1.0-1.2	☑ Yes ☐ No Volume: 100 %

7. pH: ☐ ≤ 2 ☐ > 2-4 ☐ 4-7 ☑ 7 ☐ 7-10 ☐ 10- <12.5 ☐ ≥ 12.5 ☐ Range _____ - _____ ☐ NA

8. Liquid Flash Point: ☐ < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ None ☐ Closed Cup ☐ Open Cup

E. CHEMICAL COMPOSITION

1.	RANGE MIN. - MAX.	
Oil	70 - 75	%
Water	25 - 30	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%
	-	%

Please note: The chemical composition total in the maximum column must be greater than or equal to 100%. TOTAL: _____ %

2. Indicate if this waste contains any of the following: To be determined

	NONE	or LESS THAN	or ACTUAL
Cyanides	☐	☐ < 50 ppm	_____ ppm
Phenolics	☐	☐ < 50 ppm	_____ ppm
Sulfides	☐	☐ < 50 ppm	_____ ppm

F. METALS Indicate if this waste contains any of the following: To be determined.

1. ☐ EP TOX/TCLP or 2. ☐ Total

METAL	LESS THAN	or	ACTUAL (Parts Per Million)
Arsenic	☐ < 5	☐ < 500	_____
Barium	☐ < 100		_____
Cadmium	☐ < 1	☐ < 100	_____
Chromium	☐ < 5		_____
Lead	☐ < 5	☐ < 500	_____
Mercury	☐ < 0.2	☐ < 20	_____
Selenium	☐ < 1	☐ < 100	_____
Silver	☐ < 5		_____
Chromium-Hex	☐ < 5	☐ < 500	_____
Copper	☐ < 5		_____
Nickel	☐ < 5	☐ < 134	_____
Thallium	☐ < 5	☐ < 130	_____
Zinc	☐ < 5		_____
_____	☐ <		_____
_____	☐ <		_____
_____	☐ <		_____

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AR400919

GENERATOR'S WASTE MATERIAL PROFILE SHEET (Continued)

VTS - J 10120.
Waste Profile Sheet Code

J. OTHER HAZARDOUS CHARACTERISTICS To Be Determined.

1. Is this waste a listed solvent waste as defined by 40 CFR 261.31 (F001, F002, F003, F004, or F005)? ☐ Yes ☐ No
2. Does this waste contain greater than 1000 ppm total halogenated organic compounds? ☐ Yes ☐ No
3. Indicate if this waste is any of the following:

☐ RCRA Reactive	☐ Radioactive
☐ Water Reactive	☐ Etiological
☐ Explosive	☐ Pesticide Manufacturing Waste
☐ Shock Sensitive	☐ Other _____
☐ Pyrophoric	☐ None of the above

H. COMPLETE ONLY FOR WASTES INTENDED FOR FUELS or INCINERATION To Be Determined

	LESS THAN	or	ACTUAL
Beryllium	☐ < 5000 ppm		_____ ppm
Potassium	☐ < 5000 ppm		_____ ppm
Sodium	☐ < 5000 ppm		_____ ppm
Total Bromine	☐ < 2 %		_____ %
Total Chlorine	☐ < 35 %		_____ %
Total Fluorine	☐ < 1 %		_____ %
Total Sulfur			_____ %

I. OPTIONAL — RECLAMATION, FUELS, OR INCINERATION PARAMETERS Provide if information is available. To Be Determined

Range

1. Heat Value (BTU/lb): _____ - _____ 2. Water: _____ %
3. Viscosity (cps): _____ @ ☐ _____ °F ☐ 100°F ☐ 150°F
4. Ash: _____ % 5. Settleable solids: _____ %
6. Vapor Pressure @ STP (mm/Hg): _____
7. Is this waste a pumpable liquid? ☑ Yes ☐ No
   Type of pump? _____
8. Can this waste be heated to improve flow? ☐ Yes ☐ No
9. Is this waste soluble in water? ☐ Yes ☐ No
10. Particle size: Will the solid portion of this waste pass through a 1/8 inch screen? ☐ Yes ☐ No

J. TRANSPORTATION INFORMATION

Is this a DOT Hazardous Material? ☑ Yes ☐ No 2. Anticipated Annual Volume/Units: 1

3. Proper Shipping Name: Waste or N.O.S.
4. Hazard Class: _____ 5. I.D. #: _____
6. Additional Description: (_____)
7. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Solid ☐ Drum (Type/Size): 1 Other: _____
8. CERCLA Reportable Quantity (RQ): _____ 9. RQ Units (lb/kg): _____
10. USEPA Hazardous Waste? ☐ Yes ☐ No 11. USEPA Hazardous Waste Number(s): _____
12. State Hazardous Waste? ☐ Yes ☐ No 13. State Hazardous Waste Number(s): _____

K. SPECIAL HANDLING INFORMATION Said Disposal Decision to Scalston, VA

☐ Additional Page(s) Attached

L. GENERATOR CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste material, and all relevant information regarding known or suspected hazards in the possession of the generator has been disclosed.

1. Paul J. Malina Jr. (Signature) 2. Project Manager (Title)

Paul J. Malina Jr. (Name (Type or Print)) 4. 5 Oct 88 (Date)

Chemical Waste Management, Inc.

GENERATOR'S CERTIFICATION OF REPRESENTATIVE SAMPLE

Shaded areas are for CWM use only.

PART A. SAMPLING METHOD

Questions concerning sample waiver should be referred to your Chemical Waste Management, Inc. Sales Representative.

Check the sampling method employed.

This sample should be collected in accordance with "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW846, USEPA, Office of Solid Waste, Washington, D.C. 20460 and/or 40CFR261-Appendix I. A suitable sample container for most wastes is a wide mouth glass bottle with a plastic cap having a non-reactive liner. Plastic containers are recommended for strong caustics or fluorides. Fill to approximately 90% of capacity to allow for expansion during transportation. The peel off label on this form must be completed prior to removal from the form. Ultimately, the label must be attached to the sample container, not the shipping container.

If this waste is a hazardous material, the sample must be packaged and shipped in accordance with USDOT regulations (49CFR171.2) and any specific requirements imposed by the carrier. Improperly packaged samples may be disposed of upon receipt.

PART B. SAMPLE SOURCE

The sampler is to describe exactly from where the sample was taken (e.g. conveyor, drum, lagoon, pipe, pit, pond, tank, vat).

PART C. SAMPLE LABEL

THE SAMPLE LABEL MUST BE COMPLETED BEFORE IT IS REMOVED FROM THIS FORM

Apply the completed peel off label to the container which actually holds the sample - not to the shipping carton. DO NOT WRITE ON THE BAR CODE (if present).

1. WASTE PROFILE SHEET CODE - If not preprinted, enter the appropriate Waste Profile Sheet Code. This Certification and its peel off label must be used to identify ONLY the sample of the waste described in the Generator's Waste Material Profile Sheet bearing the same Waste Profile Sheet Code.
2. GENERATOR'S NAME - Enter the name of the generating facility.
3. NAME OF WASTE - Enter a name which is generally descriptive of this waste (e.g., cyanide plating waste, paint sludge, PCB contaminated dirt, still bottoms, wastewater treatment sludge) as it appears on the Generator's Waste Material Profile Sheet.
4. SAMPLE HOUR/DATE - Enter the hour and date sample was collected.
5. SAMPLER'S SIGNATURE - The sampler must sign in the space provided.
6. PRINT SAMPLER'S NAME - Enter the sampler's name.
7. SAMPLER'S TITLE - Enter the sampler's title.
8. SAMPLER'S EMPLOYER (If CWM, See D. Below) - Enter the sampler's employer's name.

Remove the completed peel off label and affix it to the sample container at the time of sampling. If this label is lost or destroyed, the sample must be labeled with equivalent information, including the Waste Profile Sheet Code. If the Certification of Representative Sample Form is lost or destroyed, please contact your Chemical Waste Management, Inc. Sales Representative to obtain a new one.

PART D. WITNESS VERIFICATION (If required):

In the event that a Chemical Waste Management, Inc. employee obtains the sample on your site, one of your employees must be present to direct our employee to the sample source and to witness the sampling. Your employee must also provide the information requested in this PART D.

1. WITNESS' SIGNATURE - Sign in the space provided.
2. WITNESS' NAME - Print the name of the person who witnessed the sampling.

WITNESS' TITLE - Enter the witness' title.

WITNESS' EMPLOYER - Enter the witness' employer's name.

5. DATE - Enter the date the sampling event was witnessed.

...OR TYPE (Elite, 12 pitch).

=J10120=

VTS J 10120
Waste Profile Sheet Code

TM Location of Original: _____ (SHADED AREAS FOR CWM USE ONLY) CWM Sales Rep. #: _____

This completed form must be returned, with the representative sample, to:

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING THIS FORM ARE FOUND ON THE OPPOSITE SIDE. In order to determine whether Chemical Waste Management, Inc. can accept the special waste described in the Generator's Waste Material Profile Sheet referenced above, you must obtain and supply us with a representative sample of the waste. We may analyze the sample to verify the information that you have provided to us. A representative sample is defined as a sample obtained using any of the applicable sampling methods specified in 40 CFR 261-Appendix I or an equivalent method. Collect a representative sample of your waste and complete the form below. Apply the peel off label and ship your sample along with this form to the address noted above. If you have any questions regarding obtaining a representative sample of your waste, please refer to the instructions for this form, or contact your Chemical Waste Management, Inc. sales representative.

A. SAMPLING METHOD (Indicate which method was employed)
If sampling requirement has been waived by Chemical Waste Management, Inc., do not complete this Generator's Certification of Representative Sample form.

1. ☐ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above according to the sampling methods specified in 40 CFR 261-Appendix I.
2. ☑ I have obtained a representative sample of the waste material described in the Generator's Waste Material Profile Sheet referenced above using a method equivalent to the sampling methods described in 40 CFR 261-Appendix I.

B. SAMPLE SOURCE (e.g., drum, lagoon, pit, pond, tank, vat)
Drum

C. SAMPLE LABEL — COMPLETE LABEL BEFORE REMOVING

1. Waste Profile Sheet Code:		1. Waste Profile Sheet Code:
2. [redacted] Generator's Name:	AMOCO FIBERS INC.	2. Generator's Name:
3. [redacted] Name of Waste:	WASTE OIL + WATER.	3. Name of Waste:
4. [redacted] Sample Hour/Date:	1:00 PM 12/14/89	4. Sample Hour/Date:
5. [redacted] Sampler's Signature:	John D Beard	5. Sampler's Signature:

6. Print Sampler's Name: JOHN BEARD
7. Sampler's Title: FIELD ANALYST
8. Sampler's Employer (if CWM, see D. below): CIRM TECH SERVICES

D. WITNESS VERIFICATION (if required) In most circumstances you will be obtaining the sample. However, in those cases in which Chemical Waste Management, Inc. obtains the sample, one of your employees must be present to direct the particular source to be sampled, to witness the sampling, and to complete this Part D.
I was personally present during the sampling described. I directed the waste source to be sampled, and verify the information noted above.

1. Witness' Signature: P J Malina Jr
2. Witness' Name: P.J. MALINA JR. 3. Witness' Title: PROJECT MANAGER
4. Witness' Employer: AMOCO FIBERS 5. Date: 5OCT89

WASTE SAMPLE SOLVENT SCREEN REPORT (GC/FID)
-Weight % Solvents-

89018009 PROF: MADJ10120 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL/WATER

SAMPLE PREP: 0.9g + 0.9g DE
DILUTION FACTOR: (3X)

Trichlorofluoromethane		1,4-Dioxane	
Methanol		Propyl Acetate	
Ether		Toluene	
1,1,2-Trichloro-1,2,2-trifluoroethane		2-Ethoxyethanol	
Ethanol		Methyl Isobutyl Ketone	
Acetone		Tetrachloroethylene	
Isopropanol		Butyl Acetate	
Methylene Chloride		Chlorobenzene	
t-1,2-Dichloroethylene		Ethylbenzene	
Acetonitrile		Xylenes	
Ethyl Acetate		Styrene	
1,1,1-Trichloroethane		2-Ethoxyethanol Acetate	
Methyl Ethyl Ketone		Cyclohexanone	
Carbon Tetrachloride		2-Butoxyethanol	
Chloroform		Dichlorobenzene	
N-Propanol		*Hydrocarbons HC 6-17	0-0.7
Benzene		*High Boiling Organics (BP >290°C)	
1,2-Dichloroethane		*OTHER SOLVENTS: N/A	
Isobutanol			
Trichloroethylene			
N-Butanol			

*ESTIMATED CONCENTRATION

U = Compounds on list were analyzed but not detected.
Average detection limit for each compound is 0.01% by weight (100 ppm), except for Methanol which is 0.03% by weight (300 ppm).

[X] If checked, multiply detection limits by dilution factor above.

[ ] Top Layer [ ] Middle Layer [ ] Bottom Layer [X] Not Applicable

Date Completed: 10-26-89 Analyst: EMV

Comments: 7.0 acetone, less than

Reviewed by: [illegible]

AR400923

SPECIAL WASTE ANALYSIS REPORT

LOCATION OF ORIGINAL: LIAD

This Report is intended for the sole use and benefit of Waste Management and its companies. No representations concerning significance of the reported data is made to any other person or entity.

(See Computer Label)
Waste Profile Sheet Code
FROM SAMPLE CONTAINER

LABORATORY NAME: Chemical Waste Management Technical Center Analytical Laboratories
ADDRESS: 150 West 137th Street, Riverdale, Illinois 60627 LAB MGR. PHONE: (312) 841-836
DATE SAMPLE RECEIVED AT LAB: (See Computer Label) DATE SAME TAKEN: 10/5/89
LAB SAMPLE NUMBER ASSIGNED: (See Computer Label) CERTIFICATION OF REP. SAMPLE OBTAINED? ☒ YES ☐ NO

CERTIFICATION: Except as explicitly noted, all analytical data reported below were obtained under my direction and supervision. For Chemical Waste Management, Inc. companies, sample preparation and analytical methods and analytical equipment specified or approved in the facility's waste analysis plan were used in conducting this analysis. The laboratory follows a quality assurance control program.

DATE OF REPORT: OCT 23 1989
SIGNATURE: RKell
LAB MANAGER NAME: Roger Kell

PHYSICAL CHARACTERISTICS OF WASTE 10/13/89

SAMPLE VOLUME	COLOR	DOES THE WASTE HAVE A STRONG INCIDENTAL ODOR?	PHYSICAL STATE @ 70°F	LAYERS	FREE LIQUIDS
	Brown	☐ YES ☒ NO IF KNOWN, DESCRIBE	☐ SOLID ☐ SEMI-SOLID ☒ LIQUID ☐ POWDER	☐ MULTILAYERED ☐ BI-LAYERED ☒ SINGLE PHASED	☒ YES ☐ NO VOLUME 100

✓	Test	As Received	Extraction Procedure	Date of Analysis	✓	Test	As Received	Extraction Procedure	Date of Analysis
✓	Specific Gravity	0.9		10/19/89	✓	Sulfur, as S, % Total	<0.5		10/23/89
	pH, s.u. (Paper)	5.5		10/13/89					
	Acidity, %, as					Phenols, mg/l Nonen	<5.		10/13/89
	Alkalinity, %, as					Cyanides, as CN, Total mg/l			
	C.O.D., mg/l					Cyanides, as CN, Free mg/l			
	B.O.D., mg/l					Ammonia Nitrogen, as N, mg/l			
✓	Total Solids @ 105°C, %	100.0		10/19/89					
	Total Dissolved Solids, mg/l								
	R.O.E. @ 150°C, mg/l								
	Flash Point, °F (closed cup)								
	Ash Content, on ignition, %	<0.5		10/19/89					
	Heating Value, BTU/lb	19700.		10/17/89					
✓	Potassium as K mg/l	12.2		10/23/89					
	Arsenic, as As, mg/l					Oil and Grease, mg/l			
✓	Barium, as Ba, mg/l	0.52				Paint Filter Test, free liquids, %	FAIL		10/23/89
	Cadmium, as Cd, mg/l				✓	Water Content, as H2O, %	<1.		10/20/89
✓	Chromium, Total, as Cr, mg/l	<0.23			✓	VISCOSITY, 0.02	223.		10/19/89
	Chromium, Hexavalent, as Cr +6, mg/l					Aldrin, mg/l			
	Cobalt, as Co, mg/l					Chlordane, mg/l			
✓	Copper, as Cu, mg/l	1.36				DDT, mg/l			
	Iron, Total, as Fe, mg/l					Dieldrin, mg/l			
	Iron, Dissolved, as Fe, mg/l					Heptachlor, mg/l			
✓	Lead, as Pb, mg/l	0.84				Parathion, mg/l			
✓	Manganese, as Mn, mg/l	0.20				Endrin, mg/l			
	Magnesium, as Mg, mg/l					Lindane, mg/l			
✓	Mercury, as Hg, mg/l	<0.04				Methoxychlor, mg/l			
✓	Nickel, as Ni, mg/l	<0.23				Toxaphene, mg/l			
	Selenium, as Se, mg/l					2,4-D, mg/l			
	Silver, as Ag, mg/l					2,4,5-TP (Silvex), mg/l			
	Thallium, as Tl, mg/l				✓	PCBs, ppb	<2.		10/19/89
✓	Zinc, as Zn, mg/l	114.				PCBs, mg/l			
✓	Sodium as Na mg/l	<47.		✓	✓	AA Digest Report Attached			
	Bicarbonates, as HCO3, mg/l					pH Screen, s.u.			
✓	Bromides, as Br, mg/l % TOTAL	<0.5		10/23/89		Cyanide Screen, (+,-) mg/l	<10		10/19/89
	Carbonates, as CO3, mg/l					Flammability Screen, (+,-)	Negative		
	Chlorides, as Cl, mg/l TOTAL	1.3		10/20/89		Oxidizer Screen, (+,-)	Negative		
✓	Fluorides, as F, mg/l TOTAL	20.1		10/18/89		Reduction Screen, (+,-)	Negative		
	Nitrates, as NO3, mg/l					Sulfide Screen, (+,-) mg/l	<2.4		
	Nitrites, as NO2, mg/l					Was	Negative		
	Phosphates, as P, mg/l								

89018011 PROF: MADJ10106 10/13/89
AVTEX FIBERS, INC
FRONT ROYAL, VA DUE 10/20/89
SRCE: MAD SITE: SRR INC
OIL

Magnesium Hardness, as CaCO3, mg/l
SRRCOMP.: 100% acrylics 10/23/89
Reactive Sulfide, mg/l

AR400924

AVTEX FIBERS FRONT ROYAL INC.
AVTEX FIBERS SITE

APPENDIX E
DRAWINGS

ADMINISTRATIVE ORDER
Docket No. III-90-01-DC

Prepared for U.S. Environmental Protection Agency
Hazardous Waste Management Division

Region III

November 7, 1989

AVTEX FIBERS FRONT ROYAL INC.
Kendrick Lane
P.O. Box 1169
Front Royal, Virginia 22630

AVTEX FIBERS FRONT ROYAL INC.
AVTEX FIBERS SITE

WORK PLAN

COPIES OF LARGE DRAWINGS ARE IN AN ENVELOPE ATTACHED TO THIS WORK PLAN

ADMINISTRATIVE ORDER

Docket III-90-010-DC

Prepared for

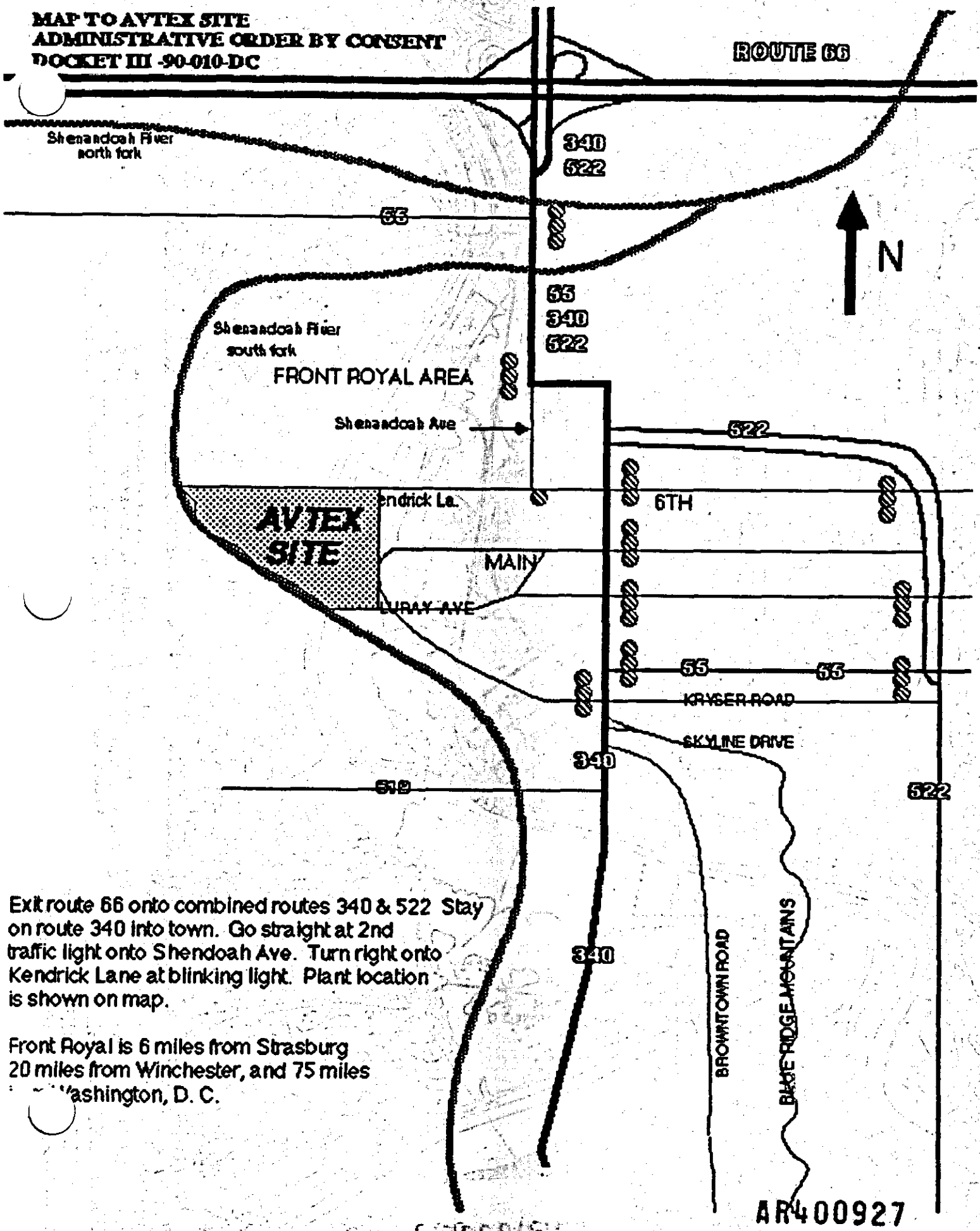
U. S. Environmental Protection Agency

Region III

November 1989

AVTEX FIBERS FRONT ROYAL INC.
Kendrick Lane
P. O. Box 1169
Front Royal, Virginia 22630

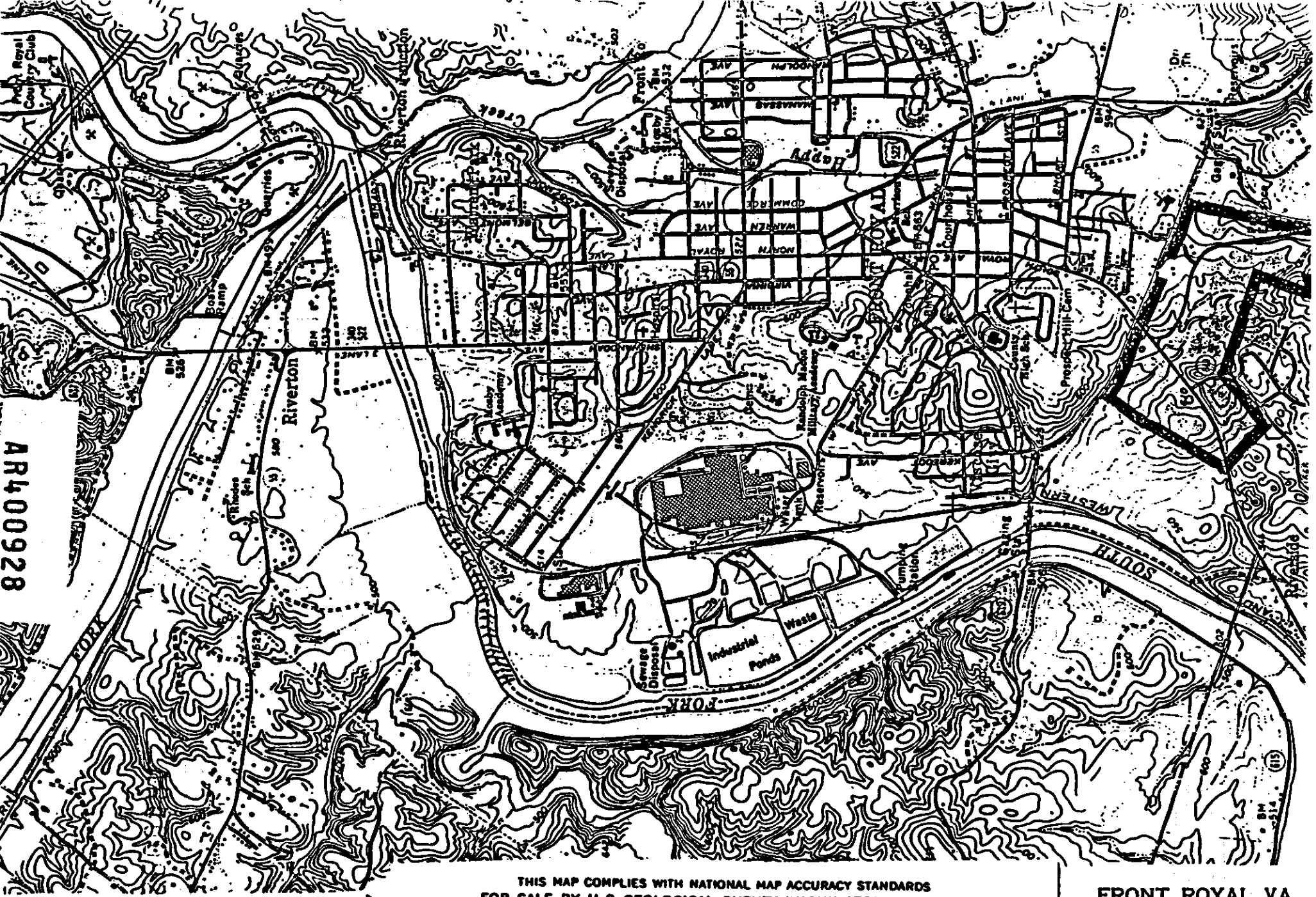
MAP TO AVTEX SITE
ADMINISTRATIVE ORDER BY CONSENT
DOCKET III -90-010-DC



Exit route 66 onto combined routes 340 & 522 Stay on route 340 into town. Go straight at 2nd traffic light onto Shendoah Ave. Turn right onto Kendrick Lane at blinking light. Plant location is shown on map.

Front Royal is 6 miles from Strasburg 20 miles from Winchester, and 75 miles [illegible] Washington, D. C.

AR400927



AR400928

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
1:24000

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

FRONT ROYAL, VA.
NW/4 FRONT ROYAL 15' QUADRANGLE
N3852.5—W7807.5/7.5

1967

AMS 5380 —SERIES V8**

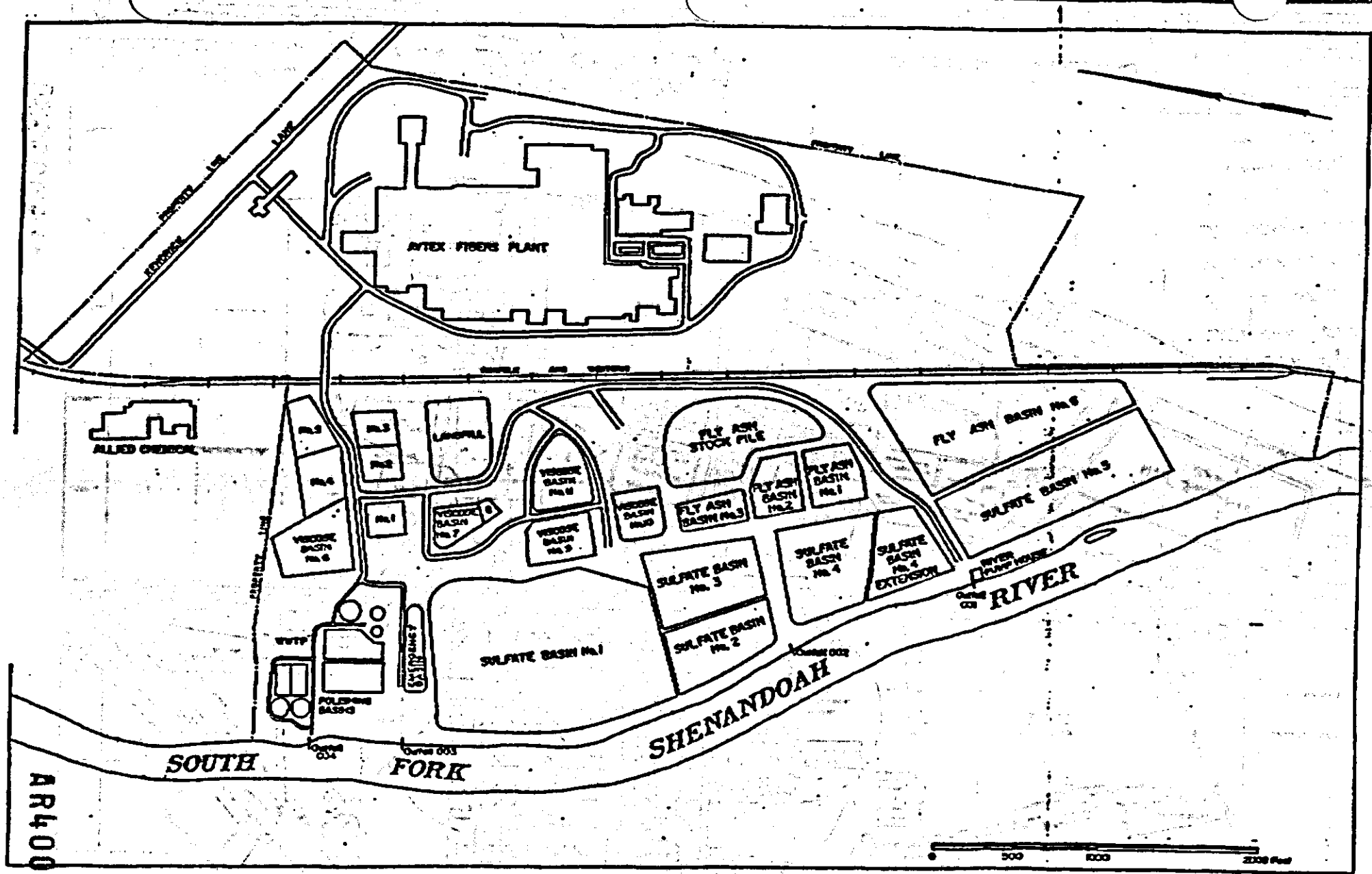
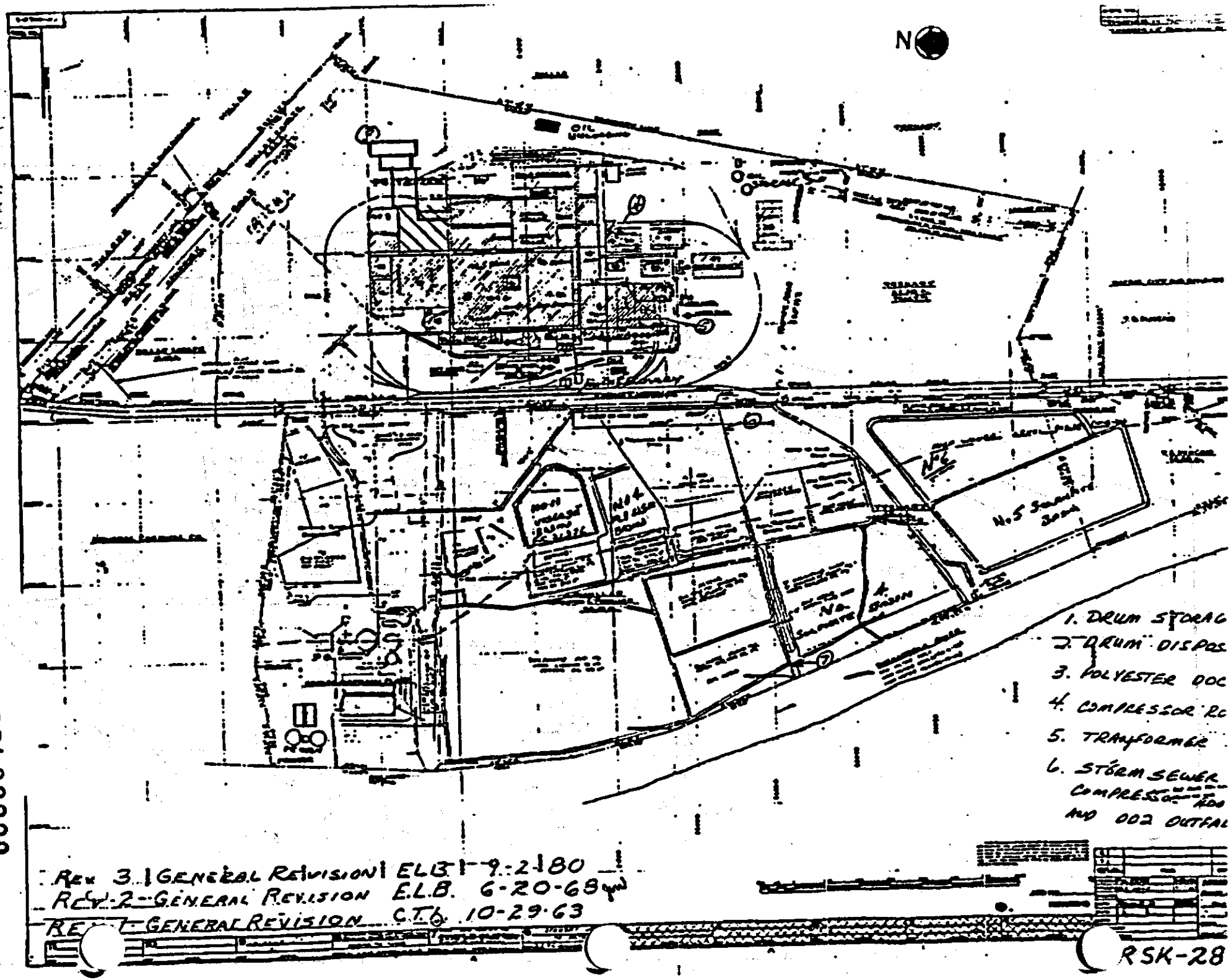
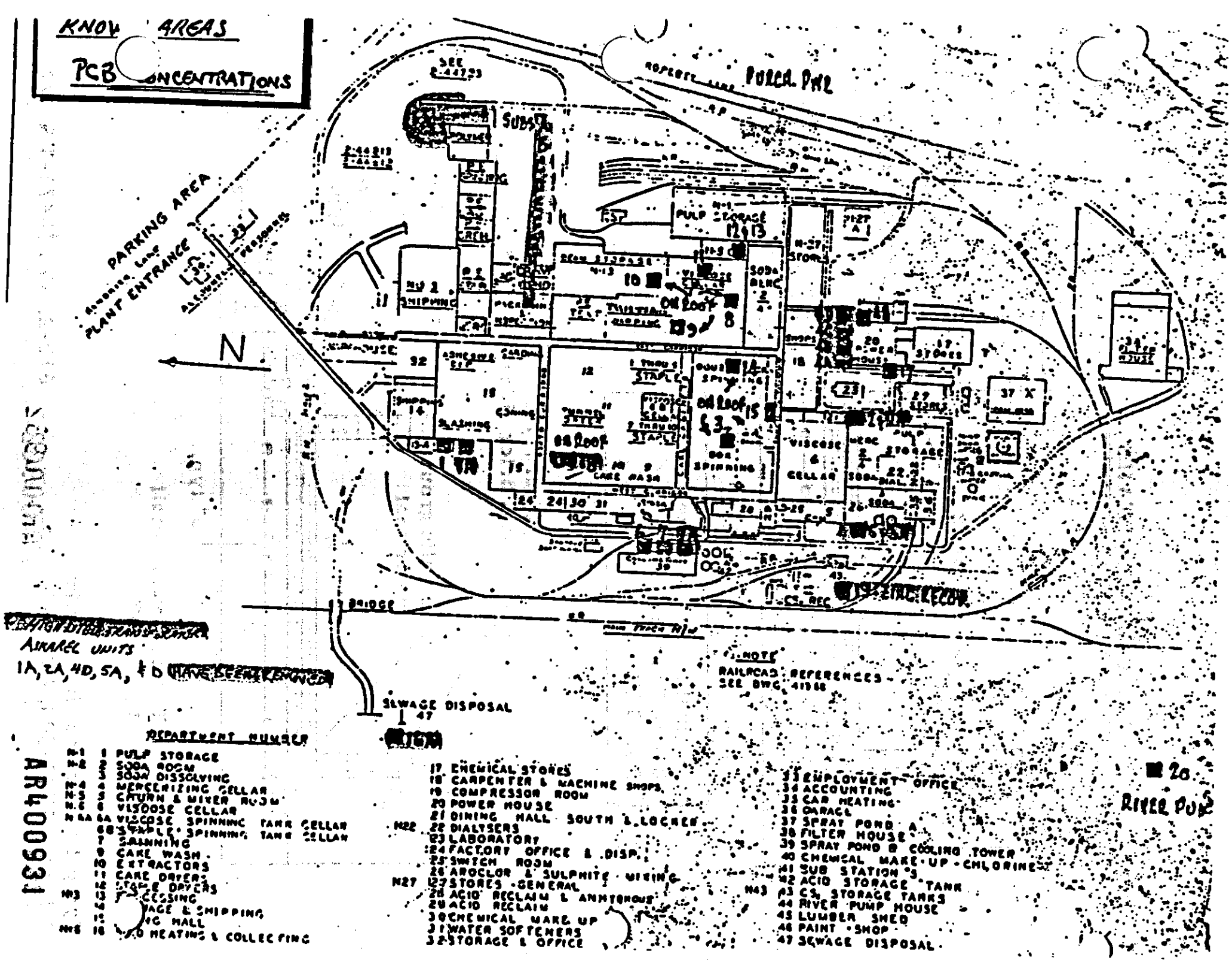


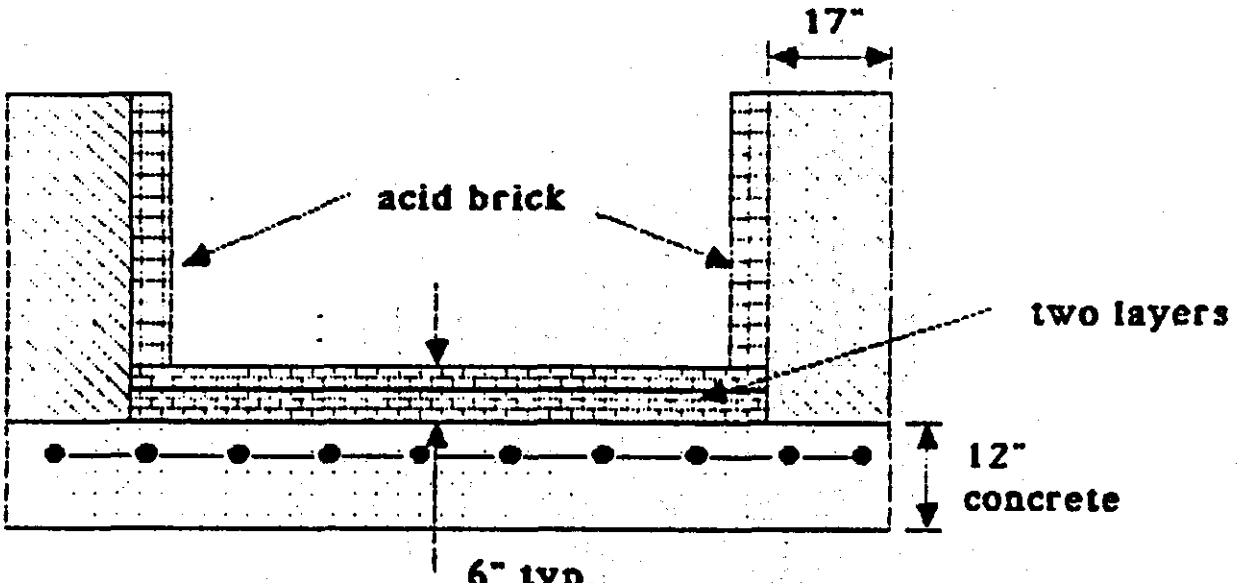
Figure 1. Avtex Waste Basins


N
1. DRUM STORAG
2. DRUM DISPOS
3. POLYESTER DOC
4. COMPRESSOR RO
5. TRANSFORMER
6. STORM SEWER
COMPRESSOR ROO
AND 002 OUTFAL
Rev 3 | GENERAL REVISION | E.L.B. 9-21-80
Rev 2 - GENERAL REVISION E.L.B. 6-20-68
Rev 1 - GENERAL REVISION C.T.G. 10-29-63
RSK-28

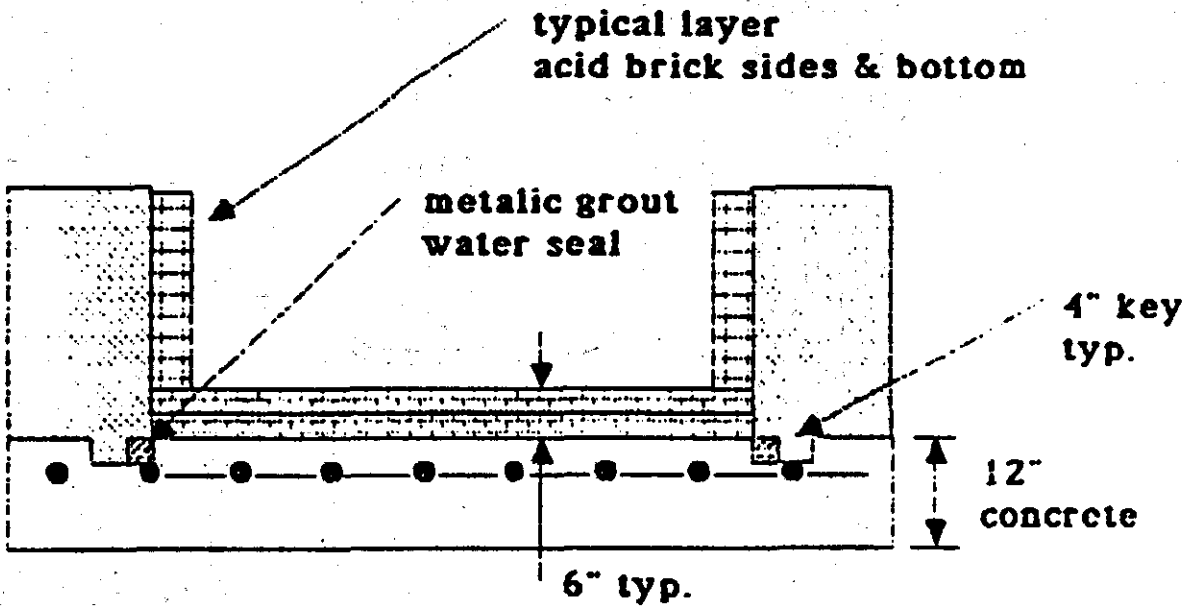

KNOWN AREAS
PCB CONCENTRATIONS
PARKING AREA
PLANT ENTRANCE
POWER PNL
SUBST.
PULP STORAGE
SHIPPING
OIL ROOF
VISCOSE CELLAR
37 X
BRIDGE
RAILROAD REFERENCES
SEE DWG. 41188
SEWAGE DISPOSAL
47
RIVER PUMP
DEPARTMENT NUMBER
1 PULP STORAGE
2 SODA ROOM
3 SODA DISSOLVING
4 MERCERIZING CELLAR
5 CATURN & MIXER ROOM
6 VISCOSE CELLAR
6A VISCOSE SPINNING TANK CELLAR
6B STAPLE SPINNING TANK CELLAR
7 SPINNING
8 CAKE WASH
10 EXTRACTORS
11 CAKE DRYERS
12 STAPLE DRYERS
13 PROCESSING
14 PACKAGE & SHIPPING
15 OFFICE HALL
16 STEAM HEATING & COLLECTING
17 CHEMICAL STORES
18 CARPENTER & MACHINE SHOPS
19 COMPRESSOR ROOM
20 POWER HOUSE
21 DINING HALL SOUTH & LOCKER
22 DIALYSERS
23 LABORATORY
24 FACTORY OFFICE & DISP.
25 SWITCH ROOM
26 AROCLOR & SULPHITE MIXING
27 STORES-GENERAL
28 ACID RECLAIM & ANHYDROUS
29 ACID RECLAIM
30 CHEMICAL MAKE UP
31 WATER SOFTENERS
32 STORAGE & OFFICE
33 EMPLOYMENT OFFICE
34 ACCOUNTING
35 CAR HEATING
36 GARAGE
37 SPRAY POND A
38 FILTER HOUSE
39 SPRAY POND B COOLING TOWER
40 CHEMICAL MAKE-UP-CHLORINE
41 SUB STATION 3
42 ACID STORAGE TANK
43 CS2 STORAGE TANKS
44 RIVER PUMP HOUSE
45 LUMBER SHED
46 PAINT SHOP
47 SEWAGE DISPOSAL
NOTE
RAILROAD REFERENCES
SEE DWG. 41188
RIVER PUMP

AR400931

TYPICAL SUMP DETAILS

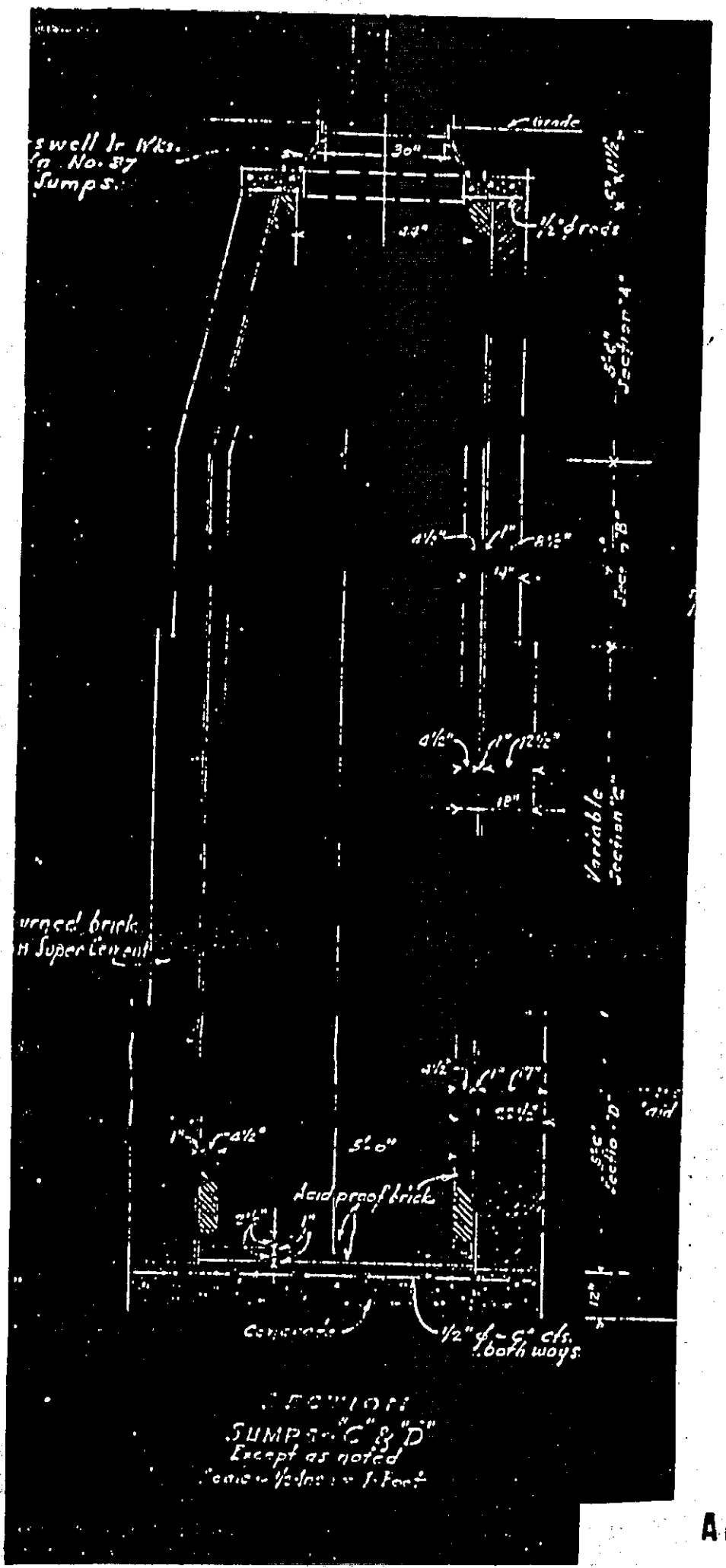


Original Ballinger Archetectural
Detail. Drwg. 1743-504
2 AUG 37



Typical sewer detail
15 AUG 57

Typical sewer drawing details:
Ballinger 1743-504, AVC 1-4 612-2, AVC 38476-3 & 477



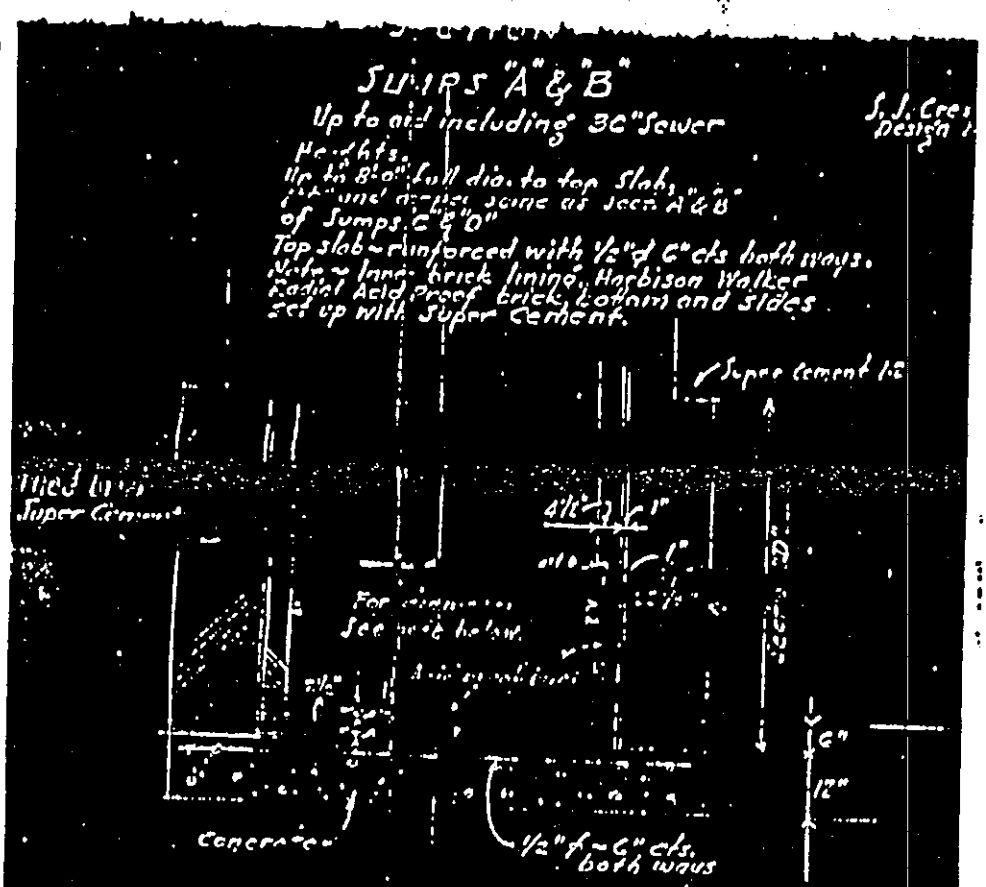
SECTION
SUMPS "C" & "D"
Except as noted
Scale - ½ Inch = 1 Foot

Sumps "A" & "B"

Up to and including 30" Sewer

S.J. Cres... Design ...

Heights
Up to 8'-0" full dia. to top Slab,
Same order, same as Secn A & B"
of Sumps C & D"
Top slab ~ reinforced with ½"ø C"cks both ways.
Note ~ Inner brick lining, Harbison Walker
Radial Acid proof brick, bottom and sides
set up with Super Cement.



Section

Sump "A" - 42" to 72" Incl.

Scale ... Inch = 1 Foot

Note ~ Diameter of "D" ... inches
larger than inside diameter of Sewer

Sewers 36" ... 6'-0"
" 42" ... 7'-0"
" 54" ... 8'-0"
" 72" ... 9'-6"

	Seat "A"	Seat "B"	Seat "C"	Seat "D"
Sewer 42" ~	12"	12"	12"	18" ~ 72" high
" 48" ~	12"	12"	12"	18" ~ 72" high
" 54" ~	12"	12"	12"	18" ~ 72" high
" 72" ~	12"	12"	12"	18" ~ 72" high

... inner brick lining, Harbison Walker
Radial Acid proof brick, backed and set
up with Super Cement, bottom and sides.
Top slab ~ reinforced with ½" ø C"cts. both ways
All ... Sumps ... Sump "A" except where installed
inside of ... shall have perforated covers.

Note:-
All exterior walls of Sumps A, B, C, D
Shall be hard burned red brick set up

AVTEX FIBERS FRONT ROYAL INC.
AVTEX FIBERS SITE

APPENDIX F
QUALIFICATION STATEMENTS

ADMINISTRATIVE ORDER
Docket No. III-90-01-DC

Prepared for U.S. Environmental Protection Agency
Hazardous Waste Management Division

Region III

November 7, 1989

AVTEX FIBERS FRONT ROYAL INC.
Kendrick Lane
P.O. Box 1169
Front Royal, Virginia 22630

APPENDIX F

QUALIFICATION STATEMENTS

This appendix contains statements of qualifications of the following contractors:

- Alliance Technologies Corporation
- S.D. Myers, Inc.
- Chemical Waste Management, Inc.
- metaTrace
- CET
- Biospherics, Inc.

ALLIANCE
Technologies Corporation

TRC AND ITS SUBSIDIARY COMPANIES

TRC Companies, Inc.

TRC Companies, Inc., a publicly-owned corporation, offers the nation's industries and government a full range of environmental and engineering services. Five subsidiaries provide highly specialized consulting, applied research and development, and a network of laboratories to identify, define, and solve complex environmental problems.

ALLIANCE Technologies Corporation

Alliance Technologies Corporation is a nationally recognized consultant to government and industry, specializing in emerging Federal, State, RCRA, and Superfund regulations. Alliance's particular expertise is in the areas of hazardous waste minimization and treatment, risk assessment, and laboratory services. The laboratory is certified in Massachusetts, New Jersey, Rhode Island, and New York and is accredited by the American Industrial Hygiene Association. Alliance takes part in the U.S. EPA Contract Laboratory Program and NIOSH Proficiency Analytical Testing Program.

metaTRACE, Inc.

metaTRACE, Inc. is a unique high-volume, production-oriented laboratory which supports the monitoring, measurement, and reporting requirements of government and industry and its consultants. It is one of the few commercial laboratories in the country that offers full service capabilities for organic, inorganic, high hazard, and radiological analyses of all media. The laboratory takes part in the U.S. EPA Contract Laboratory Program and is certified by several states.

MIE

MIE is an international leader in the development, fabrication, and marketing of particulate measurement instruments that enable the real-time sensing of airborne dust, smoke, fumes, and asbestos fibers for industrial, mining, indoor, and ambient environments.

STERLING Technologies Inc.

Sterling Technologies Inc. offers client specialized technologies to provide intensive waste management to the industrial marketplace. Its comprehensive service encompasses every phase of waste processing, from treatment through destruction.

TRC Environmental Consultants

TRC Environmental Consultants, Inc. integrates state-of-the-art applied science, engineering, and regulatory consulting with specialties in the areas of air toxics control, expert testimony, hazardous waste management and site assessment/clean-up, odor, and ambient and indoor air quality measurement and consulting.

TRC Companies, Inc. • 800 Connecticut Boulevard • East Hartford, CT 06108 • (203) 289-8631

1.0 CORPORATE BACKGROUND

1.0 CORPORATE BACKGROUND

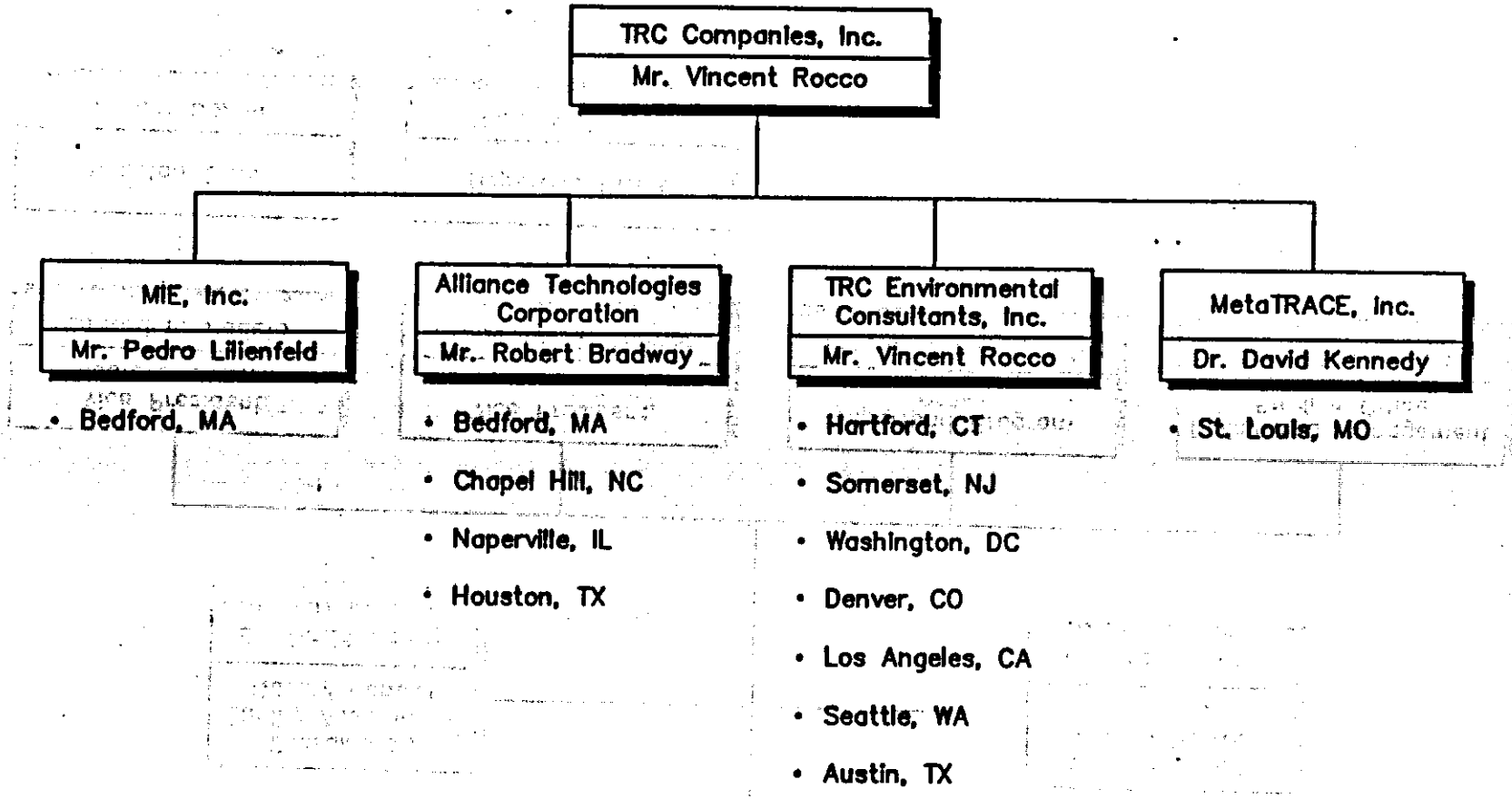
Alliance Technologies Corporation is a wholly-owned subsidiary of TRC Companies, Inc. Within TRC Companies there are four operating subsidiaries whose primary business is environmental consulting to government, industry, and public institutions from thirteen offices nationwide. The organization of TRC Companies is noted on the enclosed organization chart. Other subsidiaries owned by TRC Companies include TRC Environmental Consultants, Inc., an environmental consulting firm servicing primarily industrial clients; metaTRACE, Inc., a full-service analytical laboratory; and MIE, Inc., an environmental instrument manufacturing facility.

TRC Companies had gross revenues of $40 million in 1989, and has a staff of nearly 400 professionals. The company is publicly owned and traded on the American Stock Exchange under the symbol TRR. A copy of the most recent annual report is included at the end of this section.

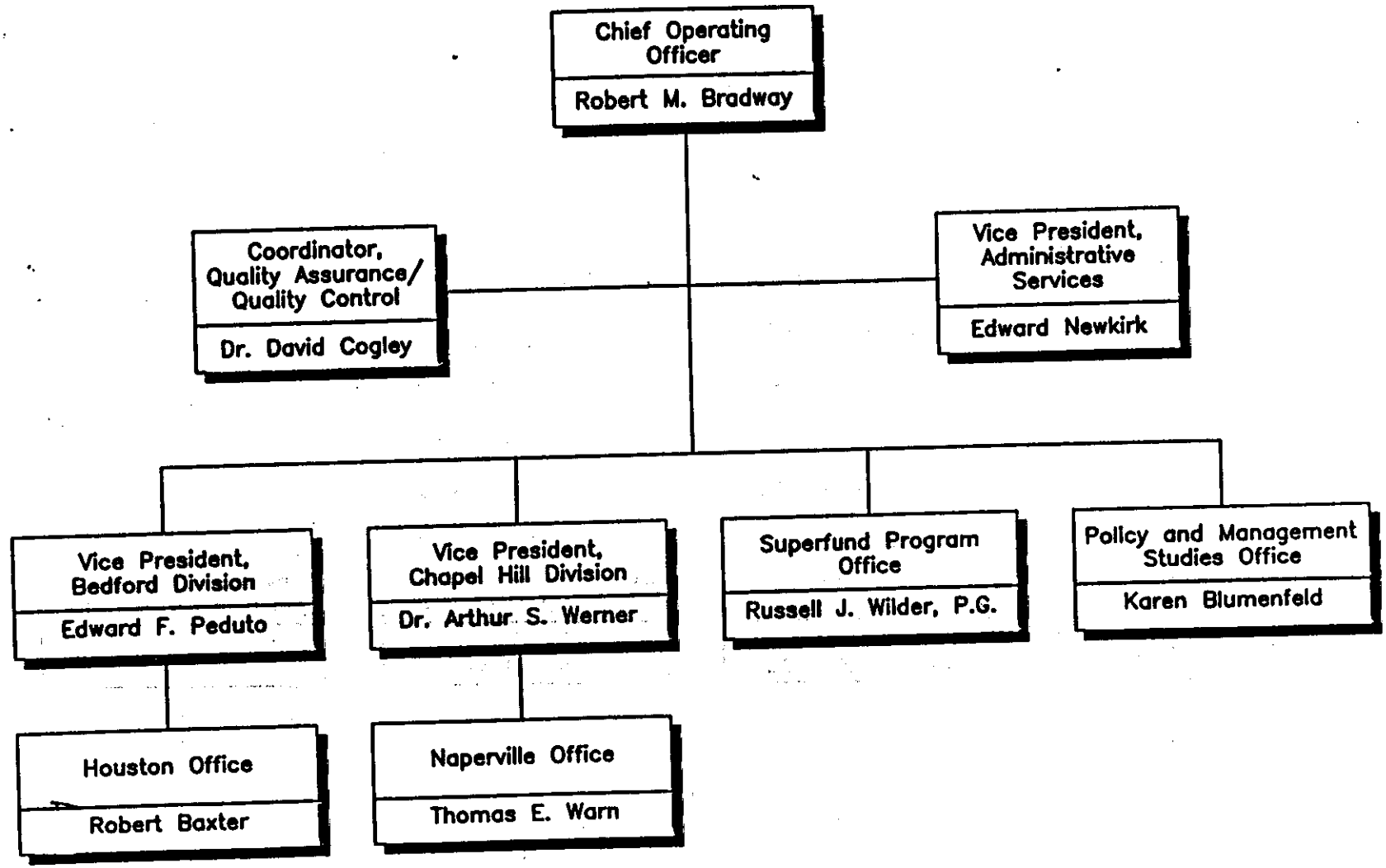
Alliance Technologies Corporation is a nationally recognized environmental consulting firm that has been providing the full range of environmental services to government and industry for 30 years. The company employs over 120 technical staff with backgrounds in chemical, civil, mechanical and environmental engineering; industrial hygiene; toxicology; public health; biology; chemistry; physics; mathematics; statistics; geology; hydrology; meteorology; and computer sciences. The company presently has four operating groups as illustrated in the Alliance organization chart:

- Bedford Division
- Chapel Hill Division
- Superfund Program Office
- Policy and Management Studies Office

A brochure outlining the general capabilities of the firm is included at the end of this section. Alliance Technologies Corporation offers a wide range of



ORGANIZATION CHART OF TRC COMPANIES



Alliance Technologies Corporation Organization.

environmental services including hazardous waste site characterization and remediation, underground storage tank investigations, solid and hazardous waste management, air pollution control, and water and wastewater engineering services.

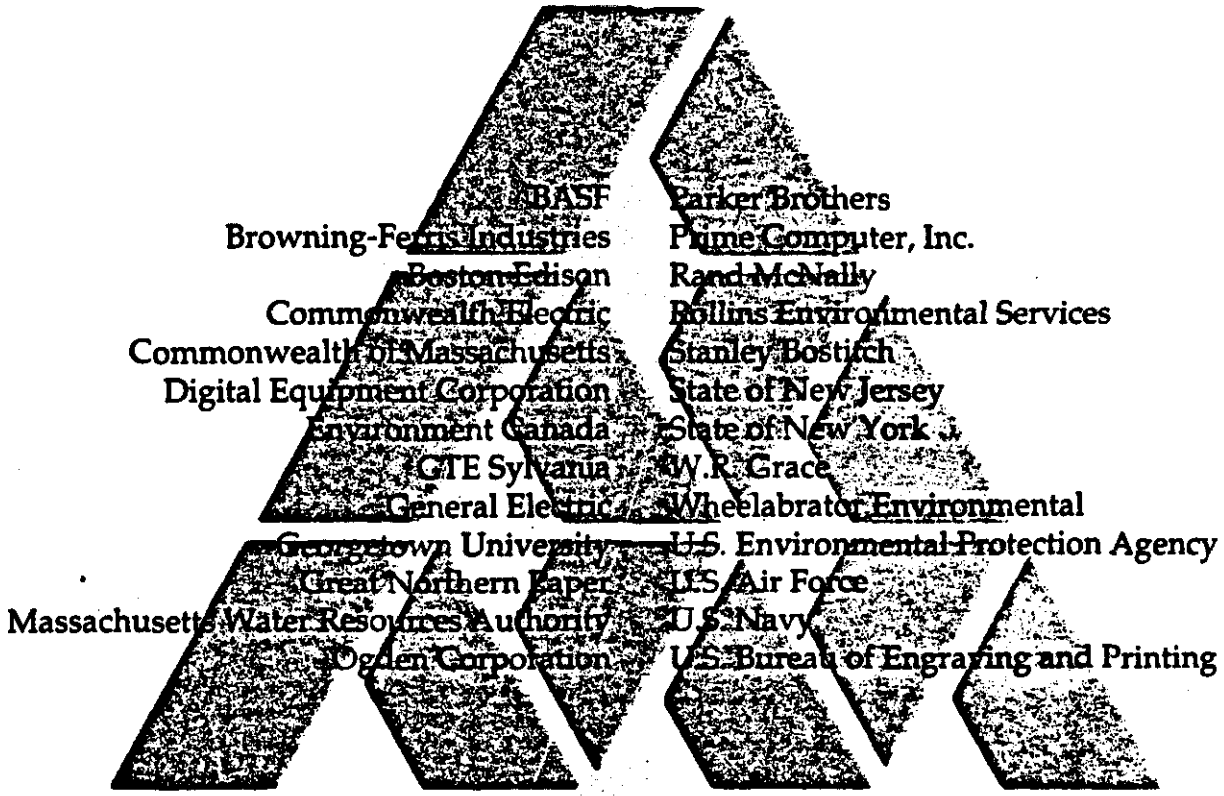
Section 2.0 details Alliance's recent experience with respect to hazardous waste site characterization and remediation, as well as underground storage tank investigations. Section 3.0 contains resumes of pertinent technical personnel. Section 4.0 details our field sampling and computer support capabilities. Finally, Section 5.0 contains information concerning the Hazardous Waste Site Operations training which Alliance employees receive, as well as the Alliance medical monitoring program.

Environmental Science and Engineering Services

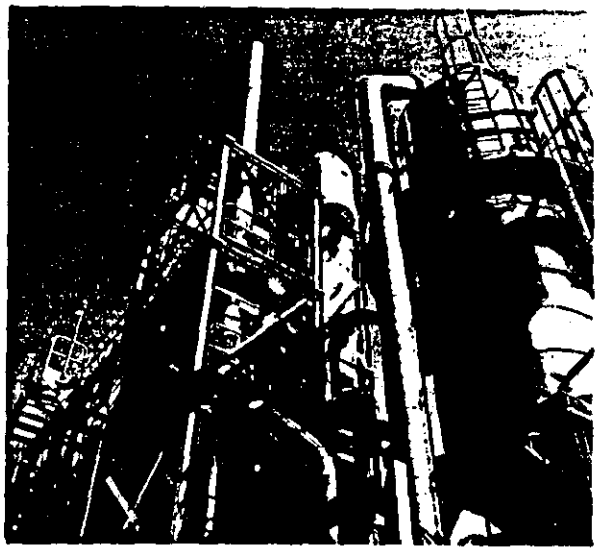
ALLIANCE
Technologies Corporation

We have the experience to help solve your problems

A partial list of our clients includes:



Resource Recovery and Treatment Technologies

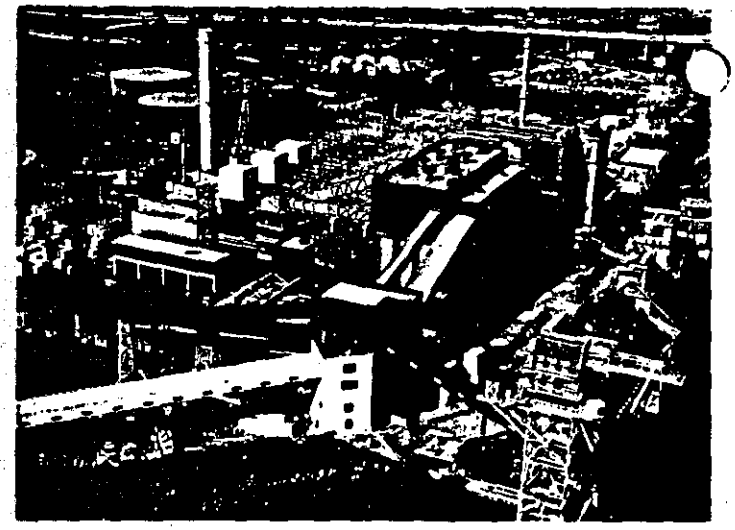


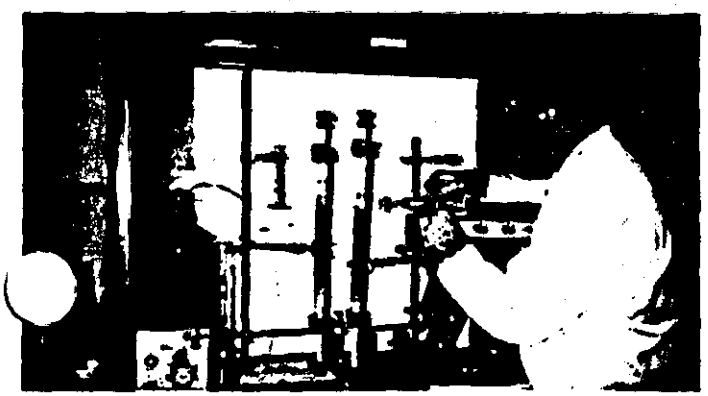
Incineration

Federal legislation limits the use of land disposal as a hazardous waste management tool. Among other alternatives, incineration is becoming more widely used. Alliance has become a leader in designing and conducting trial burns for evaluaton of incineration systems—from air emissions to ash—for a range of private and government clients. These systems range from small hospital incinerators to large commercial facilities.

Resource Recovery

Disposal of municipal solid wastes is becoming increasingly constrained by lack of landfill capacity. More and more, municipal refuse is being incinerated with the energy being converted to steam or electricity. Alliance assesses the environmental impacts and performance of resource recovery systems. Alliance has worked for the U.S. and foreign governments, and private clients in providing these services. Credible environmental analysis is necessary to convince regulators and the public that resource recovery systems do not violate environmental laws and regulations.





Waste Treatment Systems

A number of new technologies are under development to cope with hazardous and wastewater problems. Alliance evaluates these technologies and conducts field evaluations for government and private clients. Alliance's pilot studies establish the effectiveness of new technologies in removing contaminants or rendering them harmless. Alliance also designs treatment systems to meet specialized applications.

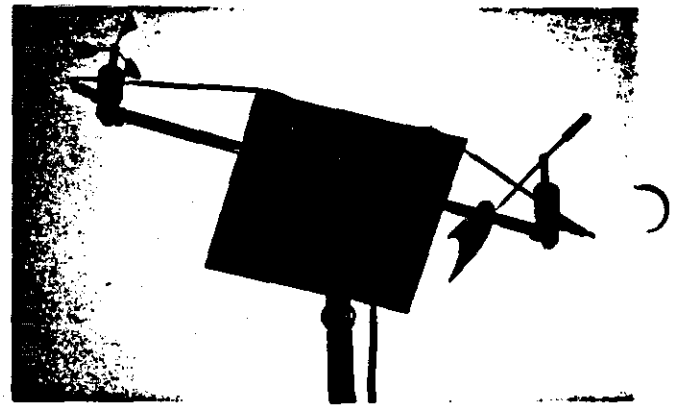
Air Pollution Control

Air Toxics

Toxic air pollutants have become a major public policy issue. Alliance routinely monitors and characterizes toxic air pollutants and recommends control strategies. Coupled with risk assessment expertise, Alliance is well positioned to help clients demonstrate compliance with air toxics regulations. In particular, Alliance has the engineering knowledge to help private clients obtain air permits and comply with the *Community Right to Know* provisions of the Superfund legislation.

Ambient Monitoring and Modeling

The Clean Air Act establishes emission and ambient standards to control air pollution. Alliance's scientists monitor emissions from smokestacks and ambient air d sources and predict concentration of ants through mathematical models. These activities are critical to help governments document achievement of air quality goals and to assist private clients in obtaining and complying with permits.



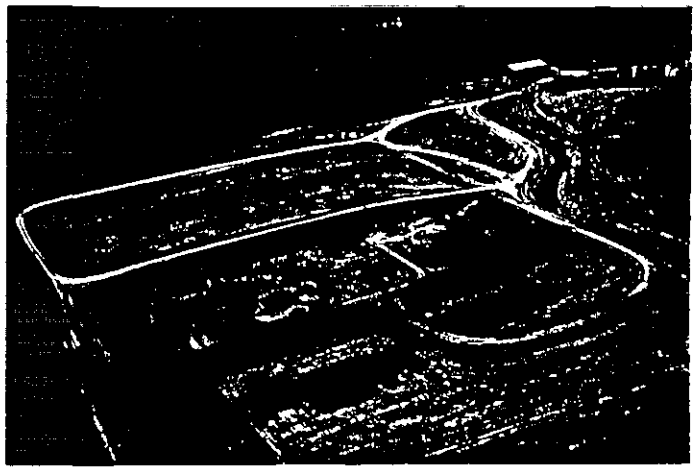
Emissions Inventories and Data Collection

Alliance has developed the largest single data base ever assembled on emission sources for the National Acid Precipitation Assessment Program. This work will help the Federal government, the states, and the private sector to develop cost-effective control programs. The data collection capabilities developed by Alliance can be applied to a number of modeling and other activities to assist clients in solving environmental problems.

Water and Waste Management

Hazardous Waste Management

Federal hazardous waste legislation has created an entirely new regime for managing hazardous wastes. Cleanup programs must be preceded by exacting analysis of the nature of contamination, risk to public health and the environment, and remedial options available. Alliance has conducted hazardous waste work for EPA, other Federal agencies, states, and numerous private clients. This work, ranges from developing waste minimization options to conducting detailed remedial investigations and feasibility studies. It is designed to help government and industry develop cost- effective remedial solutions.



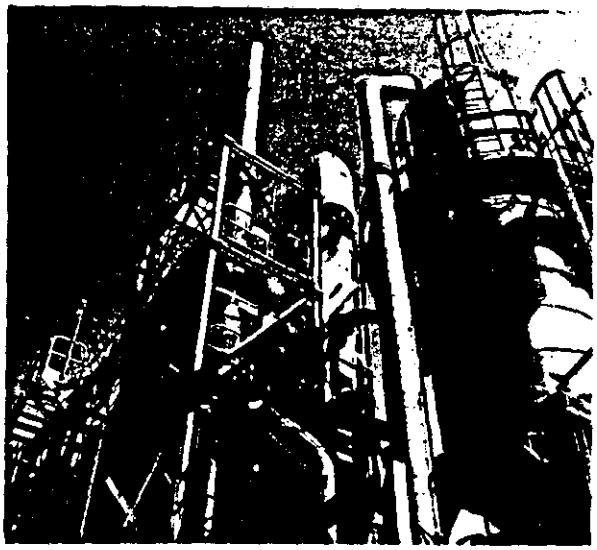
Ecological and Health Risk Assessment

Ecological and health risk assessment is an important aspect of hazardous waste management. Decisions on cleanup levels are often tied to such assessments. With a staff of ecologists, toxicologists, and other experts, Alliance has provided clients with detailed risk and ecological assessments. Alliance's ecological staff also helps EPA, other Federal agencies, and the states cope with potential conflicts between environmental values and development —particularly in wetlands.

Property Transfer and Siting

Increasingly, environmental site assessments are required prior to the sale of commercial property. Alliance conducts property transfer analyses to determine whether properties are free from contamination, including asbestos. If contamination exists, Alliance recommends cost-effective cleanup programs. By providing high quality work, Alliance can eliminate needless worry for buyers and financial institutions about potential environmental liability.

Resource Recovery and Treatment Technologies



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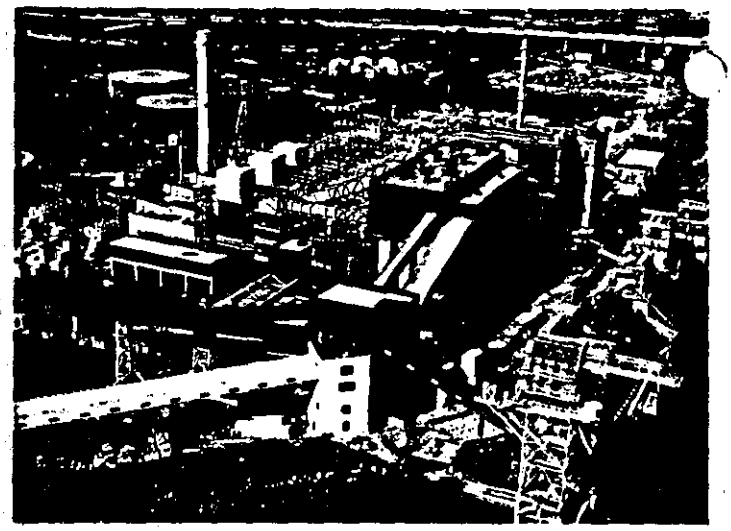

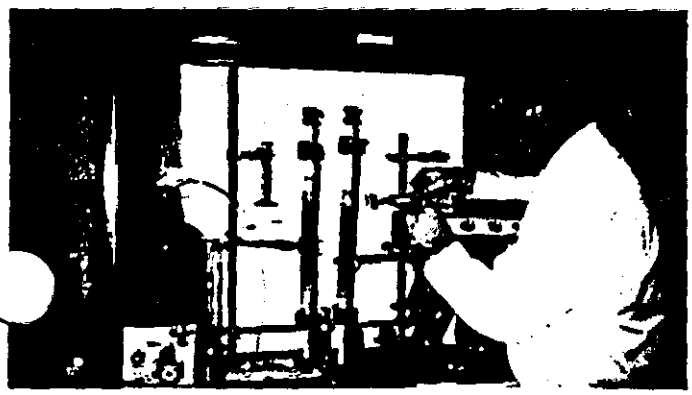

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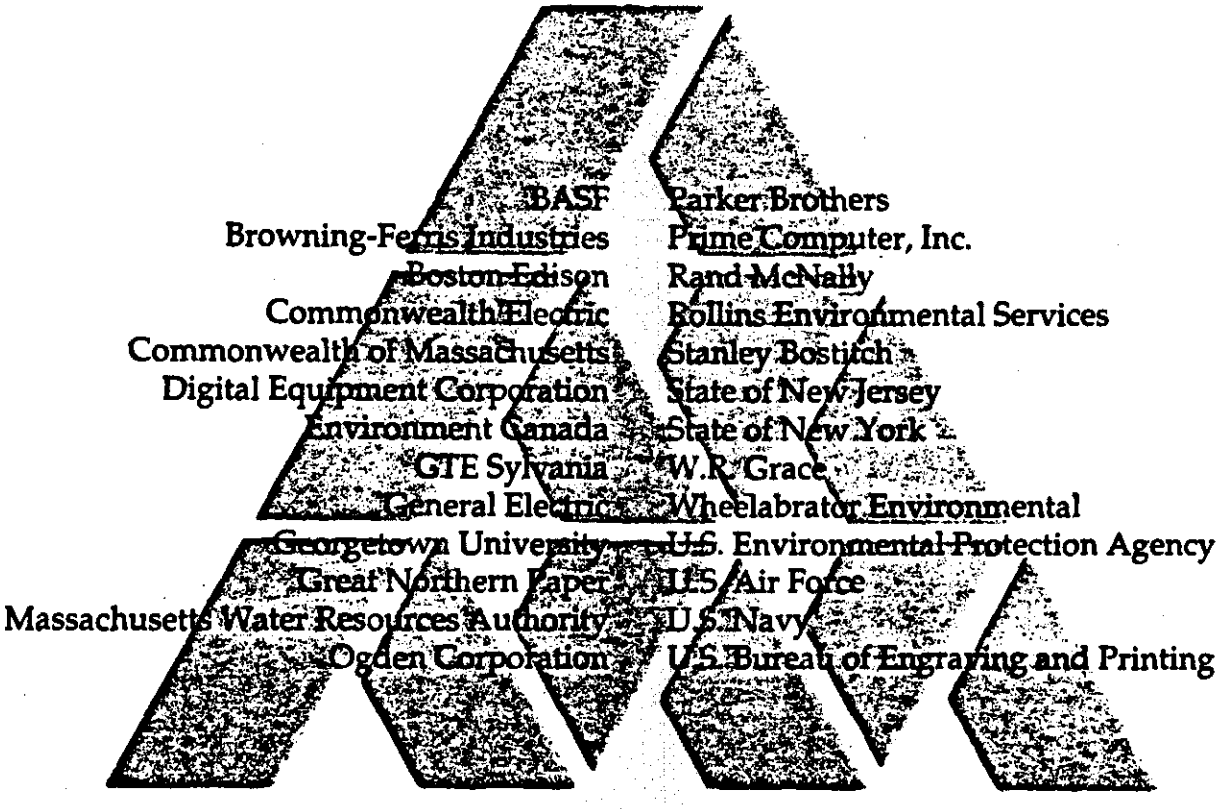
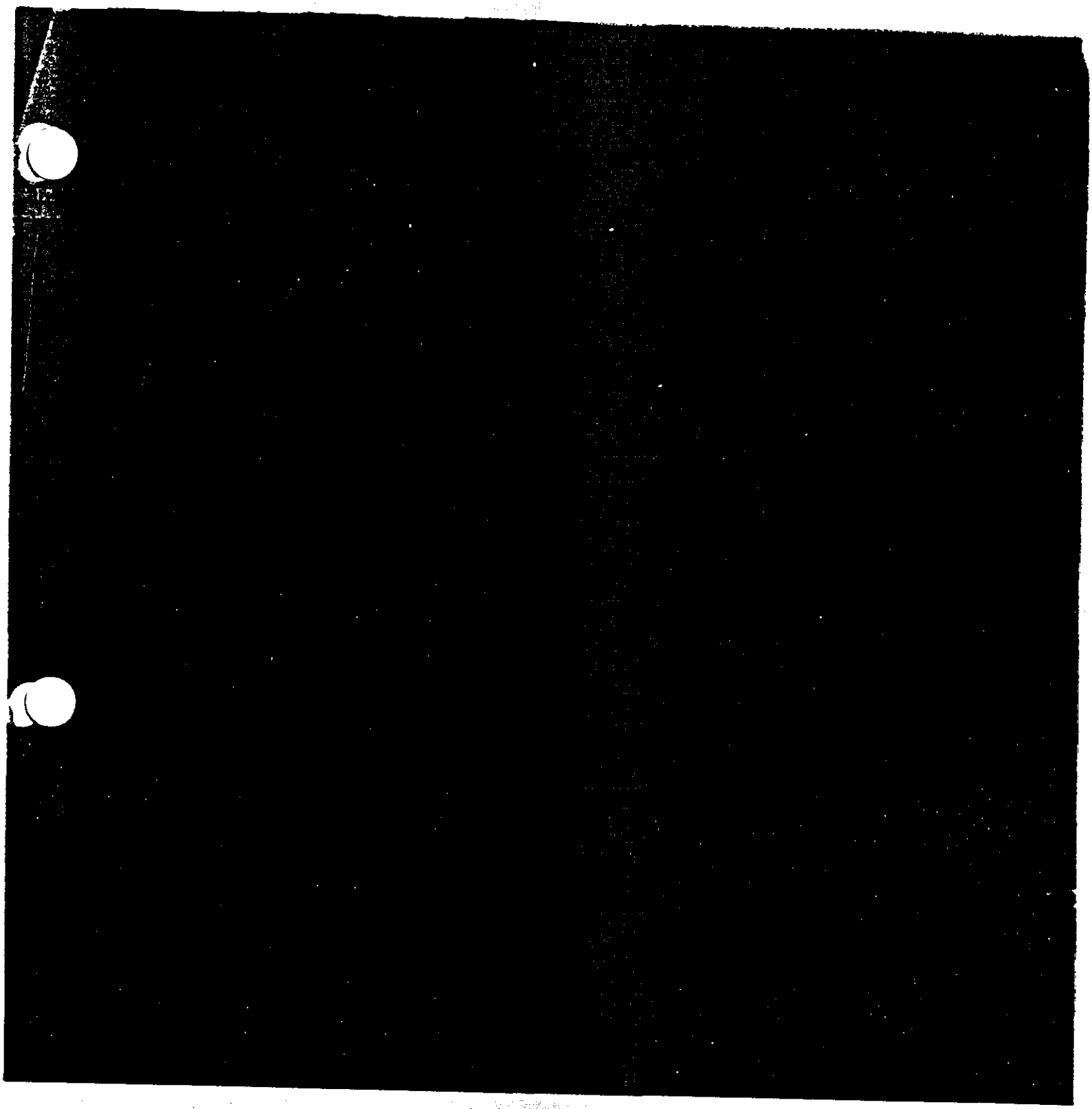




TRC

1989 ANNUAL REPORT

TRC Companies, Inc., a leader in the pollution control industry, serves both government entities and private sector industries. The Company provides engineering, laboratory analyses, consulting and specialized instrumentation products designed to locate, identify, quantify and control environmental contamination.

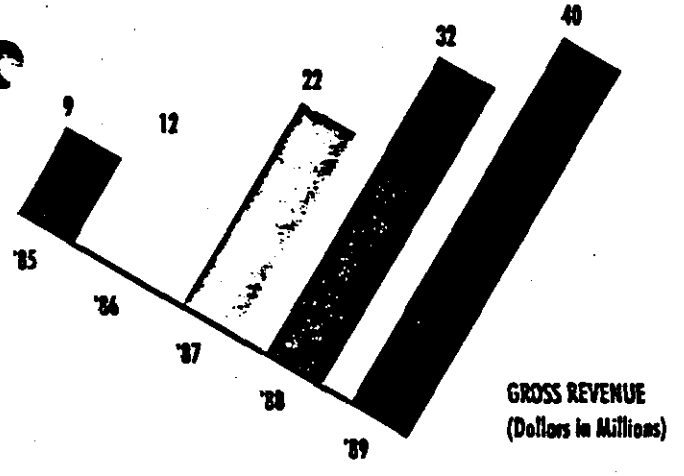
Fiscal 1989 was favorably marked by significant growth in revenue and earnings and the successful positioning of the Company's four subsidiaries in businesses that support a balance between long-term stability and increasing profitability.

Sunset at the Port of Long Beach, California, one of the largest container ports in the world. TRC measured the air emissions from ships in port to determine the impact on [illegible]tion in the Los [illegible]geles Air Basin from "hoteling" or loading and unloading operations while in harbor.

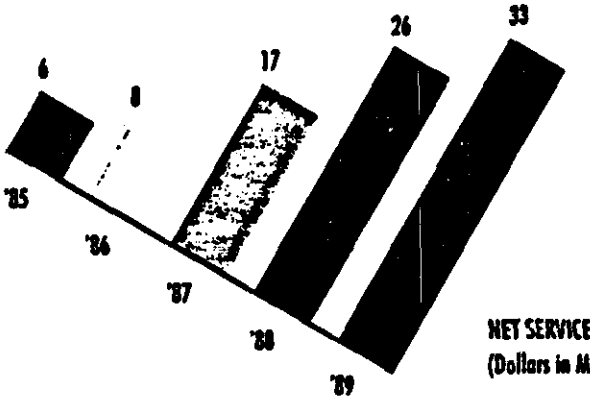
FINANCIAL HIGHLIGHTS

	For the years ended June 30, 1989	1988	1987
Gross revenue	$40,070,394	$31,990,183	$22,497,026
Net service revenue	32,502,680	26,144,063	16,997,233
Income from operations	4,188,764	884,542	48,140
Net income (loss)	$ 2,422,098	$ (346,648)	$ 7,509
Earnings (loss) per common share	$ .59	$ (.11)	$ —
At year-end:			
Working capital	$22,842,006	$ 6,465,932	$ 6,911,238
Current ratio	7.7 to 1	1.7 to 1	2.0 to 1
Debt to capitalization	5.2%	67.0%	48.9%
Return on equity	11.9%	(3.0)%	0.1%
Book value per share	$ 5.51	$ 3.55	$ 3.66
Number of common shareholders	508	503	590
Common shares outstanding	5,324,505	3,223,271	3,221,621

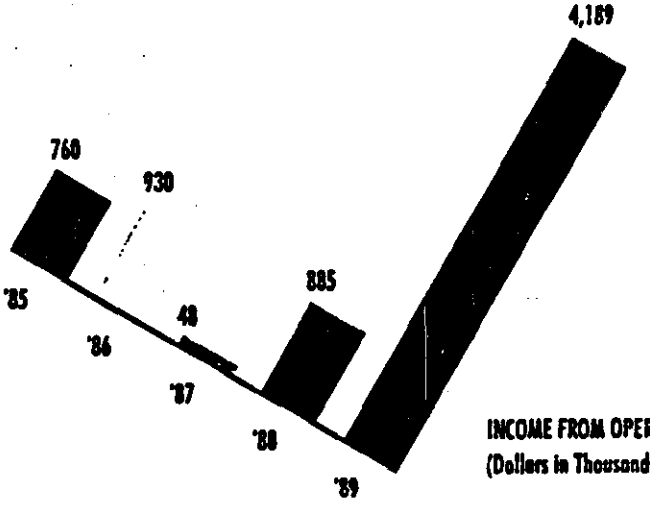
Restated to reflect the three-for-two stock split on August 14, 1989.



GROSS REVENUE
(Dollars in Millions)



NET SERVICE REVENUE
(Dollars in Millions)



INCOME FROM OPERATIO...
(Dollars in Thousands)

TO OUR SHAREHOLDERS:

We are very pleased to report that fiscal 1989 was a year of record performance for your Company. Management's investment decisions in prior years and continuing operating focus have been to build a balanced company in broad and stable businesses which provide control and predictability of future growth and profitability. These objectives have been achieved.

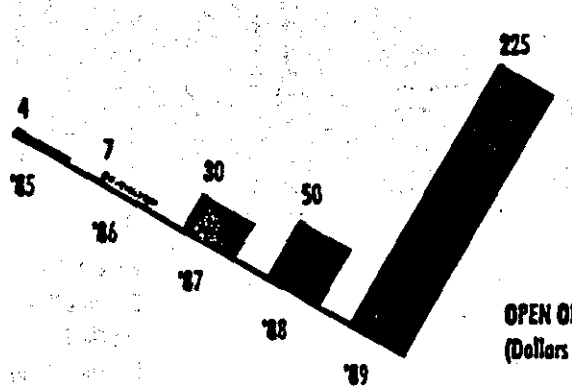
Net income for the year was a record $2.4 million or 59 cents per share versus a loss of $347,000 or 11 cents per share last year. Gross revenue was $40 million, an increase of over 25 percent. Net service revenue (gross revenue excluding subcontractors and other pass through charges) exceeded $32 million, representing a 24 percent increase over last year. These solid financial results, coupled with a significant increase in new contracts, clearly demonstrate that the Company has successfully assimilated and is now maturing its prior investments in strategically important new business lines.

Vincent A. Rocco
Chairman and
Chief Executive Officer

The confidence of the investment community in TRC is evidenced by the success of our common stock offering of 1,265,000 shares in January and the subsequent increase in the price of the Company's stock. Today, your Company is well capitalized for planned growth. Net proceeds of $14.3 million from the Company's common stock offering were partially used to repay all outstanding bank debt. Even with that repayment, TRC had available cash of approximately $5.7 million at June 30, 1989. With adequate working capital, sufficient cash available for expanding profitable growth businesses and a newly increased bank line of $15 million, TRC enjoys an enviable position among its peers in the environmental services industry.

Following the announcement of the Company's strong earnings performance in fiscal 1989, the Board of Directors on August 4 authorized a 3-for-2 common stock split in the form of a 50 percent stock dividend to shareholders of record on August 14th. This stock split increases the liquidity of TRC's common stock raising the number of shares outstanding to over 5.3 million. The financial statements and the accompanying notes in this Annual Report reflect the stock split.

One key to TRC's future success is our backlog and open order contracts. At June 30, 1989, net contract backlog was $25 million, up over 39 percent from this time last year. Open order contracts with the U.S. Environmental Protection Agency, the U.S. Department of Defense, the



OPEN ORDER CONTRACTS
(Dollars in Millions)

U.S. Department of Energy, and major industry and financial institutions currently exceed $225 million as compared to $50 million at June 30, 1988. Funding of these contracts is at the discretion of the client.

Fiscal 1989 was the year in which your Company's investments began to earn a significant return. The revenues of metaTRACE, Inc., our wholly-owned laboratory subsidiary, grew over 70 percent with operating income increasing by approximately 150 percent. Today, because of its demonstrated capability and expanded capacity to analyze very difficult samples, including radioactive waste, dioxin, explosives and agricultural chemicals, metaTRACE is a national resource supporting the cleanup of numerous, high-visibility sites nationwide.

As the Bush Administration enters an era of renewed commitment to national and global pollution abatement, TRC's wholly-owned government services subsidiary, Alliance Technologies Corporation, has been awarded over $200 million in multi-year contracts to support the U.S. EPA's initiatives in hazardous waste site cleanup. The Company is now receiving active funding for these programs which should contribute significantly to our goal of maintaining long-term stability within the entire Company.

TRC Environmental Consultants, Inc., our private sector engineering and consulting subsidiary, has significantly expanded its national client base for contaminated site cleanup, toxic air pollution control and property transfer services. Net service revenue grew over 20 percent and income from operations increased by 73 percent over last fiscal year.

It is important to note that TRC is one of a very few national firms with acknowledged expertise in air pollution control consulting. TRC's thirty-year experience in large scale air pollution matters has been recognized by the U.S. EPA through priority funding of programs to quantify acid rain and study global warming. This strategic positioning places TRC at the forefront of the world's environmental issues of the 1990's and should enable the Company to be a principal beneficiary of any version of Clean Air Act legislation promulgated in the next year.

TRC's business and technical successes this past fiscal year rank the Company not only as one of the best performing in the pollution control industry but also as one of the best prepared for growth and profitability in this complex and challenging business environment. Our strengths are based upon a focused management, excellent capitalization and healthy contract backlog in markets which should demonstrate continued growth and upside margin potential.

As the Company moves forward, we do so with increased confidence of success and our continued desire to increase the value of our shareholders' investment.

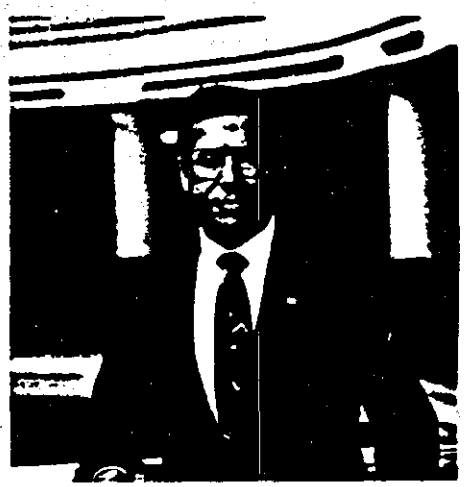
On behalf of all of our more than 500 employees in fourteen offices throughout the U.S., we want to thank each of you personally for your unparalleled support during this rewarding year.

Sincerely,

Vincent A. Rocco
Chairman and Chief Executive Officer

Bruce D. Cowen
Executive Vice President and
Chief Financial Officer

August 24, 1989



Bruce D. Cowen
Executive Vice President
and Chief
Financial Officer

Solid Client Base, Record Contract Growth

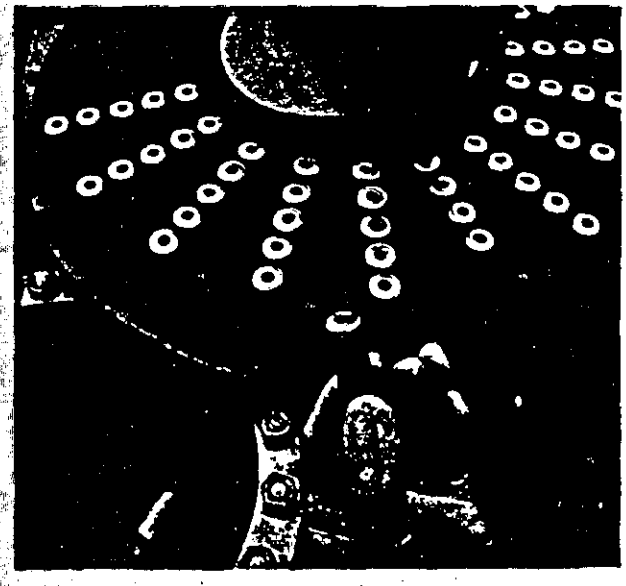
TRC's business philosophy is to build client relationships with quality services, fully responsive to time schedules and technical requirements. Eighty-two percent of all new laboratory and consulting/engineering business generated this past year was from repeat clients. The Company expanded existing contracts and signed new contracts with Fortune 500 industrial companies, major financial institutions, the disposal industry, law firms and several principal government agencies. The balance achieved among these market segments is reflected by an almost even split in new business booked this year for government and the private sector and is spread throughout our four subsidiaries.

The largest contract in the Company's history ($136 million) was signed by TRC's subsidiary, Alliance Technologies Corporation, in early December 1988. This program for project management and specialized engineering supports the U.S. Environmental Protection Agency's (EPA) programs under the Superfund Amendments and Reauthorization Act of 1986 and the Resource Conservation and Recovery Act of 1976. This award was the successful culmination of a focused marketing and sales initiative begun over two years ago to expand TRC's government business. Subsequent to this, Alliance signed two new contracts worth over $67 million for work for the EPA. Work under these contracts is spread over a five to ten year period, and the level of work in any year depends on the amount of work funded for that year by the EPA.

Our investment in an environmental laboratory through metaTRACE, Inc. proved to be an important element in TRC's growth and increased profitability. metaTRACE demonstrated success in four targeted businesses: mixed waste for the U.S. Department of Energy (DOE), military compounds for the U.S. Department of Defense (DOD), high hazard toxic materials for various government and private clients involved in hazardous waste programs and pesticide and herbicide testing for the agricultural chemical industry.

One of metaTRACE's significant projects has been to provide all chemical and radiochemical analyses in support of the DOE Weldon Spring Site Remedial Action Project. Since the program started in 1987, metaTRACE has analyzed thousands of air, water and soil samples for such environmental contaminants as uranium, thorium, radium, explosives, priority pollutants and asbestos. To date, the contract value at Weldon Spring for metaTRACE has been $2.8 million. metaTRACE expects to provide an increasing volume of services to DOE as investigation and cleanup activities continue to accelerate at DOE facilities throughout the country.

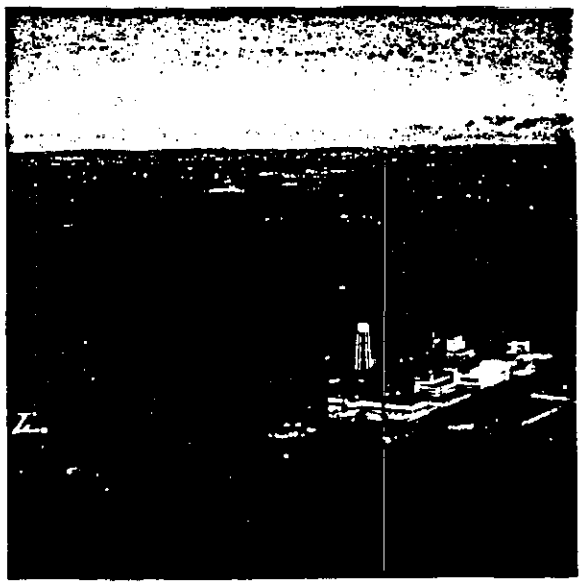
A metaTRACE chemist loads samples for trace organic analysis by gas chromatography/mass spectrometry (GC/MS) to quantify contamination.



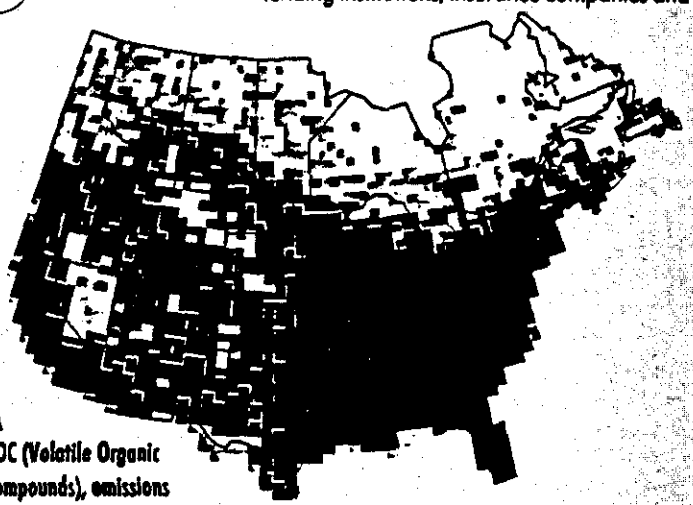
TRC Environmental Consultants, Inc. significantly expanded its business in hazardous waste cleanup, air consulting and risk limitation. With a broad base of disciplines working in all media - air, water and soil, TRC Environmental Consultants, Inc. has the flexibility to respond to varying client needs. The Company's national network of offices is located to deliver these services quickly and competitively. TRC's client list now boasts several of the nation's largest financial institutions and prestigious law firms as well as major industries.

A fully protected chemist prepares a "high hazard" sample prior to GC/MS analysis.

metaTRACE is performing chemical and radiochemical analysis for site investigation and cleanup at DOE's Weldon Spring Site in St. Charles, Missouri.



TRC Environmental Consultants, Inc.'s asbestos removal consulting has stemmed from municipal ordinances and EPA and State directives. Increasing liability concerns and asbestos bans increase the market potential. Projects have successfully been conducted for major real estate lending institutions, insurance companies and utilities.



VOC ANNUAL EMISSIONS DENSITY
(Tons/sq km)
0-0.1 0.1-0.5 0.5-1.5 >1.5

VOC (Volatile Organic Compounds), emissions which potentially contribute to acid rain, are apportioned into 80 x 80 kilometer grids. This map, developed by Alliance's Chapel Hill office for NAPAP, ...s the ...tion of these emissions.

Building on its unique Fibrous Aerosol Monitor (FAM-1) technology, MIE, Inc. is funded by the U.S. EPA for the initial tasks to develop a real time, direct-reading monitoring technique that discriminates asbestos from other types of airborne fibers such as glass, textile and cellulose. To date, only optical and electron microscopy, which require filter sampling and laboratory analyses with associated time lag, are government certified methods to measure asbestos. The new sensing technology would be a major advancement in asbestos management providing property owners, risk managers, environmental health professionals and removal contractors a critical tool for accurate and timely asbestos monitoring.

TRC Today, Positioned For Tomorrow's Environmental Challenges

TRC's business and technical successes of 1989 place the Company as one of the best positioned professional services organizations to address the nation's and the world's ever more complex and pressing environmental challenges in the 1990's and beyond.

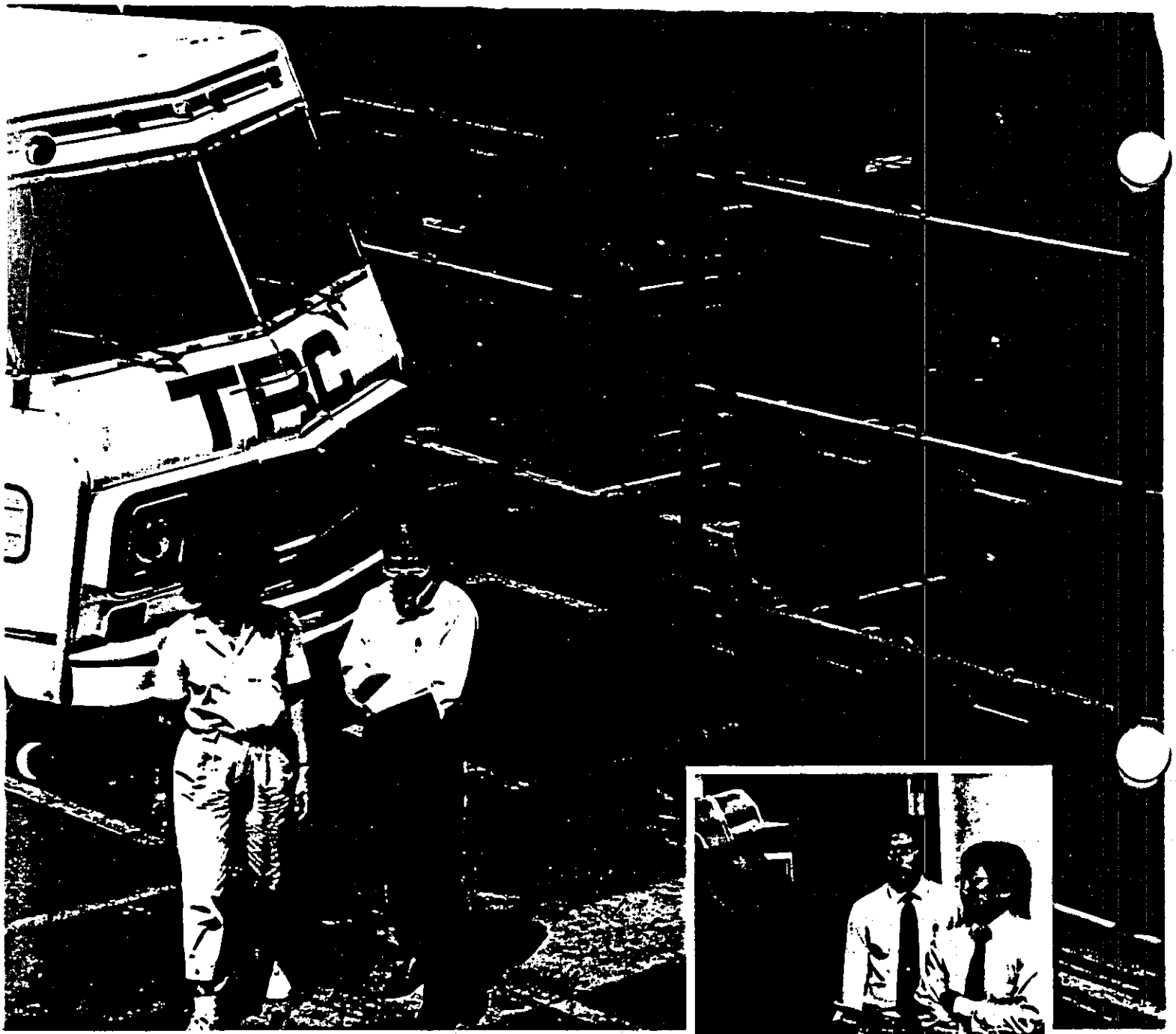
TOMORROW'S CHALLENGES

An increasing market focus on air toxics, acid rain, global warming and urban smog is fueled by expectation of a new Clean Air Act. TRC's historic leadership in air quality consulting, inventorying emissions and contamination exposure continues to strongly distinguish the Company in the marketplace.

TRC started work on several research projects this spring for EPA's Global Warming Program. TRC is not only developing worldwide emissions data of those gases that contribute to global warming, but is also developing global emissions forecasts based on economic projections which will be used to identify mitigation scenarios for the next century. Continuing work started

OLEFINS
(Tons/Year)
1 to 4,999 50,000 to 99,999 150,000 to 249,999
5,000 to 49,999 100,000 to 149,999 >250,000

Alliance's Chapel Hill, North Carolina office is one of the nation's pioneering firms involved in the problem of global warming. Natural and manmade sources of olefins, chemical compounds which contribute to global warming, are plotted to show



TRC chemists use a mobile odor monitoring van to assist the automotive industry in determining potential downwind effects of odor generated by coating operations.

Larry Hottenstein (c), Vice President of TRC Environmental Consultants, Inc., discusses air monitoring results with members of staff in Mission Viejo.

over nine years ago on the National Acid Precipitation Assessment Program (NAPAP) provides TRC with a strong basis for responding to any new initiatives developing from increasing EPA and Congressional commitments on acid rain.

TRC activities on urban pollution extend from developing plans for reducing smog in Chicago to on-site measurement in New York City. With the proposed reconstruction of the West Side Highway in New York, TRC is collecting data to evaluate the likely concentration of carbon monoxide (CO) from the new road. CO, a localized pollutant, is being measured near Lincoln Center and Carnegie Hall to determine the CO levels at these two heavily trafficked intersections.

MIE, in response to increasing concerns over urban smog and revised government regulations on particulates, is applying its demonstrated success in optical laser scattering technologies to develop a direct continuous monitor for inhalable particles. This small-sized dust is considered health damaging.

Over two years ago, TRC won a competitive contract to design and implement a consolidated database of all industrial emission and compliance data for the EPA. This section of the Aerometric Information Retrieval System (AIRS) will be used by EPA headquarters, all 10 EPA regions, the 50 states and some trust territories. TRC's engineering knowledge of air quality data, coupled with environmental database management expertise, places the Company at the forefront of this developing market. AIRS will be an important tool in meeting President Bush's priorities on clean air in our cities and throughout the global environment. The new database will allow comprehensive information to be brought to focus on specific questions. Air quality decisions will be made and priorities implemented. TRC technology is providing the means to do this.

Experience also gives us a competitive edge for tomorrow's emerging environmental problems. This past year, TRC provided expert guidance on potential toxic air emissions for many industrial clients. In one such example, TRC prepared air quality analysis for a paint manufacturing process at Benjamin Moore's new Johnstown, New York plant. This project included an evaluation of every material used in the process to assure it would meet New York State regulations and air guidelines for potentially toxic air contaminants.

The Fibrous Aerosol Monitor (FAM-1) is shown monitoring the adequacy of asbestos removal safety. This instrument is one of a selection MIE, Inc. markets for environmental, industrial hygiene and process control applications.

Besides direct consulting to industry with expert knowledge on potential exposures from air emissions at plant sites and Superfund locations, TRC has routinely supported attorneys in defending toxic tort cases. Consequences from environmental contamination are increasingly becoming a liability to the private sector. TRC's experience working with law firms is a strong factor in TRC's ability to grow in the marketplace.

Techniques and knowledge developed over TRC's long history as a premier odor consultant provide TRC with experience directly transferable to today's concerns with toxic compounds. In response to the public's increasing concern that offensive smells could mean dangerous exposure to hazardous materials, TRC evaluates odors, assesses the presence of air toxic compounds and selects the appropriate control measures for many industrial facilities.

The problems of hazardous waste, groundwater pollution and waste disposal continue to escalate. TRC is well postured to expand further into this market. With incineration tending to be a more attractive disposal option, TRC's track record with emission testing, trial burn certification and laboratory analysis establishes the Company as one of the major firms serving both the solid and hazardous waste disposal industry.

The number and complexity of governmental programs identifying and quantifying contaminated sites have increased. The Company has developed experience at engineering cost-effective solutions to on-site contamination. A good example is TRC's groundwater treatment plant at the site of the new 22 story office tower in downtown Los Angeles. TRC, working for Tutor-Saliba Corporation, performed a full scale assessment to identify contamination, then selected the cleanup measures, designed, permitted and began operating a 400,000 gallon per day treatment plant — all within 3 months! The plant removes salts, solids and petroleum contaminants from the groundwater being pumped and discharged to dewater the construction site.

A TRC technician samples treated groundwater to check treatment plant operation. With dewatering and treatment, Tutor-Saliba Corporation is safely constructing the footings to support a 22 story Los Angeles building with three subterranean parking levels.
Inset: Tony Severini (r), Vice President, TRC Environmental Consultants, Inc., reviews groundwater flow diagrams with project staff.

As the 1990's unfold, it is expected that government agencies and private companies will shift more attention to air pollution control, human health issues, and water and soils treatment and remediation. With 1) an understanding of these market trends, 2) a quality and diverse client base, and 3) breadth of experience, TRC enters the new decade prepared for the challenges of the dynamic environmental services and laboratory business.

SELECTED FINANCIAL DATA

TRC Companies, Inc. and Subsidiaries

	In thousands (except per share amounts) For the years ended June 30,				
	1989	1988	1987	1986	1985
Gross revenue	$40,070	$31,990	$22,497	$12,489	$8,716
Less subcontractor costs and direct charges	7,567	5,846	5,500	4,840	2,792
Net service revenue	32,503	26,144	16,997	7,649	5,924
Operating costs and expenses:					
Salaries and other direct costs of services	24,121	21,089	14,919	5,650	4,155
General and administrative expenses	2,640	2,175	1,308	831	772
Depreciation and amortization	1,553	1,295	722	238	237
Disposition of Alliance Technologies Corporation's laboratory	—	700	—	—	—
	28,314	25,259	16,949	6,719	5,164
Income from operations	4,189	885	48	930	760
Interest expense	792	772	197	71	113
Other (income) expense, net	(103)	412	(161)	(131)	—
Equity in net loss of TRC Advanced Analytics, Inc.	—	—	—	27	405
Income (loss) before taxes	3,500	(299)	12	963	242
Federal and state income tax provision	1,078	48	4	364	118
Income (loss) before extraordinary item	2,422	(347)	8	599	124
Extraordinary item:					
Income tax credit arising from utilization of operating loss carryforwards	—	—	—	119	114
Net income (loss)	2,422	(347)	8	718	238
Preferred stock dividend	—	—	—	35	60
Earnings (loss) applicable to common stock	$ 2,422	$ (347)	$ 8	$ 683	$ 178
Per share of common stock:					
Earnings (loss) before extraordinary item	$ .59	$ (.11)	$ —	$ .28	$ .05
Extraordinary item	—	—	—	.05	.07
Earnings (loss) applicable to common stock	$ .59	$ (.11)	$ —	$ .33	$ .12
Weighted average number of common and common equivalent shares outstanding	4,126	3,222	3,252	2,197	1,742
At year-end:					
Total assets	$35,463	$24,344	$22,605	$15,426	$3,897
Long-term debt	$ 1,400	$ 3,390	$ 4,062	$ 2,004	$ 221
Cash dividends declared per common share	None	None	None	None	None

Revenues and Earnings by Quarter (Unaudited)

	In thousands (except share data)			
1989	1st	2nd	3rd	4th
Gross revenue	$9,220	$10,060	$10,441	$10,349
Net service revenue	7,557	8,511	8,360	8,075
Income from operations	909	1,007	1,042	1,231
Income before taxes	563	669	976	1,293
Net income	$ 371	$ 429	$ 668	$ 954
Earnings per common share	$ .12	$ .13	$ .15	$ .17

1988	1st	2nd	3rd	4th
Gross revenue	$7,976	$ 7,850	$ 8,123	$ 8,041
Net service revenue	6,225	6,297	6,356	7,266
Income (loss) from operations	535	466	(568)	452
Income (loss) before taxes	335	237	(1,274)	403
Net income (loss)	$ 208	$ 154	$ (1,064)	$ 355
Earnings (loss) per common share	$ [illegible]	[illegible]	$ (.33)	$ .11

Restated to reflect three-for-two stock split on August 14, 1989.

Management's Discussion and Analysis of Results of Operations and Financial Condition

The following discussion should be read in conjunction with the Selected Financial Data and the Consolidated Financial Statements and Notes thereto.

MANAGEMENT'S DISCUSSION

Since its founding TRC Companies, Inc. (the Company) has moved into different fields and markets in response to increasing demand for environmental services and products. Originally focusing primarily on air pollution, the Company now offers engineering and consulting services in the areas of hazardous waste management, toxic substance control and environmental planning and risk limitation. The Company has also recognized the need to serve the two major environmental markets — government and the private sector. To more effectively serve these two markets, the Company acquired Alliance (formerly GCA Technologies Division, Inc.) in 1986 which had a significant presence in the government market, as well as a small instrument business. Early in 1987, the Company opened its own state-of-the-art analytical laboratory, metaTRACE, Inc., in response to the increasing demand for complex analysis of hazardous, military and mixed chemical wastes.

Results of Operations

The Company, in the course of providing its services, routinely subcontracts such services as drilling, certain laboratory analyses and other specialized services. These costs are passed directly through to clients and, in accordance with industry practice, are included in gross revenue. Because subcontractor costs and direct charges can change significantly from project to project, the change in gross revenue is not necessarily a true indication of business trends. Accordingly, the Company considers net service revenue, which is gross revenue less subcontractor costs and direct charges, as its primary measure of revenue growth.

The following table presents, for the years indicated, the percentage relationships which certain items included in the consolidated statements of operations bear to net service revenue:

	Years ended June 30, 1989	1988	1987
Net service revenue	100.0%	100.0%	100.0%
Salaries and other direct costs of services	74.2	80.7	87.8
General and administrative expenses	8.1	8.3	7.7
Depreciation and amortization	4.8	4.9	4.2
Disposition of Alliance Technologies Corporation's laboratory	—	2.7	—
Income from operations	12.9	3.4	.3
Interest expense	2.4	2.9	1.2
Income (loss) before taxes	10.8	(1.1)	.1
Federal and state income tax provision	3.3	.2	—
Net income (loss)	7.5	(1.3)	—

1989 COMPARED TO 1988

Net service revenue during fiscal 1989 increased 24.3% to $32.5 million from $26.1 million in fiscal 1988. This increase was primarily due to a significant increase in the Company's analytical laboratory business and to a general increase in the demand for the Company's engineering and consulting services.

Salaries and other direct costs of services increased by 14.4% in fiscal 1989, primarily the result of costs incurred for additional professional and technical personnel required to support the increased demand for the Company's services and the increased costs of salaries and related fringe benefits. However, as a percentage of net service revenue, these costs have decreased as a result of significant increases in revenues from the Company's analytical laboratory business which has a lower salary and other direct cost component than the Company's other businesses and to an increase in utilization of the Company's professional staff providing engineering and consulting services.

General and administrative expenses in fiscal 1989 decreased as a percentage of net service revenue to 8.1%, as compared with 8.3% in fiscal 1988. This improvement was achieved despite increases in salaries and related fringe benefits and additions to financial and administrative support staffs.

Depreciation and amortization expense increased by 19.9% in fiscal 1989, primarily due to additions to laboratory and other equipment in fiscal 1989 and 1988.

Income from operations as a percentage of net service revenue in fiscal 1989 increased to 12.9%, from 3.4% in fiscal 1988. This increase was primarily due to the significant increase in analytical laboratory revenues, which generally provide higher margins than engineering and consulting services, and to improved margins in the Company's engineering and consulting services and instrument business. In addition, fiscal 1988 reflects a $700,000 charge related to the disposition of the Alliance laboratory.

Interest expense increased to $791,659 in fiscal 1989 from $771,538 in fiscal 1988. Interest expense increased despite the repayment of all bank debt on February 2, 1989 from the net proceeds of the sale of common stock. This increase was primarily due to higher average borrowings at higher interest rates prior to repayment, to finance increased working capital requirements and additions to property and equipment.

The provision for income taxes in fiscal 1989 was 30.8% of income before taxes. This rate reflects the Company's adoption of SFAS 96 (see Note 1 of Notes to Consolidated Financial Statements) in fiscal 1989. The provision for income taxes in fiscal 1988 includes state taxes only because the Company had a net loss for the year.

Net income for fiscal 1989 increased significantly from losses in fiscal 1988, reflecting the increases in net service revenue, particularly increases from the Company's analytical laboratory business, and the $700,000 charge in fiscal 1988 relating to the disposition of the laboratory at Alliance.

1988 COMPARED TO 1987

Net service revenue during fiscal 1988 increased 53.8% to $26.1 million from $17.0 million in fiscal 1987. This increase was attributable to the inclusion for the entire fiscal year of the operations of Alliance, acquired October 8, 1986, and metaTRACE, which became operational in the fourth quarter of fiscal 1987, and to a general increase in the demand for the Company's engineering and consulting services.

Salaries and other direct costs of services increased by 41.4% in fiscal 1988, primarily as a result of the inclusion of the operations of Alliance and metaTRACE for a full year, and to a lesser extent, the increased cost of salaries, fringe benefits and employee recruitment. As a percentage of net service revenue, these costs decreased from 87.8% in fiscal 1987 to 80.7% in fiscal 1988.

General and administrative expenses increased by 66.3% in fiscal 1988. This increase was primarily due to the inclusion of Alliance and metaTRACE for a full year, expenses incurred for additional financial and administrative support staffs and additional start-up expenses.

Depreciation and amortization expense increased by 79.6% in fiscal 1988, primarily due to the inclusion of a full year of depreciation on laboratory equipment and a full year of amortization of the preoperating costs at metaTRACE.

Income from operations increased significantly in fiscal 1988. This increase was the result of net service revenue increasing by $9.1 million, notwithstanding continued operating losses of Alliance and a charge of $700,000 relating to the disposition of the Alliance laboratory, versus the $8.3 million increase in operating costs and expenses.

Interest expense increased to $771,538 in fiscal 1988 from $197,319 in fiscal 1987 as a result of higher borrowings at higher rates incurred to finance increased working capital requirements and additions to property and equipment.

The provision for income taxes in fiscal 1988 includes state taxes only, because the Company had a net loss for the year.

The net loss for the year was principally due to higher interest expense, the settlement of litigation related to the establishment of metaTRACE and the closing of a developmental stage subsidiary of the Company. The costs associated with the settlement of the litigation and the closing of the subsidiary are included in other (income) expense, net.

Impact of Inflation

The Company's business has not been significantly affected by inflation during the periods discussed above because of the short-term nature of many of its contracts and the fact that most contracts covering periods of more than one year are subject to adjustment or have been priced to cover anticipated increases in labor and other costs.

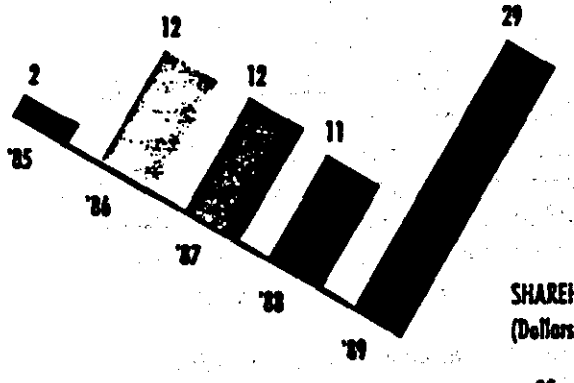
Liquidity and Capital Resources

On February 2, 1989, the Company completed the sale of 1,265,000 shares (1,897,500 shares after giving effect to the three-for-two stock split) of its common stock in a public offering. The sale provided net proceeds to the Company of $14.3 million, of which $8.9 million was used to immediately repay bank debt. Working capital increased from $6.5 million at June 30, 1988 to $22.8 million at June 30, 1989, primarily as a result of the sale of common stock and to a lesser extent to increased profitability, notwithstanding expenditures for property and equipment and the repayment of long-term bank debt.

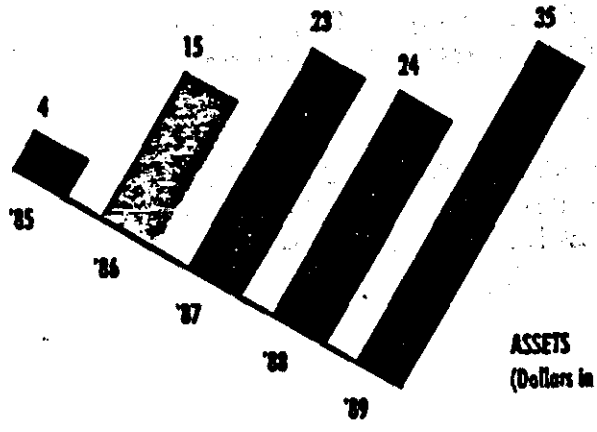
The Company's accounts receivable at June 30, 1989 were 25.3% greater than at June 30, 1988, due primarily to a significant increase in metaTRACE's net service revenue and to the general increase in the demand for the Company's engineering and consulting services. The Company recognizes net service revenue on contracts for its analytical laboratory business ratably as costs are incurred, but bills only after work is completed. Because of the significant increase in metaTRACE's business, the time required to complete a contract has increased, thereby increasing the time between the creation of a receivable and the billing for such receivable which, in turn, tends to cause receivables to rise. Payment of accounts receivable at metaTRACE also tends to be slower on average than in other areas of the Company's business because metaTRACE increasingly works as a subcontractor. As a result, it is not paid until the prime contractor has been invoiced and been paid by its customer. The Company continually reviews its allowance for doubtful accounts and believes that such allowance is adequate.

The Company has available a $9.0 million line of credit with a commercial bank. Borrowings under the line are payable on demand and are limited to certain accounts receivable balances reduced by outstanding letters of credit. At June 30, 1989, there were no borrowings under the line of credit, and the amount of outstanding letters of credit was $806,650. On August 1, 1989, the Company signed a commitment letter from a commercial bank to provide a $15.0 million unsecured three-year revolving line of credit. This new credit facility is expected to be in place by September 15, 1989.

The Company expects to make capital expenditures of approximately $2.7 million in fiscal 1990 for laboratory instrumentation and additional equipment to support its field operations. Management believes that working capital along with available borrowings under its line of credit will be sufficient to satisfy its cash requirements in fiscal 1990.



SHAREHOLDERS' EQUITY
(Dollars in Millions)



ASSETS
(Dollars in Millions)

CONSOLIDATED STATEMENTS OF OPERATIONS

Companies, Inc. and Subsidiaries

	For the years ended June 30, 1989	1988	1987
Gross revenue	$40,070,394	$31,990,183	$22,497,026
Less subcontractor costs and direct charges	7,567,714	5,846,120	5,499,793
Net service revenue	32,502,680	26,144,063	16,997,233
Operating costs and expenses:			
Salaries and other direct costs of services	24,120,779	21,088,820	14,919,533
General and administrative expenses	2,639,702	2,174,883	1,308,007
Depreciation and amortization	1,553,435	1,295,818	721,553
Disposition of Alliance Technologies Corporation's laboratory	—	700,000	—
	28,313,916	25,259,521	16,949,093
Income from operations	4,188,764	884,542	48,140
Interest expense	791,659	771,538	197,319
Other (income) expense, net	(103,036)	411,652	(160,688)
Income (loss) before taxes	3,500,141	(298,648)	11,509
Federal and state income tax provision	1,078,043	48,000	4,000
Net income (loss)	$ 2,422,098	$ (346,648)	$ 7,509
Earnings (loss) per common share	$ .59	$ (.11)	$ —
Weighted average number of common and common equivalent shares outstanding	4,126,491	3,221,978	3,251,831

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED BALANCE SHEETS

TRC Companies, Inc. and Subsidiaries

	June 30, 1989	1988
Assets		
Current assets:		
Cash and cash equivalents	$ 5,697,756	$ 316,063
Accounts receivable, less allowance for doubtful accounts	17,684,630	14,110,772
Inventories	1,667,902	1,050,848
Future income tax benefits	668,740	—
Prepaid expenses and other current assets	555,573	496,259
Total current assets	26,274,601	15,973,942
Property and equipment, at cost:		
Furniture and equipment	10,435,799	8,190,473
Leasehold improvements	854,292	769,649
Construction in progress	270,792	270,137
	11,560,883	9,230,259
Less accumulated depreciation and amortization	4,492,410	3,211,031
	7,068,473	6,019,228
Cost in excess of net assets of acquired business, net of accumulated amortization of $118,449 and $83,155	1,246,686	1,280,783
Promissory notes issuance cost, net of accumulated amortization	91,695	103,715
Deferred preoperating costs, net of accumulated amortization of $474,169 and $261,205	590,651	803,615
Other assets	191,241	162,802
	$35,463,347	$24,344,085
Liabilities and Shareholders' Equity		
Current liabilities:		
Notes payable	$ 200,000	$ 5,621,517
Accounts payable	1,279,535	1,676,653
Accrued payroll and vacation	1,026,590	1,022,586
Unearned revenue	291,226	235,396
Income taxes payable	166,402	(62,785)
Other current liabilities	468,842	1,014,643
Total current liabilities	3,432,595	9,508,010
9.95% Convertible subordinated promissory notes, less current portion	1,400,000	1,800,000
Notes payable, less current portion	—	1,589,511
Deferred income taxes	1,273,224	—
	6,105,819	12,897,521
Contingencies and commitments	—	—
Shareholders' equity:		
Capital stock:		
Preferred, $.10 par value; 500,000 shares authorized, none issued	—	—
Common, $.10 par value; 10,000,000 shares authorized, 5,338,458 and 2,158,149 shares issued at June 30, 1989 and 1988, respectively	533,846	215,815
Additional paid-in capital	25,723,858	10,553,023
Retained earnings	3,105,661	683,563
	29,363,365	11,452,401
Less treasury stock, at cost	5,837	5,837
Total shareholders' equity	29,357,528	11,446,564
	$35,463,347	$24,344,085

The accompanying notes are an integral part of the c

CONSOLIDATED STATEMENTS OF CASH FLOWS

Companies, Inc. and Subsidiaries

	For the years ended June 30, 1989	1988	1987
Cash flows from operating activities:			
Net income (loss)	$ 2,422,098	$ (346,648)	$ 7,509
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	1,565,455	1,364,781	721,553
Provision for deferred taxes	604,484	—	—
Changes in assets and liabilities net of effects of business acquired:			
Marketable investment securities	—	636,902	(636,902)
Accounts receivable	(3,573,858)	(2,572,445)	(3,956,446)
Inventories	(617,054)	73,876	(418,880)
Prepaid expenses and other current assets	(59,314)	(295,798)	(9,023)
Accounts payable	(397,118)	(836,508)	627,496
Accrued payroll and vacation	4,004	76,708	351,909
Income taxes payable	229,187	26,181	(159,854)
Unearned revenue	55,830	46,703	71,867
Other current liabilities	(545,801)	489,956	331,390
Net cash used by operating activities	(312,087)	(1,336,292)	(3,069,381)
Cash flows from investing activities:			
Proceeds from sale of laboratory, net	—	929,779	—
Payment for business acquired	—	—	(6,646,614)
Additions to property and equipment	(2,330,624)	(1,710,116)	(3,900,866)
Disposal of equipment	—	94,843	23,179
Increase in other assets	(53,433)	(111,848)	(23,149)
Deferred preoperating costs	—	—	(1,064,820)
Net cash used by investing activities	(2,384,057)	(797,342)	(11,612,270)
Cash flows from financing activities:			
Net proceeds from sale of common stock	14,325,352	—	—
Long-term borrowings	—	—	2,500,000
Net borrowings (repayments) under line of credit	(4,906,000)	2,671,000	2,235,000
Principal repayments on long-term debt	(2,105,039)	(394,972)	(10,155)
Proceeds and tax benefits from exercise of stock options	763,524	6,461	65,398
Net cash provided by financing activities	8,077,837	2,282,489	4,790,243
Increase (decrease) in cash and cash equivalents	5,381,693	148,855	(9,891,408)
Cash and cash equivalents, beginning of year	316,063	167,208	10,058,616
Cash and cash equivalents, end of year	$ 5,697,756	$ 316,063	$ 167,208

The accompanying notes are an integral part of the consolidated financial statements.

CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY

IRC Companies, Inc. and Subsidiaries
For the years ended June 30, 1989, 1988 and 1987

	Common stock issued				Treasury stock	
	Number of shares	Amount	Additional paid-in capital	Retained earnings	Number of shares	Amount
Balance, June 30, 1986	2,135,899	$213,590	$10,483,389	$1,022,702	9,302	$(5,837)
Exercise of stock options	21,150	2,115	63,283	—	—	—
Net income	—	—	—	7,509	—	—
Balance, June 30, 1987	2,157,049	215,705	10,546,672	1,030,211	9,302	(5,837)
Exercise of stock options	1,100	110	6,351	—	—	—
Net loss	—	—	—	(346,648)	—	—
Balance, June 30, 1988	2,158,149	215,815	10,553,023	683,563	9,302	(5,837)
Exercise of stock options	82,133	8,213	561,454	—	—	—
Income tax benefit from stock option transactions	—	—	193,857	—	—	—
Proceeds from sale of common stock, net of related expenses	1,265,000	126,500	14,198,852	—	—	—
Conversion of 9.95% convertible subordinated promissory notes into common stock	53,690	5,369	394,621	—	—	—
Three-for-two stock split	1,779,486	177,949	(177,949)	—	4,651	—
Net income	—	—	—	2,422,098	—	—
Balance, June 30, 1989	5,338,458	$533,846	$25,723,858	$3,105,661	13,953	$(5,837)

The accompanying notes are an integral part of the consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Companies, Inc. and Subsidiaries

1. Accounting Policies:

A. The consolidated financial statements include the Company and its wholly-owned subsidiaries. All intercompany transactions have been eliminated in consolidation. The Company provides comprehensive engineering, consulting and laboratory services to identify, define and solve complex environmental problems throughout the United States.

B. For financial reporting purposes, the Company provides for depreciation of property and equipment on the straight-line method using estimated useful lives of 3 to 10 years. Accelerated methods are used for income tax purposes.

The cost of equipment capitalized includes costs related to bringing the equipment into operation. Maintenance and repairs are charged to expense as incurred. Renewals and betterments are capitalized.

C. Leasehold improvements are amortized over the lives of the various leases or the useful lives of the improvements, whichever is shorter.

D. Revenue on service contracts is recognized as the services are performed and the related costs are incurred. Unearned revenue arises from the prepayment of services. Revenue is recognized from sales of instruments when the product is shipped.

The Company makes revisions in its cost estimates as required during the course of performing contracts; the impact of such revisions is reflected in the accounting periods in which the relevant facts become known.

E. In December 1987, the Financial Accounting Standards Board issued Statement 96 - Accounting for Income Taxes (SFAS 96), which the Company adopted effective July 1, 1988. The effect on the Company of adopting SFAS 96 is to report the benefit of utilization of net operating loss carryforwards on a pro rata basis during fiscal 1989 as an element of the effective tax rate and provision for income taxes, rather than recognizing the impact as an extraordinary item as would have been required under the prior accounting standard. Financial statements presented for fiscal 1988 and 1987 reflect income taxes under the deferred method as required under the previous accounting standards. Investment tax credits were recorded on the flow-through method as a reduction of the provision for income taxes.

F. Research and development costs are charged to operations as incurred and amounted to approximately $227,800 in fiscal 1989, $185,300 in fiscal 1988 and $92,400 in fiscal 1987.

G. Costs in excess of the fair value of net assets of acquired businesses are amortized over 40 years on a straight-line basis.

H. Inventories, other than inventoried costs relating to fixed price contracts, are stated at the lower of cost or market, cost being determined using the first-in, first-out (FIFO) method.

The components of inventories were as follows on June 30, 1989 and 1988:

	1989	1988
Materials and supplies	$1,139,429	$ 621,918
Work-in-process	169,582	397,660
Finished goods	358,891	31,270
	$1,667,902	$1,050,848

I. The Company capitalizes interest costs during construction of fixed assets and amortizes the interest costs based upon the useful lives of the assets. No interest costs were capitalized in fiscal 1989 and 1988; in fiscal 1987 $95,300 was capitalized.

J. Deferred preoperating costs relate to the start-up of the Company's wholly-owned subsidiary, metaTRACE, Inc. in fiscal 1987, and are being amortized over five years on a straight-line basis.

K. On August 1, 1986, the Company instituted a 401(k) retirement and savings plan. The Company's contributions for fiscal 1989, 1988 and 1987 were approximately $117,200, $109,700 and $181,800, respectively.

L. In fiscal 1988, the Company adopted Statement of Financial Accounting Standards No. 95 and has presented consolidated statements of cash flows for each of the three years in the period ended June 30, 1989. For purposes of the consolidated statements of cash flows, the Company considers investments with a maturity of three months or less at the time of purchase to be cash equivalents. The Company paid interest, net of amounts capitalized, of $836,921, $729,619 and $156,116, in fiscal 1989, 1988 and 1987, respectively. The Company paid income tax of $56,255, $82,805 and $163,854, in fiscal 1989, 1988 and 1987, respectively.

2. Accounts Receivable:

Accounts receivable at June 30, 1989 and 1988 were comprised of the following:

	1989	1988
Amounts billed	$12,561,594	$ 9,495,179
Unbilled costs	4,733,399	3,976,366
Retainages	969,913	1,037,236
	18,264,906	14,508,781
Less allowance for doubtful accounts	580,276	398,009
	$17,684,630	$14,110,772

Unbilled costs represent revenue which is not currently billable to the client under the terms of the contract. Management expects all unbilled costs to be billed and collected in the subsequent year.

Net service revenue from contracts with United States Government agencies amounted to approximately $8,649,000 in fiscal 1989, $7,402,000 in fiscal 1988 and $6,287,000 in fiscal 1987.

3. Discontinued Operations:

In February 1988, the Company decided to sell the assets of the unprofitable laboratory operations at its subsidiary, Alliance Technologies Corporation. Accordingly, the Company recognized a charge of $700,000 ($.22 per share) representing the estimated operating losses and related disposition costs through the date of sale. The sale was completed in June 1988 for approximately $1,500,000, which was consistent with the Company's expectation.

4. Notes Payable And Convertible Subordinated Promissory Notes:

Notes payable and convertible subordinated promissory notes at June 30, 1989 and 1988 were as follows:

	1989	1988
9.95% Convertible subordinated promissory notes	$1,600,000	$2,000,000
Five-year term note with interest at 1/2% over the prime rate	—	2,105,029
	1,600,000	4,105,029
Less current maturities	200,000	715,518
	$1,400,000	$3,389,511

The prime rate at June 30, 1989 and 1988 was 11.0% and 9.0%, respectively.

On March 14, 1986, the Company issued $2,000,000 of 9.95% convertible subordinated promissory notes, due March 1, 1996. The proceeds to the Company amounted to $1,868,402, net of $131,598 for expenses associated with the placement. The notes are convertible at any time by the holders into common stock of the Company at the rate of $4.97 per share. On March 1, 1989, the Company made a scheduled principal repayment of $200,000 and an optional principal repayment of $200,000. In accordance with the Note Agreements, the noteholders elected to receive common stock in lieu of a cash repayment. Accordingly, 80,535 shares of common stock and cash for fractional shares were issued to the noteholders. The remaining principal of the notes is to be repaid at the rate of $200,000 per year on March 1, 1990 and 1991, and at a rate of $280,000 per year commencing March 1, 1992.

The notes may be redeemed by the Company in whole or in part at any time after March 1, 1988 by payment of the principal amount of the notes, accrued interest thereon to the date of prepayment and applicable premium, provided the common stock of the Company has traded at a price greater than $9.93 per share for ninety consecutive calendar days. The conversion price of the notes and the number of shares of common stock into which the notes can be converted are subject to adjustment in order to protect the holders thereof against dilution in certain events. The Company has agreed to register the shares of common stock issuable upon conversion of the notes for resale under the Securities Act of 1933 in certain circumstances.

The notes contain provisions restricting funded indebtedness, short-term borrowings, the sale of assets, redemption of the Company's common stock, the payment of dividends and other matters. The dividend restriction prohibits the Company from paying any cash dividends if the amount of such dividends (together with certain other restricted payments and investments) exceed in the aggregate the sum of (a) 50% of consolidated net income (less losses) from and after June 30, 1985, plus (b) the net cash proceeds from the sale after June 30, 1985 of shares of the Company's capital stock or rights to acquire the same, plus (c) the principal amount received after that date from the conversion of convertible debt or preferred stock of the Company.

In connection with the issuance of the notes, the Company issued warrants to purchase 78,750 shares of the Company's common stock at a price of $4.97 per share. Such warrants are exercisable at any time, in whole or in part, on or before March 13, 1991.

Principal repayments required on the notes for each of the next five fiscal years and thereafter are as follows:

1990	$200,000
1991	200,000
1992	280,000
1993	280,000
1994	280,000
1995 and thereafter	360,000

The Company's line of credit was increased on a secured basis to $9,000,000 in fiscal 1989 at an interest rate equal to 1/2% above the bank's prime rate. The line of credit note agreement contains provisions on working capital and net worth requirements and restrictions on indebtedness, the sale of assets and other matters and further provides that the Company cannot pay cash dividends on its common stock without notice to the lender. At June 30, 1989, there were no outstanding borrowings under the line of credit.

Standby letters of credit totaling $806,650 were outstanding at June 30, 1989 and supported indemnity agreements with insurance companies. Each standby letter of credit issued is subject to a 1% per annum fee and reduces the amount of borrowings available under the line of credit.

On August 1, 1989 the Company signed a commitment letter from a commercial bank to provide a $15,000,000 unsecured three-year revolving line of credit at rates no higher than prime. The note agreement will contain provisions on working capital and net worth requirements and certain restrictions on indebtedness, the sale or pledge of assets and other matters.

5. Federal and State Income Taxes:

The Federal and state income tax provision for fiscal years 1989 (SFAS 96), 1988 and 1987 consists of the following:

	1989	1988	1987
Current			
Federal	$1,159,989	$ —	$ —
State	188,604	48,000	4,000
Deferred			
Federal	462,269	—	—
State	142,215	—	—
Benefit of net operating loss carryforward	(828,000)	—	—
Investment and other tax credits	(47,034)	—	—
	$1,078,043	$48,000	$4,000

Deferred income taxes for fiscal 1989 reflect the impact of temporary differences between the amount of assets and liabilities for financial reporting purposes and such amounts as measured by tax laws and regulations. These temporary differences are determined in accordance with SFAS 96 (see Note 1) and are more inclusive in nature than timing differences as determined under previously applicable accounting standards. Deferred income taxes were not provided for in fiscal 1988 and 1987 as a result of net operating loss carryforwards. Principal items making up the fiscal 1989 deferred income tax provision follow:

Increase (decrease) in provision for deferred income taxes:	
Depreciation and amortization	$1,223,411
Adjustment of inventories and contracts to tax basis	(282,450)
Doubtful accounts	(277,600)
Adjustment of vacation benefits to tax basis	(104,910)
Other, net	46,033
	$ 604,484

The reconciliation of the Federal income tax provision computed at the statutory rate of 34% for fiscal years 1989 and 1988 (46% for fiscal 1987) to the reported income tax provision is as follows:

	1989	1988	1987
Federal income tax (benefit) computed at statutory rate	$1,190,048	$(101,540)	$ 5,295
State income taxes, net of Federal tax benefit	218,340	48,000	2,160
Surtax exemption	—	—	(2,898)
Investment and other tax credits, net of recapture	(47,034)	—	—
Tax effect of net operating loss utilization, net of related deferred taxes	(292,000)	—	—
Excess of net loss over available loss carrybacks	—	101,540	—
Other	8,689	—	(557)
	$1,078,043	$ 48,000	$ 4,000

6. Lease Commitments:

The Company has noncancelable operating leases with remaining terms of up to eight years for its analytical laboratory, three years for its corporate office and warehouse space, less than five years for other offices and in excess of one year for its office equipment. Certain leases for office and warehouse space are subject to an escalation clause. The amounts of escalation are determined based upon actual building operating cost increases. Minimum future rental payments required under noncancelable operating leases are as follows:

Fiscal year ending June 30,	
1990	$1,895,000
1991	1,740,000
1992	1,147,000
1993	904,000
1994	636,000
1995 and thereafter	824,000

Rental payments charged to operations amounted to $1,732,888, $1,591,512 and $1,241,785 in fiscal 1989, 1988 and 1987, respectively.

7. Capital Stock:

The authorized capital of the Company consists of 10,000,000 shares of common stock, $.10 par value, and 500,000 shares of preferred stock, $.10 par value.

On February 2, 1989, the Company completed the sale of 1,265,000 shares (1,897,500 shares after giving effect to the stock split) of its common stock in a public offering. The sale provided net proceeds to the Company of $14,325,352, of which $8,904,310 was used to immediately repay bank debt and the remainder was invested in short-term interest bearing securities.

During fiscal 1986, the Company sold 723,600 shares (1,085,400 shares after giving effect to the stock split) of its common stock in a public offering. In connection with the offering, warrants were issued for the purchase of 75,000 common shares at $11.20 per share. Such warrants are exercisable for a term of five years commencing May 13, 1986.

8. Earnings Per Common Share:

Earnings per common share are based upon the weighted average number of common and common equivalent shares outstanding. Changes in earnings per share would not be material for fiscal 1989, 1988 and 1987 if the outstanding 9.95% convertible subordinated promissory notes were assumed to be converted.

9. Stock Options:

The Company's nonqualified stock option plan, as amended, currently authorizes the granting of options to purchase 793,500 common shares at not less than the fair market value of the stock on the date such option is granted. Options issued under the Plan are exercisable for a period of five years. No accounting recognition is given to stock options until they are exercised, at which time the proceeds are credited to the capital accounts. With respect to nonqualified options, the Company recognizes a tax benefit upon exercise of these options in an amount equal to the difference between the option price and the fair market value of the common stock. Tax benefits related to stock options are credited to additional paid-in capital when realized for book purposes. In fiscal 1988, the Company converted approximately 219,000 previously issued fully vested nonqualified options with exercise prices ranging from $6.53 to $11.67 for nonqualified options with a three year vesting phase-in at $5.00 per share. Summarized information for the Plan follows:

	1989	1988	1987
Outstanding and exercisable options, beginning of year	371,925	213,413	60,263
Adjustment to beginning balance	—	—	10,125
Granted	153,525	170,100	175,500
Exercised	(123,200)	(1,650)	(31,725)
Cancelled	(1,837)	(9,938)	(750)
Outstanding and exercisable options, end of year	400,413	371,925	213,413
Average price of options exercised during the year	$4.63	$3.92	$2.06
At end of year: Exercise prices of outstanding options	$3.92-$11.33	$3.92-$9.50	$6.53-$11.67
Average per share	$5.37	$4.57	$9.49
Options available for future grants	166,650	93,338	253,500

10. Contingencies:

The Company's contracts with the U.S. Government are subject to examination and renegotiation. Contracts and other records of the Company have been examined through June 30, 1984. The Company believes that adjustments resulting from such examinations or renegotiation proceedings, if any, will not have a significant impact on the Company's financial condition or results of operations.

11. Events Subsequent to June 30, 1989:

On August 4, 1989, the Company's Board of Directors declared a three-for-two stock split of its common stock. The additional shares will be distributed on August 21, 1989 in the form of a 50% stock dividend to shareholders of record on August 14, 1989. The accompanying financial statements and notes thereto have been restated to reflect the stock split.

REPORT OF INDEPENDENT ACCOUNTANTS

Price Waterhouse

To the Shareholders and Board of Directors of TRC Companies, Inc.

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, of changes in shareholders' equity and of cash flows present fairly, in all material respects, the financial position of TRC Companies, Inc. and its subsidiaries at June 30, 1989 and 1988, and the results of their operations and their cash flows for each of the three years in the period ended June 30, 1989, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

As discussed in Notes 1 and 5 to the financial statements, the Company changed its method of accounting for income taxes in fiscal 1989.

Price Waterhouse

Hartford, Connecticut
August 1, 1989, except as to Note 11
which is as of August 4, 1989

MARKET AND DIVIDEND INFORMATION

The Company's common stock has been trading on the American Stock Exchange under the symbol "TRR" since June 9, 1988. Prior to June 9, 1988, the common stock was traded on the National Market System of the National Association of Securities Dealers Automated Quotation System ("NASDAQ-NMS"). The following table sets forth the range of high and low sale prices on the NASDAQ-NMS prior to June 9, 1988, and the high and low sale prices as reported on the American Stock Exchange since June 9, 1988, all after adjustment for the three-for-two stock split effective August 14, 1989.

The Company has never declared or paid any cash dividends on its common stock. The Board of Directors presently intends to retain all earnings to support the growth of the Company's business and, therefore, does not anticipate paying any cash dividends in the foreseeable future. Furthermore, the Company's debt agreements contain financial covenants which may effectively restrict or limit the payment of dividends.

On August 24, 1989, the last reported sale price of the common stock on the American Stock Exchange was $14.125 per share. On that date, there were 506 holders of record of the Company's common stock.

	High	Low
Fiscal 1989:		
First Quarter	$ 5.83	$4.58
Second Quarter	7.75	5.66
Third Quarter	8.67	7.00
Fourth Quarter	11.92	7.58
Fiscal 1988:		
First Quarter	$11.33	$8.17
Second Quarter	8.83	3.67
Third Quarter	5.83	4.17
Fourth Quarter	5.17	3.33

DIRECTORS

Vincent A. Rocco
Chairman and
Chief Executive Officer
TRC Companies, Inc.

Bruce D. Cowen
Executive Vice President and
Chief Financial Officer
TRC Companies, Inc.

Robert E. Kommers, Jr.*
President
Kommers Investment Management

J. Jeffrey McNealey
Partner
Porter, Wright, Morris & Arthur

Edward G. Jepsen*
Executive Vice President
and Chief Financial Officer
LPL Technologies, Inc.

Burke A. Weisend*
Vice Chairman
Paxall Group, Inc.

* Audit Committee Member

OFFICERS

Vincent A. Rocco
Chairman and
Chief Executive Officer

Bruce D. Cowen
Executive Vice President and
Chief Financial Officer

David C. Kennedy
Senior Vice President

Paula Schenck
Vice President and
Director of Marketing

Richard R. Stewart
Vice President and
General Counsel

Harold C. Elston, Jr.
Treasurer

SUBSIDIARY OPERATING OFFICERS

Alliance Technologies Corporation

Bruce D. Cowen
Chairman

Vincent A. Rocco
President

Robert M. Bradway
Vice President

K. Edward Newkirk
Vice President

metaTRACE, Inc.

Vincent A. Rocco
Chairman

David C. Kennedy
President and Chief Executive Officer

Carol H. Byington
Executive Vice President and
Chief Operating Officer

MIE, Inc.

Vincent A. Rocco
Chairman and Chief Executive Officer

Pedro Lilienfeld
President

TRC Environmental Consultants, Inc.

Vincent A. Rocco
Chairman, President and
Chief Executive Officer

Bruce D. Cowen
Senior Vice President
and Chief Financial Officer

William A. Coté
Vice President

Hubert C. Kawaters
Vice President

CORPORATE OFFICES

TRC Companies, Inc.
800 Connecticut Boulevard
East Hartford, Connecticut 06108
Tel: (203) 289-8631

INDEPENDENT ACCOUNTANTS

Price Waterhouse
Hartford, Connecticut 06103

REGISTRAR AND TRANSFER AGENT FOR COMMON STOCK

American Stock Transfer & Trust Company
New York, New York 10005

COUNSEL

Wiggin & Dana
New Haven, Connecticut 06508

COMMON STOCK LISTING

TRC Companies, Inc. traded
American Stock Exchange
Symbol: TRR

ANNUAL MEETING

The annual meeting of shareholders will be held on October 27, 1989 at 10:00 a.m. E.D.T. in The Summit Hotel, 5 Constitution Plaza, 4th Floor, Hartford, Connecticut.

FORM 10-K ANNUAL REPORT

A copy of the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission, Washington, D.C., is available from the Chief Financial Officer, Bruce D. Cowen.

MAJOR HIGHLIGHTS

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JULY 1988

TRC Environmental Consultants, Inc. continues working on a major cleanup program at the Federal Aviation Agency's Atlantic City Technical Center. Contract value for fiscal 1989 exceeds $1.1 million bringing the program value to $3.1 million since 1986.

OCTOBER 1988

Alliance Technologies Corporation is awarded a three year $1.5 million contract with the U.S. Environmental Protection Agency (EPA) for technical support in the development, revision and analysis of National Ambient Air Quality Standards.

NOVEMBER 1988

metaTRACE, Inc. signs a $1.4 million contract extension with MK-Ferguson Company to perform chemical and radiochemical analyses for the U.S. Department of Energy (DOE) Weldon Spring Site Remedial Action Project (WSSRAP).

DECEMBER 1988

Alliance Technologies Corporation signs a $136 million 5 year EPA contract, the largest in TRC's history. Alliance is the prime contractor for technical support at Superfund sites and RCRA consulting in the Northeastern states and Puerto Rico.

FEBRUARY 1989

TRC Environmental Consultants, Inc. signs a 2 year, $500,000 general environmental consulting agreement with the New York City Development Corporation.

MARCH 1989

metaTRACE, Inc. is awarded a $2.4 million laboratory contract for the largest U.S. DOE mixed-waste contaminated groundwater monitoring program in the country at the Savannah River Plant.

Alliance Technologies Corporation signs a 10 year contract with an estimated value of $63 million with the EPA in Region I (New England states) for characterization, cleanup design and post cleanup monitoring at Superfund sites.

MAY 1989

TRC Environmental Consultants, Inc. begins work on the second phase of a major site study worth $1.1 million for the U.S. Navy Northern Division.

TRC Environmental Consultants, Inc.'s California office is awarded a $437,000 air quality contract for trial burn testing at DRAVO Constructors, Inc. resource recovery plant in Long Beach.

JUNE 1989

MIE, Inc. signs a $105,000 contract for the initial work of a two-year, $750,000 program with the EPA to develop a new asbestos monitoring technique.

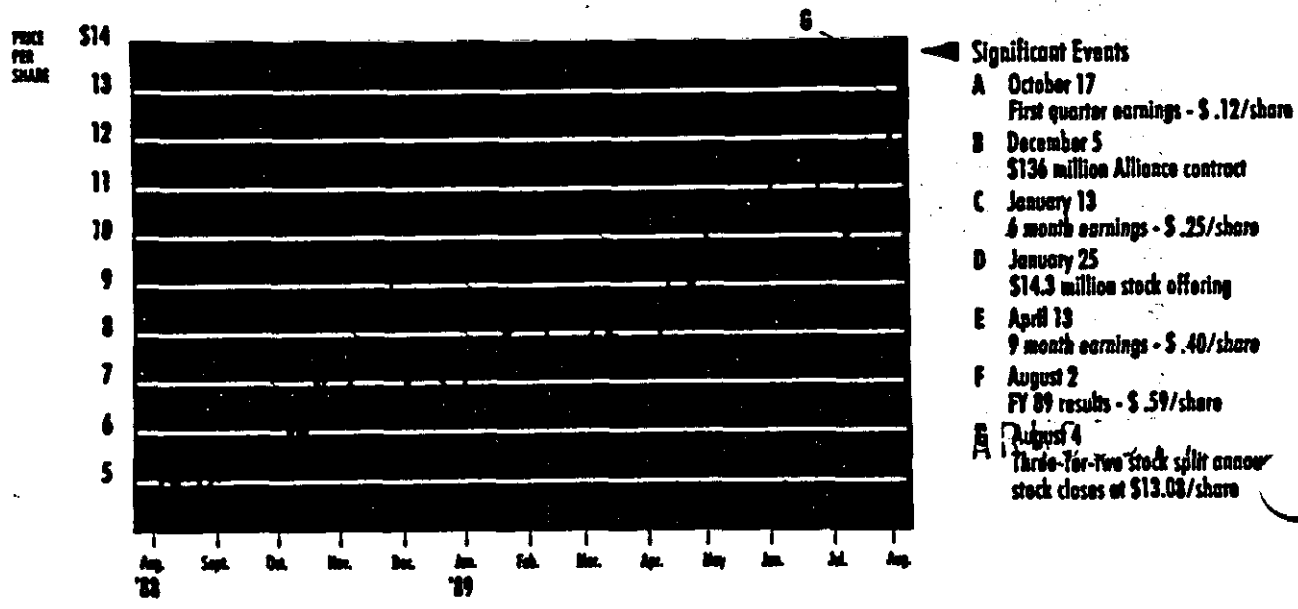
TRC Environmental Consultants, Inc. signs a $727,000 contract with the New Jersey Department of Environmental Protection for the second phase of a major hazardous waste project. This brings the total value of contracts with this N.J. Superfund program to more than $2.6 million.

JULY 1989

Alliance Technologies Corporation is awarded a $584,000 contract for a RCRA site study at the Merck, Sharp and Dohme Quimica de Puerto Rico facility.

Alliance Technologies Corporation signs a 5 year contract with Metcalf and Eddy for over $4 million of hazardous waste engineering support to EPA regional offices in Chicago, Dallas and Kansas City.

POST-SPLIT DAILY PRICE HISTORY
July 1, 1988 to August 9, 1989



TRC Companies, Inc.
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2.0 PROJECT-RELATED EXPERIENCE

2.0 PROJECT-RELATED EXPERIENCE

Alliance Technologies Corporation's experience in hazardous waste site surveys, including site inspection, review of facility and regulatory agency documentation, interviews with facility and regulatory agency personnel, sampling and analysis, computer modeling, and development of remediation plans, includes a variety of activities ranging from industrial site assessments to ground water monitoring. Over the past few years Alliance has conducted hundreds of hazardous waste surveys which have included conduct of preliminary assessments and site inspections; preparation and implementation of sampling plans; and delineation of the extent and magnitude of pollutant concentrations based on analytical data, fate and transport analysis, geophysical and hydrogeologic assessments; and facility closure assessments. Alliance has investigated sites ranging from minor industrial spills to large Superfund sites including Love Canal.

Alliance has extensive experience with underground storage tank investigations as well, and has successfully interacted with local and state regulatory officials in the successful evaluation and remediation of releases from a number of underground storage tanks. Alliance's experience in this area ranges from conduct of site assessments at properties with USTs (both currently in use and abandoned) to the preparation of remediation plans, direction of tank evacuation, excavation and disposal, delineation of the extent of contamination, direction of remedial efforts, and closure assessment.

The Alliance staff, which includes geologists, hydrogeologists, civil and environmental engineers and chemists, enables Alliance to take a multidisciplinary approach to each environmental characterization. The specialized knowledge and skills of each group of professionals ensures a well-defined characterization of surface and subsurface environmental media as well as an accurate delineation of the nature and extent of any contamination found there.

Specific examples of Alliance's recent experience with respect to these areas are presented below.

--**Leaking Underground Storage Tank Investigation (Private Client, Research Triangle Park, NC).** Alliance conducted a site investigation involving a leaking underground storage tank (UST). As leaked fuel had entered a storm sewer which discharged to a nearby pond and stream, immediate remediation was required. While soil excavation revealed a break in the storm pipe which was permitting fuel to enter the sewer, this was not the only point of entry. In order to reduce the cost and time of further investigation, a video camera was run through the storm sewer to observe pipe breaks and any fuel present. Alliance oversaw removal of the tank and designed a remediation system for fuel oil which had migrated under a building foundation. Alliance directed excavation and disposal of contaminated soil.

--**Site Assessment and Remediation Plan Development (Private Client, North Carolina).** Alliance was contracted by an industrial facility located in western North Carolina in April 1989 to assess potential contamination resulting from a poorly constructed disposal pit which had contained organic solvents. Alliance developed and implemented a sampling plan which included soil boring, design and installation of monitoring wells, monitoring well development, and soil and ground water sampling. The extent of contamination has been defined. Alliance is currently developing a site remediation plan to address contaminated soil and ground water, and is interfacing these efforts with both facility personnel and regulatory officials.

--**Underground Storage Tank Investigation, Central North Carolina (Private Client).** Alliance conducted an investigation concerning nine USTs following a site fire and subsequent explosion of one UST. Magnetic surveys and ground-penetrating radar (GPR) were used to accurately locate all USTs. Following tank excavation, Alliance performed soil sampling and field screening of soils in order to delineate the extent of contamination; contaminated soils were excavated, treated, and disposed of as non-hazardous material.

--**Delineation of PCB Contamination and Development of Remediation Strategies (Private Client).** A state environmental agency discovered PCBs in bottom sediment and fish from a river located in western Virginia. Alliance was contracted by a manufacturing facility located adjacent to this river in order to delineate

contaminated areas of the river and identify potential contaminant sources, both on- and off-site. Accordingly, Alliance researched state agency and facility files and conducted interviews with agency and facility personnel in order to identify potential contaminant sources. Alliance developed and implemented an intensive sampling program targeting these potential sources, as well as areas of the river adjacent to and downstream from the facility, in order to define contaminant trends and positively identify contaminant sources. Alliance also conducted sampling of potentially contaminated facility sites, storm sewer sediment, and sludge from the facility's wastewater treatment plant. Based on these data, Alliance developed a remediation plan for cleanup of the river and of contaminated areas at the facility, and is currently implementing the plan.

--Site Assessment and Characterization, Central and Western Arkansas (Private Client). Alliance performed site assessments at several properties being used for furniture manufacturing. Alliance conducted thorough examinations of the manufacturing operations and property with special attention given to usage, storage, and disposal of hazardous materials and wastes. Alliance also examined waste manifests and records of hazardous materials purchases; permits and monitoring data concerning discharges to sanitary sewers; and state files concerning the properties of concern as well as surrounding areas. Alliance personnel interviewed local emergency response officials concerning the properties, and spoke with state officials about prior hazardous waste storage violations and off-site liabilities resulting from prior waste disposal at what are now Superfund sites.

--Environmental Investigation at Former Tobacco Manufacturing Properties, Durham, NC (Private Client). Alliance was contracted to perform a technical review of an environmental audit conducted at a former tobacco manufacturing facility. Based on site inspections, review of facility records, and examination of sampling data, Alliance recommended that additional sampling and analysis be performed in order to address all areas of potential contamination, and to properly characterize and sample ground water. Accordingly, Alliance developed and implemented a site sampling plan. Based on analytical results, Alliance recommended remedial actions for several areas of the facility.

--Installation Restoration Program Studies, Naval Construction Battalion Center, Davisville, Rhode Island, and Naval Education Training Center, Newport, Rhode Island (U.S. Navy). Alliance, through its sister company, TRC, is currently conducting two RI/FS programs at 10 sites at the Naval Construction Battalion Center in Davisville, Rhode Island and at 5 sites at the Naval Education Training Center (NETC) in Newport, Rhode Island. The study area at Davisville consists of 10 sites including a 15-acre landfill located on Allen Harbor which received a variety of drummed wastes, bulk liquid-contaminated fuel, and low-level radioactive wastes. In 1985-87, Alliance completed field investigations at Davisville with Level C protection at 10 of the 12 sites. Investigations included geophysical surveys to identify buried waste containers or zones of contamination; soil borings to characterize site geologic conditions and to collect soil samples for chemical analysis; and installation of monitoring wells to characterize site aquifer properties and ground water flow conditions, and to collect ground water samples for chemical analysis. A detailed field investigation, including collection and analysis of surface soils, surface water, bottom sediments and clams, was conducted at the harbor. Field and laboratory data were used to evaluate site hydrogeologic conditions, assess site health and environmental risks, and evaluate remedial plans for corrective action on a preliminary basis. At both activities, Alliance has worked closely with Technical Review Committees established by the Navy to include federal and state regulatory personnel, local officials, environmental groups, and interested parties. At Davisville, Alliance developed a Community Relations Plan in accordance with recent EPA guidance, and in concert with a Naval community relations specialist.

--Soil Sampling at the Marine Corps Air Station, Cherry Point, NC. Alliance performed sampling and analysis of on- and off-site soils in the vicinity of a closed Hazardous Waste Drum Storage Lot. The samples were analyzed per RCRA regulations in order to ensure that no contaminated soils remain at the site, per the facility's closure plan.

--Investigation of 1,1,1-Trichloroethane (TCE) Spill (Private Client, RI). Alliance was retained by a manufacturing firm in March 1987 to determine whether a TCE release had entered the subsurface environment at the site. Alliance confirmed the presence of TCE in soil and ground water beneath the site and conducted a hydrogeologic field investigation to determine the nature and extent of the TCE

release. The field investigation included the following: design and installation of field borings, continuous split spoon sampling and field screening, monitoring well installation, soil and water sample analysis, grain size analysis, bedrock coring, and aquifer testing. Alliance delineated the horizontal and vertical extent of a TCE ground water plume and the distribution of contaminant concentrations within the plume. The hydraulic characteristics of the aquifer were defined and a remediation plan specifying extraction and treatment of contaminated ground water was developed.

--Investigation/Feasibility Study, Federal Aviation Administration (FAA). Alliance assisted TRC's Hartford office at the FAA Technical Center in Absecon, NJ, providing field evaluation support in the identification of more than 20 hazardous waste sites. Alliance scientists performed soil and ground water sampling, conducted analytical field screening, supervised well installation, classified split spoon soil samples, assisted in the design and performance of field sampling, and assisted with mapping contaminant plumes using soil gas monitoring.

--Landfill Site Assessment and Closure Plan (Private Client, Minnesota). Alliance conducted a field investigation that included soil borings, well installation, and chemical analyses to characterize both the underlying hydrogeologic regime and site contamination. The client also retained Alliance to develop a closure plan for the landfill in accordance with requirements of the Resource Conservation and Recovery Act (RCRA).

--Site Assessment and Underground Storage Tank Investigation/Remediation (Private Client, Durham, NC). Alliance conducted a site assessment at a distribution center/warehouse facility in order to identify all potential environmental liabilities at the site. In addition to conducting several site inspections, alliance personnel interviewed local and state regulatory personnel, reviewed regulatory agency files, and examined pertinent documents including topographic and geologic maps, soil surveys, aerial photographs, and technical reports of environmental investigations conducted in the vicinity of the subject site. The site contains three underground storage tanks. Two contain fuel oil used to power facility boilers; the third is no longer used. Preliminary sampling in the vicinity of these tanks indicates

that petroleum releases have occurred to both soil and ground water. Alliance has prepared a cost analysis of remediation options; the client has chosen to have the underground storage tanks removed, contamination delineated and cleaned up, and the facility boilers converted natural gas. Alliance will develop remediation strategies and oversee their implementation, and will assist the client in the selection of a contractor for the natural gas conversion.

--Technical Support to Evaluate Land Disposal Facilities in EPA Region IV. Alliance conducted on-site RCRA inspections in the southeastern U.S. in order to determine whether those facilities which did not submit required certifications under Section 3005(e) by November 8, 1985, and that subsequently lost interim status, were still in operation. Alliance inspected over forty RCRA facilities with such hazardous waste management units as surface impoundments, landfills, wastepiles, and container storage areas. In addition, Alliance personnel performed technical reviews of RCRA Part B permit applications submitted to the South Carolina Department of Health and Environmental Control (DHEC) in order to assess compliance with RCRA ground water monitoring requirements.

--Preliminary Remedial Investigation for the Kin Buc Landfill, Edison, NJ. The RI included ground water sampling and two-dimensional flow modeling which was used to determine leachate volume and composition and delineate the contaminant plume. Alliance also validated analytical data and evaluated site remediation options based on current and predicted contamination, transport mechanisms, and health, environmental, and economic concerns.

--Remedial Activities for an East Coast Petroleum Refinery (Industrial Client). Alliance conducted a comprehensive evaluation of remedial alternatives for a 70-acre Superfund site used for acid sludge and oily clay disposal. Alliance installed monitoring wells, modeled ground water flow, identified ecological impacts, coordinated activities with state and federal regulatory agencies and recommended cost-effective remedial measures.

--**Landfill Site Assessment and Closure (Municipality).** Alliance was retained by a local government to assess leachate generation and migration at four landfills and to develop plans and specifications for closure. In the course of this project, Alliance defined the subsurface geology and ground water flow patterns at the sites, measured leachate composition and quantity, assessed the landfills' impact on aquifer water quality, designed and installed ground water monitoring systems and prepared closure plans. Closure activities are now underway.

--**RFI Work Plan (MSDQ, Barceloneta, PR).** In August 1987, Alliance prepared a detailed Work Plan for a RCRA Facility Investigation at the Mercke, Sharpe and Dohme Quiminca de Puerto Rico (MSDQ) facility in Barceloneta, PR. The RFI Plan described a field investigation program at the secure hazardous waste landfill at MSDQ, as well as at the adjacent, inactive landfill and units of the facility's wastewater pretreatment system. The project included detailed review of the secure landfill including design and operating features, waste analysis, site topography, subsurface stratigraphy, and current regulatory status. The RFI Work Plan recommended soil borings at locations to determine whether a release had occurred from the landfills and wastewater system.

--**Assessment of Data Concerning Ground Water Contamination from a Uranium Processing Mill (EPA Region VIII).** Alliance evaluated more than 20 years of monitoring data from private wells in the Arkansas River Valley to determine the spatial and temporal occurrence of ground water contamination caused by raffinates from disposal operations at a uranium processing mill. Alliance also conducted a geological field survey, collected supplemental climatic and irrigation data, reviewed quality assurance and quality control (QA/QC) documentation, and modeled contaminant fate and transport in ground water.

--**Soil Sampling and Installation of Monitoring Piezometers at the Reilly Tar Site, St. Louis Park, MN (EPA Region V).** Alliance installed piezometers and collected soil and water samples at 18 locations and designed custom computer software to evaluate these and other data. Alliance also mapped hydrologic contours and constructed cross-sections.

--Surface Water Quality Impacts, Seattle, WA, Northwestern United States (EPA Region X). Alliance conducted an assessment of surface water quality including point and nonpoint discharges, drainage patterns, flow variations, channel characteristics and biological data. The data were used to determine the impacts of organic and inorganic contaminant discharges on stream biota.

--Methods Manual - Site Investigations (EPA). In 1983-84, Alliance prepared a manual describing recommended procedures for sampling and analyzing releases of contaminated wastes at sites. Published as EPA Document No. 600/4-84/075, the three-volume manual describes in detail all aspects of health and safety, QA/QC procedures, sampling plan development, and field and laboratory work.

Alliance Technologies Corporation is also experienced in wetland assessment and has developed a methodology for use at superfund sites and other disturbed areas. Examples of wetland assessments performed at Superfund sites include:

--Western Sand and Gravel (Burrillville, RI)
--Charles George Land Reclamation Trust Landfill (Tyngsboro, MA)
--Woburn (MA) Wells G&H

--Hazardous Waste Drum Sampling at Marine Corps Air Station, Cherry Point, NC. Alliance conducted sampling and analysis of drummed hazardous waste at the MCAS in support of RCRA waste management activities. Following preparation of sampling quality assurance/quality control and health & safety plans, Alliance personnel sampled drummed wastes generated from over 50 different hazardous wastestreams, including plating solutions, used oil/solvents, battery electrolyte, paint stripper, blasting residue, and wastewater sludges.

--Environmental Audit, Waste Minimization, and Wastewater Treatment Design Services (Private Client, Durham, NC). Alliance was contracted to perform an environmental audit of a plating facility in order to determine its compliance with environmental and safety requirements. Alliance personnel also examined current manufacturing processes, conducted a pilot study, and implemented a week-long wastewater sampling program in order to properly characterize generated wastes and determine appropriate methods for waste minimization. Based on these data, Alliance has designed a wastewater treatment system which will reduce the volume

and toxicity of generated waste, and meet the requirements of the facility's sanitary sewer discharge permit.

--**RCRA Preliminary Assessments and Site Investigations (EPA Region I).** Alliance conducted file reviews, site investigations, and sampling of solid waste management units to identify pollutant releases from RCRA facilities and the need for corrective actions.

--**Evaluation of Existing Underground Storage Tanks (Town of Chapel Hill).** Alliance conducted an evaluation of the existing UST farm utilized by the Town of Chapel Hill, and considered actions ranging from no action, excavation and relocation of the existing tanks, and excavation, replacement, and/or relocation of the existing tanks. Alliance also detailed proper testing procedures and records maintenance for the USTs.

--**Closure Oversight - BFI Landfill (Federal Client).** In 1986, Alliance engineers provided construction oversight of the closure of an 80-acre landfill in the midwest. The landfill had received containerized industrial waste and bulk dry sludges and had facilities for solidification of bulk liquid sludges. Alliance engineers conducted field evaluations of the installation and compaction of the clay liner, oversaw installation and seaming of synthetic liners and inspected the vegetated cover layer and surface water drainage channels. Alliance engineers certified that closure was being conducted in accordance with the approved closure plan.

--**Field Oversight - Closure of Chemical Waste Management Hazardous Waste Facility (Industrial Client).** Alliance monitored the closure of an 80-acre hazardous waste treatment, storage and disposal facility in Kansas. The facility included landfills, ponds and storage facilities. Alliance provided technical evaluation of extraction and monitoring well designs and closure plans, and monitored closure activities at the plant.

--**RCRA Closure Plan Development for Metal Plating Facility (Federal Client).** In 1986, Alliance prepared a detailed RCRA Closure Plan for a metal plating facility which had released volatile organic and metallic constituents to ground water and soil. Alliance provided post-closure and ground water monitoring plans for several surface impoundments and tanks. Alliance also conducted a site characterization study to sample ground water, surface water, soil and sludge, and evaluated the feasibility, cost and performance of corrective measures.

--Basic Site Assessment and Site Characterization (Private Client). Alliance was retained by a private client to assess an 800-acre tract of land which was being considered for rezoning. Part of the site was being used for turbine manufacturing and another portion of the property was being used as a landfill. The client suspected that several drums of PCBs had been buried at the landfill. Alliance scientists were called in to determine the probable number of such drums and to identify their burial locations. Alliance began monitoring the ground water; as no evidence of PCBs was found, it was deemed not feasible to disturb 20 acres of landfill to locate a small number of drums. Alliance recommended that the landfill parcel be separated from the larger block of property for zoning purposes and that the balance of the tract be rezoned. The rezoning request was subsequently granted.

--Basic Site Assessment (Confidential Client). Alliance scientists assessed a one-acre parcel of land which was the site of a three-story, brick meat processing plant. Alliance found no evidence of the release, or threat of release, of oil or hazardous materials. However, Alliance did find evidence of a fifty to one hundred gallon spill of No. 6 oil on an adjacent property. A stream formed a hydrogeologic boundary between the contaminated site and the property Alliance was retained to assess, preventing contamination from entering the client's property. No further action was taken by Alliance.

--Basic Site Assessment and Oversight of Underground Storage Tank Removal (Private Client). Alliance assessed a half-acre parcel of land on which a petroleum filling station and car wash were located. Hazardous materials routinely used at the property included gasoline, diesel fuel and small quantities of cleaning chemicals associated with the car wash. Alliance scientists documented the handling and storage of hazardous materials being used at the site and provided Material Safety Data Sheets (MSDS). During oversight of underground storage tank removal, Alliance scientists used field screening methods in order to delineate the extent of soil contamination. This soil was removed from the site for disposal. Ground water and soil samples obtained from the excavation pit were analyzed and found to have below-action levels of contaminants.

--**Ground Water Task Force (U.S. EPA, Office of Waste Programs Enforcement).** The Task Force was established in order to determine ground water monitoring compliance at RCRA-regulated facilities, identify any cases of poor compliance, demonstrate a nationally consistent approach to evaluate ground water monitoring, and respond to any deficiencies. EPA contracted with Alliance to collect all the raw data. Alliance provided ground water sampling and all in-situ measurements used to evaluate the hydrogeologic environment, conducting 15 investigations in seven EPA regions.

--**NIES Compliance Oversight (EPA Region III).** Alliance provided oversight and technical review of remedial investigations, remedial design, and remedial actions for a site subject to CERCLA and RCRA administrative orders. Alliance evaluated slurry wall plans, aquifer pump tests, ground water recovery proposals, cover and closure plans for hazardous waste cells and analytical data.

--**Ground Water Inspection of Region III RCRA Facilities (EPA OWPE).** Alliance provided ground water sampling at a site that contained 59 solid waste management units. Alliance scientists used analytical data to evaluate the facility's ground water monitoring plan, monitoring well adequacy, and sampling and analytical procedures. Alliance also reviewed the facility's site closure plan and other documents.

--**W.R. Grace Compliance Oversight (EPA Region I).** Alliance oversaw installation of an aquifer restoration system (i.e., ground water extraction and treatment) and its operation and maintenance, and reviewed quarterly program reports. Alliance also oversaw well installation, sampling and analytical data reporting activities.

--**Corrective Actions for Continuing Releases at RCRA Facilities (EPA OWPE).** Alliance prepared a technical manual, directed toward RCRA facility owner/operators, which describes the identification and characterization of "continuing releases." Alliance also prepared three guidance documents for EPA and state permit writers addressing air release identification, emissions distribution and impact, and determination of appropriate technology and response for air releases.

--Alliance developed a computer model to predict temporal moisture fluctuations for a variety of clay liner designs. SOILINER, originally presented in a Technical Resource Document entitled "Procedures for Modeling Flow Through Clay Liners to Determine Required Liner Thickness," (EPA/530-500-84-001), was modified by Alliance following public comments. SOILINER determines the design life of a given liner by calculating the time-to-breakthrough of leachate.

SECTION 3.0 STAFF RESUMES

KENON R. BLACKWOOD, JR., P.E.

EDUCATION

B.S.C.E., Civil Engineering, North Carolina State University, 1981.

PROGRAM QUALIFICATIONS

- Eight years experience in designing and managing site assessment, water quality remediation, and erosion control projects.
- Extensive experience in hydrology, stormwater management, and floodplain analysis.
- Experienced in the planning and implementation of environmental sampling projects
- Experienced in the obtainment of environmental permits

RELEVANT EXPERIENCE

Mr. Blackwood is a staff engineer at Alliance's Chapel Hill office, and is currently involved in a study to identify and remediate PCB contamination at a manufacturing facility in western Virginia. He also has been involved with the design and permitting of a hazardous waste storage facility in central North Carolina. Mr. Blackwood recently managed a project for the MCAS Cherry Point during which the extent of soil contamination at a former RCRA facility was assessed. Based on these data, applicable remediation plans and specifications will be developed. He assisted with an UST study for a Research Triangle Park firm during which he supervised tank evacuation and excavation, and performed testing to determine the extent of contamination from the tank. Mr. Blackwood performed extensive hydrologic computer modeling in support of an environmental evaluation of a

watershed in central North Carolina, during which the effect of urban development upon surface water quality was assessed.

Mr. Blackwood developed specific plans and specifications, including cost estimates, for a number of upgrades recommended as a result of the Spill Prevention, Control, and Countermeasures (SPCC) plan which Alliance is preparing for the Little Creek Naval Amphibious Base in Norfolk, VA. He also conducted extensive hydrologic computer simulations of a central North Carolina watershed in order to determine the risks posed to a water supply by nearby development. Mr. Blackwood has obtained wetlands permits for industrial clients in order to permit planned road construction. He has also obtained water and sewer use permits, and construction permits, for industrial clients.

Mr. Blackwood is also assisting with a PCB remediation project for a Virginia manufacturing facility. Following the identification of contaminated areas, applicable remediation plans and specifications will be prepared.

In previous employment, Mr. Blackwood was a project manager and design engineer for a private consulting firm. He was involved with a number of development projects concerning business, research and industrial sites, and managed an environmental assessment at a North Carolina facility in order to ensure that no hazardous materials remained on-site.

PROFESSIONAL AFFILIATIONS AND RELEVANT PUBLICATIONS

Registered Professional Engineer, NC (1987)
Member, National Society of Professional Engineers

Mr. Blackwood has authored a number of technical reports for private clients.

JANICE L. DEMMY

EDUCATION

M.E.M., Environmental Management, Duke University School of Forestry and Environmental Studies, 1981.
B.A., Environmental Studies, Franklin and Marshall College, 1980.

PROGRAM QUALIFICATIONS

- Experienced in conducting compliance activities and environmental assessments.
- Managed programs involving exposure and pollutant assessments, feasibility studies, capital cost surveys, review of state and local files, and on-site inspections
- Conducted water and wastewater sampling in support of compliance evaluation and waste minimization efforts

RELEVANT EXPERIENCE

Ms. Demmy is an environmental scientist in Alliance Technologies Corporation's Chapel Hill office. She is experienced in conducting compliance activities and environmental assessments at industrial facilities. She recently conducted an intensive wastewater sampling program at a federal facility in Washington, DC. This included sampling industrial wastestreams characterized by pHs of greater than 12 and temperatures exceeding 140oF as part of a study designed to reduce the hazardous nature of wastes generated at the facility.

Ms. Demmy interpreted hydrogeologic and ground water monitoring data from numerus RCRA land disposal facilities and reviewed state RCRA files for target collecting and verifying closure documents, Part B permits, and hydrogeologic data.

She conducted loss of interim status (LOIS) inspections at RCRA facilities in the southeastern United States to determine the status of compliance with RCRA Section 3005(e), which required submittal of certifications by November 8, 1985 in order for a facility to continue operations.

In previous employment, Ms. Demmy completed plant operations training at municipal and industrial divisions of a municipal multiple plant-wastewater system. She was responsible for quantitative analyses and monitoring of priority pollutants in the waste streams, maintaining plant records and training of personnel. In addition, she has assisted with all aspects of plant laboratory operations including lab personnel training, quality control programs, submissions of records, equipment, and chemical inventory and requisition, and laboratory set-up, operation, and certification procedures. Prior to that, Ms. Demmy participated in a task force which examined for regulation of hazardous waste storage facilities.

PROFESSIONAL AFFILIATIONS AND RELEVANT PUBLICATIONS

Grade C Water Treatment Operator, State of North Carolina.
American Water Works Association
Bacteriological Methods for Water Treatment, State of North Carolina.

Clark, L., Demmy, J., Overcash, C. and G. Viconovic. Remedial Investigation/Feasibility Study Work Plan for the Morgantown Ordinance Works Site, Morgantown ,WV, for U.S. EPA, Office of Waste Programs Enforcement. Washington, D.C., February 1985.

JAN E. DEWATERS

EDUCATION

M.S., Environmental Engineering, University of North Carolina, 1987
B.S., Chemical Engineering, University of New Hampshire, 1985

PROGRAM QUALIFICATIONS

- Experienced in the conduct of real estate site assessments
- Environmental engineering background focused on the behavior and control of contaminants in aquatic systems

RELEVANT EXPERIENCE

Ms. DeWaters has recently conducted a waste reduction study for an industrial facility. She performed an analysis of the efficiency of the facility's existing waste pretreatment system, and assisted in the development and implementation of an effective waste treatment process for effluent pH adjustment and metals removal. Particular attention was focused upon the ability of potential process revisions to reduce chemical usage, reduce metal waste discharge, and facilitate ease of compliance with discharge permit requirements. Ms. DeWaters is assisting in the preparation of an Oil and Hazardous Substance Spill Prevention, Countermeasures and Control (SPCC) Plan for the Little Creek Naval Amphibious Base in Norfolk, VA. This has involved comprehensive inspections and assessments of on-site facilities; review of construction, maintenance, inspection, and training records; and recommendations for engineering modifications and, where necessary, modifications to standard operating procedures in order to minimize the potential for spills of oil and/or hazardous substances.

Ms. DeWaters recently conducted several real estate site assessments in Chapel Hill, NC. Other projects in which she has been involved include: analysis of the pathway for anaerobic dehalogenation of chlorinated benzenes by microbial cultures adapted from Rhine River sediment; examination of biological activity in small-scale granular activated carbon reactors, investigating the ability of an aquatic biofilm, grown from ozonated natural background organics (humic substances), to biodegrade trace synthetic organics; investigations involving biological phosphorus removal from municipal wastewater; evaluation of an aquaculture system for treating municipal wastewater in a temperate climate using submerscol aquatic macrophytes; and compilation of reports for the U.S. Department of Energy on state-of-the-art methods for recycling byproducts from coal combustion processes.

PROFESSIONAL AFFILIATIONS AND RELEVANT PUBLICATIONS

Registered Engineer-In-Training, State of North Carolina, 1986

First Place Academic Achievement Award by the American Waterworks Association

Ms. DeWaters has authored or co-authored several technical reports for EPA and private clients.

- Best Master's Thesis
"Biological Activity on Granular Activated Carbon in the Presence of Azonated Naturally Occurring Humic Substances"

CLEATUS R. NEWMAN

EDUCATION

Graduate Study in Chemical Engineering, North Carolina State University, 1982 1983

Graduate Study in Inorganic Chemistry Virginia Polytechnic Institute and State University, 1978

B.S., Chemistry, Virginia Polytechnic Institute and State University, 1978

PROGRAM QUALIFICATIONS

- Experience interacting with Federal, State and local environmental regulatory offices as Facility/Process Engineer for semiconductor manufacturing facility
- Experience providing NAPAP Emissions Inventory Internal Review Panel
- Experience managing numerous major studies in the fields of hazardous waste management, water/wastewater, and air pollution control

RELEVANT EXPERIENCE

Mr. Newman is a Senior Staff Scientist in Alliance's Chapel Hill office. He currently is conducting inspections of industrial facilities in the southeastern United States in order to determine compliance with air pollution control requirements. In previous employment, he served as Facility/Process Engineer and Director of Environmental Programs for a semiconductor manufacturing facility in Research Triangle Park. In this position, he was responsible for all environmental activities involved in semiconductor manufacturing including environmental systems design, implementation, and evaluation; hazardous waste management and recycling programs; air and water pollution control and evaluation; and complete in-plant environmental audits and health and safety plans. As such, Mr. Newman interacted

on a regular basis with all Federal, State, and local environmental regulatory offices.

Prior to his employment as Facilities Engineer he held the position of Staff Scientist/Chemical Engineer at GCA Corporation's Chapel Hill office. In this position, he was responsible for Alliance's program for conducting industry studies evaluation and hazardous waste listing support for EPA. He also provided technical support for the NAPAP program, serving on the NAPAP Emissions Inventory Internal Review Panel. As a Project Manager for another environmental consulting firm, Mr. Newman managed a variety of major air pollution control and regulatory analysis studies. His experience was concentrated in the processes of the organic chemical manufacturing industry, in hazardous waste management, and in synthetic fuels processing. He managed teams of engineering, regulatory, and technical specialists involved in the development of new source performance standards and national emissions standards for hazardous pollutants for EPA. Mr. Newman was also responsible for the development of control techniques guidelines documents for the chemical process industry. Management duties consisted of conceptualization and development of analytical and engineering approaches for timely and quality work products, interaction with EPA management, technical guidance and review, and general task management. Additional duties included development and implementation of emission testing programs at industrial sites. Specific testing experience included emission tests for volatile organic compounds at seven chemical process sites being considered for regulation. Responsible for development and direction of a corporate hazardous waste management strategy including environmental audits and regulatory interpretation.

RELEVANT PUBLICATIONS

Mr. Newman is the author of twenty publications in inorganic and organic process chemistry and air pollution control.

RICHARD M. REHM

EDUCATION

M.S., Environmental Sciences and Engineering, University of North Carolina, 1980.

B.S., Magna cum laude, Environmental Health, University of Georgia, 1977

PROGRAM QUALIFICATIONS

- Seven years' experience as Head of Regulatory Analysis Section for Alliance Technologies Corporation, 13 years' experience in the environmental field working for EPA-Region IV, EPA-Office of Air Quality Planning and Standards (OAQPS), and Alliance

- Experienced in managing numerous projects for EPA Program Offices, including OTS, OPPE, OAR and the Regions. Sizes of work assignments have ranged from 200 to 18,000 technical hours

- Knowledge of regulatory, policy, and institutional mechanisms used to control environmental releases

- Knowledge of regulatory mechanisms to control releases of toxic pollutants

- Extensive experience in assessing releases of chlorinated hydrocarbons. Previous tasks have included work on chloroform, methylene chloride ethylene dichloride, trichloroethylene, perchloroethylene, methyl chloroform, carbon tetrachloride, etc.

- Assisted Regional Programs Office of OAQPS in assessing releases of acrylonitrile for recent State/local acrylonitrile pilot study

RELEVANT EXPERIENCE

Mr. Rehm is a Principal Environmental Engineer, Acting Manager of the Environmental Studies and Planning Department and Manager of Alliance's Chapel Hill office. Mr. Rehm is experienced in the fields of air pollution control, solid and hazardous waste evaluation, and water pollution control. More than 75 percent of this work has involved air pollution related activities, including emissions inventory development, source assessment, modeling, exposure and risk assessment, control technology evaluation, and policy and regulatory analyses.

Mr. Rehm is presently managing a program for EPA Region V to develop base year and projection year inventories for the Chicago Metropolitan Area. Point, area, and mobile source emissions estimates for VOC, NOx, and CO are being developed for eight counties in Illinois, two counties in Indiana and two counties in Wisconsin. Because of a court ruling requiring a Federal Implementation Plan, it was necessary for Alliance to develop the entire inventory in 3 months. In addition to assisting EPA Region V in developing emissions inventories for Chicago, Mr. Rehm is managing development of control strategies and regulations to reduce VOC emissions in the Chicago area. During this program, Alliance is also conducting atmospheric modeling using EKMA to determine needed emissions reductions.

Mr. Rehm is overseeing development of an area source inventory for the St. Louis Metropolitan Area and development of Class B Inventories for Texas and Louisiana. He was also the work assignment manager of a project to estimate trends in VOC and NOx emissions from point, area and mobile sources for four counties in Texas.

Mr. Rehm assisted EPA's Office of Air Quality Planning and Standards on two work assignments involving SIP-related activities. On one task, Mr. Rehm summarized staff recommendations and external comments relating to changes to Section 110 and Part D of the Clean Air Act. He also evaluated State VOC regulations and identified inconsistencies with RACT.

Other work Mr. Rehm has been involved in includes managing a task for OTS to examine releases of chloroform into the environment, assessing major releases which may need Agency action, and evaluating engineering and nonregulatory alternatives

for controlling those releases. The costs and economics of each control alternative were examined, and the most cost-effective control measures were identified. Mr. Rehm also managed tasks for OTS to investigate the regulatory status, standards, and recommended criteria for inclusion in Intermedia Priority Pollutant documents for ten chemicals. He managed a program to develop regulatory options analyses for five chlorinated solvents for EPA's Pollutant Assessment Branch, OAQPS. The project summarized data on health effects, exposure, emissions, ambient concentrations, emissions controls, and economic impacts of control. The program also described regulatory mechanisms under the Clean Air Act for controlling these solvents.

Mr. Rehm worked on a task for the Regional Programs Office to assess nine acrylonitrile facilities in seven States. During this study plants were visited, environmental releases and emissions controls were determined, and human exposures were estimated.

Mr. Rehm managed a task for the Office of Toxic Substances (OTS) entitled Toxic Integration Technical and Policy Analysis. Multimedia control alternative analyses were performed under this task for two halogenated organic compounds: chloroform and methylene chloride. Work on chloroform included exposure assessments of co-located facilities, determination of the relative risk of air exposure vs. drinking water exposure, and application of unit risk factors to exposure reduction estimates. For methylene chloride, preliminary information on sources, uses, and exposures to methylene chloride were examined.

Mr. Rehm managed a program for OPTS to evaluate alternative chemical and physical substitutes for six halogenated solvents used in degreasing, dry cleaning, surface coating, and ten other industrial classifications. He also worked as a consultant to OTS, critically reviewing documents concerning regulatory analysis, cost-effectiveness, control options, health and ecological effects, and materials flows. For OAQPS, he managed programs for the development of air pollution emissions standards for new organic solvent cleaners (degreasers) and standards for emissions from existing degreasers which employ halogenated solvents. His duties included: analysis of pollutants and emissions control systems in order to develop a technical basis for recommendation of an emissions standards; drafting the regulation for proposal and promulgation; and providing support to EPA, when necessary, in adjudication of the regulation following promulgations.

Prior to working for Alliance, Mr. Rehm was employed by EPA Region IV's Environmental Services Division. Mr. Rehm participated in numerous field studies involving wastewater evaluation and control. These studies included wetland studies, O & M Technical assistance, NPDES Compliance Monitoring, and groundwater monitoring.

While working towards his Master's degree, Mr. Rehm worked as an Environmental Protection Specialist for the U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Strategies and Air Standards Division, Research Triangle Park, North Carolina. Mr. Rehm was responsible for researching background information of 43 potentially toxic pollutants. He reviewed processes and reports from technical sources to obtain data on production, consumption, releases, ambient data, modeling results, and health effects. Mr. Rehm assisted in the development of National Ambient Air Quality Standards. His responsibilities included assistance in review of Criteria Documents as well as assistance in development of the standard for proposal and promulgation in the Federal Register.

PROFESSIONAL AFFILIATIONS

Air Pollution Control Association
Phi Kappa Phi Honorary Society

HONORS

Phi Kappa Phi Honorary Society
John J. Scheuring Scholarship Award Winner - 1974
E.G. Dawson Scholarship Winner - 1976

ALAN E. RIMER, P.E.

EDUCATION

Additional Graduate Work in Environmental Engineering and Resource Recovery Modeling, Duke University, 1976-1979
M.S.C.E., Environmental Engineering with Honors, University of North Carolina, 1966
B.S.C.E., Civil Engineering, Duke University, 1964

PROGRAM QUALIFICATIONS

- Principal Engineer
- Supervised completion of over 20 community and regional solid waste collection/disposal studies
- Over 21 years experience in municipal and industrial environmental engineering projects

EXPERIENCE

Mr. Rimer joined Alliance Technologies Corporation as Principal Engineer in the fall of 1987. Prior to his affiliation with Alliance, Mr. Rimer was vice-president of an architectural/engineering firm where he directed numerous studies on soil, surface water and ground water impaction as well as projects concerning hazardous waste management and disposal for a variety of clients.

Mr. Rimer is currently managing a project involving PCB contamination at a manufacturing facility in Virginia. Alliance has sampled sludge from the facility's wastewater treatment plant, soil from several facility locations, sediment from storm sewers, and alluvial sediment from an adjacent river in order to identify all

contaminated areas. Alliance has developed a remediation plan based on these data, and is currently directing clean-up efforts at the site. He also is overseeing a remediation project at a RCRA storage facility at Marine Corps Air Station, Cherry Point. Alliance staff conducted field sampling and soil gas surveys to delineate the lateral and vertical extent of contamination at this site, and will prepare remediation plans and specifications based upon analytical results. Mr. Rimer will certify closure following the successful completion of remediation activities. Mr. Rimer has managed a number of underground storage tank investigations; he recently directed an UST investigation in Research Triangle Park, NC. As leaked fuel had entered a storm sewer which discharged to a nearby pond, it was necessary to dam the pond while permitting water at depth to flow through a series of pipes, thus preventing the collection of all storm water effluent. While soil excavation revealed a break in the storm pipe which was permitting fuel to enter the sewer, this was not the only point of entry. In order to reduce the cost and time of further investigation, a video camera was run through the storm sewer to observe pipe breaks and any fuel present. Alliance personnel have overseen tank removal and disposal, as well as excavation and disposal of contaminated soil. Should ground water be impacted, Mr. Rimer will oversee design and implementation of all remedial actions taken.

Mr. Rimer has directed a number of site assessments, both within North Carolina and on a nationwide basis, which have included the following: a review of prior property ownership to determine whether hazardous materials were used at the site; examination of existing data concerning soils, surface water and ground water at the site; development and conduct of a comprehensive sampling program to evaluate potential contamination; and recommendation of appropriate remedial activities, if necessary.

In addition, Mr. Rimer has completed RCRA facility investigations at plating, printing, electronics, textile and chemical industry sites in New Jersey, Massachusetts, North Carolina and Virginia. In these RCRA projects, he has conducted compliance audits, recommended remedial designs, established audit protocols, and conducted worker training. He performed post-closure evaluations of several industrial facilities handling a variety of wastes ranging from petroleum distillates and metal finishing wastes to complex chemical manufacturing wastes.

Mr. Rimer is currently managing a task involving preparation of a Part B permit application for a RCRA hazardous waste storage facility to be constructed in Apex.

NC. Under his direction, Alliance personnel are preparing construction plans and specifications as well. Mr. Rimer also is in charge of a project providing environmental permit preparation for a solid waste resource recovery facility to be constructed in Rhode Island. He has conducted information programs at public hearings for a number of solid and hazardous waste projects.

He has directed several environmental investigations at the Little Creek Naval Amphibious Base in Norfolk, VA. These have included development and implementation of an intensive wastewater sampling program with recommendations for remedial measures, and preparation of a Spill Prevention, Control, and Countermeasures (SPCC) plan for oil and hazardous substances.

Mr. Rimer has also been involved with the management and the treatment and disposal of solid and liquid industrial wastes from a variety of industries. Work has included consulting and design assignments for the chemical, electrical/electronics, glass, manufactured foods, mining, paper, plating, soap, steel, tannery and textile industries. In addition to designing treatment facilities, this work has often included developing waste reduction and pretreatment methods, including treatment and disposal methods for hazardous and liquid wastes.

Mr. Rimer has also developed modified land application and subsurface disposal systems for a variety of municipal and minor industrial wastes. This work contributed to the current design standards in the field.

Mr. Rimer directed the development of a commercial analytical laboratory based at Duke University. The development, performance, and quality control of a major statewide water treatment plant monitoring and assessment program and a regional nonpoint pollution sampling program were handled by funding obtained from the State of North Carolina and the U.S. EPA. These programs involved the comprehensive physical and chemical characterization of samples from all media, including soil, sediment, surface water and ground water.

PROFESSIONAL AFFILIATIONS

P.E./NC (1968), NY (1969), NH (1970), VT (1971), TN (1976), VA (1979), and FL (pending)
Registered Land Surveyor/NC (1976)
Diplomate, American Academy of Environmental Engineers (1970)
Member, American Society of Civil Engineers
Member, Water Pollution Control Federation
Member, American Water Works Association
Member, ASTM-E38 Resource Recovery
Member, Association of Energy Engineers
Member, Society of Sigma Xi
Member, Society of Tau Beta Pi

PUBLICATIONS

Over 30 articles in various journals and publications, a text book and other reports and seminars.

RONALD B. RYAN, P.E.

EDUCATION

B.S., Chemical Engineering, Tufts University, 1979

PROGRAM QUALIFICATIONS

- Familiar with national emissions inventory procedures, user requirements, and policy issues
- Experience with large-scale data base design, implementation, and Quality Assurance
- Ability to interface with a wide range of organizations involved in the inventory development, review, and use process, including utility companies, model developers, Environment Canada, DOE, OAQPS, and other contractors

RELEVANT EXPERIENCE

Mr. Ryan is a Staff Chemical Engineer in the Chapel Hill office of Alliance Technologies Corporation. He has nine years of professional experience with consulting engineers and operating chemical companies. He is presently involved in providing technical support for the 1985 NAPAP emissions inventory efforts. He is serving as Project Manager on two NAPAP tasks involving projections of the gridded, speciated, and temporally resolved 1985 Inventory to future year scenarios and the development of an hourly emissions data base for the largest point sources in the United States and Canada to be used for verification of the RADM model. Both of these projects have required the design and implementation of mainframe database software and extensive coordination with both the users and suppliers of the data. He has also worked on tasks to determine appropriate values for missing

stack parameters for modeling purposes, to investigate and explain the differences between two inventory methodologies, and to develop seasonal allocation factors for utilities.

Mr. Ryan developed carbon dioxide emissions factors for a variety of fuels for use in developing a global climate change emissions inventory. He assisted in the development of day-specific emissions inventories for several industrial facilities contributing to a localized air pollution problem. He has produced an assessment of control techniques for hydrocarbon emissions in the styrene-butadiene rubber manufacturing industry. This work involved developing model plant parameters and using existing data and engineering estimates to calculate industry-wide emissions. An emissions reduction and control cost analysis for various control alternatives was performed to determine the most reasonable alternative. He has provided technical assistance for similar projects focusing on the ammonium nitrate, urea, and mineral processing industries. He has also conducted compliance inspections on several natural gas processing plants and petroleum refineries and has assisted in the comparison of air, water, and solid waste streams of four alternative residual oil utilization techniques.

Mr. Ryan worked as a Control Systems Engineer for CRS Sirrine, Inc. He was responsible for review of process P&IDs for instrumentation and controls and for the control software configuration for an electric utility generating station oil-to-coal conversion project. He installed and programmed a relational data base to track the purchasing and documentation of all instruments, and trained engineers and data entry personnel in its use.

Mr. Ryan worked as a Process Engineer at a specialty chemicals plant. In this capacity he remedied a problem with product quality by installing additional heat exchanger capacity to remove heat from a recirculated wastewater stream. Computer process simulations were performed to predict the behavior of the new scheme for various ambient conditions and levels of fouling. In another project he assisted in the implementation of a computer process control system for a distillation column. He also managed the development and operation of a pilot plant unit which produced a marketable product from a waste stream by using carbon adsorption to remove organic contaminants.

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer, State of North Carolina, 1987

RELEVANT PUBLICATIONS

Mr. Ryan has prepared a number of technical reports and publications for EPA as well as for commercial clients.

JAN J. SMITH

EDUCATION

M.S.C.E., Master of Science in Civil Engineering, Sanitary and Water Resources Engineering, North Carolina State University, 1985.

B.S., Environmental Biology, State University of New York College of Environmental Science and Forestry, 1978.

EXPERIENCE

- Over six years of experience in environmental engineering involving underground storage tank investigations, water resources management, water and wastewater treatment.

- Experienced in working with Federal, State and local agencies in the conduct of environmental assessments, underground storage tank remediation tasks, and update/modification of NPDES/non-discharge permits.

- Experienced in NPDES laboratory analyses and implementing wastewater monitoring programs and industrial pretreatment programs.

Mr. Smith is a Senior Civil (Environmental) Engineer at Alliance's Chapel Hill office. Mr. Smith is currently involved in a project for a private client in western Virginia during which he evaluated operations at an industrial wastewater treatment plant and recommended operational changes and process modifications. He is currently overseeing implementation of these recommendations. Mr. Smith recently conducted a study concerning releases from nine underground storage tanks for a private client in North Carolina. He developed and implemented a sampling plan in order to determine the extent of contaminant migration, and developed and directed site remediation activities as required to abate soil and ground water contamination. He recently performed a site assessment of a warehouse facility in

Durham, NC in order to identify all potential environmental liabilities associated with the site, which contains 3 USTs. Preliminary sampling has revealed petroleum releases to both soil and ground water; Alliance has provided remediation recommendations to the client, and will direct remediation activities at the site.

Mr. Smith recently assisted in a site assessment conducted at a manufacturing facility in western North Carolina. He performed monitoring well development and soil and ground water sampling as part of a task to delineate the extent of contamination, and will assist in forthcoming remediation activities at the property.

Prior to joining Alliance, Mr. Smith was an environmental engineer for a private consulting firm. His responsibilities included preliminary conceptual designs of water and wastewater transport, treatment and disposal facilities. He developed sewer use ordinances and user charges, "201" Facility plans, environmental assessments, water and wastewater treatment plant operations and maintenance manuals, infiltration/inflow and sanitary sewer evaluations and industrial pretreatment programs. He also provided water and wastewater treatment plant start-up services and operator and laboratory technician training.

PROFESSIONAL AFFILIATIONS

Grade III Wastewater Treatment Plant Operator, State of North Carolina
Registered Engineer-in-Training, State of North Carolina, 1989

RELEVANT PUBLICATIONS

Mr. Smith has authored and co-authored a number of technical reports and manuals for State and local governments and private clients.

STEVEN A. WALATA III

EDUCATION

M.S., Chemical Engineering, Syracuse University, 1985
B.S., Chemical Engineering, Syracuse University, 1981

PROGRAM QUALIFICATIONS

- Experienced in hazardous waste and wastewater sampling
- Chemical engineering knowledge of air pollution transport phenomena

RELEVANT EXPERIENCE

Mr. Walata is currently involved in a program to assess the potential environmental releases from proposed remediation activities at a CERCLA site. He recently conducted sampling of drummed RCRA wastes at MCAS Cherry Point, per the specifications of the facility's Part B permit. He also conducted soil sampling in support of closure activities at a RCRA storage facility located at the MCAS Cherry Point.

Mr. Walata recently assisted in an intensive wastewater sampling program at the Bureau of Engraving and Printing in Washington, DC during which wastestreams characterized by pHs greater than 12 and temperatures exceeding 140° were sampled. In addition, he is currently assisting in the preparation of an Oil and Hazardous Substance Spill Prevention, Control, and Countermeasures (SPCC) plan for the Little Creek Naval Amphibious Base in Norfolk, VA. This task has involved on-site surveys of all base facilities, evaluations of equipment, storage areas and procedures, standard operating procedures, and recommendations for procedural and equipment modifications in order to minimize the potential for oil and/or hazardous substance spills.

Mr. Walata has produced an assessment of control techniques for methylene chloride emissions at Eastman Kodak Company's Rochester, New York facility. This work involved using existing emissions estimates to develop potential control scenarios for reducing plant-wide emissions. A detailed cost estimation was produced for two control technologies to examine each technology's cost-effectiveness. He has also produced an evaluation of hexachlorocyclopentadiene emissions at Velsicol Chemical Corporation's Memphis, Tennessee facility. This work involved the development of emissions estimates for process and wastewater treatment areas from plant-supplied data, prediction of ambient concentrations from dispersion modeling data, and recommendations for potential control techniques.

Mr. Walata has worked on several projects which involved quality control checks on point source emissions in the 1985 National Acid Precipitation Assessment Program (NAPAP) emissions Inventory. One such project reviewed the data submitted for the top 1000 point source emitters of SO_2, NO_x and VOC. The purpose of the review was to ensure the completeness and accuracy of the data submitted for the largest point sources in the inventory. Another project was concerned with the comparison of Department of Energy emissions data for utilities with NAPAP utility data as a check for utility emissions data in the NAPAP inventory. He also participated in the evaluation of confirmation reports submitted by the states for facilities with emissions in excess of 2500 tons per year. This provided an independent quality check for the largest facilities in the inventory.

RELEVANT PUBLICATIONS

Mr. Walata has authored or co-authored a number of technical reports for EPA and private clients.

THOMAS E. WARN

EDUCATION

M.E.M., Water Resources, Duke University, 1981
B.A., Chemistry, Augustana College, 1979
B.A., Biology, Augustana College, 1979

PROGRAM QUALIFICATIONS

- Managed numerous projects providing quick-response, technical support involving engineering assessments, compliance inspections, sampling and analysis of industrial treatment systems.
- Experienced in conducting lentic and lotic investigations involving aquatic chemistry, aquatic biology, sampling, analysis, and overall ecological evaluations.
- Experienced in the evaluation of water quality degradation sources, the implementation of Best Management Practices (BMPs) and the preparation of land-use and watershed management plans.
- Conducted many compliance evaluations of industrial facilities.

RELEVANT EXPERIENCE

Mr. Warn is a senior environmental engineer and is Manager of Alliance's Chicago office. He is responsible for program management of state and federal agency tasks which include pollutant assessments, control technology evaluation, nonpoint source emission model development, risk assessment, and regulatory alternative impact analysis. Mr. Warn has also been involved with the sampling, analysis, and evaluation of environmental releases from hazardous waste treatment, storage and

disposal facilities. He recently managed tasks for the Marine Corps Air Station at Cherry Point, NC in which Alliance sampled drummed hazardous wastes in accordance with requirements of the facility's Part B permit, and conducted soil sampling around a closed hazardous waste storage facility in order to demonstrate that no residual contamination remained. He conducted wastewater sampling at the Little Creek Naval Amphibious Base in order to delineate contaminant sources, and directed a study to prepare an Oil and Hazardous Substances SPCC for the base.

In previous employment, Mr. Warn was Environmental Protection Specialist for the U.S. EPA Water Quality Management Branch in Region V. His EPA duties involved the implementation of federal programs under Sections 208 and 314 of the Clean Water Act. Mr. Warn's activities included the evaluation of proposed Clean Lake projects, assisting in the development of state nonpoint source abatement programs, and the development of analytical methodologies, the review of chemical and biological indicator data, the assessment of existing and potential water quality, the implementation and development of BMP's, and the dissemination of technological information to regional planning agencies and working groups. Experience with lentic and lotic systems includes work conducted while employed as an aquatic biologist for two different environmental firms. Responsibilities included the conduct of adult nectonic population studies, impingement analyses, and monitoring for biological and chemical impacts of a thermal discharge plume from the cooling waters of a nuclear power plant.

PROFESSIONAL AFFILIATIONS AND RELEVANT PUBLICATIONS

Beta Beta Beta Honor Society - 1978
AKROS Honor Society - 1976
Illinois State Scholar - 1975
Grade IV Wastewater Treatment Operator, State of North Carolina, 1984

Mr. Warn has authored or co-authored numerous technical reports for EPA and for private clients.

DAVID J. ZIMMERMAN

EDUCATION

Graduate Studies in Limnology, Duke University, Dept. of Zoology, 1979-1982.
B.A., Biology, Wittenberg University, 1979.

PROGRAM QUALIFICATIONS

- Research experience in evaluating productivity and water quality in temperate lakes and reservoirs
- Management of work assignments providing assistance to States in meeting 1985 NEDS requirements
- Experienced in the development and quality assurance of stationary source emissions inventories
- Extensive background in limnology and aquatic chemistry, including field experience assessing water quality and algal community interactions
- Participated in research projects modeling the relationship between land use and water quality
- Research experience in the toxicological effects of aquatic pollutants on fish

RELEVANT EXPERIENCE

Mr. Zimmerman is a Senior Environmental Scientist for Alliance Technologies Corporation's Chapel Hill, North Carolina office. Since joining Alliance, his primary responsibilities have involved air emissions inventories and estimation methodologies. For three years, he has managed work assignments and provided technical expertise

in assembling and documenting the 1985 NAPAP Anthropogenic Emissions Inventory.

Mr. Zimmerman coordinated and assisted State efforts to collect the 1985 NEDS inventory. This effort encompassed inventory initiation through industry questionnaires, data compilation and coding, emissions calculation and final emissions inventory editing, including quality assurance. This assistance was provided through EPA's Office of Air Quality Planning and Standards (OAPQS), the Air and Energy Engineering Research Laboratory (AEERL) and various Regional Offices. The final 1985 inventory consists of annual emissions estimates of SO_2, NO_x, VOC, TSP, CO, HF, HCL, primary sulfate and ammonia for point and area sources in the contiguous United States. As part of the NAPAP process, he has participated in state-level internal and third-party peer review of this work. He is currently pursuing refinement of the inventory through additional quality assurance measures and State-level review of these data. Mr. Zimmerman is also involved in compiling and quality assuring the point source emissions inventory for the Federal Implementation Plan (FIP) for the Chicago metropolitan area.

Concurrently, Mr. Zimmerman is assisting EPA Region V, Air and Radiation Branch (ARB), in developing of a Federal Implementation Plan (FIP) to attain the ozone standard in the Chicago Metropolitan area. He is responsible for coordinating the development, quality assurance and integration of point source inventories from Illinois, Indiana and Wisconsin for the 1988 base year. Previously, he developed emissions estimates of VOC from abandoned waste sites for ARB in Region V.

Mr. Zimmerman's other relevant experience includes participation in the revision of the VOC emissions inventory guidance document for OAQPS. This revision incorporated new inventory techniques for point, area and mobile sources for use in the development of State Implementation Plans (SIPs). He has also worked on projects identifying and estimating VOC releases from hazardous waste treatment, storage and disposal facilities (TSDFs) for OAQPS, including development of emissions estimation techniques.

He has been involved in collecting and organizing ground water quality data in four midwestern states. He has been responsible for assembling this information into a computerized data base for evaluation of ground water impacts from

80 hazardous waste disposal facilities. While at Alliance, Mr. Zimmerman has also participated in several projects investigating CERCLA sites for recoupment of cleanup costs incurred by EPA.

Mr. Zimmerman's principal fields of study at Duke University were limnology and aquatic management. He was involved in several research projects involving water resources. He participated in a project modeling the trophic states of lakes and reservoirs within North Carolina, mapping land use and soil parameters throughout the watersheds to predict phosphorous loading over time. He also investigated the applicability of using small catchments as phosphorous traps to reduce loadings to reservoirs. This work involved field sampling, lab analysis and data analysis. In addition, Mr. Zimmerman received training in water resource modeling, including non-point sources, physical and chemical limnology, experimental design and biochemistry.While an undergraduate, his primary range of study involved aquatic ecosystems in the mideast. He investigated species diversity as an indicator in lentic and lotic environments. He participated in the sampling, analysis and evaluation of chemical and biological samples from a series of reservoirs. As his senior thesis, he studied the developmental effects of an aquatic pollutant on two freshwater fish species. His experience also included work on a National Science Foundation-funded project examining the relationship between water quality and species make-up and diversity in the extensive periphyton communities of The Everglades National Park.

PROFESSIONAL AFFILIATIONS AND RELEVANT PUBLICATIONS

PADI Open Water Diver

Mr. Zimmerman has authored and co-authored a number of documents and reports for EPA and private clients.

SECTION 4.0 EQUIPMENT CAPABILITIES

SECTION 4.0 EQUIPMENT CAPABILITIES

FIELD SAMPLING AND ANALYSIS EQUIPMENT

Alliance maintains an extensive inventory of air, water, soil and waste field sampling and analysis equipment and has ready access to instruments owned by other TRC companies. All equipment is stored in a central location and is maintained and calibrated on a regular schedule in order to ensure reliable data and prevent costly delays. Before equipment is sent out on an assignment, it is calibrated according to the manufacturer's recommendations and worn or broken parts are replaced. Equipment in the field is tracked as to the assignment for which it is being used and the date it is expected to be returned. This ensures that equipment is available when needed. In the field, equipment is re-calibrated before each use to make sure that any loss of accuracy due to transport has been corrected and to take into account temperature and humidity changes. When equipment is returned, it is logged in, checked for damage, cleaned and repaired as necessary and returned to equipment inventory, ready for use again. Table 4.1 presents an itemized list of available equipment.

The equipment and facilities described in Table 4.1 are available for all projects as needed. If required, additional support equipment, including carpentry and machine tools, is also provided. Alliance can design and construct specialized apparatus for monitoring, sample collection, and chemical characterization at virtually any site.

MOBILE LABORATORIES

Alliance maintains two mobile laboratories for use in projects requiring onsite analysis. Each can be set up for waste, water, soil and sediment analyses. In addition, Alliance's Environmental Monitoring Trailer is available for long-term monitoring assignments. Alliance's Mobile Lab can be used for onsite analytical activities conducted for the duration of any long-term project. This 47.5 ft x 7.5 trailer was custom designed and equipped to specifically handle onsite analytical requirements. The laboratory can be equipped with organic and/or inorganic instrumentation, as required, and was designed with adequate bench, top and counter space to allow for such possibilities. A second, small laboratory was

custom-built for Alliance by Design Space International. The 16 x 8 ft trailer was designed so that instrumentation equipment can be easily placed into an existing rack mount. Numerous configurations can be assembled along with data acquisition systems and strip chart recorders.

HEALTH AND SAFETY EQUIPMENT

Alliance has considerable experience in preparing hazardous waste site health and safety plans, and can provide qualified, experienced personnel to serve as onsite health and safety coordinators. Alliance also maintains an adequate inventory of health and safety equipment for outfitting crews and monitoring potential exposures to hazardous and toxic materials (Table 4.2). This inventory is centrally maintained and is automatically reordered as stocks are depleted, which enables Alliance crews to quickly respond to concurrent site assessments without delays due to a lack of proper health and safety equipment.

TABLE 4.1 FIELD SAMPLING AND ANALYSIS EQUIPMENT

Item	Manufacturer	Quantity
Waste/Wastewater Sampling		
Wastewater Sampler, automatic sequential/composite	ISCO Model 2100	4
Recording Flowmeter	ISCO Model 1870	2
Sampling Pumps	Cole-Parmer	6
Kemmerer Water Sampler	WildCo	2
Water Sewage Sampler	VWR Scientific	2
Portable Field Laboratory	Hach DR/EL 2	2
Dissolved Oxygen Meter	Yellow Springs Instrument Co.	2
Conductivity Test Meter	Hach Chemical Co.	2
pH/mV Meters	Orion Research Model 701A	3
Ultrasonic Flowmeter	Dynansonics	1
Wastewater Sampler, automatic	Quality Control Equipment Co., Model CVE-76	2
Water Sampler	Doran	2
Ground Water		
Submersible Pumps	IEA	1
Peristaltic Pumps	ISCO	5
Teflon Sample Lines	Assorted	Assorted
Bailers, Teflon/Staonless Steel	TIMCO	15
Water Level Indicators	Johnson UOP	2

(Continued)

TABLE 4.1 (Continued)

Item	Manufacturer	Quantity
Sediments		
Petit Ponar Dredge	WildCo	1
Peterson Dredge	WildCo	1
Sediment Corer	WildCo	1
Soil/Solids		
Stainless Steel Soil Auger		2
Split Spoon Sampler		1
Hazardous Materials		
Apparatus for Compatibility Testing-pH, Redox, flammability, water reactivity, cyanide, sulfur		2
Coliwasa, Teflon and Glass Sludge Samplers		6
HP 5840A (ECD, FID)	Hewlett-Packard	1
PE 3920B (ECD, FID)	Perkin-Elmer	1
HP 5890 (ECD, FID)	Hewlett-Packard	1
AID Model 511 GC	Analytical Inst. Co.	1
Carle 9704 GC	Carle	1
Orion 701A pH/mV Meter	Orion Company	1
Non-dispersive IR (CO)	Bendix	2
Non-dispersive IR (CO)	Monitor Labs	2

(Continued)

TABLE 4.1 (Continued)

Item	Manufacturer	Quantity
NO/NO_x Chemiluminescent Gases	Monitor Labs	5
Flame Ionization (Hydrocarbon)	Bendix	2
O_3 Chemiluminescent Gases	Monitor Labs	4
Gas/dilution Calibrator	Monitor Labs	1
Fluorescent SO_2	Monitor Labs	8
Flame-ionization OVA	Foxboro	2
Photo-ionization Detector	HNU Corp.	3
Photo-ionization	Photovac	1
Vacuum Hi-Vol	General Metals	10
Recording Respirable Dust Monitor	MIE Model RDM-301	1
Respirable Dust Monitor	MIE Model RDM-101	1
Particle Mass Monitor	MIE Model RDM-201	1
Ambient Particulate Mass Monitor	MIE Model APM	2
Fibrous Aerosol Monitor	MIE FAM	2
Real-Time Aerosol Monitor	MIE RAM	2
Direct	Weather Measure	2
Thermistor	Weather Measure	2
Direct	Climatronics	2
Sulfur Dioxide Monitor	Monitor Labs Model 8850	2
Sulfur Dioxide Monitor	Thermo Electron Model 43	3

(Continued)

TABLE 4.1 (Continued)

Item	Manufacturer	Quantity
NO/NO_x Monitor	Monitor Labs Model 8840	2
NO/NO_x Analyzer	Thermo Electron Model 14 DE	2
Carbon Monoxide Monitor	Horiba Instruments	1
Carbon Monoxide Monitor	Ecolyzer	5
Dynamic Calibrator	---	1
Hydrocarbon Analyzer	Bendix	2
Dichotomous Sampler	Sierra Instruments	2
Recorders	Soltec	3
Permeation Tube Water Bath	---	1
Instrument Shelters	EKTO	1
Hi-Volume Air Samplers	General Metal Works Model GMWL-200	20
Portable Calibration System	Monitor Labs Inc. Model 8500	2
Wind Speed and Direction Sensors with Expanded Recorder	Climatronics	1

TABLE 4.2 FIELD SAMPLING AND ANALYSIS EQUIPMENT

Item	Manufacturer	Quantity
Personnel Safety		
Personal Monitoring Pump	MSA Monitaire, Model S	6
Personal Monitoring Pump	DuPont P-125	16
Personal Monitoring Pump	DuPont P-4000	10
Stain Detector Tube Kit	Bendix Model 8014K	2
Stain Detector Tube Kit	Drager Model 31	2
Combustible Gas/O_2 Analyzer	Energetics Science Model 60-400	2
Portable Organic Vapor Analyzer	Century Model OVA-108	2
Photoionization Analyzer	HNU Model P1-101	4
Respirator Fit Test Stations	GCA	2
Tyvek Protective Clothing	Helco	Assorted
Chemical Resistant Coveralls	Helco	12
Full-Face Respirator, Ultra-Twin	MSA	12
Comfo II, Half-Face Respirator	MSA	20
Self-Contained Breathing Apparatus	MSA Model 401	6
Cascade Breathing Air Systems		2
Respirator Cartridges	MSA	Assorted
First Aid Kits	Helco	Assorted

COMPUTER CAPABILITIES

The Alliance team routinely uses computer programming and data processing in support of contract work across a wide range of technical areas. Microcomputers, minicomputers, and mainframes are all employed as necessary for a spectrum of applications including data base management, modeling, graphics, accounting, project management, data entry, and technical publications. All Alliance team computer systems can readily communicate with outside microcomputers, minicomputers, and mainframes to exchange information using communication hardware and software systems available in-house.

The extensive computer resources of the Alliance team are supplemented by the broad experience of our computer applications staff, which includes computer programmers, systems analysts, environmental scientists, engineers, and project managers. This diverse team of professionals offers a wide range of approaches to data processing and management, including a thorough evaluation of micro/mini/mainframe alternatives and existing software versus tailored software development.

Computer Hardware and Graphics

Alliance has access to the TRC Companies PRIME 2655 computer and the National Computer Center (NCC) IBM 3090 and VAX cluster, bibliographic databases such as DIALOG, NIH/EPA Chemical Information System, TOXLINE, and various other service bureau systems. Alliance has installed a high-speed telecommunications link to the NCC which allows output from completed jobs to be printed locally rather than off-site. A Dataproducts LB-615 600-line-per-minute band printer is connected to a dedicated high-speed data line through a Racal-Milgo 9600 baud modem. Alliance completed a major upgrade in its data communications system involving the installation of high speed communication links, including a Harris 1600 Series remote job entry (RJE) station, a Harris 9300 communications controller with a 118 megabyte hard drive, a tape backup system and a local area network, and a 600 line-per-minute line printer running RJE/SNA protocol. IBM PC/XT microcomputers are connected to the network to facilitate file uploading and downloading from host systems. Other communication links include Digital DEC-2 9

writers and CRTs operating at 2400 baud, IBM PC/XTs equipped with 2400 baud Hayes Smartmodems, and portable IBM and IBM-compatible microcomputers with 2400 baud modems.

In general, the Prime or NCC IBM is used for the analysis of very large data bases using SAS (Statistical Analysis System), FORTRAN, COBOL, PL/I, and other scientific and database software packages. For less resource-intensive activities, Alliance uses microcomputers. These machines are widely used for both independent applications and applications involving communication with mainframe, mini- and microcomputers. The majority of technical computing is done on Alliance's more than 60 PC-XTs and PC-ATs, many of which are equipped with math coprocessors, graphics boards, and 1 MB RAM. This makes them ideally suited for a wide range of data analysis, modeling, data base management, and software development applications.

Hardcopy draft output is provided by Epson and Epson-compatible dot matrix printers. When necessary, higher quality printouts are obtained using a host of in-house letter-quality printers including IBM Quietwriters, NEC Spinwriters, and a Xerox 4045 laser printer. Alliance also has three Hewlett-Packard Laserjet laser printers tied into its networks and one Hewlett-Packard Laserjet Series II as a stand-alone device.

Alliance has developed a state-of-the-art graphics system to support its statistical and modeling efforts, facilitating rapid data manipulation, evaluation of model results, and presentation of final figures, and providing high-quality graphic output at minimal expense. For most graphics applications, Alliance uses a Tektronix 4112 graphics workstation, a 16-bit CP/M-86 CPU with more than 400K RAM, a 10-megabyte hard disk and an 8" floppy drive; this workstation operates in both graphics and text modes. For other graphics applications, Alliance has access to 2 other Tektronix terminals, PC ATs with VGA monitors, 2 Hewlett Packard 7550A 8-pen plotter, and a Hewlett Packard Laserjet Series II laser printer. The HP 8-pen plottters feature 0.001 inch resolution, automatic paper feed, variable pen speeds up to 80 cm/sec, and their own graphics language, and can produce high quality plots on 8.5 x 11 inch or 11 x 17 inch paper or transparencies. High resolution plots can also be produced at the National Computer Center on EPA's CALCOMP plotter. The graphics system also includes a digitizing tablet and a Tektronix 4612 hardcopy unit, which produces black and white copies sufficient for

most draft reports and many final figures. Alliance also uses a COMPAQ 386-16 with 2 MB RAM, a 40 megabyte hard drive, an EGA monitor, and an 80387-16 math coprocessor for graphics applications.

Software

Alliance programmers have access to, and familiarity with, virtually all major programming languages and software packages for organization, maintenance, and manipulation of data, FORTRAN 77, PASCAL and BASIC are are among the languages supported on TRCC's Prime. Users of the NCC IBM and VAX have access to a wealth of programming languages, software packages, and utility programs. SAS and SAS/GRAPH, FORTRAN, PL/I, and COBOL are among the most routinely used languages; BASIC, EASYTRIEVE, and NATURAL also employed.

Microcomputers at Alliance utilize widely available software such as LOTUS 1-2-3, dBASE III PLUS, Autocad, Ventura Publisher, STATPRO, and a host of additional packages for data base management, graphics, accounting, project management, data entry, and word processing.

Technical Publications

Alliance maintains separate and complete Technical Publications Departments for rapid and efficient turnaround of all technical reports and other projects in the Chapel Hill and Bedford offices. In Alliance's Chapel Hill office, the Technical Publications Department has 3 IBM-compatible microcomputers for wordprocessing, also using WordPerfect 5.0. These wordprocessing stations also have Ventura Publisher, Lotus, and dBASE III capabilities. A XEROX 4045 laser printer is used for document quality printing. Alliance's Chapel Hill office has two Pitney Bowes D750 high volume copiers which have a monthly volume of 60,000 copies each. This equipment provides for rapid and efficient turnaround on the reports and documents which Alliance delivers to its clients.

The Bedford Technical Publications Department is equipped with six IBM-compatible microcomputers using WordPerfect 5.0, the corporate standard.

for word processing. The Document Production section has a Sun 386i workstation which acts as a network file server for a MacIntosh desktop publishing system and IBM-compatible microcomputers. The Sun 386i has both MS-DOS and Unix operating systems. The workstation runs Frame Maker to create final documents by electronically merging text and graphics, and outputs hard copy to a laser printer. The main graphics program for drawings, charts, 35mm slides, overhead transparencies and graphs is MacDraw II. In addition, the Alliance Bedford office has a Kodak Ektaprint 300 high volume duplicator and complete binding facilities. The Kodak duplicator has a 500,000 copy per month capacity.

TRC FACILITIES AND EQUIPMENT

TRC has consolidated support facilities at its East Hartford, Connecticut corporate headquarters and adjacent environmental laboratories. These facilities include:

- Computer Laboratory/Data Reduction Facility

  TRC maintains several in-house computer systems, external communications links, and software for data handling and analysis.

  PRIME 2655 Computer - This system includes 8 megabytes of memory, 315 and 496 megabyte disc drives, a streamer tape system, a high speed printer, a matrix printer/plotter, and 12 PT/200 terminals, including graphics capabilities. FORTRAN 77, PASCAL, and BASIC languages are supported. This computer has Remote Job Entry (RJE) and is linked by a dedicated line to U.S. Government computer facilities (National Computer Center) in Research Triangle Park, North Carolina. The RJE is also capable of being switched for high-speed communication with most other computer sites required for any project.

  Microcomputers - TRC has a complement of microcomputers and intelligent terminals as part of its in-house facilities. These include IBM and IBM-compatible XT and AT PC's. To enhance the output of the PC's, TRC has a laser printer and plotters that can plot up to a size D. The microcomputers are capable of establishing communication links with other micro-, mini-, and mainframe computers at speeds up to 9600 baud. Microcomputer software routinely used at TRC Companies can be found in Table 4.3.

TABLE 4.3. SAMPLE OF MICROCOMPUTER SOFTWARE ROUTINELY USED AT TRC COMPANIES

OPERATING SYSTEMS:	DOS (VERSION 3.3)
	DOS (VERSION 3.0)
	CP/M-86
PROGRAMMING LANGUAGES/COMPILERS:	MICROSOFT FORTRAN
	MS BASIC
	MICROSOFT C
	PASCAL
COMMUNICATIONS SOFTWARE:	SMARTCOM II
	PROGRAM
	MITE CROSSTALK XVI
DATA BASE MANAGEMENT SOFTWARE:	DBASE II
	DBASE III PLUS
	DBASE IV
	RBASE
	CLIPPER
	DATA BASE MANAGER II
	PFS FILE
	REFLEX
SPREADSHEETS:	LOTUS 1-2-3
	SUPERCALC
GRAPHICS/STATISTICAL SOFTWARE:	LOTUS 1-2-3
	STATPRO
	SURFER
	SYSTAT
	RATS
	SAS
	AUTOCAD
	EASYFLOW
	HARVARD
	PAGEMAKER
	PC-PAINT

TABLE 4.3. SAMPLE OF MICROCOMPUTER SOFTWARE ROUTINELY USED AT TRC COMPANIES

WORD PROCESSORS/EDITORS:	BRIEF
	MULTIMATE
	WORDSTAR
	WORD PERFECT
	PFS WRITE
	EPSILON
	VEDIT
	RE2
MISCELLANEOUS:	NORTON UTILITIES (DATA RECOVERY/DISK MANAGEMENT)
	ENTRYPOINT (DATA ENTRY)

Cooperative Agreements - Our in-house facilities are augmented by cooperative agreements with NTIS (National Computer Center), Combustion Engineering, Inc., United Technologies Research Center, and United Computing Systems, Inc. These agreements provide TRC with access to IBM, CDC, CRAY, and UNIVAC high-speed mainframe computing systems.

Data Handling - Data reduction facilities include in-house standardized data reduction computer programs developed to facilitate data processing. The programs allow for the capability to retrieve data from remote data loggers via dial up telephone lines connected to microcomputers and intelligent terminals. The system also allows for interactive verification, validation, and editing of the data collected and processed using TRC computer and data reduction equipment. Data reduction equipment is used to convert aerometric strip chart data into hourly averages which, in turn, are processed by data reduction software.

Plotting - In addition to the tabular output produced by air dispersion models, selected models are designed to produce concentration isopleth plots, and plotting routines can be applied to the output of most other models to display the model results on a site-specific map. The map digitizing capability combined with the plotting capability of TRC's computers significantly enhance the value of dispersion model output when either topographic or demographic features are of concern.

Computer Aided Design (CAD) System - This state-of-the-art computer drafting and publishing system includes four microcomputers and associated software. The basic unit is an ACER 1100 with 4 megabyte random access memory (RAM), 65 megabytes of fixed drive space, a standard 360 kilobyte floppy disk drive, a high density 1.25 megabyte floppy disk drive and a NEC multisynch 13" color monitor. A Cal-Comp 1023 D-Size plotter is used for drawings up to 24" x 36" in paper size. Also used are a Hewlett-Packard 7475A plotter and a Toshiba Page Laser 12 for drawings up to 11" x 17" in size. Software used includes Auto Cad Release 10, Microsoft Windows, Page Maker Release 3 and PC Paint.

- Models and Software Library

Software support on the TRC computers is extensive. The most recent versions of all 31 atmospheric dispersion models in EPA's UNAMAP series are available. In addition, the RTDM, LAPPES (complex terrain), CALINE3, GMLINE, IMM (mobile), Shell SPILLS (toxic release), CRSTER/OCS, OCD, ASLI (air-sea-land interaction), SAI (reactive plume), EPA PLUVUE (visibility), CDMDEP, DIFKIN, and Ex Ex models are supported. Software development and compilation can be performed using FORTRAN 77, PASCAL,and BASIC. Various microcomputer software packages provide several data base management, operating system, file editor, word processing, spreadsheet, statistical, plotting, and language compilation alternatives.

Some of the available models are listed below.

PRIME Computer Models:

SPECTRA	TRC wind trajectory model
SPILLS	Toxic release source and dispersion model
RTDM	Single source complex terrain model
LAPPES	Complex terrain model
CALINE3	Line source dispersion model
GMLINE	Line source dispersion model
ASLI/LAM	Air, sea, land interaction model for wind simulation in coastal areas
FLARE	Model used to simulate plume rise from flare stacks
2-D Wind	2-Dimensional wind flow model for horizontal winds in complex terrain
DEGADIS	Dense gas dispersion model

PC Models:

Ille/Springer	Chemical evaporation model
USAF/Kahler	Chemical evaporation model
Army/Clewell	Chemical evaporation model
Ontario Ministry	Toxic release source and dispersion model of Environment
NYSDEC Model	Volatile emissions from soils
TRC Odor	Model describing near-field dispersion of odorous emissions

EPA Models on PRIME or PC:

RAM	Multiple point and area source, short-term dispersion model
RAMMET	Meteorological preprocessor program
CRSTER	Single source location, short- and long-term dispersion model
CDM	Multiple point and area source, long-term dispersion model
CDMQC	CDM modified for additional output
APRAC3	Urban scale carbon monoxide dispersion model
HIWAY2	Line source dispersion model
VALLEY	Multiple point and area source, short- or long-term, complex terrain dispersion model
TEM8	Short term episodic dispersion model
TCM2	Long-term climatological dispersion model
PAL	Point, area, and line source dispersion model
MPTER	Multiple point source dispersion model with terrain adjustments
COMPLEXI	Multiple point source complex terrain dispersion model with sector averaging in the horizontal
COMPLEXII	Multiple point source complex terrain dispersion model with normal distribution in both the horizontal and vertical
BLP	Line and point source dispersion model designed to handle industrial sources where plume rise and downwash effects from stationary line sources are important
ISCST	Short-term dispersion model able to assess impacts of deposition and settling, downwash, area, volume, point, and line sources

ISCLT	Long-term version of ISC using meteorological frequency distributions
MPTDS	Modified version of MPTER which handles gravitational settling and deposition
SHORTZ	Short-term, complex terrain dispersion model able to handle multiple point, area, and volume sources
LONGZ	Long-term version of SHORTZ using meteorological frequency distributions
COMPLEX/PFM	Modified version of the COMPLEX models accounting for potential flow
MESOPAC	Meteorological preprocessor program for regional models
MESOPUFF	Variable trajectory regional model for determining multiple point source impacts at long distances
MESOPLUME	MESOSCALE plume segment model for SO_2 and SO_4 applications over long distances
MESOFILE	Postprocessor for MESOPLUME and MESOPUFF
ROADWAY	Finite difference line source model
ROADCHEM	Modified ROADWAY models handling chemical reactions
PTMAX	Single point source maximum short-term screening model
PTDIS	Single point source short-term screening model
PTMTP	Multiple point source short-term screening model
CHAVG	Postprocessor for computing running averages for hourly concentrations
UTMCON	Program to convert latitude and longitude to UTM coordinates and vice versa
EPAPUF	EPA integrated puff dispersion model
INPUFF	EPA instantaneous release model
SRI Puff	Time dependent puff model and wind field model

- **Publications Department**

TRC's Publications Department is committed to high professional standards. A technical editor cooperates with the Graphics Section, Word Processing Center and Copy Center in the efficient review and production of technical papers, reports and proposals. The manager of the department is responsible for the coordination of jobs and assures quality and efficiency.

- **Word Processing Center**

TRC's Word Processing Center, staffed by professional word processing operators, is equipped with a state-of-the-art, automated office information system (Wang VS 125) with a laser printer to ensure the rapid and efficient production of reports. This system permits quick and easy access to information and includes the ability to sort lists. In addition, each operator is familiar with corporate style requirements.

- **Graphics**

The Graphics Section, staffed by experienced graphics personnel, is backed by the latest equipment for the preparation and production of technical drawings, maps, diagrams, flow charts and graphs. This department also handles the design, layout and camera-ready artwork required for presentation materials, displays, brochures and slides.

- **Copy Facilities**

Copying at TRC is done on a high-speed copying system with additional capabilities of automatic collating and sorting, photoreduction, production of transparencies for special presentations, back-to-back copying and processing computer printout sheets. The center also maintains the highest quality binding systems and a telecopier.

SECTION 5.0 HEALTH & SAFETY PROGRAM

SECTION 5.0 HEALTH & SAFETY PROGRAM

All Alliance field personnel are trained in accordance with the OSHA requirements of 29 CFR 1910. Prior to the conduct of any field activities, each employee has completed a 40-hour Hazardous Waste training course. Staff members complete an 8-hour refresher training course on an annual basis. Project managers also receive 8 hours of supervisory training. This training enables the employee to evaluate the potential dangers and/or contaminants associated with a particular field investigation, and to determine the appropriate sampling gear, monitoring devices, and personal protective equipment, based on these characteristics. Copies of training certifications are available upon request.

A Health & Safety Plan is prepared prior to the initiation of any field activities. This plan details the known and suspected hazards present at the site, all sampling and decontamination methods, personal protective equipment to be used by sampling personnel, any monitoring devices which will be used, and locations and telephone numbers of nearby emergency services. All sampling personnel are familiar with the specifics of the Health & Safety Plan prior to the conduct of field activities.

Alliance has instituted a medical monitoring program for sampling personnel. This consists of a detailed, baseline medical exam conducted prior to the employee conducting any fieldwork for Alliance, as well as annual medical exams targeted toward contaminants which may have been present at field sites visited during the previous year.

AVTEX FIBERS FRONT ROYAL INC.
AVTEX FIBERS SITE

QUALIFICATION STATEMENTS

The qualifications for CHEMICAL WASTE MANAGEMENT INC., are included with their work plan for identification, segregation and disposal of hazardous waste in drums. The qualifications for S. D. MYERS INC., is included in their work plan for identification, segregation, and disposal of waste generated during the clean-up of the pcb sites.

Qualification statements for other subcontractors are included with their personnel resumes in APPENDIX A.

ADMINISTRATIVE ORDER

Docket III-90-010-DC

Prepared for

U. S. Environmental Protection Agency

Region III

November 1989

AVTEX FIBERS FRONT ROYAL INC.
Kendrick Lane
P. O. Box 1169
Front Royal, Virginia 22630

ALLIANCE
Technologies Corporation

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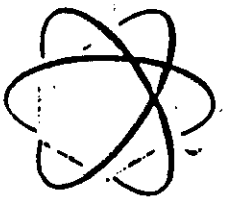

Introducing.....

metaTRACE, Inc.

more than just a laboratory.

SUMMARY OF CAPABILITIES

entry # 29

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GENERAL BA

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Carol H. Byington, [illegible]
Technical Director, formerly served as Assistant Vice President and Laboratory Director for a major, environmental and analytical consulting firm.

GENERAL CAPABILITIES

metaTRACE offers full-service capabilities for organic, inorganic and radiochemistry analyses of air, groundwater, surface water, wastewater, potable water, soil, hazardous wastes and biological samples. Routine services offered by metaTRACE include:

- complete analytical services for organics/inorganics
- analysis of toxics, including dioxins and furans
- analysis of mixed waste or co-contaminated wastes
- radiochemistry analyses
- quick turnaround for remedial programs
- TCLP analyses
- Appendix VIII and IX analyses
- hazardous waste analyses
- explosives analysis (military compounds)
- EPA priority pollutant, RCRA, SARA analyses
- industrial hygiene sample analysis

- o air quality analyses, including odor characterization
- o methods development/validation studies

SPECIAL CAPABILITIES AND SERVICES

Radiochemical Analyses

metaTRACE offers a full range of radioanalytical services employing new, state-of-the-art, fully computerized radiation detection equipment/instrumentation. Our counting equipment reflects the variety and number required to process a large sample flow with maximum efficiency. Multi-detector and automated systems are routinely used to measure total uranium, radium-228, and other alpha, beta and gamma emitting radionuclides, as well as for screening potentially contaminated samples. Specific alpha scintillation detectors are employed to measure both radium-226 and radon-222. Isotopic thorium, uranium and transuranic analyses are performed using a fully-computerized, multi-detector alpha spectrometric system. metaTRACE has analyzed assorted media for gross screening and isotopic parameters, as well as standard chemical analyses on co-contaminated or high hazard samples.

Explosives Analysis

metaTRACE has extensive expertise and experience, both corporate and individual, in the analysis of explosives and other military compounds in environmental samples. The primary analytical method for explosives analysis employs US Army Toxic and Hazardous Materials Agency (USATHAMA) methodology. This method, originally developed for the Army by metaTRACE principals, utilizes High Performance Liquid Chromatography and is able to determine, in a single analysis, the following explosives, byproducts and degradation products: 2,4,6-TNT; 2,4-DNT; 2,6-DNT; Tetryl; RDX; HMX; NB; 1,3-DNB; 1,3,5-TNB; and four amino/nitro degradation products of TNT and DNT. metaTRACE has employed this methodology for the analysis of hundreds of samples for a remedial action project in the midwest. In addition, metaTRACE principals have prior experience in the analysis of thousands of environmental samples for explosives and other military compounds from military facilities.

Value-Added Service

To be competitive in today's analytical services marketp metaTRACE provides clients with what we call a "value-added" service. This service, provided by our project management staff aided by our computerized Laboratory Information Management System (LIMS), translates into better service to our clients. When you become a me n will be

assigned a Project Manager who will be your principal point of contact in the organization. The metaTRACE Project Manager has no other responsibilities within the laboratory except to assure that his/her clients' analytical needs are met. metaTRACE Project Managers are not salesmen but professional environmental chemists with a business background. Their charter is to provide data of the highest quality, on the date it was promised, along with ensuring that all contractual obligations are met.

Laboratory Information Management System

To aid our Project Managers, metaTRACE utilizes a state-of-the-art, computerized Laboratory Information Management System (LIMS). Known as LAB WORKS, this system is designed to manage the flow of samples through the laboratory. LAB WORKS provides managers, analysts and technicians instant access to all the information they need regarding samples in the laboratory, enabling them to perform their duties in the most efficient manner possible.

Some of the key features of LAB WORKS are summarized below:

- LAB WORKS is a network system of personal computers to allow maximum flexibility and potential for expansion. Only recently has networking technology advanced to the point where sufficient core is available to efficiently handle a LIMS system. metaTRACE took advantage of our startup to gain the most advanced technology on the market.

- When samples are received and logged in, they receive a metaTRACE number and corresponding bar code which virtually eliminates misidentification of samples due to key punch or transcription errors.

- Samples are tracked according to holding times with backlog reports supplied to section managers on a daily basis. This eliminates "missed" holding times due to overlooked samples.

- A feature that may be of particular interest to many is the ability to allow clients direct access to their validated data. In addition, the client can query the system for sample status on their program.

We feel that the metaTRACE project management system, aided by the most advanced information management system available, enables us to provide client support beyond any of our competitors. We urge you to visit our facility, meet our staff, and see for yourself what metaTRACE has to offer.

The newly acquired QA Formaster software includes a link-up with the GC/MS systems [illegible] QA analyses,

allowing electronic data transfer of files after thorough review by laboratory section managers and validation by the Quality Assurance Manager. This system will be directly linked to the Nelson Chromatography System in the very near future to include pesticide/PCB analyses in the automated data transfer system.

The Ward Scientific software package has recently been acquired to automate inorganic data transfer from ICAP analyses. Similar to the organic data software, only validated data is approved for automated file transfer.

FACILITIES

metaTRACE facilities and instrumentation represent the state-of-the-art for commercial analytical laboratories. We took advantage of our start-up and purchased the most sophisticated instrumentation available for the production and management of high quality analytical data. The founders of metaTRACE also used their decades of laboratory management experience to direct the design of our new facility. So - literally from the ground up, the metaTRACE laboratory is uniquely equipped to handle the requirements of today's most complex and demanding environmental programs.

The design of our 30,000 square foot facility optimizes the flow of samples, information and staff. The sample receiving area's 3,000 square feet includes four truck bays, a secured solvent and waste storage area, and two walk-in coolers: one for medium to high hazard samples and the other for conventional samples. From the receiving area, samples go directly into either the Preparation Laboratory or the Regulated Access Area (RAA). The 2,000 square foot Preparation Laboratory is designed for the efficient preparation of large numbers of low to medium hazard samples for instrumental analysis. The RAA, for high hazard sample preparation, has negative pressure air flow to prevent contamination from entering other areas of the laboratory. Employees enter the RAA through airlocks complete with change and shower facilities. Extracts proceed from the RAA through a pass-through to instrument laboratories. The RAA also provides the ability to prepare highly toxic or radioactive samples by remote robotic manipulation.

From the sample Preparation Laboratories, samples flow into one of several metaTRACE instrument laboratories:

- o ICAP/AA Laboratory for the analysis of metals
- o Tech Laboratory containing automated instrumentation, for example, Technicon Autoanalyzers

- o Chromatography Laboratory (GC, IC, HPLC) equipped with positive air pressure to isolate the lab from the sample preparation areas

- o GC/MS Laboratory where 10 GC/MS systems operate; lab has a totally independent air handling system with charcoal and HEPA filters and positive air pressure

- o Radiochemistry Laboratory with instrumentation designed for various low level radiological analyses

Computer terminals are located in the laboratories and offices of metaTRACE Program Managers to allow easy access to our computerized Laboratory Information Management System (LIMS) which tracks samples through every stage of handling, from receipt through disposal, and captures analytical results, thereby facilitating reporting.

INSTRUMENTATION

Table 1 provides a listing of analytical equipment and instrumentation owned by metaTRACE, Inc.

TABLE 1 METATRACE MAJOR INSTRUMENTATION

Instrument	Quantity	Manufacturer	Model	Purchas Date
Gas Chromatograph/ Mass Spectrometer RTE Data System and Library (Wiley/NBS) 9-track magnetic tape Autosampler	3	Hewlett Packard	5988A	1986/ 1988
Gas Chromatograph/ Mass Spectrometer Split/splitless Injection; Capillary Splitter for odor characterization Autosampler	3	Hewlett Packard	5995	1986/ 1988
Gas Chromatograph/ Mass Spectrometer/ MSD; RTE Data System and Library (Wiley/ NBS) 9-track magnetic tape	4	Hewlett Packard	5970	1986
Purge and Trap ALS/Heated Purge	3	Tekmar	LSC2	1986
Gas Chromatograph Capillary/Packed Column Autoinjector Autosampler FI/EC/NP Detectors PID/Hall Detectors	4	Hewlett Packard	5890	1986
Gas Chromatograph Autoinjector Autosampler FI/EC/NP Detectors	2	Hewlett Packard	5880	1986
Inductively-Coupled Argon Plasma Vacuum Spectrometer	1	Thermo Jarrell Ash	1100	1986
Atomic Absorption Spectrometer	1	Thermo Jarrell Ash	12E	1986
Atomic Absorption Spectrometer	2	Perkin Elmer	3030B	1987

TABLE 1 METATRACE MAJOR INSTRUMENTATION
(continued)

Instrument	Quantity	Manufacturer	Model	Purchas Date
Total Organic Carbon Analyzer	2	Dohrmann-Xertex	DC180	1986
Total Organic Halogen Analyzer	1	Dohrmann-Xertex	DX20A	1986
Ion Chromatograph HPLC Module	1	Dionex	4020i	1986
Autoanalyzer	1	Technicon	TRAC800	1986
High-Pressure Liquid Chromatograph Autosampler	2	Perkin Elmer	410	1986/ 1988
UV Spectrophotometer	1	Milton Roy	601	1986
IR Spectrophotometer	2	Perkin Elmer	1420 Ratio Recording	1987
Coal Analyzer	1	Fisher Scientific	490	1987
Turbidimeter	1	HF Scientific	DRT100B	1986
Single Detector Automated Low Background Gas Proportional Counter	1	Tennelec	LB5100 Series 3	1987
Multi-Detector (8) Low Background Gas Proportional Counter	1	Tennelec	LB4000-8	1987
Alpha Scintillation Counter for Radon Cells	4	Random	SC-5	1987
Alpha Spectroscopy Counting System with 8 Detectors, Electronics and Computer	1	EG&G Ortec	multi-component system	1987
Gamma Spectrometry Counting System with Intrinsic Germanium Detector, Electronics, Computer, Shielding	2	Princeton Gamma Tech	multi-component system	1987

TABLE 1 METATRACE MAJOR INSTRUMENTATION (continued)

Instrument	Quantity	Manufacturer	Model	Purcha: Date
Gamma Spectrometry Counting System with NaI (Tl) Detector, Electronics, Computer Shielding	4	Tennelec/ Nucleus	multi-component system	1987
Liquid Scintillation Counter	1	Packard	2200CA	1987
Assorted Survey Meters with Alpha, Beta and Gamma Probes	5	Ludlum	assorted	1987
pH Meters, probes	10	Orion	701A	1986
Balances	9	Fisher Mettler	XA, XT AE160 PE160	1986
Extractors				
Soxhlet	12	Fisher	assorted	1986
Liquid-Liquid	24	Herschberg/Wolf	R3753-100 Reliance	1986
Distillation Equipment				
Cyanide	15	Reliance Glass	R3166-100	1986
Phenol	11	Fisher Scientific	assorted	1986
Oil/Grease	10	Fisher Scientific	assorted	1986
Laboratory Information Management System Modified LABWORKS software on microcomputer network:	1			
	1	IBM	AT	
	2	IBM	PC conv.	
	18	IBM	XT equiv.	
	1	Hayes	Modem 1200 baud	

TABLE 1 METATRACK MAJOR INSTRUMENTATION
(continued)

Network available software:

rBase 5000
dBase III Plus
Lotus 1,2,3
Crosstalk XVI
Wordstar
Wordperfect
IBM Assistant Series
pfs: First Choice
Formtool
Reflection VII

TABLE 2 METATRACE ANALYTICAL METHODOLOGY

Parameter	Water Method	Soil/Sediment Method
Priority Pollutants		
BNAs	EPA 625	RCRA 82706
Volatiles	EPA 624	EPA 8240
Metals	EPA 200 series	EPA 7000 series
Pest/PCBs	EPA 608	EPA 8080
Cyanide	EPA 335.2	EPA 9010
Phenols	EPA 420.1	RCRA 9065
HSL Compounds	EPA IFB protocol	EPA IFB protocol
TNT, 2-4 and 2-6 DNT, nitrobenzene and trinitrobenzene	USATHAMA 8G	USATHAMA 8H
Total Organic Carbon	EPA 415.1	RCRA 9060
Total Organic Halide	EPA 450.1	RCRA 9020
EP Toxicity (metals only)	EPA 1310	RCRA 1310
Total metals (CLP listing) ICP metals Furnace metals	EPA 200 series	RCRA 7000 series
BOD (5 day)	EPA 405.1	EPA 405.1
Acidity	EPA 350.1	EPA 350.1
Alkalinity	EPA 310.1	EPA 310.1
Carbonate/ Bicarbonate	Standard Methods 203	Standard Methods 203
Sulfate	EPA 375.2	EPA 375.2
Chloride	EPA 325.1	RCRA 9250/9251/9252
Hardness	EPA 130.2	EPA 130.2
Lithium	Standard Methods 317	Standard Methods 317

TABLE 2 METATRACE ANALYTICAL METHODOLOGY
(continued)

Parameter	Water Method	Soil/Sediment Method
Asbestos	EPA methodology	EPA methodology
Nitrate	EPA 352.1	RCRA 9200
Nitrate + Nitrite	EPA 353.2	EPA 353.2
Nitrite	EPA 354.1	EPA 354.1
Nitrogen series along with chloride, fluoride and sulfate may be analyzed utilizing the ion chromatograph method-EPA 300.0		
Nitroaromatics	EPA 609	EPA 609
Polynuclear Aromatics	EPA 610	EPA 8090
Haloethers	EPA 611	EPA 611
Chlorinated Hydrocarbons	EPA 612	EPA 612
Purgeable Halocarbons	EPA 601	RCRA 8010/8015
Purgeable Aromatics	EPA 602	RCRA 8020
Phenols	EPA 604	RCRA 8040
Ignitability	EPA 1020	EPA 1020
Corrosivity	EPA 1110	EPA 1110
Reactivity	EPA 9010/9030	EPA 9010/9030
Bacteria, fecal strep	Standard Methods 910	Standard Methods 910
Bacteria, fecal coliform	Standard Methods 908	Standard Methods 908
Bacteria, total coliform	Standard Methods 909	RCRA 9132
Chlorine, total residual	EPA 330.1	EPA 330.1
Color	EPA 110.2	110.2

TABLE 2 METATRACE ANALYTICAL METHODOLOGY
(continued)

Parameter	Water Method	Soil/Sediment Method
Distilled Sulfide	EPA 376.1	EPA 376.1
Sulfite	EPA 377.1	EPA 377.1
Surfactants	EPA 425.1	EPA 425.1
Turbidity	EPA 180.1	EPA 180.1
Viscosity	ASTM	ASTM
Moisture Content	EPA 160.3	EPA 160.3
BTU Value	ASTM	ASTM
Ash Content	ASTM	ASTM
Sulphur Content	ASTM	ASTM
2,3,7,8-TCDD	EPA 613	N/A
2,3,7,8-TCDD	EPA CLP	EPA CLP
2,3,7,8-TCDD	Region VII Rapid Prep	Region VII Rapid Prep
Total Tetra through Octa dibenzodioxins/ furans	RCRA 8280 (ASME)	RCRA 8280 (ASME)
Radiological Parameters:		
Gross Alpha	EPA 900.00[1]	RCRA 9310
Gross Alpha, Coprecipitation	EERF 00-02[2]	EERF 00-02
Gross Radium Alpha	EPA 903.0	RCRA 9315
Gross Beta	EPA 900.00	RCRA 9310
Radium-226, Radon Emanation	EPA 903.1	EPA 903.1
Radium-226, Proportional Counting	SM 705[3]	SM 705

TABLE 2 METATRACE ANALYTICAL METHODOLOGY
(continued)

Parameter	Water Method	Soil/Sediment Method
Radium-228, Proportional Counting	EPA 904.0	RCRA 9320
Total Uranium, Radiochemical	EPA 908.0	EPA 908.0
Total Uranium, ICAP	EPA 200.7[4]	EPA 200.7
Isotopic Uranium	EERF 00.07	EERF 00.07
Isotopic Thorium	EERF 00.07	EERF 00.07
Isotopic Plutonium	EERF 00.07	EERF 00.07
Americium-241	EERF AM.01	EERF AM.01
Lead-210	HASL Pb.01[4,5]	HASL Pb.01
Strontium-89	SM 704	SM 704
Strontium-90	HASL Sr-05	HASL Sr-05
Iodine-131 radiochemical	SM 710B	----------
Iodine-131, direct counting	EPA 901.1	EPA 901.1
Gamma Emitting Radionuclide	EPA 901.1	EPA 901.1

[1] Prescribed Procedures for Measurement of Radioactivity in Drinking Water, EPA 600/4-80-032, 1982.

[2] Eastern Environmental Radiation Facility, Radiochemistry Procedures Manual, EPA 520/5-84-006, 1984.

[3] Standard Methods for the Examination of Water and Wastewater, 16th Ed., 1985.

[4] Methods for the Chemical Analyses of Water and Wastes, EPA 600/4-79-020.

[5] EML Procedures Manual, HASL 300, 25th Ed., 1982.

[6] SW-846, 3rd Edition, September 1986.

TABLE 2 METATRACE ANALYTICAL METHODOLOGY
(continued)

Parameter	Water Method	Soil/Sediment Method
Conductance, specific	EPA 120.1	RCRA 9050
Fluoride (electrode)	EPA 340.2	EPA 340.2
Fluoride (distillation)	EPA 340.1	EPA 340.1
Nitrogen, ammonia	EPA 350.1	EPA 350.1
Nitrogen, Kjeldahl	EPA 351.2	EPA 351.2
Nitrogen, organic	EPA 351.1	EPA 351.1
Oil (TCTFE)	EPA 413.1	RCRA 9070
BOD (20 day)	EPA 507	EPA 507
COD	EPA 410.1/ 410.2	EPA 410.1/ 410.2
Total Petroleum Hydrocarbons	EPA 418.1	RCRA 3550/ EPA 418.1
Dissolved Oxygen	EPA 360.1	EPA 360.1
pH	EPA 150.1	RCRA 9045/9041
Ortho Phosphorus	EPA 365.1	EPA 365.1
Total Phosphorus	EPA 365.4	EPA 365.4
Dissolved Solids	EPA 160.2	EPA 160.2
Settleable Solids	EPA 160.3	EPA 160.3
Suspended Solids	EPA 160.1	EPA 160.1
Total Solids	EPA 160.3	EPA 160.3
Volatile Solids	EPA 160.4	EPA 160.4
Sulfide	EPA 376.1	RCRA 9030

TABLE 3 SAMPLE CONTAINER, PREPARATION AND PRESERVATIVE REQUIREMENTS

Analyte	Water Sample Container Type	Preparation	Preservative
Volatile Organic Compounds	2-40 ml VOA vials	Water-no prep Soil-soap/water, D.I. rinse, oven dry	Cold
Base/Neutral and Acid Extractable Organic Compounds and Pest/PCBs	1 gal amber glass	Soap/water, D.I. rinse, acetone rinse, methylene chloride rinse	Cold
Dioxin (2,3,7,8-TCDD)	1 gal amber glass	Soap/water, D.I. rinse, acetone rinse, methylene chloride rinse	Cold
Cyanide	1 qt plastic	D.I. rinse	Sodium Hydroxide/ Cold
Phenols, Total	1 amber glass (250 or 500 ml)	D.I. rinse oven dry	Sulfuric Acid/Cold
Metals Analysis	2-1 qt plastic when CLP metals required	1:1 HNO_3 rinse, D.I. rinse	Nitric Acid/ Cold
Sulfate	1 qt plastic	D.I. rinse	Cold
Hexavalent Chromium	250 ml plastic	1:1 HNO_3 rinse, D.I. rinse	Cold
Oil and grease	2-1 qt glass	Freon rinse	Sulfuric Acid/Cold
Total Organic Carbon	1 qt plastic	D.I. rinse, oven dry	Cold
Nitrate	1 qt plastic-may use TOC sample	D.I. rinse, oven dry	Sulfuric Acid/Cold
Tetrachloroethylene Trichloroethylene 1,1,1-trichloroethane 1,1-dichloroethylene trans-1,2-dichloro-ethylene	2-40 ml VOA vials	Water-no prep Soil-soap/water, D.I. rinse, oven dry	Cold

TABLE 3 SAMPLE CONTAINER, PREPARATION AND PRESERVATIVE REQUIREMENTS

Analyte	Water Sample Container Type	Preparation	Preservative
Benzene Ethylbenzene Toluene	2-40 ml vials	Water-no prep Soil-soap/water, D.I. rinse, oven dry	Cold
Nitroaromatics: 2,4,6-TNT 2,6-DNT 2,4-DNT 1,3,5-TNB 1,3-DNB; NB; RDX; HNX; Tetryl	1 gal amber glass		Cold
Asbestos	1 qt plastic	No preparation	Cold
Total Petroleum Hydrocarbons	1 qt plastic	Freon rinse	Sulfuric Acid/Cold

D.I.=deionized water

For sampling soil, 2-250 ml wide-mouth amber glass jars per site are sufficient for above parameter list/cold preservative.

For sampling soil/sediment with high water content, 2-1 qt wide-mouth amber glass jars per site are required/cold preservative.

Many of the above tests can be taken from the same containers whenever preservative/volume requirements remain the same.

CERTIFICATIONS/APPROVALS

Federal

o metaTRACE is participating in the USEPA's Contract Laboratory Program (CLP) for organics analysis and rapid turnaround dioxin analyses
(Contact: Angelo Carasea 202/382-7906)

o metaTRACE has been licensed by the US Nuclear Regulatory Commission to perform analyses on co-contaminated wastes (both chemical and radiological)

o metaTRACE is certified by the US Army Toxic & Hazardous Materials Agency (USATHAMA) for a wide range of parameters under the CLASS contract
(Contact: Douglas Stevenson 301/671-3348)

o metaTRACE has been certified by the US Navy Energy and Environmental Support Activity (NEESA) to perform analytical programs at Naval installations. This certification also applies to US Air Force programs.
(Contact: Mitzi S. Miller 615/576-2361)

o metaTRACE has been certified by the US Army Corps of Engineers Missouri River Division.
(Contact: Ann B. Strong 601/634-3600)

o US Department of Agriculture certification for importing soil samples.

States

o State of New York (Contact: Matthew Caruso 518/474-8519

o State of California (Contact: Fred Seto 415/540-3003)

o State of Missouri (Contact: Jerry Lane 314/751-6400)

o State of Florida (Contact: Howard Rarick 904/359-6449)

o State of South Carolina (Contact: R. Wayne Davis 803/737-7025)

o State of Wisconsin (Contact: Ron Arneson 608/267-7633)

o State of Tennessee (Contact: Charles Mickle 615/262-6354)

o State of Kansas (pending)

metaTRACE ORGANIZATION AND PERSONNEL

metaTRACE ORGANIZATION

The overall organization of metaTRACE is shown in Figure 1. metaTRACE designed this management organization and its management systems based on the many years of experience of the principals in the commercial laboratory business. We believe it is the best system for efficiently managing the analysis of large volumes of samples while, at the same time, maintaining high quality and responsiveness to the specialized needs of individual clients. The elements of the overall metaTRACE management structure are described below.

1. Principal Responsible Corporate Official
Dr. David C. Kennedy, as President and CEO of metaTRACE, provides top corporate oversight on technical and financial performance and supports the Technical Director in securing the necessary resources for successful project performance.

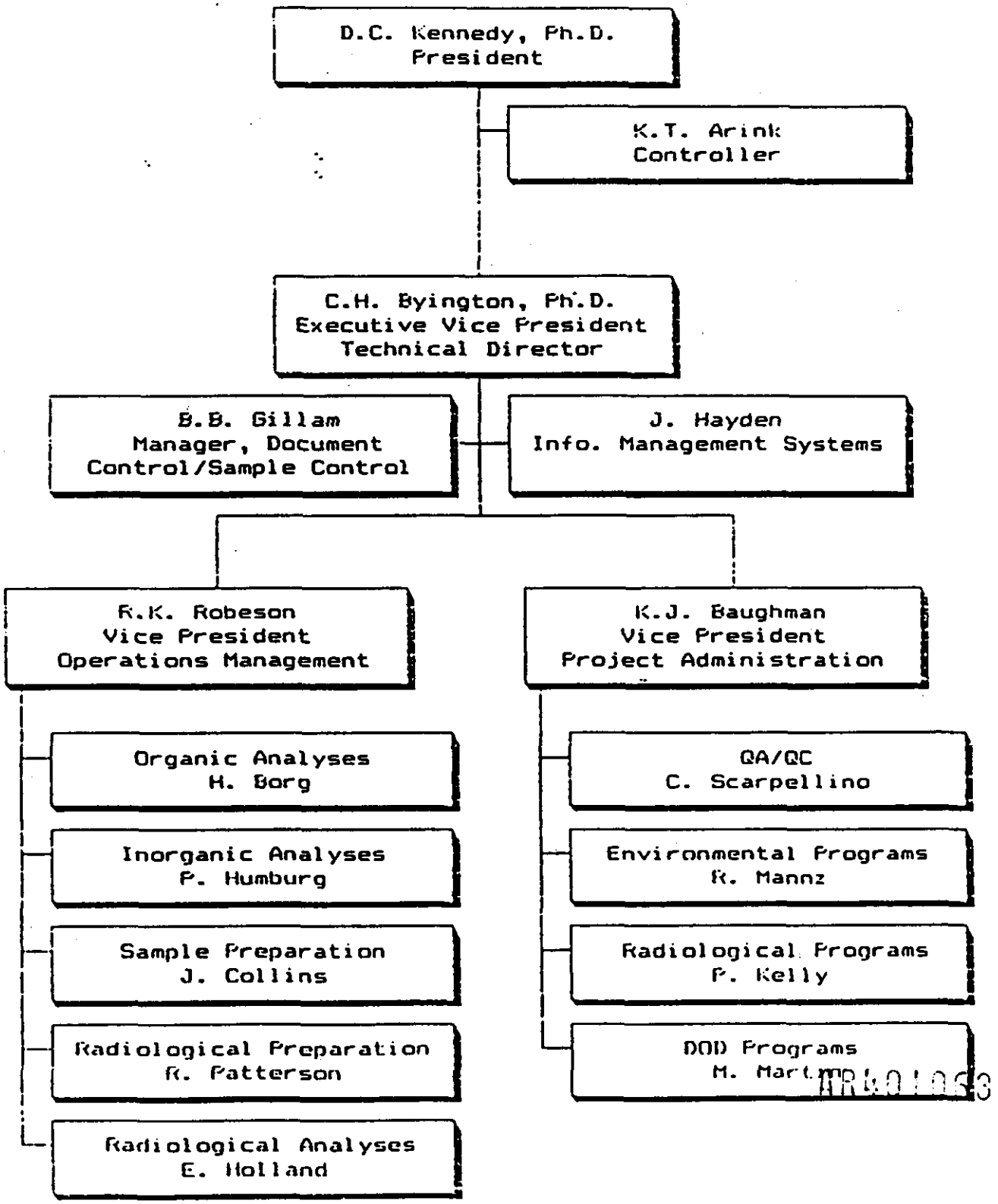
2. Technical Director
Dr. Carol H. Byington serves as Technical Director. She has complete responsibility and accountability for achieving all project requirements - technical, schedule, and financial. Dr. Byington, as Executive Vice President of metaTRACE, has direct control of all technical resources to accomplish project objectives.

- Document Control/Sample Control Manager
Ms. Barbara B. Gillam serves as Document Production and Control Manager. She manages the timeliness and quality of all project deliverables.

- Information Management Systems Manager
Mr. John A. Hayden is the manager of the Information Systems Department. He is responsible for the administrative control and operations related to computerized data processing for both internal company use and output to customers. He is also responsible for assessing current and future metaTRACE needs involving computers, robotics, automation and related software.

3. Project Administration
Mr. Kenneth Baughman, Assistant Vice President, is responsible for all program management activities. Through his Program Managers and their Project Managers, the specific requirements of individual projects and clients are translated into results and deliverables. Under the metaTRACE matrix management system, Mr. Baughman and his management staff represent the client and advocate his interests in executing the projects through the Laboratory Operations organization. The Quality Assurance Manager and three Program Managers are under Mr. Baughman's control

metaTRACE Organization



o Quality Assurance Manager.
Mr. Christopher D. Scarpellino serves as the Quality Assurance Manager. A rigorous QA/QC program has been implemented at metaTRACE. Mr. Scarpellino manages and monitors this program, directs the production of Laboratory and Project QA Plans, and administers the various Federal and State laboratory certification programs.

o Environmental Programs. Mr. Richard H. Mannz is the Environmental Program Manager and is responsible for managing environmental projects for which chemical analytical requirements predominate.

o Radiological Programs. Mr. Patrick Kelly is the Radiological Program Manager and is responsible for managing projects that have a large radiological analytical requirement.

o DOD Programs. Ms. Marleah M. Martin serves as the Department of Defense Program Manager and is responsible for managing military projects and programs, including the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) Contract Laboratory Analytical Support Services (CLASS) Program.

4. Laboratory Operations Management
Mr. Ross K. Robeson, Vice President, is the Laboratory Operations Manager. All laboratory production functions are under his direct control and supervision. He is responsible for the timely production of quality analytical results. There are five key laboratory operational functions under his management control, each managed by an experienced technical supervisor. These are:

o Organic Analysis. Mr Harry M. Borg is the supervisor of the Organic Analysis Department. He is responsible for scheduling and reviewing all analyses performed by Gas Chromatography (GC), GC/Mass Spectrometry, High-Performance Liquid Chromatography (HPLC), and Ion Chromatography (IC).

o Inorganic Analysis. Mr. Paul B. Humburg is the supervisor of the Inorganic Analysis Department. He is responsible for scheduling and reviewing all Atomic Absorption (AA) and Emission Spectroscopy and Inductively Coupled Argon Plasma (ICAP) Atomic Emission Spectrometry and miscellaneous inorganic methods.

o Sample Preparation. Mr. John E. Collins is the supervisor of the Sample Preparation Department. He is responsible for both inorganic and organic sample preparation for low, medium and high-hazard samples, excluding radiological preparations.

o Radiological Preparation. Ms. Roxanne Patterson is the supervisor of the Radiological Preparation Department. She is responsible for scheduling and reviewing the analytical results from all radiological sample preparation.

o Radiological Analysis. Ms. Elaine M. Holland is the supervisor of the Radiological Analysis Department. She is responsible for scheduling and reviewing the results of alpha, beta and gamma counting and spectrometry.

PERSONNEL

Resumes of key staff members are included in the following pages.

QUALITY ASSURANCE RESPONSIBILITIES

Procedures for recording and reviewing data at several levels are employed to minimize human and automated data handling errors.

Laboratory Analyst

Data review and validation begins with the analyst performing the analysis. The analyst is responsible for:

1. Utilizing methodology without unauthorized modifications.
2. Meeting required QC criteria for any specified tuning and/or calibration requirements (go/no-go criteria).
3. Performing all sample analyses including methods blanks, check standards, replicates and spikes as specified by the method or project QA Plan.
4. Verification and acceptable performance of sample specific QC requirements (i.e., surrogate spike recovery).
5. Recording data in laboratory notebooks, data sheets, and summary sheets (per Standard Operating Procedure # G012).
6. A minimum of 10% of manual calculations should be independently recalculated as an initial review.
7. Computer generated calculations should be reviewed initially and spot checked to verify software performance.

Laboratory Supervisor

The laboratory supervisor is responsible for the review and validation of data generated by his/her laboratory components of the data include:

1. Verification of operational parameters such as GC conditions, etc. as required by the specific method employed.
2. Review of tuning and/or calibration data to verify method specific acceptance criteria.
3. Review of method specific QC data such as surrogate spike recoveries, duplicate precision, spike recoveries, and QC control limits.
4. Review of method specific identification criteria such as mass spectra or retention times.
5. Hand calculations of manual and computer generated calculations.

Data Review/Validation Group

The data review/validation group is independent of the operations portion of the laboratory and is responsible for:

1. Screening all data to ensure that the appropriate QC procedures and criteria were used.
2. Review of method specific identification criteria such as mass spectra or retention times.
3. Hand calculations of manual and computer generated calculations.
4. Providing summary information to the QA Manager to obtain approval for the Information Systems group to begin automated generation of the requisite report forms.
5. Review of the final data package to ensure its accuracy and completeness prior to delivery to project administration and the client.

RESUMES OF KEY PERSONNEL

RESUME: DAVID C. KENNEDY, Ph.D.
PRESIDENT/CHIEF EXECUTIVE OFFICER

EMPLOYMENT HISTORY

- 1986 to date: President and Chief Executive Officer, metaTRACE, Inc.
- 1980 to 1986: Vice President and St. Louis Office Manager, Envirodyne Engineers, Inc.
- 1974 to 1980: Senior Associate, Envirodyne Engineers, Inc.
- 1969 to 1974: Project Scientist/Group Leader, Rohm and Haas Co.
- 1967 to 1969: Research Assistant, Ames Laboratory, U.S. Atomic Energy Commission

SUMMARY OF EXPERIENCE

Dr. Kennedy is President and Chief Executive Officer of metaTRACE, a highly sophisticated analytical laboratory recently established in St. Louis, Missouri. Dr. Kennedy brings 20 years of analytical chemistry and corporate management experience to metaTRACE. Before founding metaTRACE with Dr. Carol Byington, he served as Vice President and St. Louis Office Manager for Envirodyne Engineers. Under his tenure at Envirodyne, their laboratory experienced tremendous growth and expansion. He now presides over one of the finest laboratories in the nation, equipped with state-of-the-art instrumentation and capable of all types of analyses. As President and CEO, he is responsible for all metaTRACE technical, financial and contractual matters. Highlights of Dr. Kennedy's career include the following:

- Responsible Corporate Officer for USEPA Contract Laboratory Program Contracts for the analyses of the Analysis of Organics in Multimedia Samples. Analysis of 2,3,7,8-TCDD and analysis of PCDD's and PCDF's under Special Analytical Services. Also served as Project Principal for Sampling and Analysis Technical Services Contract (SATS), USEPA, Research Triangle Park, N.C.
- Project Principal for thirteen contamination surveys performed for the U.S. Army, Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, MD. These surveys defined the extent and potential for migration of chemical contamination at Army installations nationwide.

- Project Manager for U.S. Army contract to survey and recommend alternative for the disposal of the Weldon Spring Chemical Plant, a contaminated uranium feed materials plant in St. Charles, Missouri.

- Project Principal for the development and implementation of a closure pigment plan in St. Louis, Missouri; this project involved the neutralization of 130,000 tons of undigested titanium ore.

- Program Director for USEPA contracts to develop effluent guidelines and standards of performance for the synthetic rubber, organic chemicals, plastics and synthetics, plastics fabrication, timber products, petroleum refining, and sealants and adhesives industries.

- Developed zero discharge wastewater treatment system and analytical monitoring plan for federal research facility using carcinogenic chemicals.

- Managed industrial research and development projects for the development of air and water pollution control products and processes based on polymeric adsorbent, ion exchange and liquid extraction technology; developed process technology for hydrometallurgical extraction of metals from ores.

EDUCATION

Ph.D., Analytical Chemistry, Iowa State University, 1969.
B.S., Chemistry, Iowa State University, 1965.

PROFESSIONAL DATA

- Dr. Kennedy is a nationally-recognized authority in the fields of ion exchange and polymeric adsorption technology.

- Recipient of three John C. Vaaler awards for significant developments in chemical processing.

- Author of over 30 publications and invited lecturer in the fields of environmental chemistry and chemical technology.

- Program Chairman, Chromatography Symposium, 171st

DAVID C. KENNEDY, PH.D. (continued)

- Program Chairman, Chromatography Symposium, 171st American Men of Science.
- Member-American Association for the Advancement of Science, American Chemical Society, St. Louis
- Community College Curriculum Advisory Committee, University of Missouri, St. Louis Industrial Advisory Board

RESUME: CAROL H. BYINGTON, Ph.D.
EXECUTIVE VICE PRESIDENT/TECHNICAL DIRECTOR

EMPLOYMENT HISTORY

- 1986 to date: Executive Vice President and Technical Director, metaTRACE, Inc.
- 1984 to 1986: Assistant Vice President, Envirodyne Engineers, Inc.
- 1973 to 1984: Associate,Analytical Chemist, Envirodyne Engineers, Inc.
- 1971 to 1973: Teaching Assistant, University of Tennessee
- 1967 to 1970: Laboratory Assistant, Black Hills State College

SUMMARY OF EXPERIENCE

Dr. Byington is Co-Founder, Executive Vice President and Technical Director of metaTRACE, a sophisticated analytical laboratory established in 1986 for the analysis of environmental and radiological samples. She is responsible for all technical, project management and analytical quality assurance functions of metaTRACE. Dr. Byington has 15 years of experience in analytical chemistry, laboratory management, and analytical project management. Before founding metaTRACE with Dr. David Kennedy, she served as Assistant Vice President and Manager, Analytical Services for Envirodyne Engineers, Inc. Under her management, Envirodyne's laboratory more than doubled in physical size and volume of analyses and became a leader in the analysis of hazardous waste. Dr. Byington's experience includes the following:

- Managed all technical analyses (organic and inorganic) for laboratory with sales of $2 million per year; responsible for obtaining laboratory certifications from USEPA, U.S. Navy, U.S. Army Toxic and Hazardous Materials Agency, and states of Missouri, Illinois and South Carolina.
- Project Manager for all analytical tasks for environmental contamination surveys at twelve U.S. Army installations nationwide for the U.S. Army Toxic and Hazardous Materials Agency in Aberdeen Proving Ground, Maryland.
- Project Principal for laboratory analyses for ground water monitoring programs and basin characterization studies at the U.S. Department of Energy's Savannah River Plant in Aiken, South Carolina.

CAROL H. BYINGTON (continued)

- Analytical Manager for USEPA effluent guidelines development studies for synthetic rubber, organic chemicals, plastics fabrication and sealants/ adhesives industrial categories.
- Project Principal for all analytical contracts under USEPA Contact Laboratory Program for the analysis of samples from Superfund hazardous waste sites nationwide.
- Project Principal for Illinois Environmental Protection Agency Contract Laboratory Program for the analysis of samples from state and federal Superfund sites.
- Project Scientist for development of continuous monitoring program to detect trace quantities of carcinogens in effluents of a federal toxicological research facility.
- Project Principal for analyses associated with confirmation studies performed at four Naval facilities for the U.S. Naval Facilities Engineering Command-Atlantic Division as part of the Naval Control of Installation Pollutant Program.

EDUCATION

Ph.D., Analytical Chemistry, University of Tennessee, 1977.
B.S., Chemistry, Black Hills State College, 1970.

PROFESSIONAL DATA

- Extensive background in organic and inorganic sample analysis including gas chromatography, gas chromatography/mass spectrometry, atomic absorption spectroscopy, liquid chromatography, etc.
- Experienced in development and implementation of laboratory quality assurance programs.
- Member-American Chemical Society, Phi Kappa Phi, Air Pollution Control Association.

RESUME: PATRICK KELLY
PROGRAM MANAGER - RADIOLOGICAL PROGRAMS

EMPLOYMENT HISTORY

- 1987 to date: Program Manager, Radiological Programs, metaTRACE, Inc.
- 1983 to 1986: Supervisor, Radiological Services, NUS Corporation
- 1980 to 1982: Laboratory Assistant, Biochemistry Laboratory, University of Pittsburgh

SUMMARY OF EXPERIENCE

Mr. Kelly is responsible for the management of all metaTRACE projects requiring radiological analyses. He has extensive experience in this area, having supervised the radiochemistry laboratory for NUS Corporation in Pittsburgh for three years. He was responsible for all work involving radioactive material and provided radiochemical and Health Physics consultation to industrial and governmental clients, focusing on co-contaminated material. His responsibilities included review and validation of all radiochemical data, calibrations of radiation detection equipment, radiochemical method development and training, and development of NUS's Quality Assurance Program for radionuclides.

- Radiation Safety Officer for Laboratory Services Division of NUS; authored amendment to Type B Broad Scope License with US Nuclear Regulatory Commission, including extensive Radiation Protection Program. Responsibilities included maintenance of laboratory license with NRC, supervision of all health physics related functions, and training for all division personnel in Radiation Protection and Health Physics.
- Project Manager for work with co-contaminated material. Developed Health and Safety Protocol for standard chemical analyses on medium-level radioactive samples; clients included US Department of Energy contractors, and nuclear utilities throughout the United States; projects involved organic, inorganic and radiochemical parameters. Also managed project for local utility for bioassay analyses on plant workers.
- Developed and executed procedures for all types of radiochemical analyses (10 CFR 61, environmental, and transuranic samples); operation and calibration of radiation detection equipment (gas proportional, liquid scintillation, alpha-gamma and beta-gamma

coincidence counting systems, alpha and gamma spectrometers).

EDUCATION

B.S., Chemistry/Environmental Biology, University of Pittsburgh, 1982.

M.S., Health Physics, University of Pittsburgh, 1987.

PROFESSIONAL DATA

- Member, American Association for the Advancement of Science, American Nuclear Society, Health Physics Society

RESUME: MARLEAH M. MARTIN
PROJECT MANAGER

EMPLOYMENT HISTORY

- 1987 to date: Environmental Project Manager, metaTRACE, Inc.
- 1979 to 1987: Assistant Chemist, Peabody Coal Company

SUMMARY OF EXPERIENCE

As Environmental Project Manager, Ms. Martin is responsible for the day-to-day management of projects in the environmental area. She reports to the metaTRACE Environmental Program Manager and represents her clients' interests at metaTRACE. Ms. Martin brings extensive experience in environmental chemistry to her position at metaTRACE. She formerly worked as a chemist for Peabody Coal Company and is familiar with procedures, methods and instrumentation for the analysis of environmental samples. Her 7 years of experience and expertise includes the following:

- Experienced in handling laboratory instrumentation for ion, metal, mercury, sulfur, and other analytical determinations for coal, water, soil and trace samples. Responsible for interacting between sections of the Peabody Coal Company laboratory to optimize instrumentation usage, scheduling, and workloads.
- Coordinated acid rain analysis project for Peabody Coal Company in conjunction with Bituminous Coal Research and the National Coal Association. Responsible for analysis of rain samples, compilation of data, development of correlations and other statistical data from monitoring stations.
- Participated in various biological sampling and identification projects.
- Participated in national air pollution study in St. Louis for Harvard University (through Southern Illinois University-Edwardsville); responsibilities included monitoring air quality, sampling and analysis on SOx and NOx pollutants.

EDUCATION

M.S., Environmental Science, Southern Illinois University at Edwardsville, 1985.
B.A., Biology (minor: Chemistry), Southern Illinois University at Edwardsville, 1976.

RESUME: LARRY R. TAAKE
ENVIRONMENTAL PROJECT MANAGER

EMPLOYMENT HISTORY

- 1987 to date: Environmental Project Manager, metaTRACE, Inc.
- 1981 to 1987: Environmental Scientist, Peabody Coal Company, Illinois Division
- 1978 to 1981: Area Water Quality Coordinator, Peabody Coal Company, Illinois Division

SUMMARY OF EXPERIENCE

Mr. Taake brings nine years of technical and laboratory experience to his position of Environmental Project Manager at metaTRACE. He is responsible for initiating and implementing government and industrial contracts for analytical services. He manages projects to assure that all contractual, quality control, scheduling and cost objectives are met. He prepares final reports for clients and coordinates his projects with the laboratory manager, section managers and Project Managers to assure that both client and inhouse goals are achieved. His experience includes the following:

- As as Environmental Scientist for Peabody Coal Company, collected, analyzed and interpreted water quality data in accordance with applicable state and federal regulations. Included sampling, monitoring and reporting of baseline groundwater and stream monitoring systems. Processed data into report form and made available to regulatory authorities. Accompanied regulatory authorities on inspections and submitted follow up reports to management.
- Entered, retrieved, analyzed and graphically presented monitoring data through Water Quality Data Base System.
- Coordinated Peabody Coal, Illinois Division, RCRA hazardous waste, waste oil and PCB compliance programs. Included identifying and inventorying all chemicals at each mine site, completing hazardous waste manifests, and inventorying and testing electrical transformers.
- Coordinated and developed wildlife programs for Peabody Coal, Illinois Division.
- Project Supervisor, production well/pipeline project. Duties included coordinating contractors' site visits,

overseeing acquisition and timely arrival of materials, supervising installation of production well and associated pipelines, and ensuring project completion within contract limits.

- As Area Water Quality Coordinator for Peabody Coal, Illinois Division, responsibilities included field sampling, monitoring and reporting/coordinating of permitted and other mine related water discharge systems for southern Illinois and western Kentucky mining operations. Performed laboratory analyses for acidity/alkalinity, pH and total suspended solids.

EDUCATION

B.S., Zoology/Wildlife Management, Southern Illinois University - Carbondale, IL, 1978.

Post-graduate, Business Administration, John A. Logan College, Carterville, IL, 1981-82.